



Infinity Marine Consultants

LOADING MANUAL AND INTACT STABILITY INFORMATION

LIVESTOCK

IMO: 9141041

“OSAMA BEY”

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LIVESTOCK “OSAMA BEY”

 <p>Infinity Marine Consultants</p>	<p>Infinity Marine Consultants</p> <p>ADDRESS: 25 REDA STREET, ADAM BLDG. 4TH FLOOR, ISMAILIA-EGYPT</p> <p>TEL: +206431359104 CELL: +201033050011 EMAIL: info@infinity-marine.org WEBSITE: www.infinity-marine.org</p>												
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GENERAL PARTICULARS

VESSEL NAME		OSAMA BEY
PORT OF REGISTRY	BASSETERRE	
FLAG	SAINT KITTS AND NEVIS	
BUILDER	DETLEF HEGEMANN ROLANDWERFT GMBH & CO. KG, BERNE	
YEAR OF BUILD	1996	
MATERIAL OF HULL	STEEL	
TYPE OF VESSEL	LIVESTOCK	
MAXIMUM NUMBER OF PASSENGERS	-----	
MAXIMUM NUMBER OF CREW	35	
ALLOWED MAX. DECK CARGO	-----	
LENGTH OVERALL	118.02 M	
LENGTH BETWEEN PERPENDICULARS	110.04 M	
BREADTH MOULDED	19.40 M	
DEPTH AMIDSHIP	9.45 M	
DRAFT	7.60 M	

This stability booklet comprises part of the Vessel's data and must be kept on board the Boat at all times. It must be complete, legible and readily available for use. If this booklet should be lost or become unusable, a replacement copy must be obtained immediately. This handbook remains valid until revoked by a subsequent handbook or directive. The loading conditions shown in this booklet represent typical service conditions. It is emphasised that a separate calculation is necessary for all differing conditions of loading.

The Watertightness of All Openings and Bulkheads Is to be verified by Builder, Owner, Master and Maritime Inspection Department Surveyor.

DISCLAIMER: WHILE INFINITY MARINE CONSULTANTS (IMC) WORKS TO ENSURE THAT SAFE & RELIABLE STABILITY CALCULATION ACCORDING TO IMO CRITERIA, (IMC) IS NOT HELD RESPONSIBLE FOR ANY OMISSION, MISTAKE OR ERROR OF ANY PERSON IN CONTACT WITH THIS VESSEL.

OPERATING RESTRICTIONS

- The hydrostatics particulars are provided for the vessel at its design trim Conditions. When the actual trim of the Vessel is far from this design trim, the actual values of the hydrostatics particulars vary from those provided. This may result in the stability being over-estimated, every effort must therefore be made to keep the Vessel close to designed trim at all times.
- Before operating the vessel all the watertight hatches /openings must be remain watertight sealed.
- No tanks shall be filled exceeding the limits shown at the loading conditions.
- Any operating condition violating the loading conditions indicated in the stability booklet may cause a certain danger to the vessel and its safety.

UNIT CONVERSIONS

Multiply by	To convert from	To obtain	
0.039370	mm	inches	25.4
0.39370	cm	inches	2.54
3.2808	m	feet	0.3048
2.2046	KG	lbs	0.45359
0.00098421	KG	Tons (2240 lbs)	1016.0
0.98421	Tonnes (1000 KG)	Tons (2240 lbs)	1.016
2.4999	Tonnes per cm	Tons per inch	0.40002
8.2017	Tonnes metres units (MCTC)	Ton feet units (MCTI)	0.12193
187.98	Metre Radians	Foot Deg	0.0053198

RELATIONSHIPS BETWEEN WEIGHT AND VOLUME

1 cubic cm of fresh water (S.G. = 1.0) = 1 gram

1000 cubic cm of fresh water (S.G. 1 = 1.0) = 1 kg (1000grams)

1 cubic meter of fresh water (S.G. 1 = 1.0) = 1 tonnes (1000kg)

1 cubic meter of salt water (S.G. 1 = 1.025) = 1.025 tonnes (1025kg)

1 Tonne of salt water (S.G. 1 = 1.025) = 0.975 cubic metres

1 cubic metre = 35.316 cubic feet

1 cubic foot = 0.0283 cubic metres

TOLERANCE SETTINGS USED IN THE CALCULATIONS

The following tolerance settings were applied:

Ideal calculation precision

Displacement	0.01	%
Trim (LCG-LCB)	0.01	% of LBP
Heel (TCG-TCB)	0.01	% of LBP

FLUID DENSITIES IN USE

Fluid Type Nb	Fluid Name	Relative Density
1	Sea Water	1.025
2	Fresh Water	1.000
3	Diesel oil	0.840
4	Fuel oil	0.9443
5	Sewage	1.000
6	Slop	0.913

SYMBOLS

Symbol	Definition	Unit
MT,T	Metric Ton, 1,000 kg	-
Δ	Displacement	MT
V	Volume	M^3
KB,	Vertical Centre of Buoyancy (above baseline)	M
LCB	Longitudinal Centre of Buoyancy (from amidship)	M
LCG	Longitudinal Centre of Gravity (from amidship)	M
KG,	Vertical Centre of Gravity (above baseline)	M
LCF	Longitudinal Centre of Flotation (from amidships)	M
MCT	Moment to Change Trim 1 meter	Tons.m
ρ	Specific Gravity of liquid	Mt/m^3
GM	Transverse Metacentric Height Above Centre of Gravity	M
θ	Angle of Heel	Degrees
GZ	Righting Lever	M

II-EXAMPLES

DRAUGHTS CALCULATIONS

$$t = \text{Disp.} * (L_{CB} - L_{CG}) / MT_1 * 100 . \text{ (m).}$$

$$d_f = d_{LCF} - t * (L_{BP} - L_{CF}) / L_{BP} . \text{ (m)}$$

$$d_a = d_f + t . \text{ (m).}$$

$$d_m = (d_a + d_f) / 2 \text{ (m).}$$

Note: -

t	Trim.
L _{CB}	Longitudinal center of buoyancy.
d _{LCF}	Draught at FP center of floatation.
L _{CF}	Longitudinal center of floatation from AP.
d _f	Draught at FP.
d _a	Draught at AP.
d _m	Mean of d _f and d _a .
MT ₁	Moment to change trim one (1) centimeter.

Example: -

Having the displacement of 11150 Tons, and estimated L_{CG} = 55.516 m

From the hydrostatic calculations at Zero trim: - L_{CB} = 59.971 m L_{CF} = 59.973 m MT₁ = 406.766 m d_{LCF} = 2.7 m

$$t = \text{Disp.} * (L_{CB} - L_{CG}) / MT_1 * 100 = 1.22 \text{ m.}$$

$$d_f = d_{LCF} - t * (L_{BP} - L_{CF}) / L_{BP} = 2.70 \text{ m.}$$

$$d_a = d_f + t = 3.92 \text{ m.}$$

$$d_m = (d_a + d_f) / 2 = 3.31 \text{ m}$$

CALCULATING GM

$$GG' = \text{Total FSM} / \text{Disp.} \text{ (m)}$$

$$GM = KM - KG - GG'. \text{ (m)}$$

$$KG' = KG + GG'. \text{ (m).}$$

Note: -

GG'	Rise of apparent vertical center of gravity.
GM'	Metacentric height with correction for free surface.
KM	Transverse metacentric above Baseline.
KG (VCG)	Ships center of gravity from Baseline.
KG'	Free Surface corrected KG.

Example: -

Having the displacement of 11150 Tons, and estimated KG = 5.69 m

From Load cases with Displacement of 11150 Tons, total FSM = 22918.56

From Trimmed Hydrostatic tables with trim of 1.2 m KM = 32.05

$$GG' = \text{Total FSM} / \text{Disp.} = 2.06 \text{ m}$$

$$GM = KM - KG - GG'. = 24.305 \text{ m}$$

$$KG' = KG + GG'. = 7.75 \text{ m}$$

EXAMPLE SHOWING THE USE OF CROSS CURVES

The purpose for the cross curves (or stability curves) is to enable the statical stability curves to be drawn in any sailing condition.

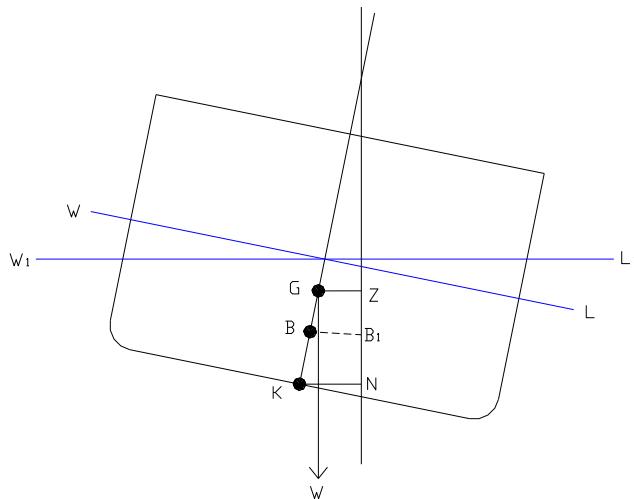
It is important to note that on the original Cross Curves the KG assumed was not found, therefore no correction was applied.

To obtain the righting levers for a particular displacement and KG the values of KN are first obtained by inspection at the volume concerned (i.e. displacement concerned). The correct righting levers are then obtained by subtracting from the KN values a correction equal to the product of the KG and sin Heel as shown in the following formula:

Righting Lever GZ

$$GZ = KN - KG \sin \theta$$

[m]



II- IMO CRITERIA

Statutory Documents - IMO Publications and Documents - International Codes - Intact Stability (IS) Code - Intact Stability for All Types of Ships Covered by IMO Instruments – Resolution A.749(18) - Annex - Code on Intact Stability for all Types of Ships Covered by IMO Instruments - Chapter 3 - Design Criteria Applicable to All Ships - 3.1 General intact stability criteria for all ships.

3.1 GENERAL INTACT STABILITY CRITERIA FOR ALL SHIPS

3.1.1 Scope:

The following criteria are recommended for passenger and cargo ships.

3.1.2 Recommended general criteria:

3.1.2.1 The area under the righting lever curve (GZ curve) should not be less than 0.055 metre-radians up to $\theta = 30^\circ$ angle of heel and not less than 0.09 metre-radians up to $\theta = 40^\circ$ or the angle of downflooding θ_f footnote if this angle is less than 40° . Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of 30° and 40° or between 30° and θ_f , if this angle is less than 40° , should not be less than 0.03 metre-radians.

3.1.2.2 The righting lever GZ should be at least 0.20 m at an angle of heel equal to or greater than 30° .

3.1.2.3 The maximum righting arm should occur at an angle of heel preferably exceeding 30° but not less than 25° .

3.1.2.4 The initial metacentric height GM_0 should not be less than 0.15 m.

3.1.2.7 Where anti-rolling devices are installed in a ship, the Administration should be satisfied that the above criteria can be maintained when the devices are in operation.

3.1.2.8 A number of influences such as beam wind on ships with large windage area, icing of topsides, water trapped on deck, rolling characteristics, following seas, etc., adversely affect stability and the administration is advised to take these into account, so far as is deemed necessary.

3.1.2.9 Provisions should be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those due to absorption of water and icing (details regarding ice accretion are given in chapter 5) and to losses of weight such as those due to consumption of fuel and stores.

3.1.2.10 For ships carrying oil-based pollutants in bulk, the Administration should be satisfied that the criteria given in 3.1.2 can be maintained during all loading and ballasting operations.

3.1.2.11 See also general recommendations of an operational nature given in [section 2.5](#) above.

3.2 SEVERE WIND AND ROLLING CRITERION (WEATHER CRITERION).

3.2.1 Scope:

This criterion supplements the stability criteria given in [section 3.1](#). The more stringent criteria of [section 3.1](#) given above and the weather criterion should govern the minimum requirements for passenger or cargo ships of 24 m in length and over.

3.2.2 Recommended weather criterion:

3.2.2.1 The ability of a ship to withstand the combined effects of beam wind and rolling should be demonstrated for each standard condition of loading, with reference to the [figure](#) as follows:

- .1 the ship is subjected to a steady wind pressure acting perpendicular to the ship's centreline which results in a steady wind heeling level ($1w_1$);
- .2 from the resultant angle of equilibrium (θ_0), the ship is assumed to roll owing to wave action to an angle of roll (θ_1) to windward. Attention should be paid to the effect of steady wind so that excessive resultant angles of heel are avoided; [footnote](#)
- .3 the ship is then subjected to a gust wind pressure which results in a gust wind heeling lever ($1w_2$);
- .4 under these circumstances, area "b" should be equal to or greater than area "a";
- .5 free surface effects ([section 3.3](#)) should be accounted for in the standard conditions of loading as set out in [section 3.5](#);

The angles in the above [figure](#) are defined as follows:

θ_0 = angle of heel under action of steady wind (see [3.2.2.1.2](#) and footnote [footnote](#))

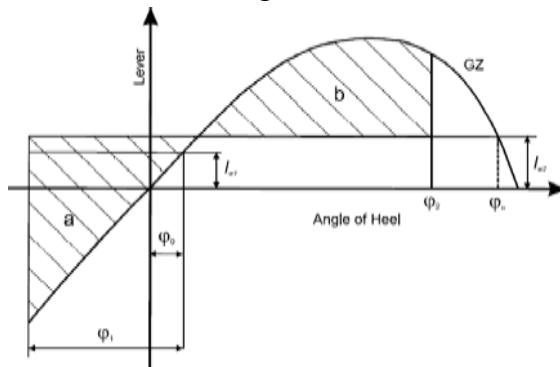
θ_1 = angle of roll to windward due to wave action

θ_2 = angle of downflooding (θ_f) or 50° or θ_c , whichever is less,

where:

θ_f = angle of heel at which openings in the hull, superstructures or deckhouses which cannot be closed weathertight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

θ_c = angle of second intercept between wind heeling lever lw_2 and GZ curves.



3.2.2.2 The wind heeling levers lw_1 and lw_2 referred to in [3.2.2.1.1](#) and [3.2.2.1.3](#) are constant values at all angles of inclination and should be calculated as follows:

$$lw_1 = \frac{PAZ}{1000g\Delta} \text{ (m)} \quad \text{and}$$

$$lw_2 = 1.5 lw_1 \text{ (m)}$$

where:

- P** = wind pressure of 504 Pa. The value of P used for ships in restricted service may be reduced subject to the approval of the Administration;
- A** = projected lateral area of the portion of the ship and deck cargo above the waterline (m^2);
- Z** = vertical distance from the center of A to the center of the underwater lateral area or approximately to a point at one half the mean draught (m);
- Δ** = displacement (t)
- g** = gravitational acceleration of 9.81 m/s^2

3.2.2.3 The angle of roll (θ_1)[footnote](#) referred to in [3.2.2.1.2](#) should be calculated as follows:

$$\theta_1 = 109kX_1X_2\sqrt{rs} \text{ (degrees)}$$

where:

- X₁** = factor as shown in [table 1](#)
- X₂** = factor as shown in [table 2](#)
- k** = factor as follows:
 - k** = 1.0 for round-bilged ship having no bilge or bar keels
 - k** = 0.7 for a ship having sharp bilges
 - k** = as shown in [table 3](#) for a ship having bilge keels, a bar keel or both

$$r = 0.73 \pm 0.6 OG/d$$

with:

- OG** = distance between the center of gravity and the waterline (m) (+ if center of gravity is above the waterline, - if it is below)
- d** = mean moulded draught of the ship (m)
- s** = factor as shown in [table 4](#).

Table 1 Values of factor X₁

B/d	≤ 2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.4	≥ 3.5
X ₁	1	0.98	0.96	0.95	0.93	0.91	0.90	0.88	0.86	0.82	0.80

Table 2 Values of factor X₂

C _B	≤ 0.45	0.50	0.55	0.60	0.65	≥ 0.70
X ₂	0.75	0.82	0.89	0.95	0.97	1.00

Table 3 Values of factor k

$\frac{A_k * 100}{L_{wl} * B}$	0	1.0	1.5	2.0	2.5	3.0	3.5	≥ 4.0
k	1	0.98	0.95	0.88	0.79	0.74	0.72	0.70

Table 4 Values of factor s

T	≤ 6	7	8	12	14	16	18	≥ 20
s	0.100	0.098	0.093	0.065	0.053	0.044	0.038	0.035

(Intermediate values in tables 1-4 should be obtained by linear interpolation.)

$$\text{Rolling period } T = \frac{2CB}{\sqrt{GM}} \text{ (seconds)}$$

where:

$$C = 0.373 + 0.023(B/d) - 0.043(L/100).$$

The symbols in the above tables and formula for the rolling period are defined as follows:

L = length of the ship at waterline (m)

B = moulded breadth of the ship (m)

d = mean moulded draught of the ship (m)

C_B = block coefficient

A_k = total overall area of bilge keels, or area of the lateral projection of the bar keel, or sum of these areas (m²)

GM = metacentric height corrected for free surface effect (m).

3.3 APPLIED LIVE STOCK STABILITY CRITERIA

Schedule 1 Stability criteria for livestock carriers

(paragraph 11(1)(a))

Part 1 Effects of shift and wind

The effects of the shift of livestock and fodder and the effect of wind are to be taken into account in the following manner.

1.1 Shift of livestock criteria

- (1) The heeling lever due to the shift of livestock at 0° is:

$$\frac{\text{Average mass of livestock carried} \times \text{livestock shift constant}}{\text{floor area per head of livestock} \times \text{displacement}}$$

where:

average mass of livestock carried means the average mass of livestock to be carried on the intended voyage.

floor area per head of livestock means the floor area required per head of average mass of the livestock to be carried on the intended voyage.

livestock shift constant is:

$$\frac{\sum [\text{length of each pen} \times (\text{breadth of each pen})^2]}{6}$$

- (2) For a vessel with uniform breadth of pens, the livestock shift constant is:

$$\frac{\text{breadth of pen} \times \text{total floor area of pens}}{6}$$

- (3) For a vessel with varying breadths of pens, the largest breadth may be used:

$$\frac{\text{largest breadth of pen} \times \text{total floor area of pens}}{6}$$

- (4) The heeling lever due to the shift of livestock at 40° is:

$$0.8 \times \text{heeling lever due to the shift of livestock at } 0^\circ.$$

- (5) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40° .

1.2 Shift of fodder criteria

- (1) The heeling lever due to the shift of fodder in pellet form carried in bulk at 0° is:

$$\frac{\text{total shift moment of fodder}}{\text{stowage factor of fodder} \times \text{displacement}}$$

where total shift moment means the sum of the shift moment of each compartment calculated as follows:

$$0.044 \times l \times b^3$$

where:

b is the maximum breadth of the compartment.

l is the maximum length of the compartment.

- (2) Volumetric shift moments may be worked out the total shift moment of fodder, assuming the surface to be at:
 - (a) for a full compartment — 15° to the horizontal; or
 - (b) for a partly filled compartment — 25° to the horizontal.
- (3) The heeling lever due to the shift of fodder in pellet form carried in bulk at 40° is:

$$0.8 \times \text{heeling lever due to the shift of fodder at } 0^\circ.$$
- (4) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40° .

1.3 Effect of wind criteria

- (1) The heeling lever due to the effect of wind at 0° is:

$$\frac{\text{PAH}}{\text{displacement}}$$

where:

P (wind pressure) is 0.05 tonnes/m².

A is the lateral area of the vessel above the waterline, in m².

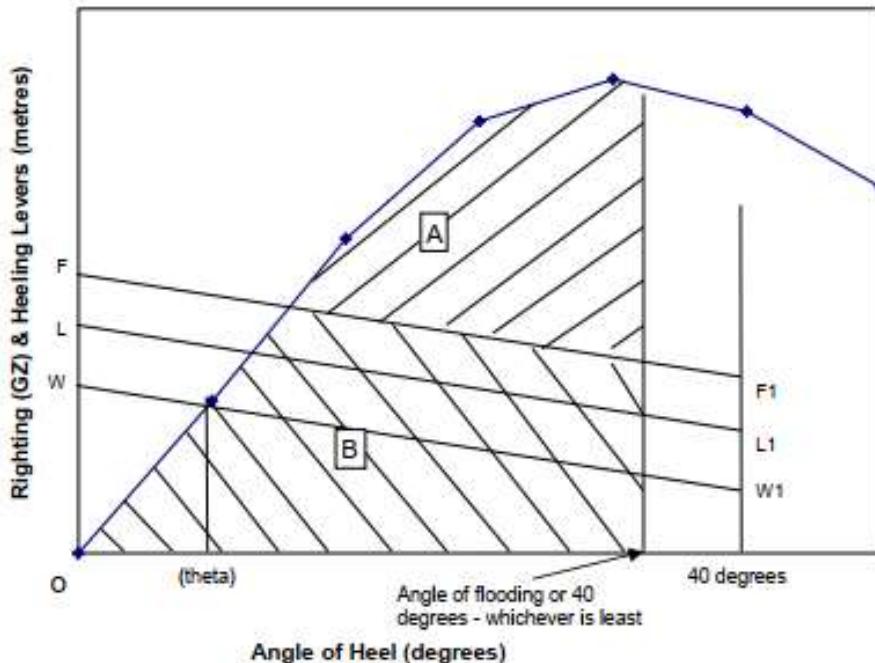
H is the vertical distance between the centroid of the lateral area of the vessel above the waterline and the centroid of the vessel's underwater lateral area.

Note For many vessels the vertical position of the centroid of the underwater lateral area may be taken at half the draft to the underside of the keel at amidships.

- (2) The heeling lever due to the effect of wind at 40° is:

$$0.8 \times \text{heeling lever due to the effect of wind at } 0^\circ.$$
- (3) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40° .

1.4 Illustration of stability requirements



where:

FF₁ is the heeling lever curve due to the combined effects of wind and the shift of livestock and fodder.

LF is the heeling lever at 0° due to the effect of shift of fodder.

LL₁ is the heeling lever curve due to the combined effects of the wind and the shift of livestock.

WL is the heeling lever at 0° due to the shift of livestock.

WW₁ is the heeling lever curve due to wind.

OW is the heeling lever at 0° due to wind.

θ is the angle of heel due to wind.

Note If fodder is not pellet feed carried in bulk, the heeling lever due to shift of fodder will be zero.

Part 2 Information to be provided on vessel

2.1 Livestock shift constant

The livestock shift constant is to be determined for all conditions of pen utilisation that may arise in practice, unless the maximum value is used for all calculations.

Note The livestock shift constant will vary for different configurations of pen utilisation eg. the constant will vary depending on the species of livestock carried.

2.2 Heeling moment for fodder

The heeling moment for fodder must be provided by either:

- (a) determining separately the heeling moment for each compartment; or
- (b) determining the greatest heeling moment for all compartments added together.

Note The greatest heeling moment for all compartments added together is also the total heeling moment for the worst condition of stability.

2.3 Wind effect

For subclause 1.3(1):

- (a) A and H will vary with the draft of the vessel; and
- (b) either:
 - (i) their values must be given for the range of drafts that may occur in practice; or
 - (ii) the heeling lever due to the effect of wind at 0° may be given in tabular or graphical form.

Part 3 Example

3.1 Purpose of Part

- (1) This Part provides an example of calculations to demonstrate compliance with subsection 11(1).
- (2) Other methods for demonstrating compliance may be used.

3.2 Information required

Item	Information	Symbol	Source
1	Livestock shift constant	C	Vessel's information
2	Average mass of livestock per animal	m	Shipper's declaration
3	Floor area per animal	f	Table for species in ASEL
4	Fodder heeling moment	F	Vessel's information
5	Stowage factor of fodder	S	Fodder supplier's declaration
6	Wind pressure	P	0.05 tonnes/m ²
7	Lateral area of the vessel above the waterline	A	Vessel's information
8	Vertical separation of centroids	H	Vessel's information
9	Displacement	D	Vessel's information
10	GM	GM	Vessel's information

3.3 Calculation

- (1) Livestock:

$$\text{Heeling lever at } 0^\circ = \frac{m \times C}{f \times D} = Z$$

- (2) Fodder:

$$\text{Heeling lever at } 0^\circ = \frac{F}{S \times D} = Y$$

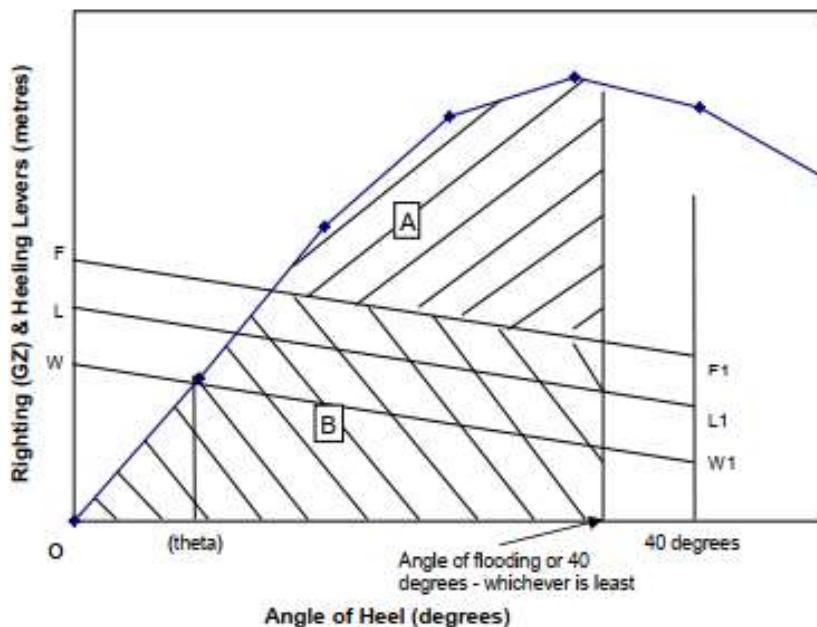
- (3) Wind:

$$\text{Heeling lever at } 0^\circ = \frac{0.05 \times A \times H}{D} = X$$

- (4) Angle of heel due to wind:

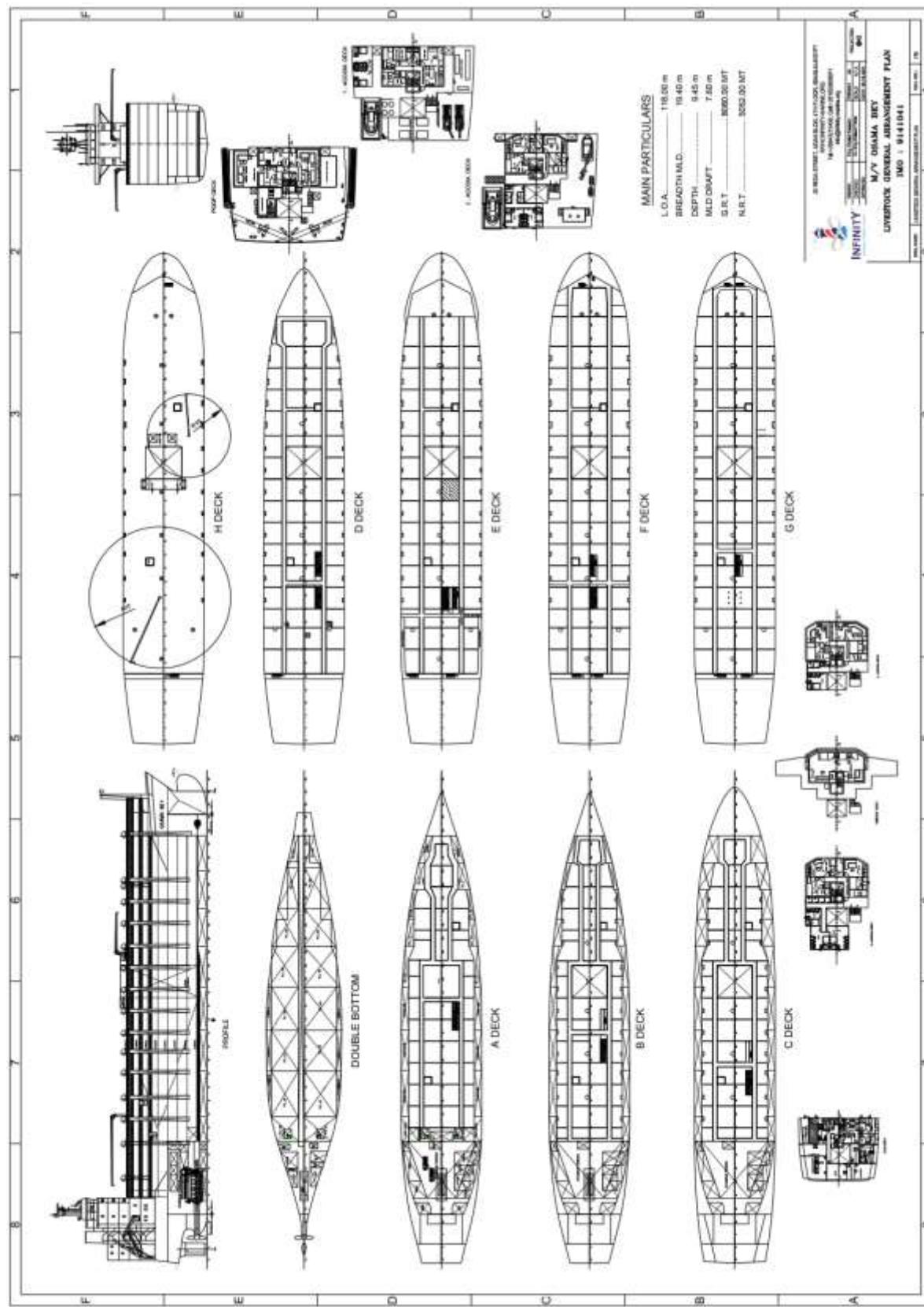
$$\text{Angle of heel} = \frac{X}{GM} \times 57.3 = Q$$

3.4 Comparison with stability criteria



- (1) Check that area under righting lever curve is at least:
 - (a) 3.15 metre-degrees up to 30° angle of heel; and
 - (b) 5.16 metre-degrees up to 40° angle of heel, or angle of flooding if this angle is less than 40° .
- (2) Check that area under righting lever curve between the angles of heel of 30° and 40° , or, if this angle is less than 40° , between 30° and angle of flooding, is at least 1.72 metre-degrees.
- (3) Check that righting lever GZ is at least 0.20 metres at an angle of heel of at least 30° .
- (4) Check that maximum righting lever occurs at an angle of heel of at least 25° .
- (5) Check that initial metacentric height GM is at least 0.15 m.
- (6) Check that angle of heel due to wind effect is not more than 10° .
- (7) Check that area A is at least [1.03 metre-degrees + 0.2 area (A+B)].

VI-GENERAL ARRANGEMENT



Hydrostatics Data

Hydrostatics is measured from the following data:

- Draught; From top of the keel plate measured at midship.
- Longitudinally; From the Aft Perpendicular (center of rudder stock) (+ve forward).
- Transversely; From the ship's centerline (+ve to starboard).
- Vertically; From ships keel (+ve upward)

Index of Hydrostatic Tables by Trim Value

Hull hydrostatics for Moulded Draught, trim = 0.000 m and S.G. = 1.025t/m ³	20
Hull hydrostatics for Moulded Draught, trim = 0.500 m and S.G. = 1.025t/m ³	22
Hull hydrostatics for Moulded Draught, trim = 1.000 m and S.G. = 1.025t/m ³	24
Hull hydrostatics for Moulded Draught, trim = 1.500 m and S.G. = 1.025t/m ³	26
Hull hydrostatics for Moulded Draught, trim = 2.000 m and S.G. = 1.025t/m ³	28
Hull hydrostatics for Moulded Draught, trim = -0.500 m and S.G. = 1.025t/m ³	30
Hull hydrostatics for Moulded Draught, trim = -1.000 m and S.G. = 1.025t/m ³	32
Hull hydrostatics for Moulded Draught, trim = -1.500 m and S.G. = 1.025t/m ³	34
Hull hydrostatics for Moulded Draught, trim = -2.000 m and S.G. = 1.025t/m ³	36

Fixed Trim = 0.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

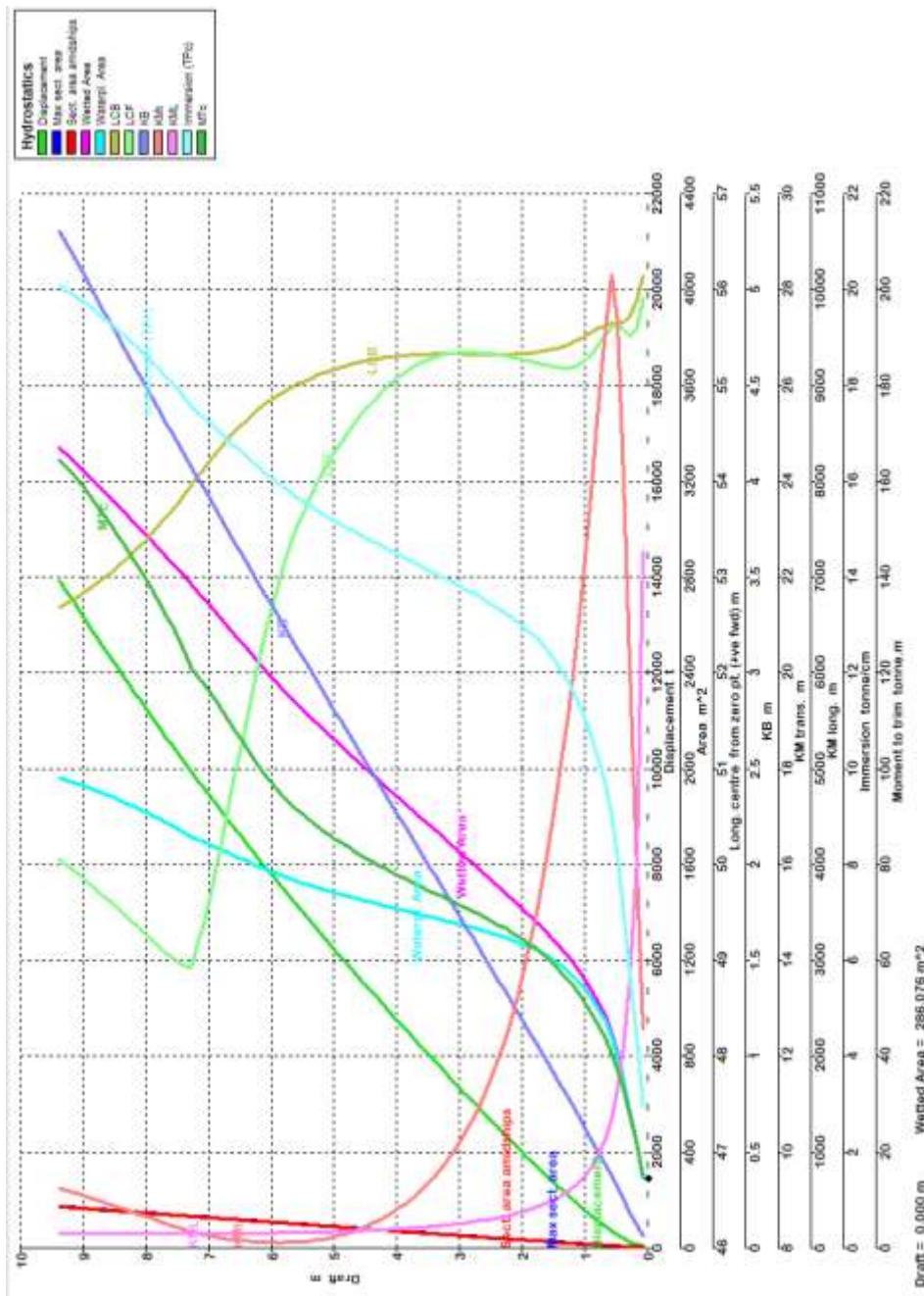
Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMT, m	BML, m	GML, m	KMT, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m	
0.10	22.11	99.84	284.49	0.73	0.54	0.75	56.13	55.90	0.06	7.79	12.47	7248.45	4.74	7240.71	12.53	7248.50	2.92	14.58
0.20	58.34	101.37	423.20	0.71	0.46	0.66	55.88	55.59	0.12	7.79	15.70	4045.71	8.02	4038.03	15.81	4045.82	4.34	21.45
0.30	108.80	102.44	559.09	0.69	0.42	0.61	55.71	55.51	0.18	7.79	19.96	2796.81	12.35	2789.20	20.14	2796.99	5.73	27.62
0.40	172.50	103.24	682.46	0.68	0.40	0.59	55.65	55.58	0.24	7.79	23.75	2090.63	16.21	2083.08	24.00	2090.87	7.00	32.72
0.50	248.30	103.87	793.37	0.66	0.38	0.57	55.64	55.63	0.31	7.79	27.00	1642.20	19.51	1634.71	27.30	1642.50	8.13	36.96
0.60	334.30	104.42	879.78	0.64	0.37	0.58	55.63	55.61	0.37	7.79	27.91	1336.99	20.49	1329.56	28.28	1337.35	9.02	40.47
0.70	427.80	104.92	941.93	0.63	0.38	0.60	55.62	55.51	0.43	7.79	26.71	1123.00	19.35	1115.64	27.14	1123.43	9.66	43.46
0.80	527.00	105.39	991.34	0.62	0.39	0.63	55.59	55.41	0.49	7.79	25.07	967.87	17.77	960.57	25.56	968.36	10.16	46.10
0.90	630.80	105.83	1033.10	0.62	0.40	0.65	55.55	55.32	0.55	7.79	23.48	850.71	16.24	843.47	24.03	851.26	10.59	48.45
1.00	738.50	106.22	1068.87	0.61	0.41	0.67	55.51	55.25	0.61	7.79	21.99	758.96	14.81	751.77	22.60	759.56	10.96	50.56
1.10	849.70	106.58	1100.01	0.61	0.42	0.69	55.48	55.22	0.67	7.79	20.65	684.79	13.52	677.66	21.31	685.45	11.28	52.44
1.20	963.90	106.92	1127.50	0.61	0.43	0.71	55.44	55.19	0.72	7.79	19.42	624.46	12.35	617.40	20.14	625.19	11.56	54.19
1.30	1081.00	107.24	1151.77	0.61	0.44	0.72	55.41	55.18	0.78	7.79	18.29	573.92	11.28	566.91	19.07	574.70	11.81	55.80
1.40	1200.00	107.54	1173.57	0.61	0.44	0.73	55.39	55.17	0.84	7.79	17.27	531.26	10.31	524.30	18.10	532.09	12.03	57.29
1.50	1321.00	107.82	1193.03	0.61	0.45	0.74	55.37	55.18	0.89	7.79	16.32	494.62	9.43	487.72	17.22	495.51	12.23	58.68
1.60	1444.00	108.08	1210.33	0.61	0.46	0.75	55.36	55.19	0.95	7.79	15.46	462.47	8.62	455.63	16.41	463.42	12.41	59.93
1.70	1569.00	108.32	1225.93	0.61	0.46	0.76	55.34	55.21	1.01	7.79	14.66	434.47	7.87	427.69	15.66	435.48	12.57	61.12
1.80	1696.00	108.54	1239.56	0.61	0.47	0.77	55.33	55.23	1.06	7.79	13.91	409.56	7.18	402.83	14.97	410.62	12.71	62.20
1.90	1823.00	108.72	1251.32	0.61	0.48	0.78	55.33	55.24	1.12	7.79	13.20	387.13	6.53	380.45	14.32	388.24	12.83	63.17
2.00	1952.00	108.88	1262.19	0.61	0.48	0.79	55.32	55.26	1.17	7.79	12.56	367.02	5.95	360.40	13.74	368.19	12.94	64.07
2.10	2082.00	109.01	1272.27	0.61	0.49	0.80	55.32	55.27	1.23	7.79	11.98	348.87	5.42	342.30	13.21	350.09	13.04	64.90
2.20	2213.00	109.12	1281.83	0.61	0.49	0.81	55.32	55.28	1.28	7.79	11.46	332.58	4.95	326.07	12.74	333.86	13.14	65.71
2.30	2345.00	109.22	1290.85	0.61	0.50	0.81	55.31	55.30	1.34	7.79	10.98	317.80	4.52	311.34	12.31	319.13	13.23	66.48
2.40	2478.00	109.29	1299.44	0.62	0.50	0.82	55.31	55.31	1.39	7.79	10.53	304.36	4.13	297.96	11.92	305.75	13.32	67.23
2.50	2611.00	109.36	1307.64	0.62	0.51	0.82	55.31	55.32	1.44	7.79	10.13	292.07	3.78	285.72	11.57	293.51	13.40	67.94

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
2.60	2746.00	109.42	1315.52	0.62	0.51	0.83	55.31	55.33	1.50	7.79	9.75	280.79	3.46	274.50	11.25	282.29	13.48	68.63
2.70	2881.00	109.46	1323.06	0.62	0.52	0.83	55.32	55.33	1.55	7.79	9.41	270.37	3.17	264.13	10.96	271.92	13.56	69.29
2.80	3017.00	109.49	1330.41	0.62	0.52	0.84	55.32	55.33	1.61	7.79	9.09	260.82	2.91	254.63	10.70	262.42	13.64	69.96
2.90	3154.00	109.46	1337.45	0.62	0.53	0.84	55.32	55.33	1.66	7.79	8.79	251.92	2.66	245.79	10.45	253.58	13.71	70.59
3.00	3291.00	109.13	1344.31	0.63	0.53	0.85	55.32	55.33	1.71	7.79	8.51	243.66	2.44	237.59	10.23	245.38	13.78	71.20
3.10	3429.00	109.01	1350.99	0.63	0.54	0.85	55.32	55.33	1.77	7.79	8.25	235.97	2.23	229.95	10.02	237.74	13.85	71.81
3.20	3568.00	108.89	1357.56	0.63	0.54	0.86	55.32	55.32	1.82	7.79	8.01	228.82	2.04	222.85	9.83	230.64	13.92	72.41
3.30	3708.00	108.81	1364.18	0.63	0.54	0.86	55.32	55.31	1.88	7.79	7.79	222.25	1.87	216.34	9.66	224.13	13.98	73.04
3.40	3848.00	108.76	1370.75	0.63	0.55	0.86	55.32	55.29	1.93	7.79	7.58	216.13	1.72	210.26	9.51	218.05	14.05	73.67
3.50	3989.00	108.71	1377.11	0.64	0.55	0.87	55.32	55.26	1.98	7.79	7.38	210.24	1.57	204.44	9.36	212.23	14.12	74.25
3.60	4130.00	108.71	1383.59	0.64	0.55	0.87	55.31	55.24	2.04	7.79	7.19	204.88	1.44	199.13	9.23	206.92	14.18	74.89
3.70	4272.00	108.73	1390.03	0.64	0.56	0.87	55.31	55.20	2.09	7.79	7.02	199.83	1.32	194.13	9.11	201.92	14.25	75.53
3.80	4415.00	108.77	1396.47	0.64	0.56	0.87	55.31	55.17	2.14	7.79	6.85	195.11	1.20	189.46	8.99	197.25	14.31	76.17
3.90	4559.00	108.81	1402.92	0.64	0.56	0.88	55.30	55.12	2.20	7.79	6.69	190.67	1.10	185.08	8.89	192.87	14.38	76.83
4.00	4703.00	108.86	1409.40	0.64	0.56	0.88	55.29	55.08	2.25	7.79	6.55	186.50	1.01	180.96	8.80	188.75	14.45	77.49
4.10	4847.00	108.90	1415.91	0.64	0.57	0.88	55.29	55.02	2.31	7.79	6.41	182.58	0.92	177.10	8.71	184.89	14.51	78.17
4.20	4993.00	108.94	1422.48	0.65	0.57	0.88	55.28	54.96	2.36	7.79	6.27	178.90	0.84	173.46	8.63	181.25	14.58	78.87
4.30	5139.00	108.98	1429.10	0.65	0.57	0.88	55.27	54.90	2.41	7.79	6.15	175.43	0.77	170.05	8.56	177.84	14.65	79.58
4.40	5286.00	109.03	1435.78	0.65	0.57	0.89	55.26	54.83	2.47	7.79	6.03	172.17	0.70	166.84	8.49	174.63	14.72	80.31
4.50	5433.00	109.07	1442.54	0.65	0.58	0.89	55.25	54.76	2.52	7.79	5.92	169.09	0.65	163.82	8.44	171.61	14.79	81.06
4.60	5582.00	109.12	1449.36	0.65	0.58	0.89	55.23	54.68	2.57	7.79	5.81	166.20	0.59	160.98	8.38	168.77	14.86	81.82
4.70	5731.00	109.18	1456.27	0.65	0.58	0.89	55.22	54.59	2.63	7.79	5.71	163.47	0.54	158.31	8.33	166.10	14.93	82.61
4.80	5880.00	109.24	1463.25	0.65	0.58	0.89	55.20	54.50	2.68	7.79	5.61	160.89	0.50	155.79	8.29	163.58	15.00	83.42
4.90	6031.00	109.30	1470.33	0.65	0.59	0.90	55.18	54.41	2.74	7.79	5.52	158.47	0.46	153.41	8.25	161.20	15.07	84.25
5.00	6182.00	109.38	1477.52	0.65	0.59	0.90	55.16	54.31	2.79	7.79	5.43	156.19	0.43	151.19	8.22	158.98	15.15	85.11
5.10	6333.00	109.46	1484.86	0.66	0.59	0.90	55.14	54.20	2.84	7.79	5.34	154.05	0.40	149.10	8.19	156.89	15.22	86.00
5.20	6486.00	109.56	1492.31	0.66	0.59	0.90	55.11	54.09	2.90	7.79	5.27	152.03	0.37	147.14	8.16	154.93	15.30	86.91

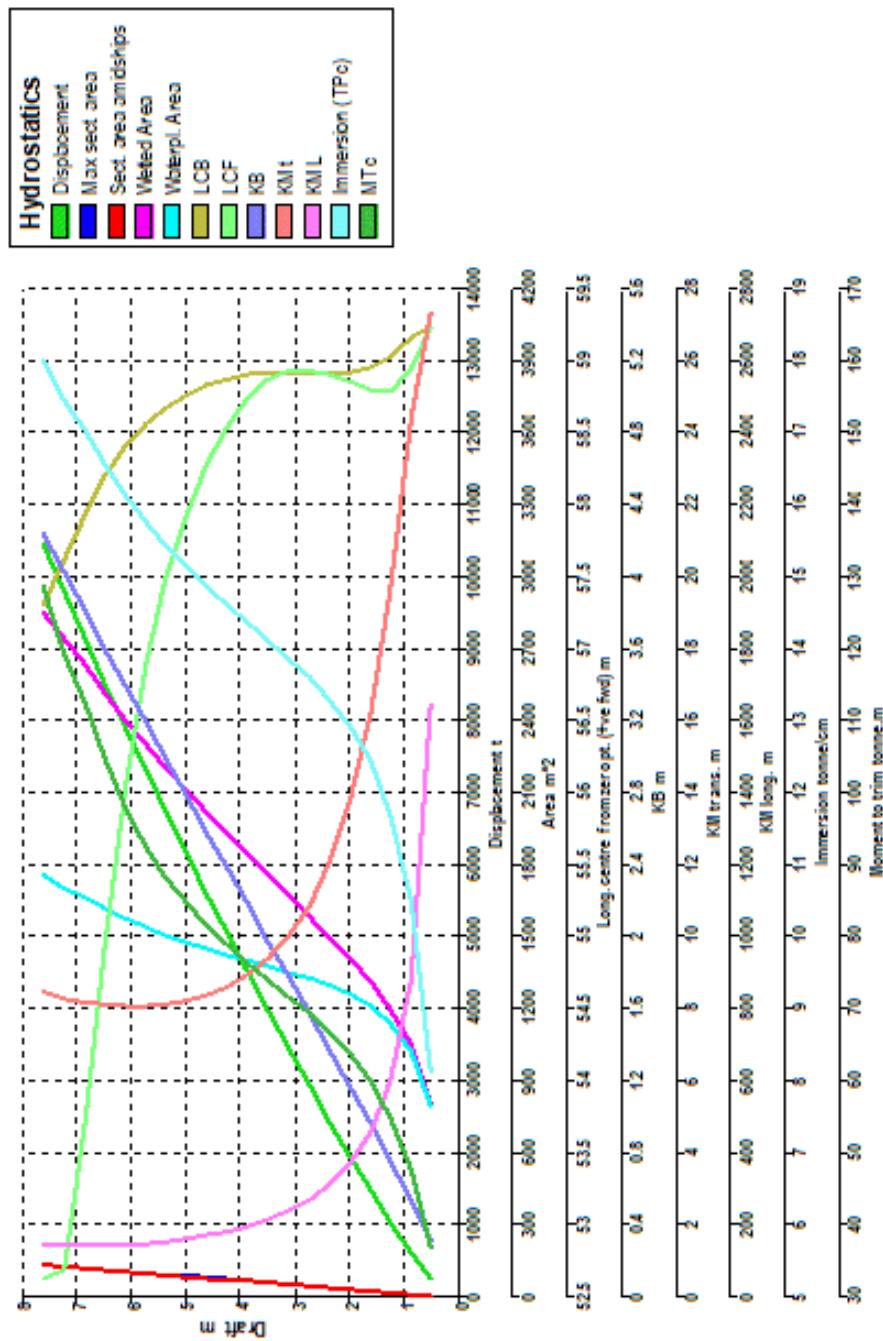
Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
5.30	6639.00	109.68	1499.91	0.66	0.59	0.90	55.09	53.97	2.95	7.79	5.19	150.14	0.35	145.30	8.14	153.09	15.37	87.85
5.40	6794.00	109.81	1507.94	0.66	0.59	0.90	55.06	53.83	3.01	7.79	5.12	148.47	0.34	143.69	8.13	151.48	15.46	88.89
5.50	6949.00	109.97	1516.08	0.66	0.59	0.90	55.03	53.69	3.06	7.79	5.05	146.88	0.32	142.16	8.11	149.95	15.54	89.95
5.60	7104.00	110.16	1524.35	0.66	0.60	0.91	55.00	53.53	3.12	7.79	4.98	145.38	0.31	140.71	8.10	148.50	15.63	91.03
5.70	7261.00	110.45	1533.10	0.66	0.60	0.91	54.97	53.36	3.17	7.79	4.92	144.10	0.30	139.48	8.09	147.27	15.71	92.22
5.80	7419.00	110.92	1542.18	0.66	0.60	0.91	54.93	53.17	3.23	7.79	4.86	142.95	0.30	138.39	8.09	146.18	15.81	93.49
5.90	7577.00	111.40	1551.92	0.66	0.60	0.91	54.89	52.96	3.28	7.79	4.81	142.06	0.30	137.55	8.09	145.34	15.91	94.91
6.00	7737.00	112.06	1562.26	0.65	0.59	0.91	54.85	52.71	3.34	7.79	4.75	141.39	0.30	136.93	8.09	144.72	16.01	96.48
6.10	7898.00	112.66	1573.04	0.65	0.59	0.91	54.81	52.45	3.39	7.79	4.70	140.88	0.30	136.48	8.09	144.27	16.12	98.15
6.20	8059.00	113.42	1584.20	0.65	0.59	0.91	54.76	52.16	3.45	7.79	4.65	140.51	0.31	136.17	8.10	143.96	16.24	99.93
6.30	8222.00	114.06	1595.64	0.65	0.59	0.91	54.70	51.87	3.50	7.79	4.61	140.24	0.32	135.96	8.11	143.75	16.36	101.80
6.40	8387.00	114.66	1607.16	0.64	0.59	0.91	54.64	51.56	3.56	7.79	4.56	140.01	0.33	135.78	8.12	143.57	16.47	103.70
6.50	8552.00	115.38	1618.81	0.64	0.59	0.91	54.58	51.25	3.61	7.79	4.52	139.84	0.34	135.66	8.13	143.45	16.59	105.65
6.60	8718.00	116.00	1630.64	0.64	0.59	0.91	54.51	50.93	3.67	7.79	4.47	139.72	0.35	135.60	8.14	143.39	16.71	107.65
6.70	8886.00	116.76	1642.72	0.64	0.58	0.91	54.44	50.60	3.73	7.79	4.43	139.68	0.37	135.61	8.16	143.40	16.84	109.74
6.80	9055.00	116.79	1654.76	0.64	0.59	0.92	54.37	50.27	3.78	7.79	4.39	139.61	0.39	135.60	8.18	143.39	16.96	111.82
6.90	9225.00	116.67	1666.24	0.64	0.59	0.92	54.29	49.97	3.84	7.79	4.36	139.36	0.41	135.41	8.20	143.20	17.08	113.76
7.00	9397.00	116.52	1677.14	0.64	0.59	0.92	54.21	49.68	3.90	7.79	4.32	138.91	0.43	135.01	8.22	142.80	17.19	115.53
7.10	9569.00	116.28	1687.95	0.65	0.59	0.92	54.12	49.40	3.95	7.79	4.29	138.42	0.45	134.58	8.24	142.37	17.30	117.27
7.20	9743.00	113.44	1698.99	0.67	0.61	0.92	54.04	49.15	4.01	7.79	4.26	138.05	0.48	134.27	8.27	142.06	17.42	119.13
7.30	9918.00	113.43	1709.61	0.67	0.61	0.92	53.95	48.92	4.07	7.79	4.23	137.59	0.51	133.86	8.30	141.65	17.52	120.90
7.40	10094.00	113.42	1726.22	0.67	0.61	0.92	53.86	48.92	4.12	7.79	4.22	138.43	0.55	134.77	8.34	142.56	17.69	123.87
7.50	10272.00	113.42	1742.32	0.67	0.62	0.92	53.78	48.96	4.18	7.79	4.21	139.10	0.60	135.50	8.39	143.29	17.86	126.74
7.60	10451.00	113.41	1757.09	0.67	0.62	0.92	53.70	49.02	4.24	7.79	4.20	139.42	0.65	135.87	8.44	143.66	18.01	129.31
7.70	10632.00	113.41	1771.45	0.68	0.62	0.92	53.62	49.07	4.30	7.79	4.19	139.65	0.69	136.15	8.48	143.94	18.16	131.82
7.80	10814.00	113.40	1785.20	0.68	0.62	0.92	53.54	49.13	4.36	7.79	4.18	139.72	0.74	136.28	8.53	144.07	18.30	134.20
7.90	10998.00	113.40	1798.36	0.68	0.62	0.92	53.47	49.19	4.41	7.79	4.16	139.65	0.79	136.27	8.58	144.06	18.43	136.47

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
8.00	11183.00	113.40	1811.11	0.68	0.63	0.92	53.40	49.24	4.47	7.79	4.15	139.50	0.83	136.18	8.62	143.97	18.56	138.67
8.10	11369.00	113.48	1823.55	0.68	0.63	0.92	53.33	49.30	4.53	7.79	4.14	139.30	0.88	136.04	8.67	143.83	18.69	140.84
8.20	11556.00	113.57	1835.61	0.68	0.63	0.92	53.26	49.37	4.59	7.79	4.12	139.03	0.92	135.83	8.71	143.62	18.82	142.95
8.30	11745.00	113.65	1847.32	0.69	0.63	0.92	53.20	49.43	4.65	7.79	4.11	138.71	0.97	135.57	8.76	143.36	18.94	145.00
8.40	11935.00	113.73	1858.72	0.69	0.63	0.92	53.14	49.49	4.71	7.79	4.09	138.34	1.01	135.26	8.80	143.05	19.05	147.00
8.50	12126.00	113.81	1869.86	0.69	0.64	0.92	53.09	49.55	4.77	7.79	4.08	137.93	1.05	134.90	8.84	142.69	19.17	148.97
8.60	12318.00	113.90	1880.73	0.69	0.64	0.92	53.03	49.61	4.83	7.79	4.06	137.48	1.10	134.51	8.89	142.30	19.28	150.89
8.70	12512.00	113.98	1891.47	0.69	0.64	0.92	52.98	49.66	4.89	7.79	4.05	137.03	1.14	134.13	8.93	141.92	19.39	152.82
8.80	12706.00	114.06	1901.84	0.69	0.64	0.92	52.93	49.72	4.94	7.79	4.03	136.53	1.18	133.68	8.97	141.47	19.49	154.68
8.90	12902.00	114.15	1911.80	0.70	0.64	0.92	52.88	49.78	5.00	7.79	4.01	135.96	1.23	133.17	9.02	140.96	19.60	156.46
9.00	13098.00	114.23	1921.39	0.70	0.64	0.92	52.83	49.83	5.06	7.79	4.00	135.34	1.27	132.61	9.06	140.40	19.69	158.17
9.10	13296.00	114.31	1930.58	0.70	0.65	0.92	52.79	49.88	5.12	7.79	3.98	134.66	1.31	131.99	9.10	139.78	19.79	159.81
9.20	13494.00	114.40	1939.39	0.70	0.65	0.92	52.75	49.94	5.18	7.79	3.96	133.93	1.35	131.33	9.14	139.12	19.88	161.37
9.30	13693.00	114.48	1947.84	0.70	0.65	0.92	52.71	49.99	5.24	7.79	3.94	133.17	1.39	130.62	9.18	138.41	19.97	162.87
9.40	13893.00	114.56	1956.08	0.70	0.65	0.92	52.67	50.05	5.30	7.79	3.92	132.41	1.43	129.91	9.22	137.70	20.05	164.36

Fixed Trim = 0 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = 0 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = 0.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

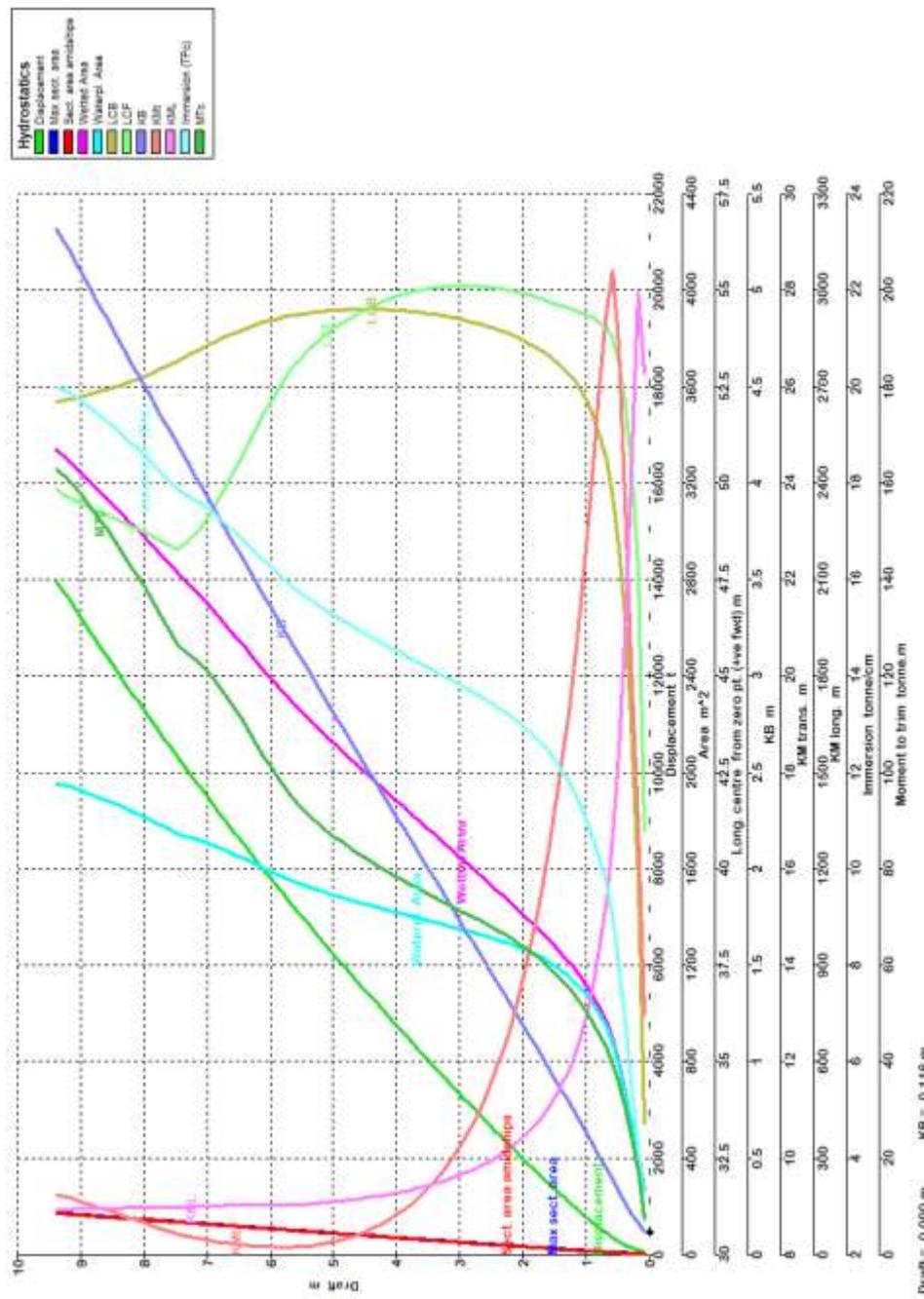
Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
0.10	22.11	99.84	284.49	0.73	0.54	0.75	56.13	55.90	0.06	7.79	12.47	7248.45	4.74	7240.71	12.53	7248.50	2.92	14.58
0.20	58.34	101.37	423.20	0.71	0.46	0.66	55.88	55.59	0.12	7.79	15.70	4045.71	8.02	4038.03	15.81	4045.82	4.34	21.45
0.30	108.80	102.44	559.09	0.69	0.42	0.61	55.71	55.51	0.18	7.79	19.96	2796.81	12.35	2789.20	20.14	2796.99	5.73	27.62
0.40	172.50	103.24	682.46	0.68	0.40	0.59	55.65	55.58	0.24	7.79	23.75	2090.63	16.21	2083.08	24.00	2090.87	7.00	32.72
0.50	248.30	103.87	793.37	0.66	0.38	0.57	55.64	55.63	0.31	7.79	27.00	1642.20	19.51	1634.71	27.30	1642.50	8.13	36.96
0.60	334.30	104.42	879.78	0.64	0.37	0.58	55.63	55.61	0.37	7.79	27.91	1336.99	20.49	1329.56	28.28	1337.35	9.02	40.47
0.70	427.80	104.92	941.93	0.63	0.38	0.60	55.62	55.51	0.43	7.79	26.71	1123.00	19.35	1115.64	27.14	1123.43	9.66	43.46
0.80	527.00	105.39	991.34	0.62	0.39	0.63	55.59	55.41	0.49	7.79	25.07	967.87	17.77	960.57	25.56	968.36	10.16	46.10
0.90	630.80	105.83	1033.10	0.62	0.40	0.65	55.55	55.32	0.55	7.79	23.48	850.71	16.24	843.47	24.03	851.26	10.59	48.45
1.00	738.50	106.22	1068.87	0.61	0.41	0.67	55.51	55.25	0.61	7.79	21.99	758.96	14.81	751.77	22.60	759.56	10.96	50.56
1.10	849.70	106.58	1100.01	0.61	0.42	0.69	55.48	55.22	0.67	7.79	20.65	684.79	13.52	677.66	21.31	685.45	11.28	52.44
1.20	963.90	106.92	1127.50	0.61	0.43	0.71	55.44	55.19	0.72	7.79	19.42	624.46	12.35	617.40	20.14	625.19	11.56	54.19
1.30	1081.00	107.24	1151.77	0.61	0.44	0.72	55.41	55.18	0.78	7.79	18.29	573.92	11.28	566.91	19.07	574.70	11.81	55.80
1.40	1200.00	107.54	1173.57	0.61	0.44	0.73	55.39	55.17	0.84	7.79	17.27	531.26	10.31	524.30	18.10	532.09	12.03	57.29
1.50	1321.00	107.82	1193.03	0.61	0.45	0.74	55.37	55.18	0.89	7.79	16.32	494.62	9.43	487.72	17.22	495.51	12.23	58.68
1.60	1444.00	108.08	1210.33	0.61	0.46	0.75	55.36	55.19	0.95	7.79	15.46	462.47	8.62	455.63	16.41	463.42	12.41	59.93
1.70	1569.00	108.32	1225.93	0.61	0.46	0.76	55.34	55.21	1.01	7.79	14.66	434.47	7.87	427.69	15.66	435.48	12.57	61.12
1.80	1696.00	108.54	1239.56	0.61	0.47	0.77	55.33	55.23	1.06	7.79	13.91	409.56	7.18	402.83	14.97	410.62	12.71	62.20
1.90	1823.00	108.72	1251.32	0.61	0.48	0.78	55.33	55.24	1.12	7.79	13.20	387.13	6.53	380.45	14.32	388.24	12.83	63.17
2.00	1952.00	108.88	1262.19	0.61	0.48	0.79	55.32	55.26	1.17	7.79	12.56	367.02	5.95	360.40	13.74	368.19	12.94	64.07
2.10	2082.00	109.01	1272.27	0.61	0.49	0.80	55.32	55.27	1.23	7.79	11.98	348.87	5.42	342.30	13.21	350.09	13.04	64.90
2.20	2213.00	109.12	1281.83	0.61	0.49	0.81	55.32	55.28	1.28	7.79	11.46	332.58	4.95	326.07	12.74	333.86	13.14	65.71
2.30	2345.00	109.22	1290.85	0.61	0.50	0.81	55.31	55.30	1.34	7.79	10.98	317.80	4.52	311.34	12.31	319.13	13.23	66.48
2.40	2478.00	109.29	1299.44	0.62	0.50	0.82	55.31	55.31	1.39	7.79	10.53	304.36	4.13	297.96	11.92	305.75	13.32	67.23
2.50	2611.00	109.36	1307.64	0.62	0.51	0.82	55.31	55.32	1.44	7.79	10.13	292.07	3.78	285.72	11.57	293.51	13.40	67.94

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
2.60	2746.00	109.42	1315.52	0.62	0.51	0.83	55.31	55.33	1.50	7.79	9.75	280.79	3.46	274.50	11.25	282.29	13.48	68.63
2.70	2881.00	109.46	1323.06	0.62	0.52	0.83	55.32	55.33	1.55	7.79	9.41	270.37	3.17	264.13	10.96	271.92	13.56	69.29
2.80	3017.00	109.49	1330.41	0.62	0.52	0.84	55.32	55.33	1.61	7.79	9.09	260.82	2.91	254.63	10.70	262.42	13.64	69.96
2.90	3154.00	109.46	1337.45	0.62	0.53	0.84	55.32	55.33	1.66	7.79	8.79	251.92	2.66	245.79	10.45	253.58	13.71	70.59
3.00	3291.00	109.13	1344.31	0.63	0.53	0.85	55.32	55.33	1.71	7.79	8.51	243.66	2.44	237.59	10.23	245.38	13.78	71.20
3.10	3429.00	109.01	1350.99	0.63	0.54	0.85	55.32	55.33	1.77	7.79	8.25	235.97	2.23	229.95	10.02	237.74	13.85	71.81
3.20	3568.00	108.89	1357.56	0.63	0.54	0.86	55.32	55.32	1.82	7.79	8.01	228.82	2.04	222.85	9.83	230.64	13.92	72.41
3.30	3708.00	108.81	1364.18	0.63	0.54	0.86	55.32	55.31	1.88	7.79	7.79	222.25	1.87	216.34	9.66	224.13	13.98	73.04
3.40	3848.00	108.76	1370.75	0.63	0.55	0.86	55.32	55.29	1.93	7.79	7.58	216.13	1.72	210.26	9.51	218.05	14.05	73.67
3.50	3989.00	108.71	1377.11	0.64	0.55	0.87	55.32	55.26	1.98	7.79	7.38	210.24	1.57	204.44	9.36	212.23	14.12	74.25
3.60	4130.00	108.71	1383.59	0.64	0.55	0.87	55.31	55.24	2.04	7.79	7.19	204.88	1.44	199.13	9.23	206.92	14.18	74.89
3.70	4272.00	108.73	1390.03	0.64	0.56	0.87	55.31	55.20	2.09	7.79	7.02	199.83	1.32	194.13	9.11	201.92	14.25	75.53
3.80	4415.00	108.77	1396.47	0.64	0.56	0.87	55.31	55.17	2.14	7.79	6.85	195.11	1.20	189.46	8.99	197.25	14.31	76.17
3.90	4559.00	108.81	1402.92	0.64	0.56	0.88	55.30	55.12	2.20	7.79	6.69	190.67	1.10	185.08	8.89	192.87	14.38	76.83
4.00	4703.00	108.86	1409.40	0.64	0.56	0.88	55.29	55.08	2.25	7.79	6.55	186.50	1.01	180.96	8.80	188.75	14.45	77.49
4.10	4847.00	108.90	1415.91	0.64	0.57	0.88	55.29	55.02	2.31	7.79	6.41	182.58	0.92	177.10	8.71	184.89	14.51	78.17
4.20	4993.00	108.94	1422.48	0.65	0.57	0.88	55.28	54.96	2.36	7.79	6.27	178.90	0.84	173.46	8.63	181.25	14.58	78.87
4.30	5139.00	108.98	1429.10	0.65	0.57	0.88	55.27	54.90	2.41	7.79	6.15	175.43	0.77	170.05	8.56	177.84	14.65	79.58
4.40	5286.00	109.03	1435.78	0.65	0.57	0.89	55.26	54.83	2.47	7.79	6.03	172.17	0.70	166.84	8.49	174.63	14.72	80.31
4.50	5433.00	109.07	1442.54	0.65	0.58	0.89	55.25	54.76	2.52	7.79	5.92	169.09	0.65	163.82	8.44	171.61	14.79	81.06
4.60	5582.00	109.12	1449.36	0.65	0.58	0.89	55.23	54.68	2.57	7.79	5.81	166.20	0.59	160.98	8.38	168.77	14.86	81.82
4.70	5731.00	109.18	1456.27	0.65	0.58	0.89	55.22	54.59	2.63	7.79	5.71	163.47	0.54	158.31	8.33	166.10	14.93	82.61
4.80	5880.00	109.24	1463.25	0.65	0.58	0.89	55.20	54.50	2.68	7.79	5.61	160.89	0.50	155.79	8.29	163.58	15.00	83.42
4.90	6031.00	109.30	1470.33	0.65	0.59	0.90	55.18	54.41	2.74	7.79	5.52	158.47	0.46	153.41	8.25	161.20	15.07	84.25
5.00	6182.00	109.38	1477.52	0.65	0.59	0.90	55.16	54.31	2.79	7.79	5.43	156.19	0.43	151.19	8.22	158.98	15.15	85.11
5.10	6333.00	109.46	1484.86	0.66	0.59	0.90	55.14	54.20	2.84	7.79	5.34	154.05	0.40	149.10	8.19	156.89	15.22	86.00
5.20	6486.00	109.56	1492.31	0.66	0.59	0.90	55.11	54.09	2.90	7.79	5.27	152.03	0.37	147.14	8.16	154.93	15.30	86.91

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTc, tonne.m
5.30	6639.00	109.68	1499.91	0.66	0.59	0.90	55.09	53.97	2.95	7.79	5.19	150.14	0.35	145.30	8.14	153.09	15.37	87.85
5.40	6794.00	109.81	1507.94	0.66	0.59	0.90	55.06	53.83	3.01	7.79	5.12	148.47	0.34	143.69	8.13	151.48	15.46	88.89
5.50	6949.00	109.97	1516.08	0.66	0.59	0.90	55.03	53.69	3.06	7.79	5.05	146.88	0.32	142.16	8.11	149.95	15.54	89.95
5.60	7104.00	110.16	1524.35	0.66	0.60	0.91	55.00	53.53	3.12	7.79	4.98	145.38	0.31	140.71	8.10	148.50	15.63	91.03
5.70	7261.00	110.45	1533.10	0.66	0.60	0.91	54.97	53.36	3.17	7.79	4.92	144.10	0.30	139.48	8.09	147.27	15.71	92.22
5.80	7419.00	110.92	1542.18	0.66	0.60	0.91	54.93	53.17	3.23	7.79	4.86	142.95	0.30	138.39	8.09	146.18	15.81	93.49
5.90	7577.00	111.40	1551.92	0.66	0.60	0.91	54.89	52.96	3.28	7.79	4.81	142.06	0.30	137.55	8.09	145.34	15.91	94.91
6.00	7737.00	112.06	1562.26	0.65	0.59	0.91	54.85	52.71	3.34	7.79	4.75	141.39	0.30	136.93	8.09	144.72	16.01	96.48
6.10	7898.00	112.66	1573.04	0.65	0.59	0.91	54.81	52.45	3.39	7.79	4.70	140.88	0.30	136.48	8.09	144.27	16.12	98.15
6.20	8059.00	113.42	1584.20	0.65	0.59	0.91	54.76	52.16	3.45	7.79	4.65	140.51	0.31	136.17	8.10	143.96	16.24	99.93
6.30	8222.00	114.06	1595.64	0.65	0.59	0.91	54.70	51.87	3.50	7.79	4.61	140.24	0.32	135.96	8.11	143.75	16.36	101.80
6.40	8387.00	114.66	1607.16	0.64	0.59	0.91	54.64	51.56	3.56	7.79	4.56	140.01	0.33	135.78	8.12	143.57	16.47	103.70
6.50	8552.00	115.38	1618.81	0.64	0.59	0.91	54.58	51.25	3.61	7.79	4.52	139.84	0.34	135.66	8.13	143.45	16.59	105.65
6.60	8718.00	116.00	1630.64	0.64	0.59	0.91	54.51	50.93	3.67	7.79	4.47	139.72	0.35	135.60	8.14	143.39	16.71	107.65
6.70	8886.00	116.76	1642.72	0.64	0.58	0.91	54.44	50.60	3.73	7.79	4.43	139.68	0.37	135.61	8.16	143.40	16.84	109.74
6.80	9055.00	116.79	1654.76	0.64	0.59	0.92	54.37	50.27	3.78	7.79	4.39	139.61	0.39	135.60	8.18	143.39	16.96	111.82
6.90	9225.00	116.67	1666.24	0.64	0.59	0.92	54.29	49.97	3.84	7.79	4.36	139.36	0.41	135.41	8.20	143.20	17.08	113.76
7.00	9397.00	116.52	1677.14	0.64	0.59	0.92	54.21	49.68	3.90	7.79	4.32	138.91	0.43	135.01	8.22	142.80	17.19	115.53
7.10	9569.00	116.28	1687.95	0.65	0.59	0.92	54.12	49.40	3.95	7.79	4.29	138.42	0.45	134.58	8.24	142.37	17.30	117.27
7.20	9743.00	113.44	1698.99	0.67	0.61	0.92	54.04	49.15	4.01	7.79	4.26	138.05	0.48	134.27	8.27	142.06	17.42	119.13
7.30	9918.00	113.43	1709.61	0.67	0.61	0.92	53.95	48.92	4.07	7.79	4.23	137.59	0.51	133.86	8.30	141.65	17.52	120.90
7.40	10094.00	113.42	1726.22	0.67	0.61	0.92	53.86	48.92	4.12	7.79	4.22	138.43	0.55	134.77	8.34	142.56	17.69	123.87
7.50	10272.00	113.42	1742.32	0.67	0.62	0.92	53.78	48.96	4.18	7.79	4.21	139.10	0.60	135.50	8.39	143.29	17.86	126.74
7.60	10451.00	113.41	1757.09	0.67	0.62	0.92	53.70	49.02	4.24	7.79	4.20	139.42	0.65	135.87	8.44	143.66	18.01	129.31
7.70	10632.00	113.41	1771.45	0.68	0.62	0.92	53.62	49.07	4.30	7.79	4.19	139.65	0.69	136.15	8.48	143.94	18.16	131.82
7.80	10814.00	113.40	1785.20	0.68	0.62	0.92	53.54	49.13	4.36	7.79	4.18	139.72	0.74	136.28	8.53	144.07	18.30	134.20
7.90	10998.00	113.40	1798.36	0.68	0.62	0.92	53.47	49.19	4.41	7.79	4.16	139.65	0.79	136.27	8.58	144.06	18.43	136.47

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
8.00	11183.00	113.40	1811.11	0.68	0.63	0.92	53.40	49.24	4.47	7.79	4.15	139.50	0.83	136.18	8.62	143.97	18.56	138.67
8.10	11369.00	113.48	1823.55	0.68	0.63	0.92	53.33	49.30	4.53	7.79	4.14	139.30	0.88	136.04	8.67	143.83	18.69	140.84
8.20	11556.00	113.57	1835.61	0.68	0.63	0.92	53.26	49.37	4.59	7.79	4.12	139.03	0.92	135.83	8.71	143.62	18.82	142.95
8.30	11745.00	113.65	1847.32	0.69	0.63	0.92	53.20	49.43	4.65	7.79	4.11	138.71	0.97	135.57	8.76	143.36	18.94	145.00
8.40	11935.00	113.73	1858.72	0.69	0.63	0.92	53.14	49.49	4.71	7.79	4.09	138.34	1.01	135.26	8.80	143.05	19.05	147.00
8.50	12126.00	113.81	1869.86	0.69	0.64	0.92	53.09	49.55	4.77	7.79	4.08	137.93	1.05	134.90	8.84	142.69	19.17	148.97
8.60	12318.00	113.90	1880.73	0.69	0.64	0.92	53.03	49.61	4.83	7.79	4.06	137.48	1.10	134.51	8.89	142.30	19.28	150.89
8.70	12512.00	113.98	1891.47	0.69	0.64	0.92	52.98	49.66	4.89	7.79	4.05	137.03	1.14	134.13	8.93	141.92	19.39	152.82
8.80	12706.00	114.06	1901.84	0.69	0.64	0.92	52.93	49.72	4.94	7.79	4.03	136.53	1.18	133.68	8.97	141.47	19.49	154.68
8.90	12902.00	114.15	1911.80	0.70	0.64	0.92	52.88	49.78	5.00	7.79	4.01	135.96	1.23	133.17	9.02	140.96	19.60	156.46
9.00	13098.00	114.23	1921.39	0.70	0.64	0.92	52.83	49.83	5.06	7.79	4.00	135.34	1.27	132.61	9.06	140.40	19.69	158.17
9.10	13296.00	114.31	1930.58	0.70	0.65	0.92	52.79	49.88	5.12	7.79	3.98	134.66	1.31	131.99	9.10	139.78	19.79	159.81
9.20	13494.00	114.40	1939.39	0.70	0.65	0.92	52.75	49.94	5.18	7.79	3.96	133.93	1.35	131.33	9.14	139.12	19.88	161.37
9.30	13693.00	114.48	1947.84	0.70	0.65	0.92	52.71	49.99	5.24	7.79	3.94	133.17	1.39	130.62	9.18	138.41	19.97	162.87
9.40	13893.00	114.56	1956.08	0.70	0.65	0.92	52.67	50.05	5.30	7.79	3.92	132.41	1.43	129.91	9.22	137.70	20.05	164.36

Fixed Trim = 0.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = 1.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

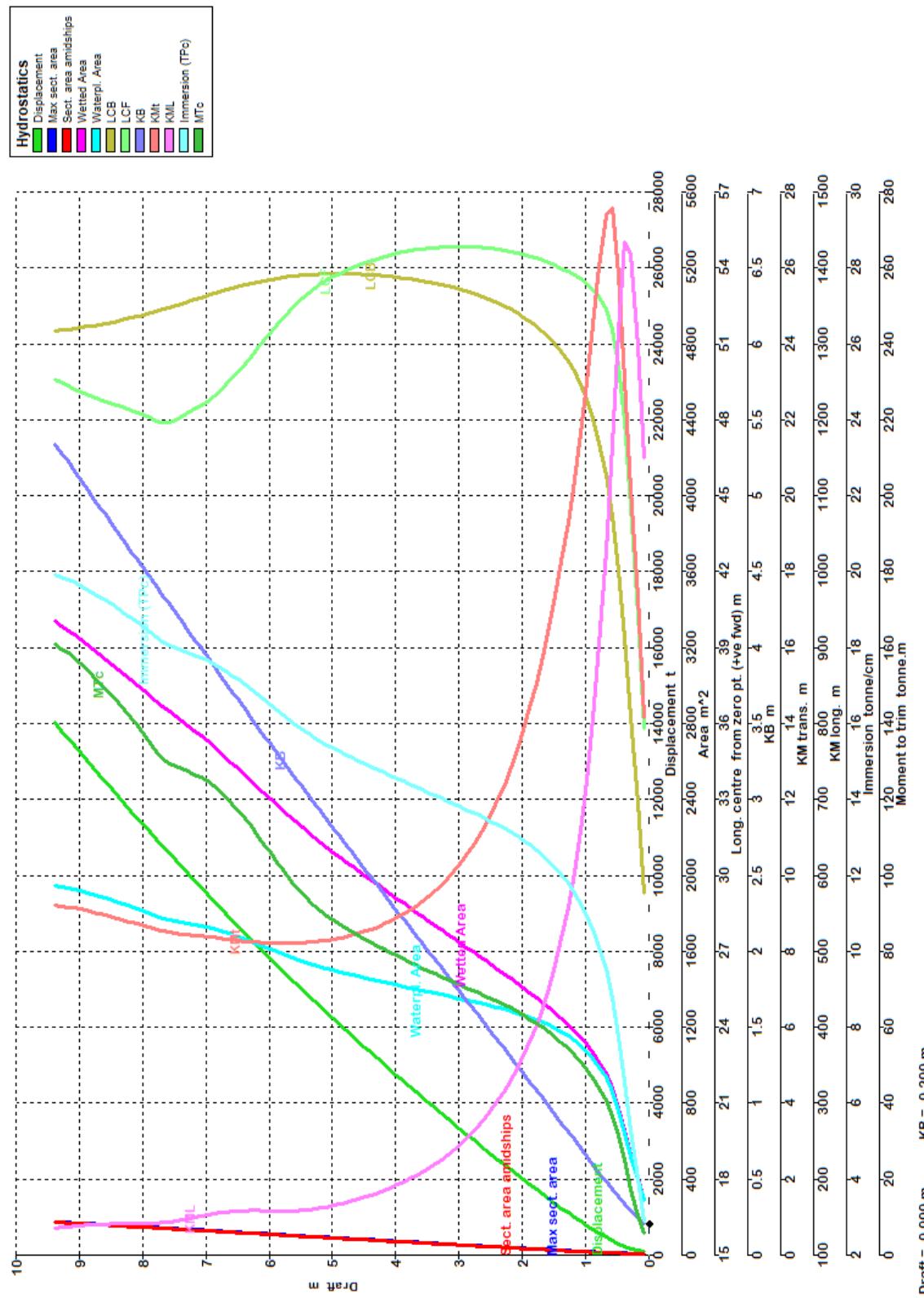
Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KML, m	KML, m	Immersion (TPC) tonne/cm	MTC, tonne.m
0.10	51.32	60.94	279.67	0.48	0.23	0.76	29.23	35.78	0.20	7.79	13.93	1148.81	6.18	1141.05	14.13	1148.96	2.87	5.33
0.20	85.52	72.09	389.60	0.51	0.22	0.75	32.81	40.31	0.24	7.79	17.08	1296.68	9.40	1289.00	17.32	1296.87	3.99	10.04
0.30	131.60	83.24	510.90	0.51	0.21	0.63	36.22	44.52	0.29	7.79	19.86	1415.95	12.25	1408.34	20.15	1416.17	5.24	16.88
0.40	190.50	94.36	636.60	0.50	0.21	0.64	39.37	47.92	0.33	7.79	22.70	1432.42	15.16	1424.88	23.03	1432.69	6.53	24.71
0.50	261.80	101.01	753.15	0.51	0.20	0.64	42.03	50.09	0.38	7.79	25.44	1314.35	17.98	1306.88	25.82	1314.67	7.72	31.16
0.60	344.30	102.48	853.89	0.53	0.22	0.62	44.15	51.50	0.43	7.79	27.12	1165.71	19.72	1158.32	27.55	1166.09	8.75	36.32
0.70	435.90	103.47	929.41	0.54	0.24	0.64	45.79	52.33	0.48	7.79	26.87	1023.84	19.55	1016.51	27.35	1024.27	9.53	40.35
0.80	534.10	104.23	984.24	0.55	0.26	0.65	47.04	52.80	0.53	7.79	25.49	902.57	18.23	895.31	26.02	903.07	10.09	43.55
0.90	637.30	104.84	1027.56	0.56	0.27	0.66	48.00	53.10	0.59	7.79	23.87	803.52	16.67	796.32	24.46	804.08	10.53	46.22
1.00	744.50	105.36	1063.82	0.57	0.29	0.68	48.75	53.33	0.64	7.79	22.32	723.06	15.18	715.92	22.96	723.67	10.90	48.54
1.10	855.20	105.84	1095.15	0.57	0.30	0.69	49.35	53.51	0.70	7.79	20.91	656.60	13.83	649.52	21.61	657.27	11.23	50.58
1.20	968.90	106.28	1122.56	0.57	0.32	0.70	49.85	53.67	0.75	7.79	19.63	601.35	12.61	594.33	20.38	602.08	11.51	52.44
1.30	1085.00	106.67	1146.55	0.57	0.33	0.72	50.27	53.80	0.81	7.79	18.45	554.61	11.48	547.65	19.25	555.39	11.75	54.12
1.40	1204.00	107.01	1167.92	0.58	0.34	0.73	50.62	53.92	0.86	7.79	17.38	514.60	10.47	507.70	18.24	515.44	11.97	55.66
1.50	1325.00	107.30	1187.08	0.58	0.35	0.74	50.93	54.04	0.92	7.79	16.41	479.91	9.57	473.06	17.33	480.80	12.17	57.06
1.60	1447.00	107.53	1204.24	0.58	0.36	0.75	51.20	54.15	0.97	7.79	15.53	449.63	8.74	442.84	16.49	450.58	12.34	58.36
1.70	1571.00	107.73	1219.63	0.58	0.37	0.76	51.43	54.24	1.02	7.79	14.71	423.08	7.97	416.34	15.73	424.08	12.50	59.58
1.80	1697.00	107.91	1233.52	0.59	0.38	0.77	51.65	54.33	1.08	7.79	13.95	399.57	7.28	392.89	15.03	400.63	12.64	60.72
1.90	1824.00	108.05	1246.20	0.59	0.39	0.78	51.84	54.42	1.13	7.79	13.26	378.70	6.64	372.08	14.39	379.81	12.77	61.81
2.00	1953.00	108.18	1257.68	0.59	0.40	0.79	52.01	54.49	1.19	7.79	12.62	359.97	6.05	353.41	13.81	361.14	12.89	62.84
2.10	2082.00	108.30	1268.26	0.59	0.41	0.80	52.16	54.55	1.24	7.79	12.04	342.98	5.53	336.47	13.28	344.21	13.00	63.79
2.20	2213.00	108.40	1278.30	0.60	0.42	0.81	52.31	54.61	1.29	7.79	11.50	327.67	5.05	321.21	12.80	328.95	13.10	64.72
2.30	2344.00	108.48	1287.77	0.60	0.42	0.81	52.44	54.65	1.35	7.79	11.02	313.64	4.62	307.24	12.37	314.97	13.20	65.58
2.40	2476.00	108.53	1296.78	0.60	0.43	0.82	52.56	54.69	1.40	7.79	10.58	300.77	4.23	294.43	11.98	302.16	13.29	66.40
2.50	2610.00	108.29	1305.33	0.60	0.44	0.83	52.67	54.73	1.46	7.79	10.17	288.92	3.88	282.63	11.63	290.36	13.38	67.17

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2744.00	108.18	1313.57	0.61	0.44	0.83	52.77	54.75	1.51	7.79	9.80	278.01	3.56	271.77	11.31	279.51	13.46	67.91
2.70	2879.00	108.10	1321.46	0.61	0.45	0.84	52.86	54.78	1.56	7.79	9.46	267.93	3.27	261.75	11.02	269.48	13.55	68.63
2.80	3015.00	108.03	1329.29	0.61	0.46	0.84	52.95	54.79	1.62	7.79	9.14	258.80	3.01	252.67	10.75	260.40	13.63	69.37
2.90	3152.00	108.02	1336.90	0.62	0.46	0.84	53.03	54.80	1.67	7.79	8.84	250.34	2.77	244.27	10.51	252.00	13.70	70.11
3.00	3289.00	108.02	1344.36	0.62	0.47	0.85	53.10	54.80	1.72	7.79	8.56	242.54	2.54	236.52	10.28	244.25	13.78	70.84
3.10	3427.00	108.03	1351.67	0.62	0.47	0.85	53.17	54.80	1.78	7.79	8.30	235.27	2.34	229.30	10.08	237.03	13.86	71.56
3.20	3566.00	108.07	1358.85	0.62	0.48	0.86	53.23	54.79	1.83	7.79	8.06	228.48	2.15	222.57	9.89	230.30	13.93	72.28
3.30	3706.00	108.14	1366.06	0.62	0.48	0.86	53.29	54.78	1.88	7.79	7.84	222.24	1.98	216.38	9.72	224.11	14.00	73.02
3.40	3846.00	108.21	1373.25	0.62	0.49	0.86	53.35	54.76	1.94	7.79	7.62	216.42	1.82	210.62	9.56	218.35	14.08	73.77
3.50	3987.00	108.29	1380.42	0.63	0.49	0.86	53.40	54.74	1.99	7.79	7.43	210.99	1.68	205.24	9.42	212.97	14.15	74.52
3.60	4129.00	108.36	1387.60	0.63	0.50	0.87	53.44	54.71	2.04	7.79	7.24	205.93	1.55	200.24	9.29	207.97	14.22	75.29
3.70	4272.00	108.43	1394.80	0.63	0.50	0.87	53.48	54.67	2.10	7.79	7.07	201.21	1.43	195.57	9.16	203.30	14.30	76.08
3.80	4415.00	108.50	1402.03	0.63	0.50	0.87	53.52	54.63	2.15	7.79	6.90	196.80	1.32	191.21	9.05	198.94	14.37	76.88
3.90	4559.00	108.57	1409.28	0.63	0.51	0.87	53.56	54.58	2.21	7.79	6.74	192.66	1.21	187.13	8.95	194.86	14.45	77.69
4.00	4704.00	108.64	1416.59	0.63	0.51	0.88	53.59	54.53	2.26	7.79	6.60	188.80	1.12	183.32	8.86	191.05	14.52	78.53
4.10	4850.00	108.72	1423.78	0.63	0.51	0.88	53.61	54.46	2.31	7.79	6.46	185.05	1.03	179.63	8.77	187.36	14.59	79.33
4.20	4996.00	108.81	1431.16	0.64	0.52	0.88	53.64	54.39	2.37	7.79	6.32	181.63	0.96	176.26	8.69	183.98	14.67	80.19
4.30	5143.00	108.90	1438.59	0.64	0.52	0.88	53.66	54.32	2.42	7.79	6.20	178.39	0.88	173.08	8.62	180.81	14.75	81.06
4.40	5291.00	109.00	1446.10	0.64	0.52	0.89	53.68	54.24	2.48	7.79	6.08	175.35	0.82	170.09	8.56	177.82	14.82	81.95
4.50	5439.00	109.10	1453.69	0.64	0.53	0.89	53.69	54.16	2.53	7.79	5.97	172.48	0.76	167.28	8.50	175.00	14.90	82.86
4.60	5589.00	109.22	1461.41	0.64	0.53	0.89	53.70	54.07	2.58	7.79	5.86	169.80	0.71	164.65	8.45	172.37	14.98	83.79
4.70	5739.00	109.34	1469.23	0.64	0.53	0.89	53.71	53.97	2.64	7.79	5.76	167.27	0.66	162.17	8.40	169.90	15.06	84.75
4.80	5890.00	109.48	1477.15	0.64	0.53	0.89	53.72	53.87	2.69	7.79	5.67	164.88	0.62	159.84	8.36	167.57	15.14	85.73
4.90	6042.00	109.64	1485.46	0.64	0.54	0.89	53.72	53.75	2.75	7.79	5.58	162.76	0.59	157.77	8.32	165.50	15.23	86.80
5.00	6194.00	109.81	1493.98	0.64	0.54	0.89	53.72	53.62	2.80	7.79	5.49	160.79	0.56	155.86	8.29	163.59	15.31	87.92
5.10	6348.00	110.02	1502.65	0.64	0.54	0.90	53.71	53.49	2.86	7.79	5.41	158.95	0.53	154.07	8.26	161.80	15.40	89.07
5.20	6503.00	110.30	1511.71	0.64	0.54	0.90	53.71	53.34	2.91	7.79	5.33	157.33	0.51	152.50	8.24	160.23	15.50	90.30

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6658.00	110.80	1521.32	0.64	0.54	0.90	53.70	53.17	2.97	7.79	5.26	155.95	0.49	151.18	8.22	158.91	15.59	91.66
5.40	6814.00	111.33	1531.64	0.64	0.54	0.90	53.68	52.98	3.02	7.79	5.19	154.88	0.47	150.17	8.21	157.90	15.70	93.19
5.50	6972.00	112.04	1542.76	0.64	0.54	0.90	53.66	52.76	3.08	7.79	5.12	154.13	0.46	149.47	8.20	157.20	15.81	94.90
5.60	7131.00	112.72	1554.62	0.64	0.54	0.90	53.64	52.52	3.13	7.79	5.06	153.66	0.46	149.06	8.19	156.79	15.94	96.79
5.70	7291.00	113.60	1567.06	0.64	0.54	0.90	53.61	52.25	3.19	7.79	5.00	153.41	0.45	148.86	8.19	156.59	16.06	98.83
5.80	7452.00	114.33	1579.94	0.63	0.54	0.91	53.58	51.97	3.24	7.79	4.95	153.32	0.45	148.83	8.19	156.56	16.19	100.99
5.90	7615.00	115.04	1592.97	0.63	0.54	0.91	53.54	51.69	3.30	7.79	4.89	153.29	0.45	148.85	8.19	156.58	16.33	103.21
6.00	7779.00	115.86	1606.18	0.63	0.54	0.91	53.50	51.39	3.36	7.79	4.84	153.32	0.46	148.94	8.20	156.67	16.46	105.50
6.10	7944.00	116.62	1619.51	0.63	0.54	0.91	53.45	51.09	3.41	7.79	4.79	153.41	0.47	149.09	8.20	156.82	16.60	107.85
6.20	8111.00	117.36	1633.07	0.62	0.54	0.91	53.40	50.77	3.47	7.79	4.74	153.58	0.47	149.31	8.21	157.04	16.74	110.28
6.30	8279.00	117.34	1646.13	0.63	0.54	0.91	53.35	50.46	3.53	7.79	4.70	153.56	0.48	149.34	8.22	157.08	16.87	112.59
6.40	8448.00	117.32	1658.39	0.63	0.54	0.91	53.28	50.17	3.59	7.79	4.65	153.25	0.50	149.09	8.24	156.83	17.00	114.70
6.50	8619.00	117.29	1670.03	0.63	0.55	0.91	53.22	49.89	3.64	7.79	4.61	152.72	0.51	148.62	8.25	156.36	17.12	116.65
6.60	8790.00	117.25	1681.32	0.63	0.55	0.91	53.15	49.62	3.70	7.79	4.57	152.07	0.53	148.03	8.27	155.77	17.23	118.50
6.70	8963.00	117.21	1692.30	0.63	0.55	0.91	53.08	49.36	3.76	7.79	4.53	151.32	0.55	147.34	8.29	155.07	17.35	120.26
6.80	9137.00	117.16	1702.82	0.64	0.55	0.91	53.01	49.11	3.82	7.79	4.50	150.45	0.57	146.52	8.31	154.26	17.45	121.92
6.90	9312.00	117.11	1712.64	0.64	0.56	0.91	52.93	48.87	3.87	7.79	4.46	149.42	0.60	145.55	8.34	153.29	17.56	123.43
7.00	9488.00	117.05	1720.77	0.64	0.56	0.92	52.86	48.67	3.93	7.79	4.42	148.06	0.61	144.24	8.36	151.98	17.64	124.63
7.10	9665.00	116.98	1727.27	0.64	0.56	0.92	52.78	48.52	3.99	7.79	4.38	146.35	0.63	142.60	8.37	150.34	17.71	125.51
7.20	9842.00	116.91	1733.60	0.65	0.56	0.92	52.70	48.36	4.05	7.79	4.34	144.66	0.64	140.97	8.39	148.71	17.77	126.34
7.30	10020.00	116.82	1739.48	0.65	0.57	0.92	52.62	48.22	4.11	7.79	4.30	142.91	0.66	139.27	8.40	147.01	17.83	127.08
7.40	10199.00	116.72	1745.09	0.65	0.57	0.92	52.54	48.09	4.16	7.79	4.26	141.15	0.68	137.57	8.42	145.31	17.89	127.76
7.50	10378.00	116.57	1750.53	0.65	0.57	0.92	52.47	47.95	4.22	7.79	4.22	139.38	0.69	135.85	8.44	143.60	17.94	128.39
7.60	10558.00	116.37	1757.36	0.66	0.58	0.92	52.39	47.86	4.28	7.79	4.19	137.81	0.72	134.34	8.47	142.08	18.01	129.16
7.70	10738.00	113.44	1766.75	0.68	0.59	0.92	52.31	47.84	4.34	7.79	4.17	136.75	0.76	133.34	8.51	141.08	18.11	130.39
7.80	10920.00	113.44	1778.94	0.68	0.60	0.92	52.24	47.91	4.40	7.79	4.16	136.44	0.81	133.08	8.55	140.83	18.23	132.34
7.90	11103.00	113.43	1792.08	0.68	0.60	0.92	52.17	48.03	4.45	7.79	4.15	136.45	0.85	133.15	8.60	140.90	18.37	134.63

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11288.00	113.42	1804.89	0.68	0.60	0.92	52.10	48.13	4.51	7.79	4.13	136.38	0.89	133.14	8.65	140.89	18.50	136.86
8.10	11473.00	113.42	1817.37	0.68	0.60	0.92	52.04	48.23	4.57	7.79	4.12	136.24	0.94	133.06	8.69	140.81	18.63	139.02
8.20	11660.00	113.41	1829.52	0.69	0.60	0.92	51.98	48.33	4.63	7.79	4.11	136.03	0.99	132.91	8.74	140.66	18.75	141.12
8.30	11848.00	113.41	1841.22	0.69	0.61	0.92	51.92	48.42	4.69	7.79	4.10	135.73	1.03	132.66	8.78	140.41	18.87	143.14
8.40	12038.00	113.40	1852.56	0.69	0.61	0.92	51.87	48.50	4.75	7.79	4.08	135.36	1.07	132.35	8.83	140.10	18.99	145.08
8.50	12228.00	113.40	1863.47	0.69	0.61	0.92	51.81	48.59	4.80	7.79	4.07	134.92	1.12	131.97	8.87	139.71	19.10	146.95
8.60	12420.00	113.49	1874.10	0.69	0.61	0.92	51.77	48.68	4.86	7.79	4.05	134.46	1.16	131.57	8.92	139.31	19.21	148.79
8.70	12612.00	113.57	1884.38	0.70	0.62	0.92	51.72	48.77	4.92	7.79	4.04	133.96	1.20	131.12	8.96	138.87	19.32	150.59
8.80	12806.00	113.65	1894.35	0.70	0.62	0.92	51.67	48.86	4.98	7.79	4.02	133.42	1.25	130.64	9.00	138.39	19.42	152.35
8.90	13000.00	113.73	1904.00	0.70	0.62	0.92	51.63	48.95	5.04	7.79	4.00	132.84	1.29	130.12	9.04	137.87	19.52	154.05
9.00	13196.00	113.82	1912.79	0.70	0.62	0.92	51.59	49.05	5.10	7.79	3.98	132.12	1.32	129.46	9.08	137.21	19.61	155.57
9.10	13393.00	113.90	1920.24	0.70	0.62	0.92	51.56	49.17	5.16	7.79	3.95	131.23	1.35	128.63	9.11	136.38	19.68	156.88
9.20	13590.00	113.98	1927.18	0.70	0.62	0.92	51.52	49.30	5.22	7.79	3.92	130.33	1.38	127.79	9.14	135.54	19.75	158.14
9.30	13788.00	114.06	1933.91	0.70	0.63	0.92	51.49	49.43	5.27	7.79	3.89	129.42	1.41	126.93	9.16	134.68	19.82	159.37
9.40	13986.00	114.15	1940.41	0.71	0.63	0.92	51.46	49.55	5.33	7.79	3.86	128.49	1.43	126.06	9.19	133.81	19.89	160.55

Fixed Trim = 1.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = 1.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

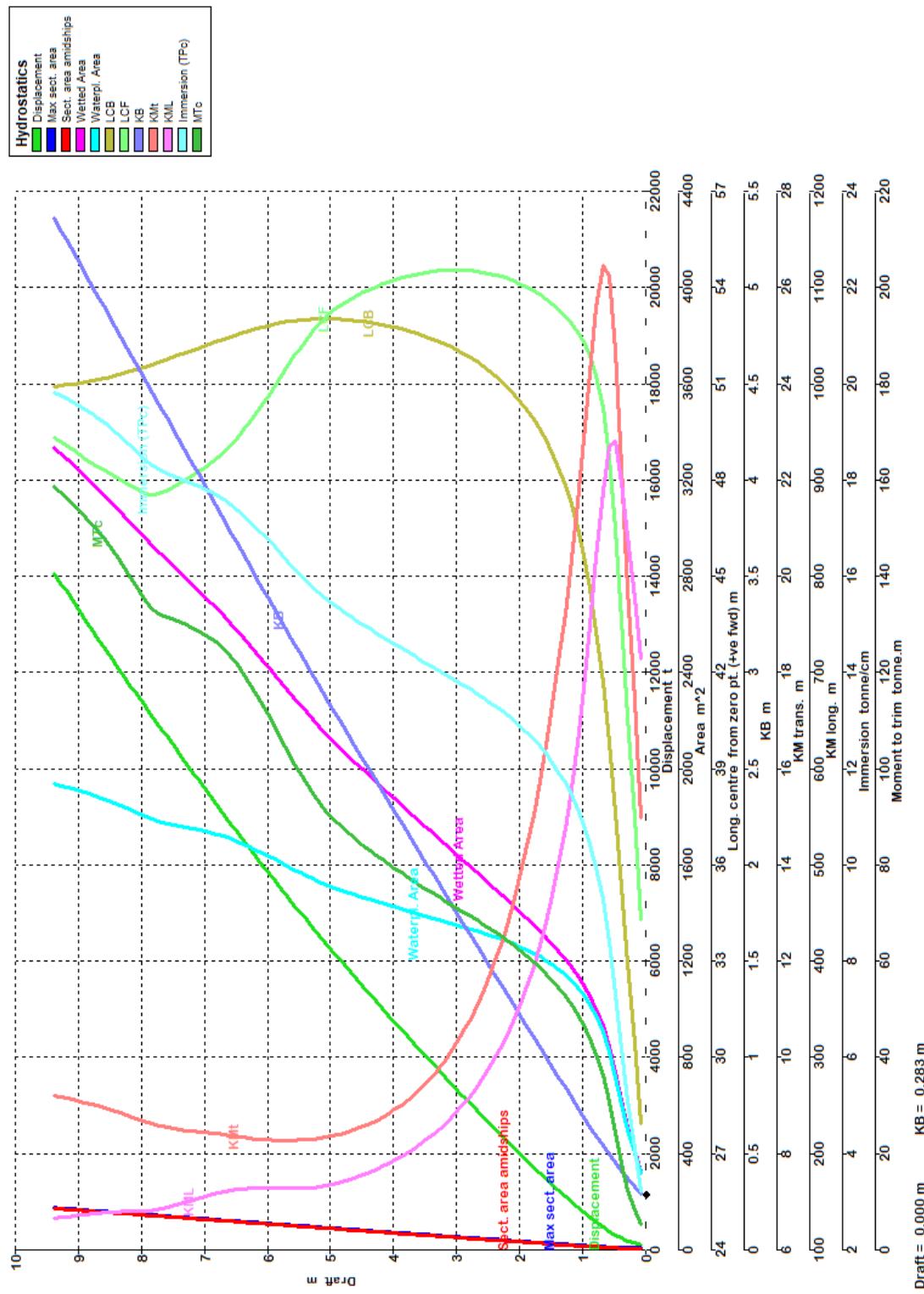
Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMt, m	BML, m	GMt, m	GML, m	KM _t , m	KM _L , m	Immersion (TPC) tonne/cm	MTc, tonne.m
0.10	78.94	57.65	311.66	0.52	0.22	0.75	27.92	34.26	0.28	7.79	14.67	712.47	6.89	704.69	14.95	712.68	3.20	5.07
0.20	115.30	65.13	398.82	0.53	0.22	0.64	30.44	37.44	0.32	7.79	17.08	775.92	9.38	768.22	17.40	776.18	4.09	8.07
0.30	161.00	72.61	494.73	0.52	0.21	0.64	32.89	40.57	0.36	7.79	19.33	839.88	11.71	832.25	19.70	840.17	5.07	12.20
0.40	217.10	80.10	600.70	0.51	0.21	0.65	35.29	43.59	0.41	7.79	21.84	895.62	14.29	888.07	22.25	895.94	6.16	17.56
0.50	284.40	87.56	712.75	0.51	0.20	0.65	37.60	46.43	0.45	7.79	24.23	938.10	16.75	930.62	24.68	938.46	7.31	24.10
0.60	362.90	95.02	817.02	0.50	0.20	0.66	39.77	48.66	0.49	7.79	25.72	932.88	18.31	925.47	26.21	933.28	8.37	30.59
0.70	451.20	101.02	902.79	0.51	0.21	0.66	41.68	50.23	0.54	7.79	25.90	887.03	18.57	879.70	26.44	887.49	9.25	36.15
0.80	547.20	102.73	966.82	0.52	0.22	0.65	43.27	51.22	0.59	7.79	24.98	818.97	17.71	811.70	25.56	819.47	9.91	40.45
0.90	648.90	103.76	1014.84	0.53	0.24	0.67	44.57	51.84	0.63	7.79	23.59	747.00	16.39	739.81	24.22	747.57	10.40	43.71
1.00	754.90	104.53	1053.69	0.54	0.25	0.68	45.62	52.26	0.68	7.79	22.15	682.17	15.02	675.03	22.83	682.79	10.80	46.41
1.10	864.60	105.12	1086.48	0.54	0.27	0.69	46.49	52.59	0.74	7.79	20.79	625.82	13.72	618.75	21.53	626.50	11.14	48.72
1.20	977.50	105.59	1114.85	0.55	0.28	0.70	47.21	52.85	0.79	7.79	19.54	577.36	12.52	570.35	20.32	578.09	11.43	50.77
1.30	1093.00	105.99	1139.39	0.55	0.30	0.72	47.82	53.08	0.84	7.79	18.37	535.31	11.42	528.36	19.20	536.10	11.68	52.59
1.40	1211.00	106.35	1161.21	0.56	0.31	0.73	48.34	53.27	0.89	7.79	17.31	498.72	10.42	491.83	18.20	499.56	11.90	54.24
1.50	1331.00	106.68	1180.79	0.56	0.32	0.74	48.79	53.44	0.94	7.79	16.35	466.76	9.52	459.93	17.30	467.66	12.10	55.75
1.60	1453.00	106.96	1198.37	0.57	0.33	0.75	49.19	53.60	1.00	7.79	15.48	438.67	8.70	431.89	16.47	439.62	12.28	57.14
1.70	1577.00	107.19	1214.08	0.57	0.34	0.76	49.54	53.73	1.05	7.79	14.66	413.81	7.95	407.09	15.71	414.81	12.44	58.45
1.80	1702.00	107.39	1228.40	0.57	0.35	0.77	49.85	53.86	1.10	7.79	13.92	391.69	7.26	385.02	15.02	392.75	12.59	59.67
1.90	1828.00	107.55	1241.49	0.58	0.36	0.79	50.13	53.97	1.15	7.79	13.24	371.91	6.63	365.31	14.39	373.03	12.73	60.82
2.00	1956.00	107.68	1253.53	0.58	0.37	0.79	50.39	54.06	1.21	7.79	12.61	354.10	6.06	347.56	13.81	355.28	12.85	61.91
2.10	2085.00	107.80	1264.67	0.58	0.38	0.80	50.62	54.15	1.26	7.79	12.03	338.03	5.54	331.54	13.29	339.26	12.96	62.96
2.20	2215.00	107.84	1275.01	0.59	0.39	0.81	50.83	54.23	1.31	7.79	11.50	323.35	5.07	316.92	12.81	324.64	13.07	63.94
2.30	2347.00	107.61	1284.89	0.59	0.40	0.82	51.02	54.30	1.37	7.79	11.02	309.99	4.64	303.61	12.39	311.32	13.17	64.88
2.40	2479.00	107.55	1294.28	0.59	0.40	0.82	51.20	54.36	1.42	7.79	10.58	297.66	4.26	291.33	12.00	299.05	13.27	65.76
2.50	2612.00	107.51	1303.26	0.60	0.41	0.83	51.36	54.41	1.47	7.79	10.18	286.31	3.91	280.04	11.65	287.76	13.36	66.61

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2746.00	107.50	1311.99	0.60	0.42	0.83	51.51	54.44	1.52	7.79	9.81	275.96	3.59	269.74	11.33	277.46	13.45	67.45
2.70	2881.00	107.52	1320.46	0.60	0.42	0.84	51.65	54.47	1.58	7.79	9.47	266.40	3.31	260.24	11.04	267.95	13.54	68.27
2.80	3017.00	107.54	1328.67	0.61	0.43	0.84	51.77	54.49	1.63	7.79	9.15	257.57	3.04	251.47	10.78	259.18	13.62	69.08
2.90	3153.00	107.58	1336.60	0.61	0.44	0.85	51.89	54.50	1.68	7.79	8.85	249.34	2.80	243.29	10.54	251.00	13.70	69.86
3.00	3291.00	107.64	1344.40	0.61	0.44	0.85	52.00	54.51	1.74	7.79	8.58	241.76	2.58	235.77	10.31	243.48	13.78	70.65
3.10	3429.00	107.73	1352.11	0.61	0.45	0.85	52.10	54.51	1.79	7.79	8.32	234.75	2.38	228.81	10.11	236.52	13.86	71.44
3.20	3568.00	107.82	1359.74	0.61	0.45	0.86	52.20	54.50	1.84	7.79	8.08	228.24	2.19	222.35	9.92	230.06	13.94	72.24
3.30	3708.00	107.91	1367.32	0.62	0.46	0.86	52.28	54.48	1.90	7.79	7.86	222.17	2.02	216.34	9.75	224.05	14.02	73.04
3.40	3848.00	108.00	1374.87	0.62	0.46	0.86	52.36	54.46	1.95	7.79	7.65	216.53	1.87	210.76	9.60	218.46	14.09	73.85
3.50	3989.00	108.09	1382.41	0.62	0.47	0.87	52.44	54.43	2.00	7.79	7.45	211.26	1.73	205.54	9.45	213.24	14.17	74.67
3.60	4131.00	108.18	1390.00	0.62	0.47	0.87	52.50	54.40	2.06	7.79	7.26	206.39	1.60	200.72	9.32	208.42	14.25	75.51
3.70	4274.00	108.28	1397.61	0.62	0.48	0.87	52.57	54.36	2.11	7.79	7.09	201.83	1.48	196.21	9.20	203.92	14.33	76.37
3.80	4418.00	108.37	1405.24	0.62	0.48	0.87	52.62	54.31	2.16	7.79	6.93	197.57	1.36	192.01	9.09	199.72	14.40	77.25
3.90	4562.00	108.48	1412.91	0.63	0.48	0.88	52.68	54.26	2.22	7.79	6.77	193.59	1.26	188.08	8.99	195.79	14.48	78.14
4.00	4708.00	108.57	1420.62	0.63	0.49	0.88	52.73	54.20	2.27	7.79	6.62	189.86	1.17	184.40	8.89	192.11	14.56	79.05
4.10	4854.00	108.67	1428.37	0.63	0.49	0.88	52.77	54.14	2.32	7.79	6.48	186.35	1.09	180.95	8.81	188.66	14.64	79.98
4.20	5000.00	108.78	1436.19	0.63	0.50	0.88	52.81	54.07	2.38	7.79	6.35	183.07	1.01	177.72	8.73	185.43	14.72	80.93
4.30	5148.00	108.89	1443.96	0.63	0.50	0.88	52.84	53.99	2.43	7.79	6.23	179.89	0.94	174.60	8.66	182.31	14.80	81.85
4.40	5296.00	109.02	1452.01	0.63	0.50	0.89	52.87	53.91	2.49	7.79	6.11	177.02	0.88	171.78	8.60	179.49	14.88	82.85
4.50	5446.00	109.17	1460.12	0.63	0.50	0.89	52.90	53.82	2.54	7.79	6.00	174.30	0.82	169.12	8.54	176.82	14.97	83.86
4.60	5596.00	109.33	1468.36	0.63	0.51	0.89	52.92	53.72	2.60	7.79	5.89	171.75	0.77	166.62	8.49	174.33	15.05	84.90
4.70	5747.00	109.52	1477.06	0.64	0.51	0.89	52.94	53.60	2.65	7.79	5.79	169.50	0.72	164.43	8.44	172.13	15.14	86.05
4.80	5898.00	109.72	1485.88	0.64	0.51	0.89	52.96	53.48	2.70	7.79	5.70	167.38	0.68	162.37	8.40	170.07	15.23	87.21
4.90	6051.00	109.97	1494.87	0.64	0.52	0.89	52.97	53.35	2.76	7.79	5.61	165.40	0.65	160.44	8.37	168.14	15.32	88.41
5.00	6205.00	110.33	1504.41	0.64	0.52	0.90	52.98	53.20	2.81	7.79	5.53	163.71	0.62	158.81	8.34	166.51	15.42	89.73
5.10	6360.00	110.89	1514.42	0.64	0.52	0.90	52.98	53.03	2.87	7.79	5.45	162.25	0.60	157.40	8.31	165.11	15.52	91.16
5.20	6515.00	111.50	1525.26	0.63	0.52	0.90	52.98	52.83	2.92	7.79	5.37	161.17	0.58	156.37	8.29	164.08	15.63	92.78

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6672.00	112.28	1536.98	0.63	0.52	0.90	52.97	52.61	2.98	7.79	5.30	160.43	0.56	155.69	8.28	163.40	15.75	94.60
5.40	6830.00	113.09	1549.40	0.63	0.52	0.90	52.96	52.35	3.04	7.79	5.23	159.99	0.55	155.30	8.27	163.01	15.88	96.60
5.50	6990.00	113.94	1562.43	0.63	0.52	0.90	52.95	52.08	3.09	7.79	5.17	159.79	0.54	155.16	8.26	162.86	16.02	98.76
5.60	7151.00	114.65	1575.82	0.62	0.52	0.90	52.92	51.80	3.15	7.79	5.11	159.73	0.53	155.16	8.25	162.86	16.15	101.03
5.70	7313.00	115.51	1589.41	0.62	0.52	0.90	52.90	51.51	3.20	7.79	5.05	159.76	0.53	155.24	8.25	162.95	16.29	103.38
5.80	7477.00	116.31	1603.24	0.62	0.52	0.91	52.86	51.21	3.26	7.79	4.99	159.88	0.53	155.42	8.25	163.12	16.43	105.81
5.90	7642.00	117.24	1617.37	0.62	0.51	0.91	52.82	50.90	3.32	7.79	4.94	160.11	0.53	155.71	8.25	163.41	16.58	108.35
6.00	7808.00	117.38	1631.38	0.62	0.52	0.91	52.78	50.59	3.38	7.79	4.89	160.28	0.54	155.94	8.26	163.64	16.72	110.88
6.10	7976.00	117.39	1644.68	0.62	0.52	0.91	52.73	50.30	3.43	7.79	4.84	160.18	0.55	155.89	8.27	163.59	16.86	113.22
6.20	8145.00	117.39	1657.26	0.62	0.52	0.91	52.68	50.04	3.49	7.79	4.79	159.80	0.56	155.57	8.28	163.28	16.99	115.39
6.30	8316.00	117.38	1669.39	0.62	0.53	0.91	52.62	49.78	3.55	7.79	4.75	159.26	0.57	155.08	8.29	162.79	17.11	117.44
6.40	8487.00	117.37	1681.20	0.63	0.53	0.91	52.56	49.53	3.61	7.79	4.70	158.60	0.59	154.48	8.31	162.19	17.23	119.40
6.50	8660.00	117.36	1692.61	0.63	0.53	0.91	52.50	49.29	3.67	7.79	4.67	157.82	0.61	153.76	8.33	161.47	17.35	121.26
6.60	8834.00	117.34	1703.53	0.63	0.53	0.91	52.43	49.05	3.72	7.79	4.63	156.91	0.63	152.91	8.35	160.62	17.46	123.01
6.70	9010.00	117.31	1713.36	0.63	0.54	0.91	52.36	48.84	3.78	7.79	4.59	155.75	0.64	151.80	8.37	159.52	17.56	124.55
6.80	9186.00	117.28	1721.60	0.64	0.54	0.91	52.29	48.66	3.84	7.79	4.55	154.25	0.66	150.37	8.39	158.08	17.65	125.78
6.90	9362.00	117.24	1728.10	0.64	0.54	0.91	52.22	48.52	3.90	7.79	4.50	152.37	0.67	148.54	8.40	156.26	17.71	126.64
7.00	9540.00	117.20	1734.49	0.64	0.54	0.92	52.15	48.38	3.96	7.79	4.46	150.55	0.68	146.77	8.41	154.49	17.78	127.50
7.10	9718.00	117.15	1740.43	0.64	0.55	0.92	52.08	48.25	4.02	7.79	4.41	148.65	0.70	144.93	8.43	152.65	17.84	128.26
7.20	9896.00	117.10	1746.18	0.65	0.55	0.92	52.01	48.12	4.07	7.79	4.37	146.76	0.71	143.10	8.44	150.82	17.90	128.97
7.30	10076.00	117.04	1751.68	0.65	0.55	0.92	51.94	47.99	4.13	7.79	4.33	144.88	0.73	141.27	8.46	148.99	17.96	129.62
7.40	10256.00	116.97	1756.87	0.65	0.56	0.92	51.87	47.88	4.19	7.79	4.29	142.97	0.74	139.43	8.48	147.15	18.01	130.21
7.50	10436.00	116.89	1761.80	0.65	0.56	0.92	51.80	47.76	4.25	7.79	4.25	141.05	0.76	137.56	8.49	145.29	18.06	130.73
7.60	10617.00	116.79	1766.68	0.65	0.56	0.92	51.73	47.65	4.31	7.79	4.21	139.17	0.78	135.74	8.51	143.47	18.11	131.23
7.70	10798.00	116.68	1772.50	0.66	0.56	0.92	51.66	47.56	4.36	7.79	4.18	137.41	0.80	134.04	8.54	141.76	18.17	131.80
7.80	10980.00	116.52	1779.65	0.66	0.57	0.92	51.60	47.50	4.42	7.79	4.15	135.86	0.84	132.54	8.58	140.27	18.24	132.53
7.90	11163.00	116.26	1788.78	0.66	0.57	0.92	51.53	47.50	4.48	7.79	4.14	134.77	0.88	131.51	8.62	139.24	18.34	133.69

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11347.00	113.44	1799.91	0.68	0.59	0.92	51.46	47.57	4.54	7.79	4.13	134.24	0.92	131.04	8.66	138.77	18.45	135.40
8.10	11532.00	113.44	1812.41	0.68	0.59	0.92	51.40	47.69	4.60	7.79	4.11	134.15	0.97	131.00	8.71	138.73	18.58	137.57
8.20	11718.00	113.43	1824.64	0.69	0.59	0.92	51.34	47.81	4.65	7.79	4.10	134.01	1.01	130.92	8.75	138.65	18.70	139.71
8.30	11906.00	113.43	1836.44	0.69	0.60	0.92	51.29	47.92	4.71	7.79	4.09	133.79	1.06	130.75	8.80	138.48	18.82	141.76
8.40	12095.00	113.42	1847.76	0.69	0.60	0.92	51.24	48.03	4.77	7.79	4.07	133.47	1.10	130.50	8.84	138.23	18.94	143.73
8.50	12285.00	113.42	1858.64	0.69	0.60	0.92	51.19	48.14	4.83	7.79	4.06	133.07	1.14	130.16	8.89	137.89	19.05	145.61
8.60	12476.00	113.41	1869.10	0.69	0.60	0.92	51.14	48.25	4.89	7.79	4.04	132.61	1.18	129.75	8.93	137.48	19.16	147.41
8.70	12668.00	113.41	1878.99	0.70	0.60	0.92	51.10	48.35	4.95	7.79	4.02	132.04	1.22	129.24	8.97	136.97	19.26	149.09
8.80	12861.00	113.45	1887.92	0.70	0.61	0.92	51.06	48.47	5.00	7.79	4.00	131.33	1.26	128.59	9.00	136.32	19.35	150.60
8.90	13055.00	113.53	1895.96	0.70	0.61	0.92	51.02	48.61	5.06	7.79	3.97	130.54	1.29	127.85	9.04	135.59	19.43	151.99
9.00	13250.00	113.62	1903.44	0.70	0.61	0.92	50.99	48.75	5.12	7.79	3.95	129.71	1.32	127.08	9.06	134.81	19.51	153.33
9.10	13445.00	113.70	1910.68	0.70	0.61	0.92	50.96	48.89	5.18	7.79	3.92	128.86	1.35	126.30	9.09	134.03	19.58	154.63
9.20	13641.00	113.78	1917.75	0.70	0.61	0.92	50.93	49.02	5.24	7.79	3.89	128.02	1.37	125.51	9.12	133.24	19.66	155.91
9.30	13838.00	113.86	1924.65	0.71	0.62	0.92	50.90	49.15	5.30	7.79	3.86	127.16	1.40	124.71	9.15	132.45	19.73	157.15
9.40	14036.00	113.94	1931.36	0.71	0.62	0.92	50.88	49.28	5.35	7.79	3.83	126.32	1.43	123.92	9.18	131.66	19.80	158.39

Fixed Trim = 1.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = 2.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

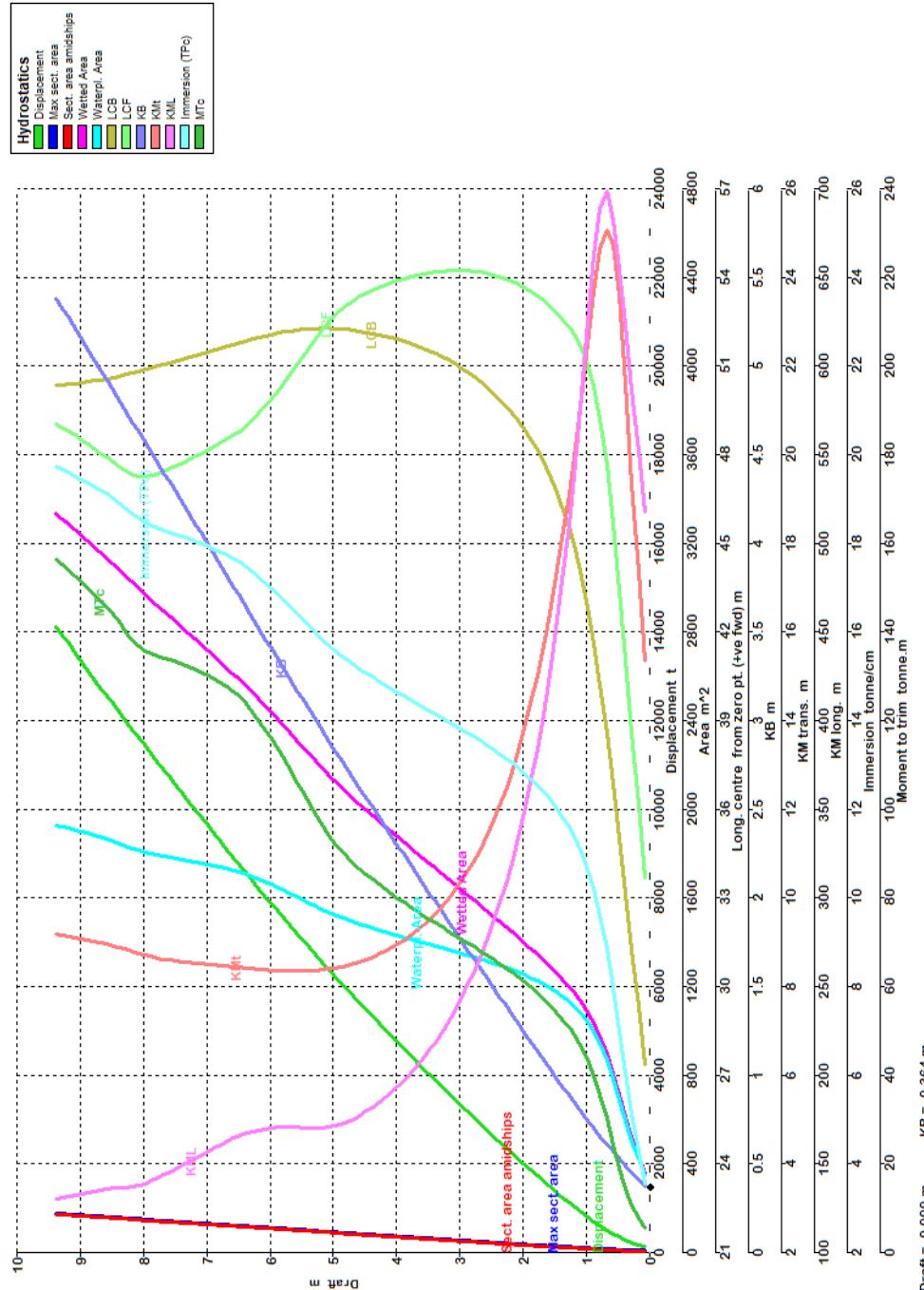
Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMt, m	BML, m	GMt, m	GML, m	KM _L , m	KM _T , m	Immersion (TPC) tonne/cm	MTc, tonne.m
0.10	111.00	56.18	342.62	0.54	0.22	0.75	27.32	33.62	0.36	7.79	14.97	517.02	7.18	509.22	15.33	517.30	3.51	5.15
0.20	149.90	61.83	416.62	0.54	0.22	0.65	29.29	36.12	0.40	7.79	16.92	550.77	9.20	543.05	17.32	551.09	4.27	7.41
0.30	196.70	67.47	497.32	0.53	0.21	0.65	31.22	38.57	0.44	7.79	18.88	585.47	11.23	577.82	19.32	585.82	5.10	10.35
0.40	252.20	73.11	587.04	0.52	0.21	0.65	33.11	41.02	0.48	7.79	21.08	621.88	13.51	614.31	21.56	622.26	6.02	14.11
0.50	317.20	78.74	681.23	0.51	0.20	0.66	34.99	43.36	0.52	7.79	23.05	653.47	15.55	645.97	23.57	653.88	6.98	18.66
0.60	391.80	84.36	774.39	0.51	0.21	0.67	36.80	45.61	0.57	7.79	24.15	681.12	16.73	673.70	24.71	681.57	7.94	24.04
0.70	475.70	89.95	861.58	0.51	0.21	0.67	38.54	47.63	0.61	7.79	24.43	697.47	17.08	690.12	25.03	697.97	8.83	29.90
0.80	567.90	95.53	934.33	0.51	0.22	0.68	40.15	49.17	0.65	7.79	23.97	687.63	16.69	680.35	24.62	688.17	9.58	35.19
0.90	666.70	100.66	991.71	0.51	0.22	0.68	41.57	50.27	0.69	7.79	22.97	660.85	15.76	653.64	23.66	661.43	10.17	39.69
1.00	770.80	102.72	1036.58	0.51	0.23	0.69	42.80	51.02	0.74	7.79	21.74	623.42	14.60	616.27	22.48	624.05	10.63	43.25
1.10	878.90	103.76	1072.57	0.52	0.24	0.70	43.85	51.55	0.79	7.79	20.50	582.71	13.42	575.64	21.28	583.40	10.99	46.07
1.20	990.40	104.50	1102.70	0.53	0.26	0.71	44.74	51.95	0.83	7.79	19.30	544.05	12.29	537.04	20.13	544.79	11.30	48.44
1.30	1105.00	105.05	1128.77	0.53	0.27	0.72	45.50	52.28	0.88	7.79	18.19	509.06	11.24	502.11	19.07	509.85	11.57	50.51
1.40	1222.00	105.48	1151.72	0.54	0.28	0.73	46.17	52.56	0.93	7.79	17.17	477.74	10.28	470.85	18.09	478.59	11.81	52.38
1.50	1341.00	105.83	1172.23	0.54	0.29	0.74	46.74	52.80	0.98	7.79	16.23	449.71	9.41	442.88	17.21	450.62	12.02	54.07
1.60	1462.00	106.14	1190.57	0.55	0.30	0.75	47.25	53.01	1.03	7.79	15.38	424.61	8.61	417.84	16.40	425.57	12.20	55.62
1.70	1585.00	106.43	1206.94	0.55	0.31	0.76	47.71	53.19	1.08	7.79	14.58	402.05	7.87	395.34	15.66	403.07	12.37	57.05
1.80	1709.00	106.68	1221.93	0.56	0.32	0.77	48.11	53.35	1.13	7.79	13.85	381.80	7.20	375.15	14.98	382.87	12.53	58.39
1.90	1835.00	106.89	1235.59	0.56	0.33	0.78	48.48	53.49	1.18	7.79	13.18	363.48	6.59	356.89	14.36	364.60	12.67	59.64
2.00	1962.00	106.87	1248.16	0.57	0.34	0.79	48.81	53.62	1.23	7.79	12.57	346.77	6.03	340.23	13.80	347.95	12.79	60.80
2.10	2091.00	106.78	1259.89	0.57	0.35	0.80	49.10	53.73	1.29	7.79	12.00	331.69	5.52	325.21	13.29	332.92	12.91	61.92
2.20	2221.00	106.79	1270.72	0.58	0.36	0.80	49.38	53.83	1.34	7.79	11.49	317.79	5.06	311.36	12.82	319.07	13.03	62.96
2.30	2351.00	106.79	1281.06	0.58	0.37	0.81	49.63	53.91	1.39	7.79	11.01	305.19	4.64	298.83	12.40	306.53	13.13	63.99
2.40	2483.00	106.83	1291.08	0.59	0.38	0.82	49.86	53.98	1.44	7.79	10.57	293.73	4.26	287.42	12.01	295.12	13.23	64.99
2.50	2616.00	106.88	1300.77	0.59	0.39	0.82	50.07	54.04	1.49	7.79	10.18	283.20	3.92	276.95	11.67	284.65	13.33	65.98

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2750.00	106.93	1310.07	0.59	0.39	0.83	50.26	54.09	1.55	7.79	9.81	273.43	3.61	267.23	11.35	274.93	13.43	66.92
2.70	2885.00	107.02	1319.09	0.60	0.40	0.83	50.44	54.13	1.60	7.79	9.47	264.40	3.33	258.26	11.07	265.95	13.52	67.84
2.80	3020.00	107.13	1327.79	0.60	0.41	0.84	50.61	54.16	1.65	7.79	9.16	255.97	3.07	249.88	10.80	257.58	13.61	68.73
2.90	3157.00	107.24	1336.26	0.60	0.41	0.84	50.76	54.18	1.70	7.79	8.86	248.16	2.83	242.12	10.56	249.82	13.70	69.60
3.00	3294.00	107.36	1344.55	0.60	0.42	0.84	50.91	54.19	1.76	7.79	8.59	240.90	2.61	234.92	10.34	242.61	13.78	70.47
3.10	3432.00	107.47	1352.66	0.61	0.43	0.85	51.04	54.19	1.81	7.79	8.34	234.11	2.41	228.19	10.14	235.88	13.87	71.32
3.20	3571.00	107.57	1360.75	0.61	0.43	0.85	51.16	54.18	1.86	7.79	8.10	227.86	2.23	221.99	9.96	229.68	13.95	72.20
3.30	3711.00	107.68	1368.79	0.61	0.44	0.86	51.27	54.16	1.91	7.79	7.88	222.04	2.06	216.23	9.79	223.92	14.03	73.08
3.40	3852.00	107.79	1376.81	0.61	0.44	0.86	51.38	54.14	1.97	7.79	7.67	216.63	1.91	210.87	9.63	218.56	14.11	73.97
3.50	3993.00	107.90	1384.82	0.61	0.45	0.86	51.48	54.11	2.02	7.79	7.47	211.59	1.77	205.89	9.49	213.57	14.19	74.87
3.60	4136.00	108.01	1392.83	0.62	0.45	0.87	51.57	54.07	2.07	7.79	7.29	206.88	1.64	201.24	9.36	208.92	14.28	75.79
3.70	4279.00	108.13	1400.81	0.62	0.45	0.87	51.65	54.02	2.13	7.79	7.11	202.46	1.52	196.86	9.24	204.55	14.36	76.71
3.80	4423.00	108.25	1408.89	0.62	0.46	0.87	51.73	53.97	2.18	7.79	6.95	198.37	1.41	192.84	9.13	200.52	14.44	77.67
3.90	4568.00	108.38	1416.98	0.62	0.46	0.88	51.80	53.92	2.23	7.79	6.79	194.54	1.31	189.06	9.03	196.74	14.52	78.64
4.00	4713.00	108.51	1425.12	0.62	0.47	0.88	51.86	53.86	2.29	7.79	6.65	190.95	1.22	185.53	8.93	193.21	14.61	79.63
4.10	4860.00	108.65	1433.35	0.62	0.47	0.88	51.92	53.79	2.34	7.79	6.51	187.60	1.14	182.23	8.85	189.91	14.69	80.65
4.20	5007.00	108.80	1441.67	0.62	0.47	0.88	51.97	53.71	2.39	7.79	6.38	184.47	1.06	179.15	8.77	186.84	14.78	81.69
4.30	5155.00	108.96	1450.08	0.63	0.48	0.89	52.02	53.63	2.45	7.79	6.26	181.54	0.99	176.27	8.70	183.96	14.86	82.75
4.40	5304.00	109.14	1458.73	0.63	0.48	0.89	52.07	53.53	2.50	7.79	6.14	178.85	0.93	173.65	8.64	181.33	14.95	83.88
4.50	5454.00	109.33	1467.75	0.63	0.48	0.89	52.11	53.42	2.56	7.79	6.03	176.45	0.88	171.29	8.58	178.98	15.04	85.08
4.60	5605.00	109.56	1476.77	0.63	0.49	0.89	52.14	53.31	2.61	7.79	5.92	174.12	0.83	169.02	8.53	176.70	15.14	86.27
4.70	5757.00	109.85	1486.11	0.63	0.49	0.89	52.17	53.18	2.67	7.79	5.83	172.02	0.78	166.97	8.49	174.65	15.23	87.54
4.80	5910.00	110.33	1496.17	0.63	0.49	0.89	52.19	53.03	2.72	7.79	5.73	170.29	0.75	165.30	8.45	172.98	15.34	88.96
4.90	6064.00	110.92	1506.75	0.63	0.49	0.89	52.21	52.86	2.78	7.79	5.65	168.83	0.71	163.89	8.42	171.58	15.44	90.50
5.00	6219.00	111.67	1518.26	0.63	0.49	0.90	52.23	52.66	2.83	7.79	5.57	167.77	0.69	162.89	8.39	170.57	15.56	92.24
5.10	6375.00	112.44	1530.61	0.62	0.49	0.90	52.23	52.43	2.89	7.79	5.49	167.07	0.67	162.25	8.37	169.93	15.69	94.19
5.20	6533.00	113.40	1543.73	0.62	0.49	0.90	52.23	52.17	2.94	7.79	5.42	166.69	0.65	161.93	8.36	169.61	15.82	96.33

Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6691.00	114.21	1557.41	0.62	0.49	0.90	52.23	51.89	3.00	7.79	5.35	166.55	0.64	161.84	8.34	169.52	15.96	98.62
5.40	6852.00	115.02	1571.32	0.62	0.49	0.90	52.22	51.60	3.05	7.79	5.28	166.51	0.62	161.86	8.33	169.54	16.11	100.99
5.50	7014.00	115.91	1585.51	0.61	0.49	0.90	52.20	51.30	3.11	7.79	5.22	166.59	0.62	162.00	8.33	169.68	16.25	103.46
5.60	7177.00	116.82	1599.87	0.61	0.49	0.90	52.18	50.99	3.17	7.79	5.15	166.76	0.61	162.22	8.32	169.90	16.40	106.01
5.70	7341.00	117.32	1614.48	0.61	0.49	0.91	52.15	50.67	3.23	7.79	5.10	167.01	0.61	162.52	8.32	170.21	16.55	108.65
5.80	7508.00	117.34	1628.44	0.61	0.50	0.91	52.11	50.38	3.28	7.79	5.04	166.99	0.61	162.56	8.32	170.24	16.69	111.14
5.90	7675.00	117.36	1641.64	0.61	0.50	0.91	52.07	50.11	3.34	7.79	4.99	166.67	0.62	162.30	8.33	169.99	16.83	113.44
6.00	7844.00	117.37	1654.33	0.62	0.50	0.91	52.02	49.85	3.40	7.79	4.94	166.16	0.62	161.85	8.33	169.54	16.96	115.61
6.10	8014.00	117.38	1666.71	0.62	0.51	0.91	51.98	49.61	3.46	7.79	4.89	165.54	0.63	161.28	8.35	168.97	17.08	117.71
6.20	8186.00	117.39	1678.85	0.62	0.51	0.91	51.92	49.38	3.52	7.79	4.84	164.82	0.65	160.62	8.36	168.31	17.21	119.73
6.30	8358.00	117.39	1690.71	0.62	0.51	0.91	51.87	49.15	3.57	7.79	4.80	164.02	0.66	159.88	8.38	167.57	17.33	121.69
6.40	8532.00	117.39	1702.09	0.63	0.51	0.91	51.81	48.93	3.63	7.79	4.76	163.09	0.68	159.01	8.40	166.70	17.45	123.55
6.50	8707.00	117.39	1711.99	0.63	0.52	0.91	51.75	48.75	3.69	7.79	4.72	161.81	0.70	157.79	8.41	165.48	17.55	125.11
6.60	8883.00	117.39	1719.91	0.63	0.52	0.91	51.69	48.61	3.75	7.79	4.68	160.05	0.71	156.08	8.43	163.77	17.63	126.26
6.70	9060.00	117.38	1727.32	0.63	0.52	0.91	51.63	48.48	3.81	7.79	4.63	158.25	0.72	154.34	8.44	162.04	17.71	127.33
6.80	9237.00	117.36	1733.97	0.63	0.53	0.91	51.57	48.36	3.87	7.79	4.58	156.34	0.73	152.48	8.45	160.18	17.77	128.26
6.90	9415.00	117.34	1740.24	0.64	0.53	0.92	51.51	48.24	3.93	7.79	4.53	154.38	0.74	150.58	8.46	158.28	17.84	129.10
7.00	9594.00	117.31	1746.30	0.64	0.53	0.92	51.44	48.12	3.99	7.79	4.49	152.42	0.75	148.68	8.47	156.38	17.90	129.89
7.10	9773.00	117.28	1751.97	0.64	0.53	0.92	51.38	48.01	4.04	7.79	4.44	150.42	0.76	146.74	8.48	154.44	17.96	130.59
7.20	9953.00	117.24	1757.36	0.64	0.54	0.92	51.32	47.90	4.10	7.79	4.40	148.42	0.77	144.79	8.50	152.50	18.01	131.23
7.30	10133.00	117.19	1762.45	0.65	0.54	0.92	51.26	47.79	4.16	7.79	4.35	146.41	0.79	142.84	8.51	150.55	18.07	131.81
7.40	10314.00	117.14	1767.37	0.65	0.54	0.92	51.20	47.69	4.22	7.79	4.31	144.43	0.80	140.92	8.53	148.62	18.12	132.36
7.50	10496.00	117.09	1772.16	0.65	0.55	0.92	51.14	47.59	4.28	7.79	4.27	142.47	0.82	139.02	8.55	146.73	18.17	132.87
7.60	10677.00	117.02	1776.84	0.65	0.55	0.92	51.08	47.49	4.34	7.79	4.23	140.55	0.84	137.15	8.57	144.86	18.21	133.35
7.70	10860.00	116.95	1781.52	0.66	0.55	0.92	51.01	47.39	4.39	7.79	4.19	138.64	0.86	135.30	8.59	143.01	18.26	133.80
7.80	11043.00	116.87	1786.74	0.66	0.55	0.92	50.95	47.30	4.45	7.79	4.16	136.78	0.88	133.50	8.61	141.21	18.31	134.25
7.90	11226.00	116.77	1793.02	0.66	0.56	0.92	50.89	47.25	4.51	7.79	4.14	135.12	0.92	131.90	8.65	139.61	18.38	134.84

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11410.00	116.64	1800.17	0.66	0.56	0.92	50.83	47.22	4.57	7.79	4.12	133.62	0.95	130.45	8.69	138.16	18.45	135.54
8.10	11595.00	116.45	1808.66	0.67	0.56	0.92	50.78	47.23	4.62	7.79	4.10	132.45	0.99	129.34	8.73	137.05	18.54	136.57
8.20	11781.00	116.07	1818.55	0.67	0.57	0.92	50.72	47.30	4.68	7.79	4.09	131.70	1.03	128.64	8.77	136.36	18.64	138.01
8.30	11968.00	113.45	1829.88	0.69	0.58	0.92	50.67	47.43	4.74	7.79	4.07	131.40	1.08	128.41	8.81	136.12	18.76	139.94
8.40	12156.00	113.44	1841.15	0.69	0.59	0.92	50.62	47.57	4.80	7.79	4.06	131.15	1.12	128.21	8.86	135.92	18.87	141.92
8.50	12345.00	113.44	1851.77	0.69	0.59	0.92	50.57	47.71	4.86	7.79	4.04	130.77	1.16	127.88	8.89	135.60	18.98	143.77
8.60	12536.00	113.43	1861.36	0.69	0.59	0.92	50.53	47.86	4.91	7.79	4.02	130.22	1.19	127.39	8.93	135.11	19.08	145.42
8.70	12727.00	113.43	1870.09	0.70	0.59	0.92	50.49	48.01	4.97	7.79	3.99	129.55	1.22	126.78	8.96	134.50	19.17	146.93
8.80	12919.00	113.42	1878.22	0.70	0.60	0.92	50.46	48.17	5.03	7.79	3.96	128.81	1.25	126.10	8.99	133.82	19.25	148.35
8.90	13112.00	113.42	1885.94	0.70	0.60	0.92	50.42	48.32	5.09	7.79	3.93	128.03	1.28	125.38	9.02	133.10	19.33	149.70
9.00	13305.00	113.42	1893.39	0.70	0.60	0.92	50.39	48.46	5.15	7.79	3.91	127.22	1.31	124.63	9.05	132.35	19.41	151.00
9.10	13500.00	113.50	1900.82	0.70	0.60	0.92	50.37	48.60	5.20	7.79	3.88	126.45	1.34	123.91	9.08	131.63	19.48	152.33
9.20	13695.00	113.58	1908.09	0.70	0.60	0.92	50.34	48.74	5.26	7.79	3.85	125.68	1.37	123.19	9.11	130.92	19.56	153.64
9.30	13891.00	113.66	1915.18	0.71	0.61	0.92	50.32	48.88	5.32	7.79	3.82	124.90	1.40	122.48	9.14	130.20	19.63	154.93
9.40	14088.00	113.75	1922.03	0.71	0.61	0.92	50.30	49.01	5.38	7.79	3.79	124.12	1.42	121.75	9.17	129.47	19.70	156.19

Fixed Trim = 2.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = - 0.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

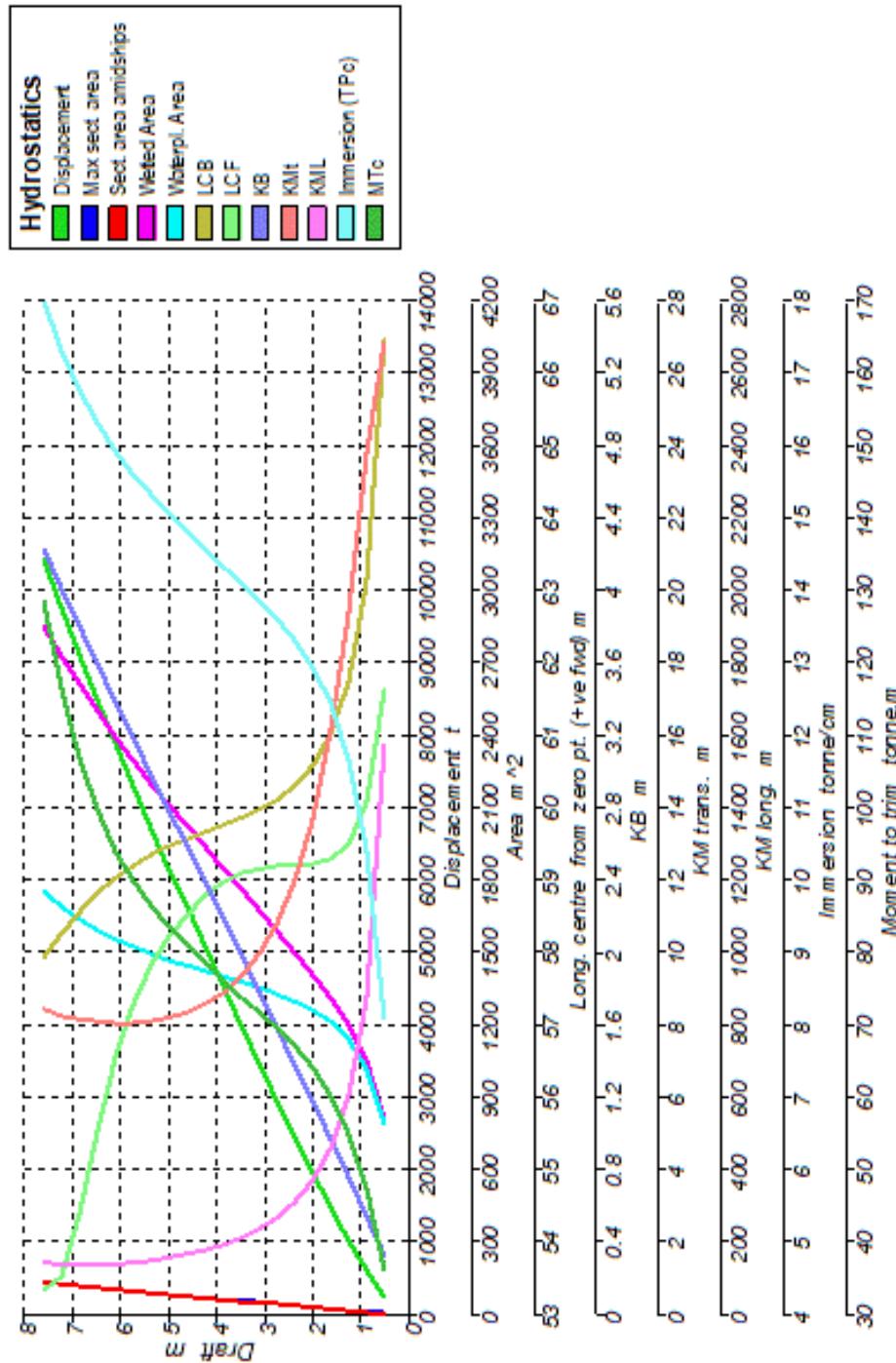
Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMt, m	BML, m	GMt, m	GML, m	KM _t , m	KM _L , m	Immersion (TPC) tonne/cm	MTc, tonne.m
0.10	111.00	56.18	342.62	0.54	0.22	0.75	27.32	33.62	0.36	7.79	14.97	517.02	7.18	509.22	15.33	517.30	3.51	5.15
0.20	149.90	61.83	416.62	0.54	0.22	0.65	29.29	36.12	0.40	7.79	16.92	550.77	9.20	543.05	17.32	551.09	4.27	7.41
0.30	196.70	67.47	497.32	0.53	0.21	0.65	31.22	38.57	0.44	7.79	18.88	585.47	11.23	577.82	19.32	585.82	5.10	10.35
0.40	252.20	73.11	587.04	0.52	0.21	0.65	33.11	41.02	0.48	7.79	21.08	621.88	13.51	614.31	21.56	622.26	6.02	14.11
0.50	317.20	78.74	681.23	0.51	0.20	0.66	34.99	43.36	0.52	7.79	23.05	653.47	15.55	645.97	23.57	653.88	6.98	18.66
0.60	391.80	84.36	774.39	0.51	0.21	0.67	36.80	45.61	0.57	7.79	24.15	681.12	16.73	673.70	24.71	681.57	7.94	24.04
0.70	475.70	89.95	861.58	0.51	0.21	0.67	38.54	47.63	0.61	7.79	24.43	697.47	17.08	690.12	25.03	697.97	8.83	29.90
0.80	567.90	95.53	934.33	0.51	0.22	0.68	40.15	49.17	0.65	7.79	23.97	687.63	16.69	680.35	24.62	688.17	9.58	35.19
0.90	666.70	100.66	991.71	0.51	0.22	0.68	41.57	50.27	0.69	7.79	22.97	660.85	15.76	653.64	23.66	661.43	10.17	39.69
1.00	770.80	102.72	1036.58	0.51	0.23	0.69	42.80	51.02	0.74	7.79	21.74	623.42	14.60	616.27	22.48	624.05	10.63	43.25
1.10	878.90	103.76	1072.57	0.52	0.24	0.70	43.85	51.55	0.79	7.79	20.50	582.71	13.42	575.64	21.28	583.40	10.99	46.07
1.20	990.40	104.50	1102.70	0.53	0.26	0.71	44.74	51.95	0.83	7.79	19.30	544.05	12.29	537.04	20.13	544.79	11.30	48.44
1.30	1105.00	105.05	1128.77	0.53	0.27	0.72	45.50	52.28	0.88	7.79	18.19	509.06	11.24	502.11	19.07	509.85	11.57	50.51
1.40	1222.00	105.48	1151.72	0.54	0.28	0.73	46.17	52.56	0.93	7.79	17.17	477.74	10.28	470.85	18.09	478.59	11.81	52.38
1.50	1341.00	105.83	1172.23	0.54	0.29	0.74	46.74	52.80	0.98	7.79	16.23	449.71	9.41	442.88	17.21	450.62	12.02	54.07
1.60	1462.00	106.14	1190.57	0.55	0.30	0.75	47.25	53.01	1.03	7.79	15.38	424.61	8.61	417.84	16.40	425.57	12.20	55.62
1.70	1585.00	106.43	1206.94	0.55	0.31	0.76	47.71	53.19	1.08	7.79	14.58	402.05	7.87	395.34	15.66	403.07	12.37	57.05
1.80	1709.00	106.68	1221.93	0.56	0.32	0.77	48.11	53.35	1.13	7.79	13.85	381.80	7.20	375.15	14.98	382.87	12.53	58.39
1.90	1835.00	106.89	1235.59	0.56	0.33	0.78	48.48	53.49	1.18	7.79	13.18	363.48	6.59	356.89	14.36	364.60	12.67	59.64
2.00	1962.00	106.87	1248.16	0.57	0.34	0.79	48.81	53.62	1.23	7.79	12.57	346.77	6.03	340.23	13.80	347.95	12.79	60.80
2.10	2091.00	106.78	1259.89	0.57	0.35	0.80	49.10	53.73	1.29	7.79	12.00	331.69	5.52	325.21	13.29	332.92	12.91	61.92
2.20	2221.00	106.79	1270.72	0.58	0.36	0.80	49.38	53.83	1.34	7.79	11.49	317.79	5.06	311.36	12.82	319.07	13.03	62.96
2.30	2351.00	106.79	1281.06	0.58	0.37	0.81	49.63	53.91	1.39	7.79	11.01	305.19	4.64	298.83	12.40	306.53	13.13	63.99
2.40	2483.00	106.83	1291.08	0.59	0.38	0.82	49.86	53.98	1.44	7.79	10.57	293.73	4.26	287.42	12.01	295.12	13.23	64.99
2.50	2616.00	106.88	1300.77	0.59	0.39	0.82	50.07	54.04	1.49	7.79	10.18	283.20	3.92	276.95	11.67	284.65	13.33	65.98

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2750.00	106.93	1310.07	0.59	0.39	0.83	50.26	54.09	1.55	7.79	9.81	273.43	3.61	267.23	11.35	274.93	13.43	66.92
2.70	2885.00	107.02	1319.09	0.60	0.40	0.83	50.44	54.13	1.60	7.79	9.47	264.40	3.33	258.26	11.07	265.95	13.52	67.84
2.80	3020.00	107.13	1327.79	0.60	0.41	0.84	50.61	54.16	1.65	7.79	9.16	255.97	3.07	249.88	10.80	257.58	13.61	68.73
2.90	3157.00	107.24	1336.26	0.60	0.41	0.84	50.76	54.18	1.70	7.79	8.86	248.16	2.83	242.12	10.56	249.82	13.70	69.60
3.00	3294.00	107.36	1344.55	0.60	0.42	0.84	50.91	54.19	1.76	7.79	8.59	240.90	2.61	234.92	10.34	242.61	13.78	70.47
3.10	3432.00	107.47	1352.66	0.61	0.43	0.85	51.04	54.19	1.81	7.79	8.34	234.11	2.41	228.19	10.14	235.88	13.87	71.32
3.20	3571.00	107.57	1360.75	0.61	0.43	0.85	51.16	54.18	1.86	7.79	8.10	227.86	2.23	221.99	9.96	229.68	13.95	72.20
3.30	3711.00	107.68	1368.79	0.61	0.44	0.86	51.27	54.16	1.91	7.79	7.88	222.04	2.06	216.23	9.79	223.92	14.03	73.08
3.40	3852.00	107.79	1376.81	0.61	0.44	0.86	51.38	54.14	1.97	7.79	7.67	216.63	1.91	210.87	9.63	218.56	14.11	73.97
3.50	3993.00	107.90	1384.82	0.61	0.45	0.86	51.48	54.11	2.02	7.79	7.47	211.59	1.77	205.89	9.49	213.57	14.19	74.87
3.60	4136.00	108.01	1392.83	0.62	0.45	0.87	51.57	54.07	2.07	7.79	7.29	206.88	1.64	201.24	9.36	208.92	14.28	75.79
3.70	4279.00	108.13	1400.81	0.62	0.45	0.87	51.65	54.02	2.13	7.79	7.11	202.46	1.52	196.86	9.24	204.55	14.36	76.71
3.80	4423.00	108.25	1408.89	0.62	0.46	0.87	51.73	53.97	2.18	7.79	6.95	198.37	1.41	192.84	9.13	200.52	14.44	77.67
3.90	4568.00	108.38	1416.98	0.62	0.46	0.88	51.80	53.92	2.23	7.79	6.79	194.54	1.31	189.06	9.03	196.74	14.52	78.64
4.00	4713.00	108.51	1425.12	0.62	0.47	0.88	51.86	53.86	2.29	7.79	6.65	190.95	1.22	185.53	8.93	193.21	14.61	79.63
4.10	4860.00	108.65	1433.35	0.62	0.47	0.88	51.92	53.79	2.34	7.79	6.51	187.60	1.14	182.23	8.85	189.91	14.69	80.65
4.20	5007.00	108.80	1441.67	0.62	0.47	0.88	51.97	53.71	2.39	7.79	6.38	184.47	1.06	179.15	8.77	186.84	14.78	81.69
4.30	5155.00	108.96	1450.08	0.63	0.48	0.89	52.02	53.63	2.45	7.79	6.26	181.54	0.99	176.27	8.70	183.96	14.86	82.75
4.40	5304.00	109.14	1458.73	0.63	0.48	0.89	52.07	53.53	2.50	7.79	6.14	178.85	0.93	173.65	8.64	181.33	14.95	83.88
4.50	5454.00	109.33	1467.75	0.63	0.48	0.89	52.11	53.42	2.56	7.79	6.03	176.45	0.88	171.29	8.58	178.98	15.04	85.08
4.60	5605.00	109.56	1476.77	0.63	0.49	0.89	52.14	53.31	2.61	7.79	5.92	174.12	0.83	169.02	8.53	176.70	15.14	86.27
4.70	5757.00	109.85	1486.11	0.63	0.49	0.89	52.17	53.18	2.67	7.79	5.83	172.02	0.78	166.97	8.49	174.65	15.23	87.54
4.80	5910.00	110.33	1496.17	0.63	0.49	0.89	52.19	53.03	2.72	7.79	5.73	170.29	0.75	165.30	8.45	172.98	15.34	88.96
4.90	6064.00	110.92	1506.75	0.63	0.49	0.89	52.21	52.86	2.78	7.79	5.65	168.83	0.71	163.89	8.42	171.58	15.44	90.50
5.00	6219.00	111.67	1518.26	0.63	0.49	0.90	52.23	52.66	2.83	7.79	5.57	167.77	0.69	162.89	8.39	170.57	15.56	92.24
5.10	6375.00	112.44	1530.61	0.62	0.49	0.90	52.23	52.43	2.89	7.79	5.49	167.07	0.67	162.25	8.37	169.93	15.69	94.19
5.20	6533.00	113.40	1543.73	0.62	0.49	0.90	52.23	52.17	2.94	7.79	5.42	166.69	0.65	161.93	8.36	169.61	15.82	96.33

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6691.00	114.21	1557.41	0.62	0.49	0.90	52.23	51.89	3.00	7.79	5.35	166.55	0.64	161.84	8.34	169.52	15.96	98.62
5.40	6852.00	115.02	1571.32	0.62	0.49	0.90	52.22	51.60	3.05	7.79	5.28	166.51	0.62	161.86	8.33	169.54	16.11	100.99
5.50	7014.00	115.91	1585.51	0.61	0.49	0.90	52.20	51.30	3.11	7.79	5.22	166.59	0.62	162.00	8.33	169.68	16.25	103.46
5.60	7177.00	116.82	1599.87	0.61	0.49	0.90	52.18	50.99	3.17	7.79	5.15	166.76	0.61	162.22	8.32	169.90	16.40	106.01
5.70	7341.00	117.32	1614.48	0.61	0.49	0.91	52.15	50.67	3.23	7.79	5.10	167.01	0.61	162.52	8.32	170.21	16.55	108.65
5.80	7508.00	117.34	1628.44	0.61	0.50	0.91	52.11	50.38	3.28	7.79	5.04	166.99	0.61	162.56	8.32	170.24	16.69	111.14
5.90	7675.00	117.36	1641.64	0.61	0.50	0.91	52.07	50.11	3.34	7.79	4.99	166.67	0.62	162.30	8.33	169.99	16.83	113.44
6.00	7844.00	117.37	1654.33	0.62	0.50	0.91	52.02	49.85	3.40	7.79	4.94	166.16	0.62	161.85	8.33	169.54	16.96	115.61
6.10	8014.00	117.38	1666.71	0.62	0.51	0.91	51.98	49.61	3.46	7.79	4.89	165.54	0.63	161.28	8.35	168.97	17.08	117.71
6.20	8186.00	117.39	1678.85	0.62	0.51	0.91	51.92	49.38	3.52	7.79	4.84	164.82	0.65	160.62	8.36	168.31	17.21	119.73
6.30	8358.00	117.39	1690.71	0.62	0.51	0.91	51.87	49.15	3.57	7.79	4.80	164.02	0.66	159.88	8.38	167.57	17.33	121.69
6.40	8532.00	117.39	1702.09	0.63	0.51	0.91	51.81	48.93	3.63	7.79	4.76	163.09	0.68	159.01	8.40	166.70	17.45	123.55
6.50	8707.00	117.39	1711.99	0.63	0.52	0.91	51.75	48.75	3.69	7.79	4.72	161.81	0.70	157.79	8.41	165.48	17.55	125.11
6.60	8883.00	117.39	1719.91	0.63	0.52	0.91	51.69	48.61	3.75	7.79	4.68	160.05	0.71	156.08	8.43	163.77	17.63	126.26
6.70	9060.00	117.38	1727.32	0.63	0.52	0.91	51.63	48.48	3.81	7.79	4.63	158.25	0.72	154.34	8.44	162.04	17.71	127.33
6.80	9237.00	117.36	1733.97	0.63	0.53	0.91	51.57	48.36	3.87	7.79	4.58	156.34	0.73	152.48	8.45	160.18	17.77	128.26
6.90	9415.00	117.34	1740.24	0.64	0.53	0.92	51.51	48.24	3.93	7.79	4.53	154.38	0.74	150.58	8.46	158.28	17.84	129.10
7.00	9594.00	117.31	1746.30	0.64	0.53	0.92	51.44	48.12	3.99	7.79	4.49	152.42	0.75	148.68	8.47	156.38	17.90	129.89
7.10	9773.00	117.28	1751.97	0.64	0.53	0.92	51.38	48.01	4.04	7.79	4.44	150.42	0.76	146.74	8.48	154.44	17.96	130.59
7.20	9953.00	117.24	1757.36	0.64	0.54	0.92	51.32	47.90	4.10	7.79	4.40	148.42	0.77	144.79	8.50	152.50	18.01	131.23
7.30	10133.00	117.19	1762.45	0.65	0.54	0.92	51.26	47.79	4.16	7.79	4.35	146.41	0.79	142.84	8.51	150.55	18.07	131.81
7.40	10314.00	117.14	1767.37	0.65	0.54	0.92	51.20	47.69	4.22	7.79	4.31	144.43	0.80	140.92	8.53	148.62	18.12	132.36
7.50	10496.00	117.09	1772.16	0.65	0.55	0.92	51.14	47.59	4.28	7.79	4.27	142.47	0.82	139.02	8.55	146.73	18.17	132.87
7.60	10677.00	117.02	1776.84	0.65	0.55	0.92	51.08	47.49	4.34	7.79	4.23	140.55	0.84	137.15	8.57	144.86	18.21	133.35
7.70	10860.00	116.95	1781.52	0.66	0.55	0.92	51.01	47.39	4.39	7.79	4.19	138.64	0.86	135.30	8.59	143.01	18.26	133.80
7.80	11043.00	116.87	1786.74	0.66	0.55	0.92	50.95	47.30	4.45	7.79	4.16	136.78	0.88	133.50	8.61	141.21	18.31	134.25
7.90	11226.00	116.77	1793.02	0.66	0.56	0.92	50.89	47.25	4.51	7.79	4.14	135.12	0.92	131.90	8.65	139.61	18.38	134.84

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11410.00	116.64	1800.17	0.66	0.56	0.92	50.83	47.22	4.57	7.79	4.12	133.62	0.95	130.45	8.69	138.16	18.45	135.54
8.10	11595.00	116.45	1808.66	0.67	0.56	0.92	50.78	47.23	4.62	7.79	4.10	132.45	0.99	129.34	8.73	137.05	18.54	136.57
8.20	11781.00	116.07	1818.55	0.67	0.57	0.92	50.72	47.30	4.68	7.79	4.09	131.70	1.03	128.64	8.77	136.36	18.64	138.01
8.30	11968.00	113.45	1829.88	0.69	0.58	0.92	50.67	47.43	4.74	7.79	4.07	131.40	1.08	128.41	8.81	136.12	18.76	139.94
8.40	12156.00	113.44	1841.15	0.69	0.59	0.92	50.62	47.57	4.80	7.79	4.06	131.15	1.12	128.21	8.86	135.92	18.87	141.92
8.50	12345.00	113.44	1851.77	0.69	0.59	0.92	50.57	47.71	4.86	7.79	4.04	130.77	1.16	127.88	8.89	135.60	18.98	143.77
8.60	12536.00	113.43	1861.36	0.69	0.59	0.92	50.53	47.86	4.91	7.79	4.02	130.22	1.19	127.39	8.93	135.11	19.08	145.42
8.70	12727.00	113.43	1870.09	0.70	0.59	0.92	50.49	48.01	4.97	7.79	3.99	129.55	1.22	126.78	8.96	134.50	19.17	146.93
8.80	12919.00	113.42	1878.22	0.70	0.60	0.92	50.46	48.17	5.03	7.79	3.96	128.81	1.25	126.10	8.99	133.82	19.25	148.35
8.90	13112.00	113.42	1885.94	0.70	0.60	0.92	50.42	48.32	5.09	7.79	3.93	128.03	1.28	125.38	9.02	133.10	19.33	149.70
9.00	13305.00	113.42	1893.39	0.70	0.60	0.92	50.39	48.46	5.15	7.79	3.91	127.22	1.31	124.63	9.05	132.35	19.41	151.00
9.10	13500.00	113.50	1900.82	0.70	0.60	0.92	50.37	48.60	5.20	7.79	3.88	126.45	1.34	123.91	9.08	131.63	19.48	152.33
9.20	13695.00	113.58	1908.09	0.70	0.60	0.92	50.34	48.74	5.26	7.79	3.85	125.68	1.37	123.19	9.11	130.92	19.56	153.64
9.30	13891.00	113.66	1915.18	0.71	0.61	0.92	50.32	48.88	5.32	7.79	3.82	124.90	1.40	122.48	9.14	130.20	19.63	154.93
9.40	14088.00	113.75	1922.03	0.71	0.61	0.92	50.30	49.01	5.38	7.79	3.79	124.12	1.42	121.75	9.17	129.47	19.70	156.19

Fixed Trim = - 0.5 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = - 1.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

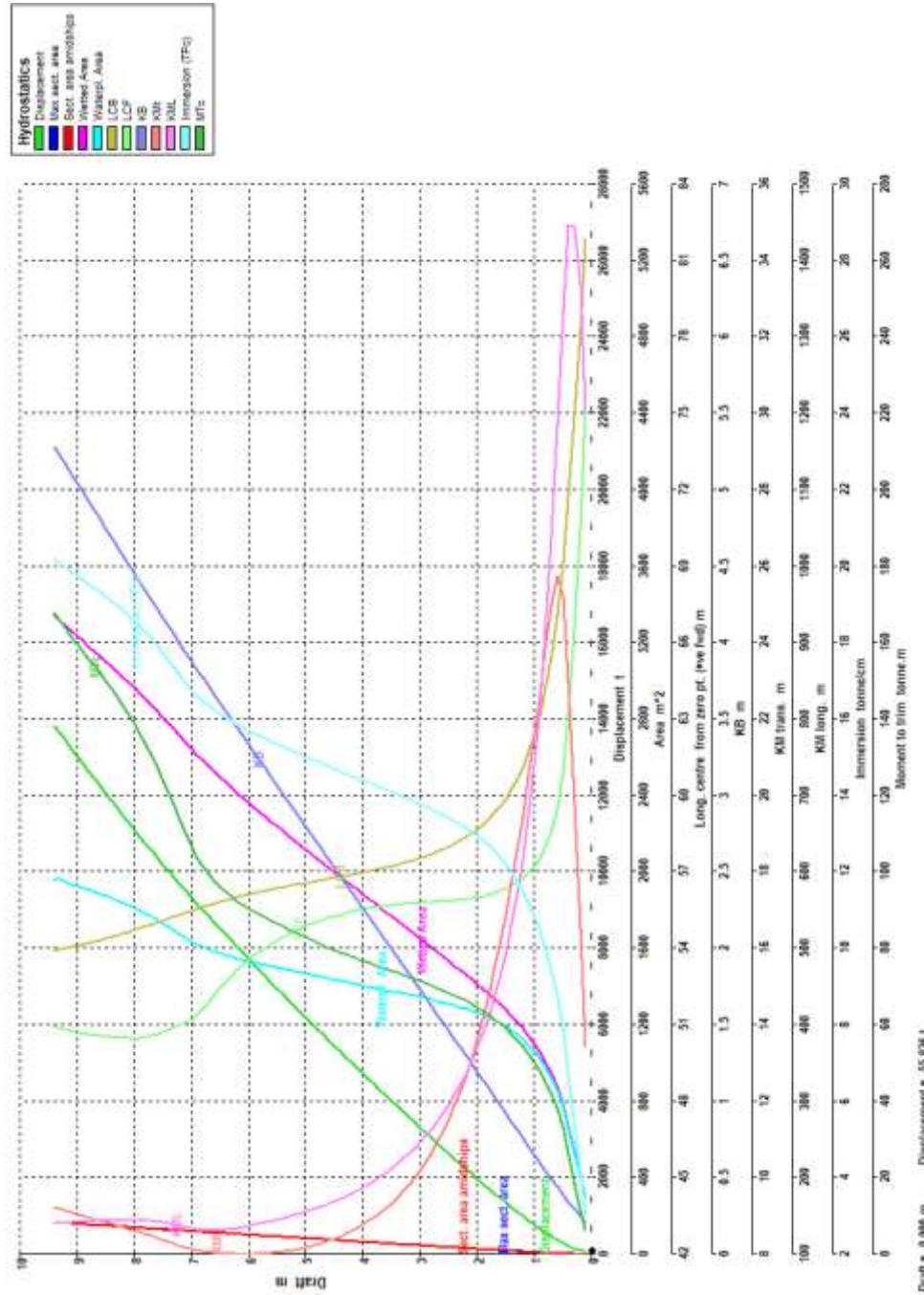
Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMT, m	BML, m	GMT, m	GML, m	KMt, m	KMl, m	Immersion (TPc) tonne/cm	MTC, tonne.m
0.10	55.83	65.35	290.34	0.54	0.22	0.66	81.87	75.22	0.21	7.79	13.22	1202.53	5.32	1194.63	13.42	1202.68	2.98	6.07
0.20	91.17	76.70	402.34	0.51	0.21	0.66	78.33	70.54	0.25	7.79	16.24	1369.80	8.42	1361.98	16.49	1369.99	4.12	11.31
0.30	138.70	88.01	525.00	0.49	0.20	0.65	74.92	66.55	0.29	7.79	19.51	1443.75	11.77	1436.00	19.81	1443.98	5.38	18.13
0.40	199.10	99.27	651.29	0.48	0.20	0.65	71.82	63.23	0.34	7.79	22.63	1444.88	14.96	1437.21	22.97	1445.16	6.68	26.05
0.50	271.80	103.72	764.52	0.50	0.21	0.66	69.18	60.93	0.39	7.79	24.78	1334.54	17.18	1326.94	25.16	1334.87	7.84	32.84
0.60	354.90	104.60	854.19	0.52	0.23	0.65	67.06	59.46	0.44	7.79	25.29	1183.63	17.76	1176.10	25.72	1184.02	8.76	38.02
0.70	446.10	105.18	920.39	0.54	0.25	0.67	65.41	58.57	0.49	7.79	24.48	1037.66	17.01	1030.20	24.96	1038.11	9.43	41.85
0.80	543.20	105.67	973.16	0.55	0.26	0.69	64.13	57.99	0.54	7.79	23.30	915.85	15.90	908.45	23.83	916.35	9.98	44.94
0.90	645.30	106.09	1017.39	0.56	0.28	0.70	63.12	57.56	0.59	7.79	22.04	817.54	14.70	810.20	22.63	818.10	10.43	47.61
1.00	751.60	106.43	1056.26	0.58	0.29	0.72	62.31	57.23	0.65	7.79	20.87	738.09	13.59	730.82	21.51	738.71	10.83	50.02
1.10	861.60	106.74	1090.25	0.59	0.31	0.73	61.64	56.95	0.70	7.79	19.76	672.11	12.54	664.89	20.46	672.78	11.18	52.17
1.20	974.90	107.04	1119.98	0.59	0.32	0.74	61.09	56.75	0.76	7.79	18.71	616.68	11.56	609.53	19.47	617.41	11.48	54.11
1.30	1091.00	107.33	1146.19	0.60	0.33	0.75	60.61	56.58	0.81	7.79	17.73	569.42	10.64	562.32	18.54	570.20	11.75	55.87
1.40	1210.00	107.60	1169.37	0.61	0.34	0.74	60.21	56.44	0.86	7.79	16.82	528.55	9.79	521.51	17.69	529.39	11.99	57.45
1.50	1331.00	107.87	1189.82	0.61	0.35	0.74	59.86	56.33	0.92	7.79	15.97	492.97	8.99	485.99	16.89	493.87	12.20	58.89
1.60	1454.00	108.13	1207.74	0.61	0.36	0.75	59.56	56.24	0.97	7.79	15.16	461.41	8.24	454.48	16.14	462.36	12.38	60.16
1.70	1578.00	108.38	1223.66	0.61	0.37	0.76	59.30	56.16	1.03	7.79	14.41	433.88	7.54	427.01	15.43	434.89	12.54	61.37
1.80	1704.00	108.62	1237.61	0.62	0.38	0.77	59.06	56.09	1.08	7.79	13.69	409.40	6.88	402.58	14.77	410.46	12.69	62.48
1.90	1832.00	108.84	1250.19	0.62	0.39	0.78	58.85	56.04	1.14	7.79	13.02	387.55	6.27	380.79	14.16	388.67	12.81	63.52
2.00	1961.00	109.06	1261.59	0.62	0.40	0.79	58.67	56.00	1.19	7.79	12.41	367.77	5.71	361.07	13.60	368.95	12.93	64.47
2.10	2091.00	109.26	1272.20	0.62	0.40	0.80	58.50	55.96	1.24	7.79	11.85	350.01	5.21	343.37	13.10	351.24	13.04	65.37
2.20	2221.00	109.43	1282.03	0.62	0.41	0.80	58.35	55.93	1.30	7.79	11.34	333.79	4.75	327.20	12.64	335.08	13.14	66.19
2.30	2353.00	109.59	1291.16	0.62	0.42	0.81	58.21	55.91	1.35	7.79	10.87	319.00	4.34	312.47	12.22	320.34	13.23	66.96
2.40	2486.00	109.73	1299.71	0.62	0.43	0.81	58.09	55.89	1.41	7.79	10.44	305.42	3.96	298.94	11.84	306.81	13.32	67.68
2.50	2620.00	109.83	1307.82	0.62	0.43	0.82	57.98	55.87	1.46	7.79	10.04	292.97	3.62	286.55	11.50	294.42	13.41	68.36

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2754.00	109.93	1315.56	0.63	0.44	0.82	57.87	55.86	1.51	7.79	9.68	281.52	3.31	275.16	11.19	283.03	13.48	69.01
2.70	2889.00	109.99	1322.98	0.63	0.44	0.83	57.78	55.85	1.57	7.79	9.34	270.98	3.02	264.67	10.90	272.54	13.56	69.64
2.80	3025.00	110.04	1330.14	0.63	0.45	0.84	57.69	55.83	1.62	7.79	9.02	261.25	2.76	254.99	10.64	262.86	13.63	70.25
2.90	3162.00	110.07	1337.05	0.63	0.46	0.84	57.61	55.82	1.67	7.79	8.73	252.25	2.52	246.05	10.40	253.92	13.71	70.85
3.00	3299.00	110.09	1343.55	0.63	0.46	0.84	57.54	55.80	1.73	7.79	8.45	243.69	2.30	237.53	10.18	245.40	13.77	71.37
3.10	3437.00	110.11	1350.04	0.63	0.47	0.85	57.46	55.78	1.78	7.79	8.20	235.89	2.10	229.79	9.98	237.66	13.84	71.93
3.20	3576.00	110.11	1356.36	0.63	0.47	0.85	57.40	55.76	1.83	7.79	7.96	228.61	1.91	222.56	9.79	230.43	13.90	72.48
3.30	3716.00	110.10	1362.54	0.63	0.48	0.86	57.34	55.74	1.89	7.79	7.73	221.79	1.74	215.80	9.62	223.66	13.97	73.01
3.40	3855.00	109.90	1368.50	0.64	0.48	0.86	57.28	55.72	1.94	7.79	7.52	215.32	1.59	209.39	9.46	217.25	14.03	73.51
3.50	3996.00	109.63	1374.45	0.64	0.49	0.86	57.22	55.70	1.99	7.79	7.32	209.32	1.44	203.43	9.32	211.30	14.09	74.03
3.60	4137.00	109.48	1380.19	0.64	0.49	0.87	57.17	55.68	2.05	7.79	7.14	203.58	1.31	197.76	9.18	205.62	14.15	74.50
3.70	4279.00	109.33	1386.07	0.64	0.50	0.87	57.12	55.65	2.10	7.79	6.96	198.32	1.19	192.54	9.06	200.41	14.21	75.03
3.80	4421.00	109.25	1391.92	0.64	0.50	0.87	57.07	55.61	2.15	7.79	6.80	193.37	1.08	187.65	8.95	195.51	14.27	75.55
3.90	4564.00	109.17	1397.79	0.65	0.50	0.87	57.03	55.57	2.21	7.79	6.64	188.73	0.98	183.06	8.85	190.93	14.33	76.09
4.00	4708.00	109.11	1403.61	0.65	0.51	0.88	56.98	55.53	2.26	7.79	6.50	184.34	0.88	178.73	8.76	186.59	14.39	76.62
4.10	4852.00	109.08	1409.46	0.65	0.51	0.88	56.94	55.48	2.31	7.79	6.36	180.22	0.80	174.66	8.67	182.52	14.45	77.17
4.20	4997.00	109.08	1415.34	0.65	0.52	0.88	56.90	55.43	2.37	7.79	6.22	176.34	0.72	170.83	8.59	178.70	14.51	77.73
4.30	5142.00	109.09	1421.27	0.65	0.52	0.88	56.85	55.38	2.42	7.79	6.10	172.69	0.65	167.24	8.52	175.11	14.57	78.31
4.40	5288.00	109.09	1427.25	0.65	0.52	0.89	56.81	55.32	2.47	7.79	5.98	169.26	0.58	163.86	8.45	171.73	14.63	78.91
4.50	5435.00	109.10	1433.27	0.65	0.53	0.89	56.77	55.25	2.53	7.79	5.87	166.02	0.52	160.68	8.39	168.55	14.69	79.52
4.60	5582.00	109.11	1439.36	0.66	0.53	0.89	56.73	55.18	2.58	7.79	5.76	162.97	0.47	157.68	8.34	165.55	14.75	80.15
4.70	5730.00	109.13	1445.50	0.66	0.53	0.89	56.69	55.11	2.63	7.79	5.65	160.09	0.42	154.85	8.29	162.72	14.82	80.80
4.80	5878.00	109.14	1451.71	0.66	0.53	0.89	56.65	55.03	2.69	7.79	5.56	157.36	0.37	152.18	8.24	160.04	14.88	81.46
4.90	6028.00	109.16	1458.00	0.66	0.54	0.89	56.61	54.95	2.74	7.79	5.46	154.78	0.33	149.65	8.20	157.51	14.94	82.14
5.00	6177.00	109.18	1464.32	0.66	0.54	0.90	56.57	54.85	2.80	7.79	5.37	152.31	0.30	147.24	8.17	155.10	15.01	82.82
5.10	6328.00	109.20	1470.70	0.66	0.54	0.90	56.52	54.76	2.85	7.79	5.29	149.97	0.27	144.95	8.14	152.81	15.08	83.52
5.20	6479.00	109.22	1477.11	0.66	0.55	0.90	56.48	54.65	2.90	7.79	5.21	147.72	0.24	142.76	8.11	150.62	15.14	84.22

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6631.00	109.25	1483.58	0.66	0.55	0.90	56.44	54.54	2.96	7.79	5.13	145.58	0.22	140.67	8.09	148.53	15.21	84.93
5.40	6783.00	109.28	1490.09	0.66	0.55	0.90	56.39	54.43	3.01	7.79	5.06	143.53	0.20	138.67	8.07	146.53	15.27	85.65
5.50	6936.00	109.31	1496.67	0.67	0.55	0.90	56.35	54.30	3.06	7.79	4.99	141.57	0.18	136.77	8.05	144.63	15.34	86.38
5.60	7090.00	109.35	1503.27	0.67	0.56	0.90	56.30	54.17	3.12	7.79	4.92	139.69	0.17	134.94	8.04	142.80	15.41	87.12
5.70	7244.00	109.41	1509.88	0.67	0.56	0.91	56.26	54.02	3.17	7.79	4.86	137.88	0.16	133.19	8.03	141.05	15.48	87.86
5.80	7399.00	109.48	1516.70	0.67	0.56	0.91	56.21	53.87	3.23	7.79	4.79	136.21	0.15	131.57	8.02	139.43	15.55	88.65
5.90	7555.00	109.56	1523.75	0.67	0.56	0.91	56.16	53.70	3.28	7.79	4.74	134.68	0.15	130.09	8.01	137.95	15.62	89.50
6.00	7712.00	109.67	1530.87	0.67	0.56	0.91	56.11	53.52	3.33	7.79	4.68	133.21	0.15	128.67	8.01	136.53	15.69	90.36
6.10	7869.00	109.82	1538.12	0.67	0.57	0.91	56.05	53.34	3.39	7.79	4.62	131.82	0.15	127.34	8.01	135.20	15.77	91.25
6.20	8027.00	110.09	1545.96	0.67	0.57	0.91	56.00	53.13	3.44	7.79	4.57	130.64	0.15	126.21	8.01	134.07	15.85	92.26
6.30	8186.00	110.48	1554.27	0.67	0.57	0.91	55.94	52.91	3.50	7.79	4.52	129.66	0.15	125.29	8.02	133.15	15.93	93.39
6.40	8346.00	110.87	1563.28	0.67	0.57	0.91	55.88	52.67	3.55	7.79	4.48	128.90	0.16	124.59	8.03	132.44	16.02	94.68
6.50	8506.00	111.35	1572.83	0.67	0.57	0.91	55.82	52.41	3.60	7.79	4.43	128.32	0.17	124.06	8.04	131.91	16.12	96.10
6.60	8668.00	111.69	1582.85	0.67	0.57	0.91	55.75	52.14	3.66	7.79	4.39	127.88	0.18	123.67	8.05	131.53	16.22	97.62
6.70	8831.00	109.69	1593.92	0.68	0.58	0.91	55.68	51.87	3.71	7.79	4.35	127.83	0.20	123.68	8.06	131.53	16.34	99.46
6.80	8995.00	110.32	1605.30	0.68	0.58	0.91	55.61	51.60	3.77	7.79	4.31	127.87	0.22	123.77	8.08	131.63	16.45	101.38
6.90	9160.00	110.92	1617.79	0.67	0.58	0.91	55.54	51.36	3.82	7.79	4.27	128.26	0.23	124.23	8.09	132.08	16.58	103.62
7.00	9327.00	111.65	1633.45	0.67	0.58	0.92	55.46	51.21	3.88	7.79	4.24	129.48	0.26	125.50	8.12	133.35	16.74	106.59
7.10	9495.00	112.30	1651.78	0.67	0.57	0.92	55.38	51.10	3.93	7.79	4.22	131.10	0.30	127.18	8.16	135.03	16.93	109.96
7.20	9665.00	113.04	1671.60	0.67	0.57	0.92	55.31	51.00	3.99	7.79	4.21	132.85	0.35	128.98	8.20	136.83	17.13	113.52
7.30	9838.00	113.41	1691.60	0.67	0.57	0.92	55.23	50.89	4.05	7.79	4.21	134.57	0.40	130.76	8.25	138.61	17.34	117.14
7.40	10012.00	113.40	1711.03	0.67	0.58	0.92	55.15	50.79	4.10	7.79	4.20	136.06	0.45	132.30	8.31	140.15	17.54	120.63
7.50	10189.00	113.40	1729.75	0.67	0.58	0.92	55.08	50.70	4.16	7.79	4.20	137.31	0.50	133.62	8.36	141.47	17.73	123.97
7.60	10367.00	113.49	1748.02	0.67	0.58	0.92	55.00	50.62	4.22	7.79	4.20	138.43	0.56	134.80	8.41	142.65	17.92	127.25
7.70	10547.00	113.57	1765.55	0.67	0.58	0.92	54.93	50.55	4.28	7.79	4.19	139.40	0.61	135.82	8.47	143.67	18.10	130.45
7.80	10729.00	113.65	1781.71	0.67	0.58	0.92	54.85	50.51	4.33	7.79	4.18	140.09	0.66	136.57	8.52	144.42	18.26	133.43
7.90	10912.00	113.74	1796.81	0.68	0.59	0.92	54.78	50.48	4.39	7.79	4.17	140.53	0.71	137.07	8.56	144.92	18.42	136.21

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11097.00	113.82	1811.06	0.68	0.59	0.92	54.71	50.47	4.45	7.79	4.16	140.79	0.75	137.39	8.61	145.23	18.56	138.83
8.10	11283.00	113.91	1824.63	0.68	0.59	0.92	54.64	50.47	4.51	7.79	4.14	140.89	0.80	137.54	8.65	145.39	18.70	141.33
8.20	11471.00	113.99	1837.06	0.68	0.59	0.92	54.57	50.49	4.57	7.79	4.13	140.72	0.84	137.44	8.70	145.28	18.83	143.56
8.30	11660.00	114.07	1849.38	0.68	0.59	0.92	54.50	50.51	4.63	7.79	4.11	140.55	0.89	137.33	8.74	145.17	18.96	145.81
8.40	11850.00	114.16	1861.15	0.68	0.60	0.92	54.44	50.53	4.69	7.79	4.10	140.27	0.93	137.10	8.78	144.95	19.08	147.95
8.50	12041.00	114.24	1872.49	0.69	0.60	0.92	54.38	50.56	4.75	7.79	4.08	139.90	0.98	136.80	8.82	144.64	19.19	150.00
8.60	12234.00	114.32	1883.48	0.69	0.60	0.92	54.32	50.58	4.81	7.79	4.06	139.47	1.02	136.43	8.87	144.27	19.31	151.99
8.70	12427.00	114.41	1893.96	0.69	0.60	0.92	54.26	50.60	4.87	7.79	4.04	138.95	1.06	135.97	8.91	143.81	19.41	153.87
8.80	12622.00	114.49	1904.12	0.69	0.60	0.92	54.20	50.62	4.92	7.79	4.03	138.38	1.10	135.46	8.95	143.30	19.52	155.70
8.90	12818.00	114.58	1914.14	0.69	0.61	0.92	54.15	50.65	4.98	7.79	4.01	137.82	1.14	134.96	8.99	142.80	19.62	157.52
9.00	13014.00	114.65	1923.93	0.69	0.61	0.92	54.10	50.68	5.04	7.79	3.99	137.24	1.19	134.43	9.03	142.28	19.72	159.32
9.10	13212.00	114.72	1934.70	0.70	0.61	0.92	54.05	50.74	5.10	7.79	3.97	136.91	1.23	134.17	9.08	142.01	19.83	161.42
9.20	13411.00	114.79	1945.55	0.70	0.61	0.92	54.00	50.80	5.16	7.79	3.96	136.59	1.27	133.91	9.12	141.75	19.94	163.54
9.30	13611.00	114.85	1956.52	0.70	0.61	0.92	53.95	50.87	5.22	7.79	3.95	136.25	1.32	133.63	9.17	141.47	20.05	165.63
9.40	13812.00	114.92	1967.13	0.70	0.62	0.92	53.91	50.94	5.28	7.79	3.93	135.84	1.37	133.27	9.21	141.11	20.16	167.63

Fixed Trim = -1.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = - 1.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

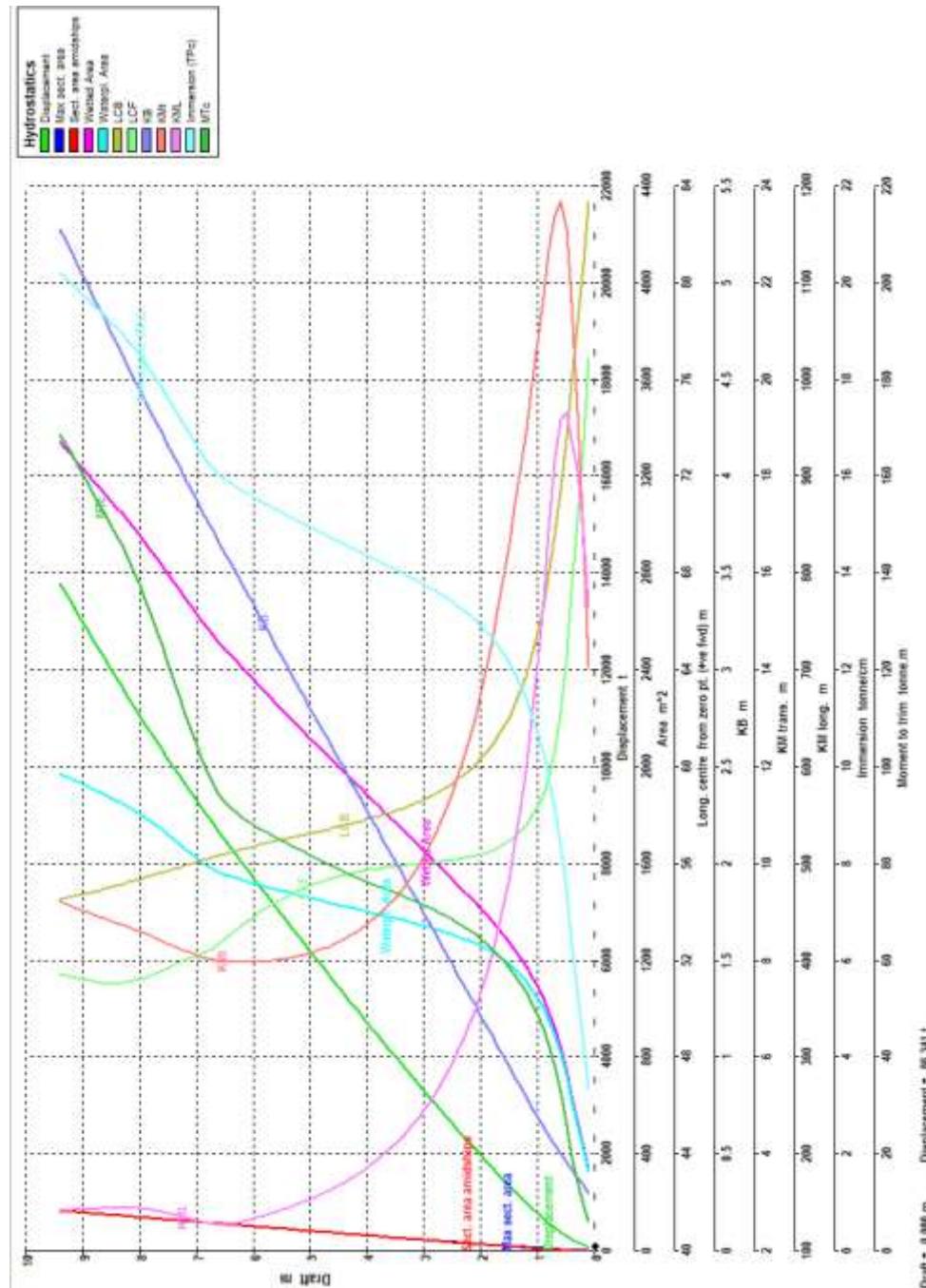
Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMt, m	BML, m	GMt, m	GML, m	KMt, m	KML, m	Immersion (TPc) tonne/cm	MTc, tonne.m
0.10	86.34	62.54	324.53	0.55	0.21	0.66	83.34	76.88	0.30	7.79	13.76	763.21	5.78	755.23	14.05	763.43	3.33	5.94
0.20	124.10	70.12	414.68	0.52	0.20	0.67	80.84	73.53	0.34	7.79	16.26	837.68	8.36	829.77	16.60	837.94	4.25	9.38
0.30	171.80	77.68	516.36	0.51	0.19	0.67	78.34	70.22	0.38	7.79	18.92	905.29	11.09	897.46	19.30	905.58	5.29	14.04
0.40	230.00	85.20	619.64	0.50	0.20	0.67	75.89	67.31	0.42	7.79	21.18	936.31	13.42	928.55	21.59	936.64	6.35	19.45
0.50	298.80	92.71	722.41	0.50	0.20	0.68	73.59	64.54	0.46	7.79	22.65	964.87	14.97	957.19	23.11	965.24	7.41	26.04
0.60	377.80	100.20	816.25	0.49	0.21	0.69	71.43	62.24	0.50	7.79	23.18	958.03	15.57	950.42	23.68	958.44	8.37	32.70
0.70	465.60	104.42	893.34	0.50	0.22	0.70	69.53	60.58	0.55	7.79	22.83	913.58	15.29	906.04	23.37	914.04	9.16	38.41
0.80	560.40	105.29	953.87	0.51	0.23	0.70	67.92	59.52	0.59	7.79	22.05	843.80	14.58	836.33	22.64	844.31	9.78	42.68
0.90	660.70	105.83	1002.32	0.53	0.25	0.71	66.59	58.83	0.64	7.79	21.07	771.35	13.67	763.94	21.71	771.92	10.27	45.96
1.00	765.60	106.30	1043.40	0.54	0.26	0.73	65.49	58.33	0.69	7.79	20.08	705.99	12.73	698.65	20.76	706.61	10.70	48.71
1.10	874.40	106.70	1079.27	0.55	0.27	0.74	64.57	57.92	0.74	7.79	19.11	649.20	11.83	641.92	19.85	649.88	11.06	51.11
1.20	986.70	107.01	1110.79	0.56	0.29	0.75	63.80	57.59	0.79	7.79	18.19	600.06	10.97	592.84	18.98	600.79	11.39	53.27
1.30	1102.00	107.30	1138.44	0.57	0.30	0.75	63.13	57.32	0.84	7.79	17.31	556.78	10.15	549.63	18.15	557.57	11.67	55.15
1.40	1220.00	107.55	1162.81	0.58	0.31	0.76	62.56	57.11	0.90	7.79	16.48	518.85	9.38	511.75	17.37	519.70	11.92	56.85
1.50	1340.00	107.80	1184.29	0.59	0.32	0.77	62.06	56.93	0.95	7.79	15.68	485.58	8.65	478.55	16.63	486.49	12.14	58.41
1.60	1463.00	108.05	1203.05	0.59	0.33	0.78	61.63	56.78	1.00	7.79	14.93	455.98	7.95	449.00	15.92	456.94	12.33	59.80
1.70	1587.00	108.30	1219.57	0.60	0.34	0.77	61.24	56.65	1.05	7.79	14.20	429.64	7.28	422.72	15.25	430.66	12.50	61.08
1.80	1713.00	108.54	1234.10	0.60	0.35	0.78	60.90	56.55	1.11	7.79	13.52	405.92	6.66	399.06	14.63	406.99	12.65	62.23
1.90	1840.00	108.78	1247.23	0.61	0.36	0.79	60.60	56.46	1.16	7.79	12.88	384.76	6.08	377.96	14.04	385.89	12.78	63.32
2.00	1968.00	109.00	1259.24	0.61	0.37	0.79	60.32	56.38	1.21	7.79	12.30	365.72	5.55	358.97	13.51	366.90	12.91	64.34
2.10	2098.00	109.22	1270.23	0.61	0.37	0.80	60.08	56.32	1.27	7.79	11.75	348.42	5.06	341.72	13.02	349.65	13.02	65.28
2.20	2229.00	109.41	1280.41	0.61	0.38	0.81	59.86	56.26	1.32	7.79	11.26	332.63	4.62	325.99	12.57	333.92	13.12	66.16
2.30	2360.00	109.60	1289.83	0.62	0.39	0.81	59.65	56.22	1.37	7.79	10.80	318.12	4.22	311.54	12.17	319.46	13.22	66.96
2.40	2493.00	109.76	1298.73	0.62	0.40	0.82	59.47	56.18	1.42	7.79	10.37	304.85	3.85	298.33	11.80	306.25	13.31	67.72
2.50	2626.00	109.90	1307.06	0.62	0.40	0.82	59.30	56.15	1.48	7.79	9.98	292.56	3.51	286.09	11.46	294.01	13.40	68.43

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG,m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2761.00	110.02	1314.90	0.62	0.41	0.83	59.15	56.12	1.53	7.79	9.62	281.19	3.21	274.77	11.15	282.69	13.48	69.08
2.70	2896.00	110.11	1322.15	0.62	0.42	0.83	59.01	56.09	1.58	7.79	9.29	270.41	2.93	264.05	10.87	271.97	13.55	69.63
2.80	3032.00	110.19	1329.30	0.62	0.42	0.83	58.87	56.07	1.64	7.79	8.98	260.68	2.67	254.38	10.61	262.30	13.63	70.23
2.90	3168.00	110.25	1336.14	0.63	0.43	0.84	58.75	56.04	1.69	7.79	8.69	251.62	2.44	245.37	10.37	253.29	13.70	70.80
3.00	3306.00	110.29	1342.73	0.63	0.43	0.84	58.64	56.02	1.74	7.79	8.41	243.20	2.22	237.00	10.16	244.92	13.76	71.34
3.10	3444.00	110.33	1349.12	0.63	0.44	0.85	58.53	56.00	1.80	7.79	8.16	235.35	2.02	229.21	9.95	237.12	13.83	71.88
3.20	3582.00	110.35	1355.32	0.63	0.44	0.85	58.44	55.97	1.85	7.79	7.92	228.01	1.84	221.92	9.77	229.84	13.89	72.39
3.30	3721.00	110.35	1361.38	0.63	0.45	0.85	58.34	55.95	1.90	7.79	7.70	221.15	1.67	215.12	9.60	223.03	13.95	72.90
3.40	3861.00	110.34	1367.31	0.63	0.45	0.86	58.26	55.92	1.95	7.79	7.49	214.73	1.51	208.75	9.44	216.66	14.02	73.40
3.50	4002.00	110.32	1373.14	0.64	0.46	0.86	58.17	55.89	2.01	7.79	7.29	208.69	1.37	202.77	9.30	210.68	14.08	73.89
3.60	4143.00	110.24	1378.82	0.64	0.46	0.86	58.09	55.86	2.06	7.79	7.11	202.98	1.24	197.11	9.17	205.02	14.13	74.36
3.70	4284.00	109.85	1384.43	0.64	0.47	0.87	58.02	55.83	2.11	7.79	6.93	197.60	1.12	191.79	9.05	199.70	14.19	74.83
3.80	4427.00	109.67	1389.95	0.64	0.47	0.87	57.95	55.80	2.17	7.79	6.77	192.52	1.01	186.76	8.94	194.67	14.25	75.28
3.90	4569.00	109.51	1395.47	0.65	0.48	0.87	57.88	55.77	2.22	7.79	6.62	187.74	0.91	182.03	8.83	189.94	14.30	75.74
4.00	4713.00	109.38	1401.08	0.65	0.48	0.87	57.82	55.73	2.27	7.79	6.47	183.30	0.81	177.65	8.74	185.56	14.36	76.24
4.10	4857.00	109.29	1406.71	0.65	0.49	0.88	57.75	55.68	2.33	7.79	6.33	179.12	0.73	173.52	8.65	181.43	14.42	76.74
4.20	5001.00	109.20	1412.33	0.65	0.49	0.88	57.69	55.63	2.38	7.79	6.20	175.18	0.65	169.63	8.58	177.54	14.48	77.25
4.30	5146.00	109.16	1417.95	0.65	0.50	0.88	57.64	55.58	2.43	7.79	6.07	171.45	0.58	165.96	8.50	173.86	14.53	77.77
4.40	5292.00	109.14	1423.59	0.65	0.50	0.88	57.58	55.53	2.48	7.79	5.95	167.93	0.52	162.49	8.44	170.39	14.59	78.30
4.50	5438.00	109.13	1429.28	0.66	0.50	0.88	57.52	55.47	2.54	7.79	5.84	164.61	0.46	159.22	8.38	167.13	14.65	78.84
4.60	5585.00	109.12	1434.99	0.66	0.51	0.89	57.47	55.40	2.59	7.79	5.73	161.46	0.40	156.13	8.32	164.04	14.71	79.40
4.70	5732.00	109.12	1440.74	0.66	0.51	0.89	57.41	55.33	2.64	7.79	5.63	158.48	0.35	153.20	8.27	161.11	14.77	79.97
4.80	5880.00	109.11	1446.52	0.66	0.51	0.89	57.36	55.25	2.70	7.79	5.53	155.65	0.31	150.42	8.23	158.33	14.83	80.54
4.90	6029.00	109.10	1452.35	0.66	0.52	0.89	57.31	55.17	2.75	7.79	5.44	152.95	0.27	147.78	8.19	155.68	14.89	81.13
5.00	6178.00	109.10	1458.22	0.66	0.52	0.89	57.25	55.08	2.80	7.79	5.35	150.38	0.23	145.26	8.15	153.17	14.95	81.72
5.10	6327.00	109.09	1464.11	0.66	0.52	0.90	57.20	54.99	2.86	7.79	5.26	147.92	0.20	142.86	8.12	150.76	15.01	82.32
5.20	6478.00	109.08	1470.03	0.66	0.53	0.90	57.15	54.88	2.91	7.79	5.18	145.57	0.17	140.56	8.09	148.47	15.07	82.92

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6629.00	109.07	1475.97	0.67	0.53	0.90	57.10	54.77	2.96	7.79	5.11	143.31	0.15	138.36	8.07	146.26	15.13	83.52
5.40	6780.00	109.06	1481.91	0.67	0.53	0.90	57.04	54.66	3.02	7.79	5.03	141.15	0.13	136.25	8.05	144.15	15.19	84.12
5.50	6933.00	109.06	1487.85	0.67	0.53	0.90	56.99	54.53	3.07	7.79	4.96	139.06	0.11	134.22	8.03	142.12	15.25	84.73
5.60	7085.00	109.06	1493.80	0.67	0.54	0.90	56.94	54.40	3.12	7.79	4.89	137.06	0.10	132.27	8.01	140.17	15.31	85.34
5.70	7239.00	109.06	1499.80	0.67	0.54	0.90	56.88	54.26	3.18	7.79	4.83	135.15	0.09	130.42	8.00	138.32	15.37	85.97
5.80	7393.00	109.07	1505.89	0.67	0.54	0.91	56.82	54.12	3.23	7.79	4.76	133.34	0.08	128.65	7.99	136.55	15.44	86.61
5.90	7548.00	109.09	1512.01	0.67	0.54	0.91	56.77	53.96	3.28	7.79	4.70	131.59	0.07	126.96	7.99	134.86	15.50	87.26
6.00	7703.00	109.11	1518.32	0.67	0.55	0.91	56.71	53.80	3.34	7.79	4.65	129.97	0.07	125.39	7.98	133.29	15.56	87.96
6.10	7859.00	109.13	1525.09	0.67	0.55	0.91	56.65	53.63	3.39	7.79	4.59	128.55	0.07	124.03	7.98	131.92	15.63	88.76
6.20	8016.00	109.14	1531.95	0.68	0.55	0.91	56.59	53.45	3.44	7.79	4.54	127.19	0.07	122.72	7.98	130.62	15.70	89.58
6.30	8173.00	109.12	1538.76	0.68	0.55	0.91	56.53	53.26	3.50	7.79	4.49	125.84	0.08	121.42	7.98	129.32	15.77	90.37
6.40	8331.00	106.53	1546.73	0.69	0.57	0.91	56.46	53.08	3.55	7.79	4.44	124.93	0.08	120.57	7.99	128.47	15.85	91.47
6.50	8490.00	106.98	1555.34	0.69	0.57	0.91	56.40	52.89	3.61	7.79	4.39	124.26	0.09	119.95	8.00	127.85	15.94	92.74
6.60	8650.00	107.44	1564.63	0.69	0.57	0.91	56.33	52.68	3.66	7.79	4.35	123.79	0.10	119.54	8.01	127.44	16.04	94.16
6.70	8811.00	108.04	1576.05	0.69	0.57	0.91	56.26	52.50	3.71	7.79	4.31	123.98	0.12	119.79	8.02	127.68	16.16	96.11
6.80	8973.00	108.63	1590.04	0.69	0.57	0.91	56.19	52.37	3.77	7.79	4.27	124.83	0.14	120.69	8.04	128.58	16.30	98.62
6.90	9137.00	109.34	1606.02	0.68	0.57	0.91	56.12	52.27	3.82	7.79	4.25	126.02	0.17	121.94	8.07	129.83	16.46	101.46
7.00	9302.00	109.99	1623.77	0.68	0.57	0.91	56.06	52.19	3.88	7.79	4.23	127.44	0.20	123.42	8.11	131.31	16.64	104.55
7.10	9470.00	110.58	1642.41	0.68	0.57	0.91	55.99	52.11	3.93	7.79	4.22	128.90	0.25	124.94	8.15	132.82	16.84	107.74
7.20	9639.00	111.22	1661.19	0.68	0.56	0.91	55.92	52.02	3.99	7.79	4.21	130.34	0.30	126.43	8.20	134.31	17.03	110.97
7.30	9810.00	111.95	1680.06	0.67	0.56	0.92	55.85	51.92	4.04	7.79	4.21	131.77	0.35	127.91	8.25	135.80	17.22	114.27
7.40	9983.00	112.67	1699.16	0.67	0.56	0.92	55.78	51.81	4.10	7.79	4.20	133.25	0.40	129.46	8.30	137.34	17.42	117.69
7.50	10159.00	113.52	1718.45	0.67	0.56	0.92	55.71	51.69	4.16	7.79	4.19	134.80	0.45	131.06	8.35	138.94	17.61	121.24
7.60	10336.00	113.70	1737.41	0.67	0.56	0.92	55.64	51.57	4.22	7.79	4.19	136.24	0.50	132.56	8.40	140.44	17.81	124.76
7.70	10515.00	113.79	1755.73	0.67	0.56	0.92	55.57	51.46	4.27	7.79	4.18	137.47	0.56	133.85	8.45	141.73	18.00	128.16
7.80	10696.00	113.87	1773.40	0.67	0.57	0.92	55.50	51.36	4.33	7.79	4.17	138.52	0.61	134.95	8.50	142.84	18.18	131.44
7.90	10878.00	113.95	1790.29	0.67	0.57	0.92	55.43	51.27	4.39	7.79	4.16	139.40	0.66	135.89	8.55	143.77	18.35	134.61

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11063.00	114.04	1806.06	0.67	0.57	0.92	55.36	51.21	4.45	7.79	4.15	140.04	0.71	136.59	8.60	144.47	18.51	137.60
8.10	11248.00	114.12	1820.80	0.68	0.57	0.92	55.29	51.16	4.51	7.79	4.14	140.45	0.75	137.06	8.65	144.94	18.66	140.39
8.20	11436.00	114.21	1834.61	0.68	0.57	0.92	55.22	51.12	4.57	7.79	4.13	140.65	0.80	137.32	8.69	145.20	18.81	143.00
8.30	11625.00	114.29	1847.71	0.68	0.58	0.92	55.16	51.10	4.62	7.79	4.11	140.69	0.84	137.42	8.73	145.30	18.94	145.47
8.40	11814.00	114.37	1859.62	0.68	0.58	0.92	55.09	51.09	4.68	7.79	4.09	140.45	0.89	137.25	8.78	145.12	19.06	147.66
8.50	12006.00	114.46	1871.29	0.68	0.58	0.92	55.03	51.08	4.74	7.79	4.08	140.18	0.93	137.03	8.82	144.91	19.18	149.82
8.60	12198.00	114.54	1882.55	0.68	0.58	0.92	54.96	51.08	4.80	7.79	4.06	139.84	0.97	136.75	8.86	144.63	19.30	151.90
8.70	12392.00	114.62	1893.36	0.69	0.58	0.92	54.90	51.09	4.86	7.79	4.04	139.42	1.01	136.39	8.90	144.26	19.41	153.90
8.80	12586.00	114.69	1904.30	0.69	0.59	0.92	54.85	51.11	4.92	7.79	4.02	139.06	1.06	136.10	8.94	143.97	19.52	155.98
8.90	12782.00	114.76	1915.75	0.69	0.59	0.92	54.79	51.15	4.98	7.79	4.01	138.84	1.10	135.94	8.98	143.81	19.64	158.22
9.00	12979.00	114.83	1926.98	0.69	0.59	0.92	54.73	51.20	5.04	7.79	3.99	138.57	1.14	135.73	9.03	143.60	19.75	160.41
9.10	13177.00	114.90	1938.06	0.69	0.59	0.92	54.68	51.26	5.10	7.79	3.97	138.25	1.19	135.47	9.07	143.34	19.87	162.55
9.20	13376.00	114.97	1949.16	0.69	0.60	0.92	54.63	51.31	5.16	7.79	3.96	137.90	1.24	135.17	9.12	143.04	19.98	164.65
9.30	13576.00	115.04	1960.11	0.70	0.60	0.92	54.58	51.36	5.22	7.79	3.95	137.50	1.28	134.83	9.17	142.70	20.09	166.69
9.40	13778.00	115.11	1970.75	0.70	0.60	0.92	54.54	51.41	5.28	7.79	3.94	137.07	1.33	134.46	9.21	142.33	20.20	168.70

Fixed Trim = - 1.50 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



Fixed Trim = - 2.00 m (+ve by stern), Specific Gravity = 1.025 tonne/m³

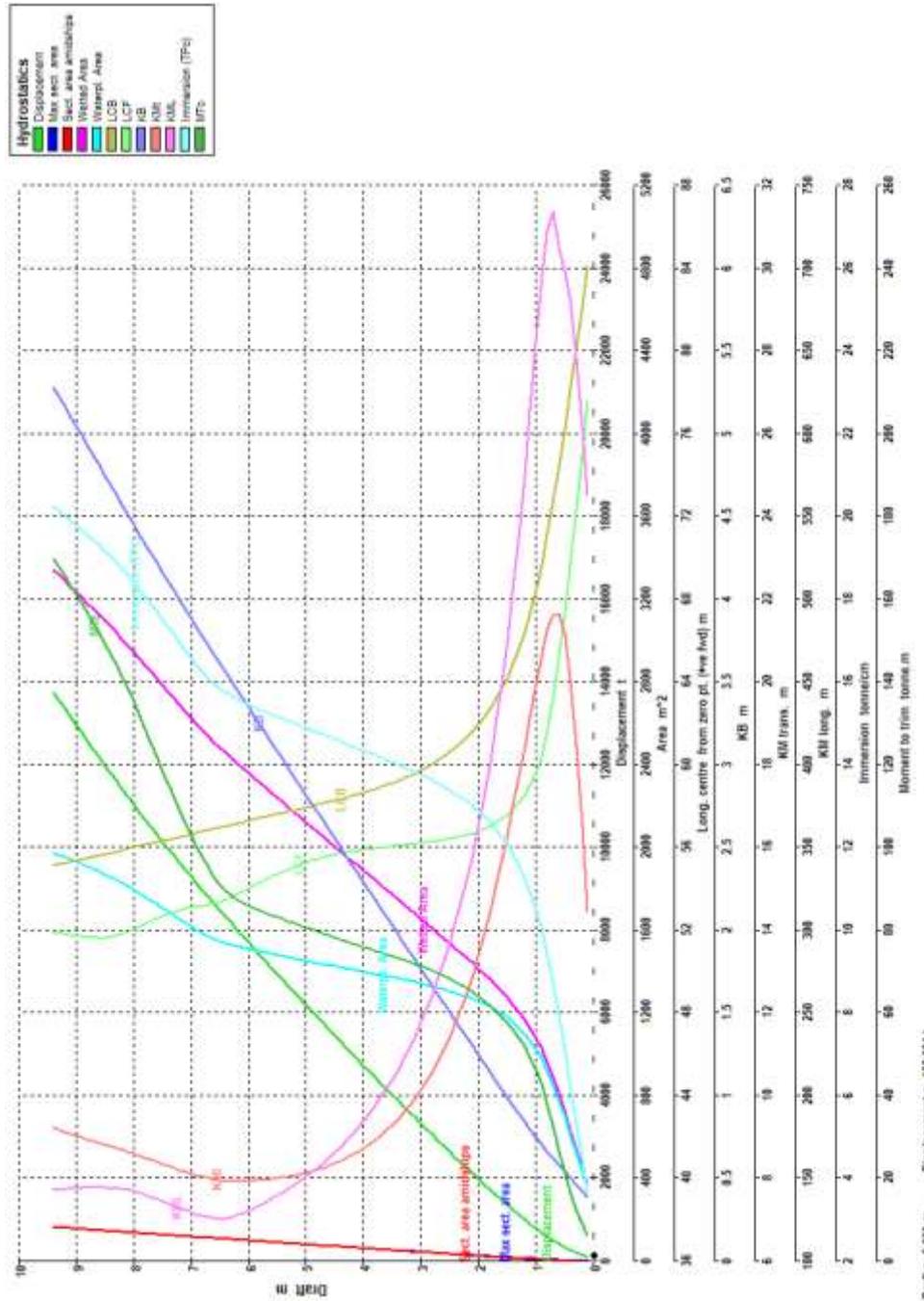
Draft Amidships, m	Displacement, t	WL Length, m	Watertl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMt, m	BML, m	GMt, m	GML, m	KM _t , m	KM _L , m	Immersion (TPC) tonne/cm	MTc, tonne.m
0.10	122.00	61.32	358.20	0.55	0.20	0.67	84.08	77.59	0.38	7.79	14.06	562.53	5.99	554.46	14.44	562.82	3.67	6.16
0.20	162.60	67.01	434.92	0.54	0.20	0.69	82.12	74.96	0.42	7.79	16.09	602.62	8.09	594.63	16.50	602.94	4.46	8.81
0.30	211.50	72.68	518.98	0.53	0.20	0.68	80.14	72.30	0.46	7.79	17.99	644.72	10.07	636.80	18.44	645.07	5.32	12.26
0.40	269.10	78.33	606.51	0.52	0.20	0.69	78.17	69.72	0.50	7.79	19.53	679.66	11.69	671.82	20.03	680.05	6.22	16.47
0.50	335.60	83.98	690.53	0.52	0.20	0.70	76.26	67.45	0.54	7.79	20.56	696.36	12.79	688.59	21.09	696.79	7.08	21.05
0.60	410.60	89.63	772.31	0.51	0.21	0.71	74.45	65.30	0.58	7.79	21.06	711.03	13.37	703.33	21.64	711.49	7.92	26.30
0.70	493.90	95.26	852.24	0.51	0.21	0.72	72.73	63.19	0.62	7.79	21.00	733.09	13.38	725.47	21.62	733.59	8.74	32.63
0.80	584.90	100.89	920.83	0.50	0.22	0.72	71.11	61.61	0.66	7.79	20.60	721.24	13.05	713.69	21.26	721.78	9.44	38.01
0.90	682.30	104.93	978.29	0.50	0.22	0.73	69.66	60.41	0.70	7.79	19.96	694.90	12.47	687.41	20.66	695.49	10.03	42.71
1.00	785.00	105.77	1024.71	0.51	0.24	0.73	68.40	59.58	0.75	7.79	19.17	655.70	11.76	648.28	19.92	656.34	10.50	46.34
1.10	892.10	106.32	1063.57	0.53	0.25	0.74	67.30	58.99	0.79	7.79	18.36	613.50	11.01	606.15	19.15	614.19	10.90	49.24
1.20	1003.00	106.77	1097.24	0.54	0.26	0.75	66.35	58.52	0.84	7.79	17.56	573.50	10.28	566.22	18.40	574.25	11.25	51.71
1.30	1117.00	107.13	1126.98	0.55	0.27	0.76	65.53	58.14	0.89	7.79	16.80	537.04	9.57	529.82	17.68	537.84	11.55	53.88
1.40	1234.00	107.45	1153.19	0.56	0.28	0.77	64.82	57.83	0.94	7.79	16.05	504.15	8.89	496.99	16.99	505.00	11.82	55.83
1.50	1353.00	107.72	1175.97	0.56	0.29	0.77	64.19	57.57	0.99	7.79	15.33	474.17	8.23	467.07	16.31	475.08	12.05	57.55
1.60	1475.00	107.96	1195.83	0.57	0.30	0.78	63.64	57.35	1.04	7.79	14.63	446.88	7.59	439.85	15.66	447.85	12.26	59.07
1.70	1598.00	108.20	1213.39	0.58	0.31	0.79	63.14	57.18	1.09	7.79	13.96	422.47	6.98	415.49	15.04	423.49	12.44	60.47
1.80	1723.00	108.43	1228.95	0.58	0.32	0.80	62.70	57.03	1.14	7.79	13.32	400.35	6.40	393.43	14.46	401.43	12.60	61.74
1.90	1850.00	108.66	1242.77	0.59	0.33	0.80	62.31	56.90	1.19	7.79	12.71	380.29	5.85	373.43	13.90	381.42	12.74	62.91
2.00	1978.00	108.88	1255.41	0.60	0.34	0.81	61.96	56.79	1.24	7.79	12.15	362.05	5.35	355.24	13.39	363.23	12.87	63.99
2.10	2107.00	109.10	1266.87	0.60	0.35	0.81	61.64	56.70	1.29	7.79	11.63	345.31	4.89	338.57	12.93	346.55	12.99	64.97
2.20	2238.00	109.30	1277.50	0.60	0.36	0.81	61.35	56.62	1.35	7.79	11.15	330.07	4.46	323.38	12.50	331.36	13.09	65.89
2.30	2369.00	109.49	1287.38	0.61	0.36	0.82	61.08	56.55	1.40	7.79	10.71	316.07	4.07	309.44	12.10	317.42	13.20	66.76
2.40	2501.00	109.67	1296.64	0.61	0.37	0.82	60.84	56.48	1.45	7.79	10.30	303.19	3.72	296.61	11.74	304.58	13.29	67.57
2.50	2635.00	109.84	1305.08	0.61	0.38	0.83	60.62	56.42	1.50	7.79	9.92	290.93	3.39	284.40	11.42	292.38	13.38	68.24

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
2.60	2769.00	109.99	1313.25	0.61	0.38	0.83	60.41	56.37	1.55	7.79	9.56	279.85	3.10	273.39	11.11	281.36	13.46	68.94
2.70	2904.00	110.13	1320.92	0.62	0.39	0.83	60.22	56.33	1.61	7.79	9.23	269.50	2.82	263.09	10.84	271.06	13.54	69.57
2.80	3040.00	110.25	1328.13	0.62	0.40	0.84	60.05	56.30	1.66	7.79	8.93	259.81	2.57	253.46	10.58	261.43	13.61	70.16
2.90	3176.00	110.34	1334.98	0.62	0.40	0.84	59.89	56.26	1.71	7.79	8.64	250.77	2.34	244.48	10.35	252.44	13.68	70.71
3.00	3313.00	110.42	1341.57	0.62	0.41	0.84	59.74	56.23	1.76	7.79	8.37	242.36	2.13	236.12	10.13	244.09	13.75	71.24
3.10	3451.00	110.47	1347.90	0.62	0.41	0.85	59.60	56.20	1.82	7.79	8.12	234.50	1.93	228.31	9.94	236.28	13.82	71.75
3.20	3590.00	110.50	1354.05	0.63	0.42	0.85	59.47	56.17	1.87	7.79	7.89	227.16	1.75	221.03	9.75	228.99	13.88	72.25
3.30	3729.00	110.51	1360.02	0.63	0.42	0.85	59.34	56.14	1.92	7.79	7.67	220.29	1.59	214.21	9.58	222.18	13.94	72.74
3.40	3868.00	110.52	1365.84	0.63	0.43	0.86	59.23	56.11	1.97	7.79	7.46	213.85	1.43	207.83	9.43	215.79	14.00	73.21
3.50	4009.00	110.51	1371.55	0.63	0.44	0.86	59.12	56.08	2.03	7.79	7.26	207.81	1.29	201.84	9.29	209.80	14.06	73.68
3.60	4150.00	110.48	1377.17	0.63	0.44	0.86	59.01	56.05	2.08	7.79	7.08	202.12	1.16	196.21	9.15	204.17	14.12	74.14
3.70	4291.00	110.45	1382.72	0.63	0.44	0.86	58.91	56.01	2.13	7.79	6.91	196.78	1.04	190.91	9.03	198.87	14.17	74.60
3.80	4433.00	110.40	1388.17	0.64	0.45	0.87	58.82	55.97	2.18	7.79	6.74	191.71	0.93	185.90	8.92	193.86	14.23	75.04
3.90	4575.00	110.03	1393.53	0.64	0.46	0.87	58.73	55.94	2.24	7.79	6.59	186.89	0.83	181.14	8.82	189.10	14.28	75.47
4.00	4719.00	109.80	1398.88	0.64	0.46	0.87	58.65	55.90	2.29	7.79	6.44	182.37	0.74	176.67	8.73	184.62	14.34	75.91
4.10	4862.00	109.62	1404.12	0.65	0.47	0.87	58.56	55.86	2.34	7.79	6.30	178.03	0.66	172.39	8.64	180.34	14.39	76.33
4.20	5006.00	109.46	1409.52	0.65	0.47	0.88	58.49	55.82	2.39	7.79	6.17	174.03	0.58	168.44	8.57	176.39	14.45	76.79
4.30	5151.00	109.36	1414.88	0.65	0.47	0.88	58.41	55.77	2.45	7.79	6.05	170.23	0.51	164.70	8.49	172.65	14.50	77.26
4.40	5296.00	109.25	1420.24	0.65	0.48	0.88	58.34	55.71	2.50	7.79	5.93	166.63	0.45	161.15	8.43	169.10	14.56	77.72
4.50	5442.00	109.18	1425.55	0.65	0.48	0.88	58.27	55.65	2.55	7.79	5.82	163.20	0.39	157.77	8.37	165.73	14.61	78.19
4.60	5589.00	109.13	1430.86	0.66	0.49	0.89	58.20	55.59	2.60	7.79	5.71	159.94	0.33	154.56	8.31	162.52	14.67	78.66
4.70	5736.00	109.10	1436.19	0.66	0.49	0.89	58.13	55.52	2.66	7.79	5.61	156.85	0.29	151.52	8.26	159.48	14.72	79.14
4.80	5883.00	109.07	1441.54	0.66	0.49	0.89	58.06	55.45	2.71	7.79	5.51	153.90	0.24	148.63	8.22	156.58	14.78	79.63
4.90	6031.00	109.04	1446.90	0.66	0.50	0.89	58.00	55.36	2.76	7.79	5.41	151.09	0.20	145.87	8.18	153.82	14.83	80.11
5.00	6180.00	109.00	1452.27	0.66	0.50	0.89	57.93	55.28	2.81	7.79	5.33	148.40	0.17	143.24	8.14	151.19	14.89	80.61
5.10	6329.00	108.96	1457.68	0.66	0.50	0.89	57.87	55.18	2.87	7.79	5.24	145.83	0.13	140.72	8.11	148.67	14.94	81.10
5.20	6478.00	108.93	1463.09	0.66	0.51	0.90	57.81	55.08	2.92	7.79	5.16	143.37	0.11	138.32	8.08	146.27	15.00	81.60

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KMT, m	KML, m	Immersion (TPc) tonne/cm	MTC, tonne.m
5.30	6629.00	108.89	1468.49	0.67	0.51	0.90	57.74	54.97	2.97	7.79	5.08	141.01	0.08	136.01	8.05	143.96	15.05	82.10
5.40	6779.00	108.86	1473.89	0.67	0.51	0.90	57.68	54.85	3.03	7.79	5.00	138.75	0.06	133.81	8.03	141.75	15.11	82.61
5.50	6931.00	108.82	1479.30	0.67	0.52	0.90	57.62	54.73	3.08	7.79	4.93	136.58	0.04	131.69	8.01	139.63	15.16	83.11
5.60	7083.00	108.78	1484.73	0.67	0.52	0.90	57.55	54.60	3.13	7.79	4.86	134.49	0.03	129.65	7.99	137.60	15.22	83.62
5.70	7235.00	108.74	1490.19	0.67	0.52	0.90	57.49	54.46	3.18	7.79	4.80	132.49	0.02	127.71	7.98	135.65	15.27	84.14
5.80	7388.00	108.68	1495.83	0.67	0.53	0.90	57.43	54.33	3.24	7.79	4.73	130.64	0.01	125.91	7.97	133.85	15.33	84.71
5.90	7542.00	108.61	1501.55	0.67	0.53	0.90	57.36	54.18	3.29	7.79	4.67	128.87	0.00	124.19	7.96	132.14	15.39	85.29
6.00	7696.00	108.50	1507.37	0.68	0.53	0.90	57.30	54.03	3.34	7.79	4.61	127.18	-0.01	122.56	7.96	130.51	15.45	85.90
6.10	7851.00	108.26	1513.31	0.68	0.54	0.91	57.23	53.88	3.40	7.79	4.56	125.60	-0.01	121.03	7.95	128.97	15.51	86.53
6.20	8006.00	105.73	1520.04	0.70	0.55	0.91	57.17	53.74	3.45	7.79	4.51	124.37	-0.01	119.86	7.95	127.80	15.58	87.38
6.30	8162.00	105.85	1527.25	0.70	0.55	0.91	57.10	53.60	3.50	7.79	4.45	123.32	0.00	118.86	7.96	126.80	15.65	88.35
6.40	8319.00	105.99	1534.89	0.70	0.56	0.91	57.03	53.45	3.56	7.79	4.41	122.44	0.00	118.04	7.96	125.98	15.73	89.42
6.50	8477.00	106.16	1544.22	0.70	0.56	0.91	56.96	53.35	3.61	7.79	4.36	122.11	0.01	117.76	7.97	125.70	15.83	90.91
6.60	8636.00	106.40	1555.45	0.70	0.56	0.91	56.90	53.29	3.66	7.79	4.32	122.27	0.03	117.97	7.98	125.91	15.94	92.78
6.70	8796.00	106.80	1568.48	0.70	0.56	0.91	56.83	53.24	3.72	7.79	4.28	122.79	0.05	118.55	8.00	126.49	16.08	94.96
6.80	8957.00	107.25	1583.23	0.69	0.56	0.91	56.77	53.20	3.77	7.79	4.26	123.59	0.08	119.41	8.03	127.34	16.23	97.40
6.90	9120.00	107.77	1599.53	0.69	0.56	0.91	56.70	53.16	3.83	7.79	4.24	124.61	0.12	120.49	8.07	128.42	16.40	100.07
7.00	9285.00	108.38	1616.88	0.69	0.56	0.91	56.64	53.10	3.88	7.79	4.23	125.75	0.16	121.68	8.11	129.61	16.57	102.88
7.10	9452.00	109.06	1634.59	0.69	0.56	0.91	56.58	53.04	3.94	7.79	4.22	126.93	0.21	122.92	8.16	130.84	16.76	105.80
7.20	9620.00	109.84	1652.74	0.68	0.55	0.91	56.51	52.97	3.99	7.79	4.21	128.21	0.26	124.25	8.21	132.18	16.94	108.85
7.30	9791.00	110.53	1670.96	0.68	0.55	0.91	56.45	52.88	4.05	7.79	4.21	129.50	0.31	125.60	8.25	133.53	17.13	111.98
7.40	9963.00	111.18	1689.04	0.68	0.55	0.91	56.39	52.79	4.10	7.79	4.20	130.75	0.36	126.91	8.30	134.84	17.31	115.14
7.50	10137.00	111.95	1707.07	0.68	0.55	0.92	56.33	52.68	4.16	7.79	4.19	132.00	0.41	128.21	8.35	136.14	17.50	118.35
7.60	10313.00	112.67	1725.18	0.67	0.55	0.92	56.26	52.57	4.22	7.79	4.18	133.27	0.46	129.55	8.40	137.47	17.68	121.66
7.70	10491.00	113.42	1743.37	0.67	0.55	0.92	56.20	52.44	4.28	7.79	4.17	134.58	0.50	130.92	8.45	138.84	17.87	125.06
7.80	10670.00	114.09	1761.66	0.67	0.55	0.92	56.13	52.30	4.33	7.79	4.16	135.92	0.55	132.31	8.49	140.23	18.06	128.56
7.90	10852.00	114.18	1779.48	0.67	0.55	0.92	56.07	52.17	4.39	7.79	4.15	137.10	0.60	133.55	8.54	141.47	18.24	131.97

Draft Amidships, m	Displacement, t	WL Length, m	Waterpl. Area, m ²	Prismatic coeff. (Cp)	Block coeff. (Cb)	Sect. area coeff. (Cm)	LCB, m	LCF, m	KB, m	KG, m	BMT, m	BML, m	GMT, m	GML, m	KML, m	KVL, m	Immersion (TPc) tonne/cm	MTC, tonne.m
8.00	11035.00	114.26	1796.55	0.67	0.55	0.92	56.00	52.05	4.45	7.79	4.14	138.08	0.65	134.59	8.59	142.51	18.42	135.25
8.10	11220.00	114.34	1812.72	0.67	0.56	0.92	55.94	51.94	4.51	7.79	4.13	138.85	0.70	135.42	8.64	143.34	18.58	138.36
8.20	11406.00	114.43	1827.87	0.68	0.56	0.92	55.87	51.84	4.57	7.79	4.12	139.40	0.75	136.03	8.68	143.94	18.74	141.29
8.30	11595.00	114.51	1842.05	0.68	0.56	0.92	55.80	51.76	4.63	7.79	4.10	139.73	0.79	136.42	8.73	144.33	18.88	144.04
8.40	11784.00	114.60	1855.46	0.68	0.56	0.92	55.74	51.71	4.68	7.79	4.09	139.91	0.84	136.66	8.77	144.57	19.02	146.65
8.50	11975.00	114.67	1868.18	0.68	0.56	0.92	55.67	51.66	4.74	7.79	4.07	139.93	0.88	136.74	8.81	144.65	19.15	149.12
8.60	12167.00	114.74	1881.03	0.68	0.57	0.92	55.61	51.65	4.80	7.79	4.05	140.02	0.92	136.89	8.85	144.80	19.28	151.67
8.70	12360.00	114.81	1893.28	0.68	0.57	0.92	55.55	51.67	4.86	7.79	4.04	139.96	0.97	136.89	8.90	144.80	19.41	154.08
8.80	12555.00	114.88	1905.52	0.69	0.57	0.92	55.49	51.69	4.92	7.79	4.02	139.90	1.01	136.89	8.94	144.80	19.53	156.51
8.90	12751.00	114.95	1917.34	0.69	0.57	0.92	55.43	51.72	4.98	7.79	4.00	139.74	1.06	136.79	8.98	144.70	19.65	158.84
9.00	12948.00	115.02	1928.93	0.69	0.58	0.92	55.38	51.75	5.04	7.79	3.99	139.51	1.10	136.62	9.03	144.52	19.77	161.08
9.10	13146.00	115.08	1940.47	0.69	0.58	0.92	55.32	51.78	5.10	7.79	3.98	139.23	1.15	136.40	9.07	144.30	19.89	163.29
9.20	13346.00	115.15	1951.86	0.69	0.58	0.92	55.27	51.82	5.16	7.79	3.96	138.91	1.20	136.14	9.12	144.04	20.01	165.45
9.30	13546.00	115.22	1962.94	0.69	0.58	0.92	55.22	51.86	5.22	7.79	3.95	138.53	1.24	135.83	9.17	143.73	20.12	167.55
9.40	13748.00	115.29	1973.59	0.70	0.58	0.92	55.17	51.90	5.28	7.79	3.94	138.10	1.29	135.45	9.21	143.36	20.23	169.58

Fixed Trim = - 2 m (+ve by stern), Specific Gravity = 1.025 tonne/m³



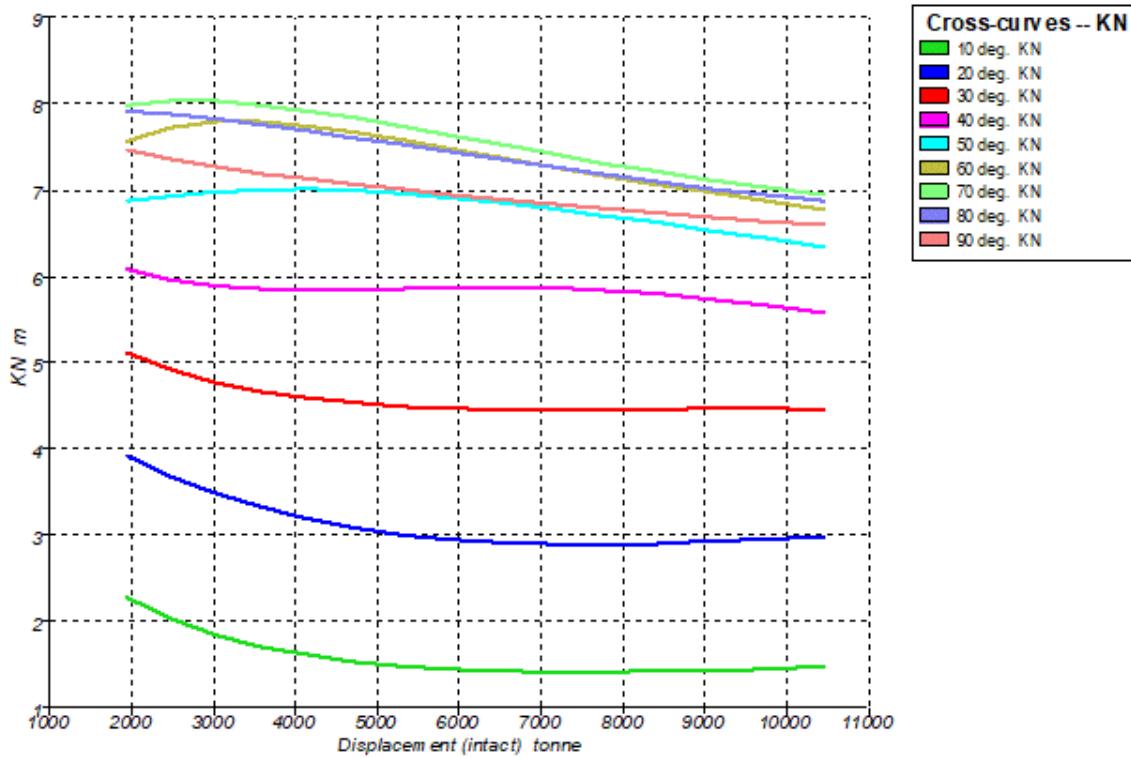
KN Calculations

Index of KN Tables by Trim and Specific Gravity Value

Hull KN-Curves for trim = 0.000 m and S.G. = 1.025 t/m ³	39
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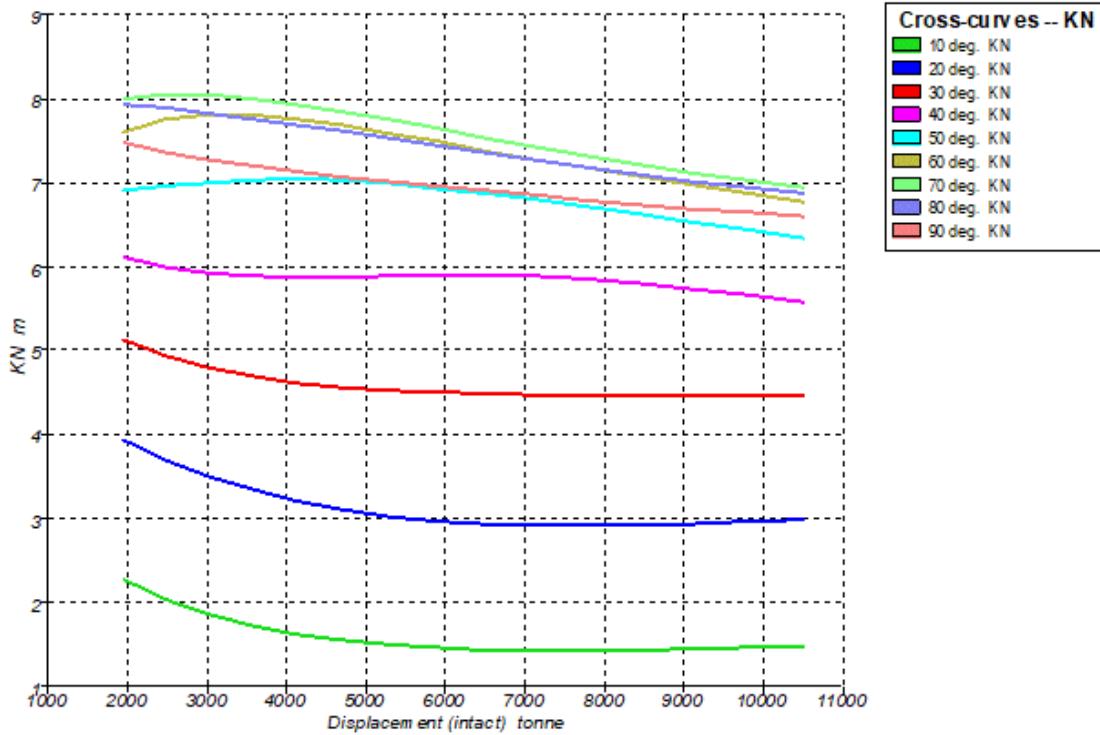
Initial Trim = 0.00 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1952	2.000	2.271	3.922	5.115	6.083	6.878	7.571	7.976	7.907	7.458
2478	2.400	2.035	3.684	4.918	5.962	6.930	7.725	8.031	7.873	7.354
3017	2.800	1.854	3.491	4.775	5.889	6.971	7.786	8.027	7.818	7.267
3568	3.200	1.716	3.331	4.668	5.855	7.002	7.785	7.985	7.753	7.192
4130	3.600	1.614	3.200	4.589	5.842	7.013	7.741	7.919	7.681	7.125
4703	4.000	1.541	3.095	4.534	5.844	6.997	7.668	7.837	7.605	7.064
5286	4.400	1.489	3.013	4.496	5.855	6.963	7.576	7.742	7.526	7.007
5881	4.800	1.454	2.953	4.473	5.871	6.914	7.475	7.638	7.444	6.952
6487	5.200	1.432	2.914	4.461	5.878	6.854	7.373	7.530	7.359	6.898
7105	5.600	1.421	2.895	4.455	5.868	6.786	7.271	7.421	7.271	6.846
7738	6.000	1.418	2.894	4.455	5.840	6.709	7.171	7.315	7.183	6.794
8387	6.400	1.424	2.908	4.459	5.796	6.626	7.073	7.215	7.097	6.740
9056	6.800	1.437	2.929	4.467	5.737	6.536	6.975	7.122	7.017	6.689
9744	7.200	1.457	2.955	4.466	5.665	6.440	6.877	7.034	6.945	6.641
10451	7.600	1.481	2.984	4.451	5.580	6.338	6.779	6.951	6.882	6.601



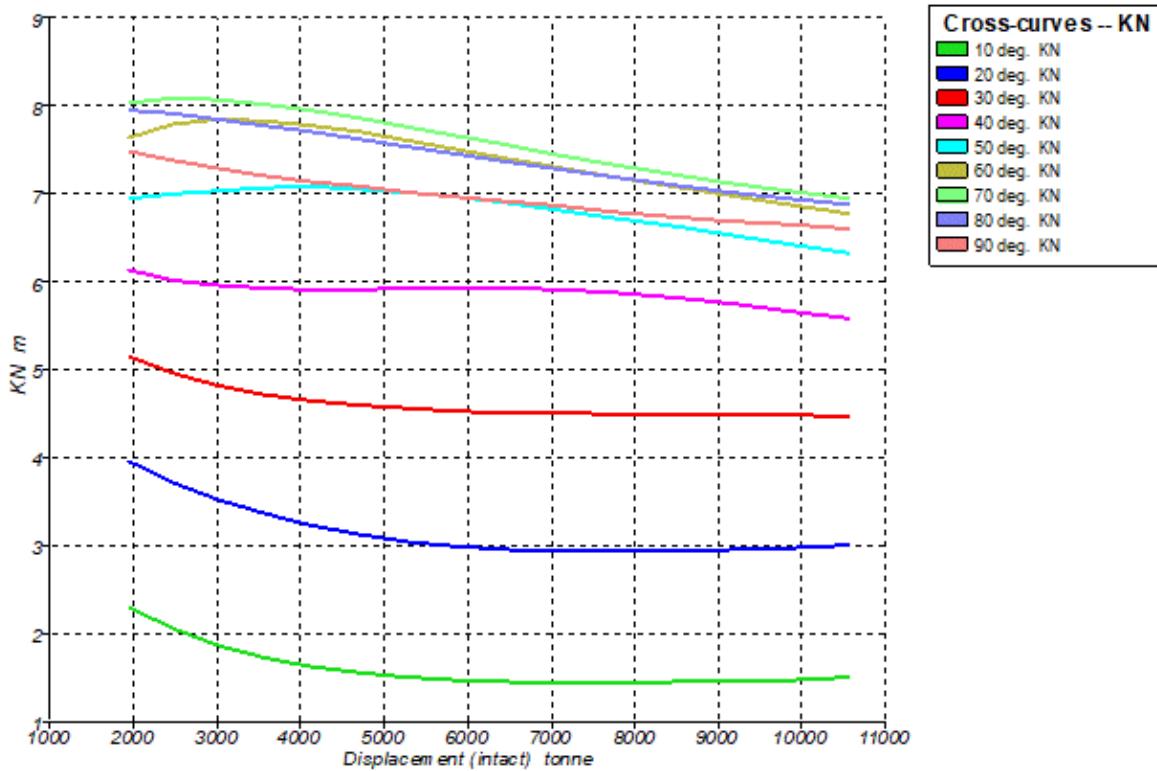
Initial Trim = 0.50 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1950	2.000	2.282	3.939	5.136	6.106	6.909	7.606	8.003	7.928	7.472
2475	2.400	2.043	3.700	4.940	5.991	6.963	7.755	8.054	7.890	7.366
3014	2.800	1.860	3.506	4.798	5.921	7.004	7.812	8.046	7.832	7.277
3565	3.200	1.722	3.346	4.692	5.888	7.038	7.808	8.001	7.764	7.201
4127	3.600	1.620	3.215	4.615	5.876	7.046	7.761	7.932	7.691	7.132
4701	4.000	1.546	3.109	4.559	5.877	7.026	7.685	7.848	7.613	7.070
5286	4.400	1.495	3.028	4.522	5.887	6.987	7.591	7.751	7.533	7.012
5882	4.800	1.461	2.968	4.499	5.901	6.934	7.489	7.646	7.449	6.956
6491	5.200	1.439	2.929	4.485	5.903	6.871	7.384	7.537	7.363	6.902
7114	5.600	1.429	2.911	4.478	5.888	6.798	7.280	7.427	7.275	6.849
7754	6.000	1.427	2.911	4.475	5.855	6.718	7.177	7.319	7.186	6.796
8413	6.400	1.433	2.923	4.476	5.806	6.631	7.076	7.217	7.099	6.742
9092	6.800	1.446	2.943	4.481	5.742	6.537	6.975	7.122	7.018	6.690
9789	7.200	1.464	2.966	4.475	5.665	6.438	6.875	7.032	6.945	6.642
10500	7.600	1.486	2.993	4.455	5.577	6.333	6.775	6.948	6.881	6.602



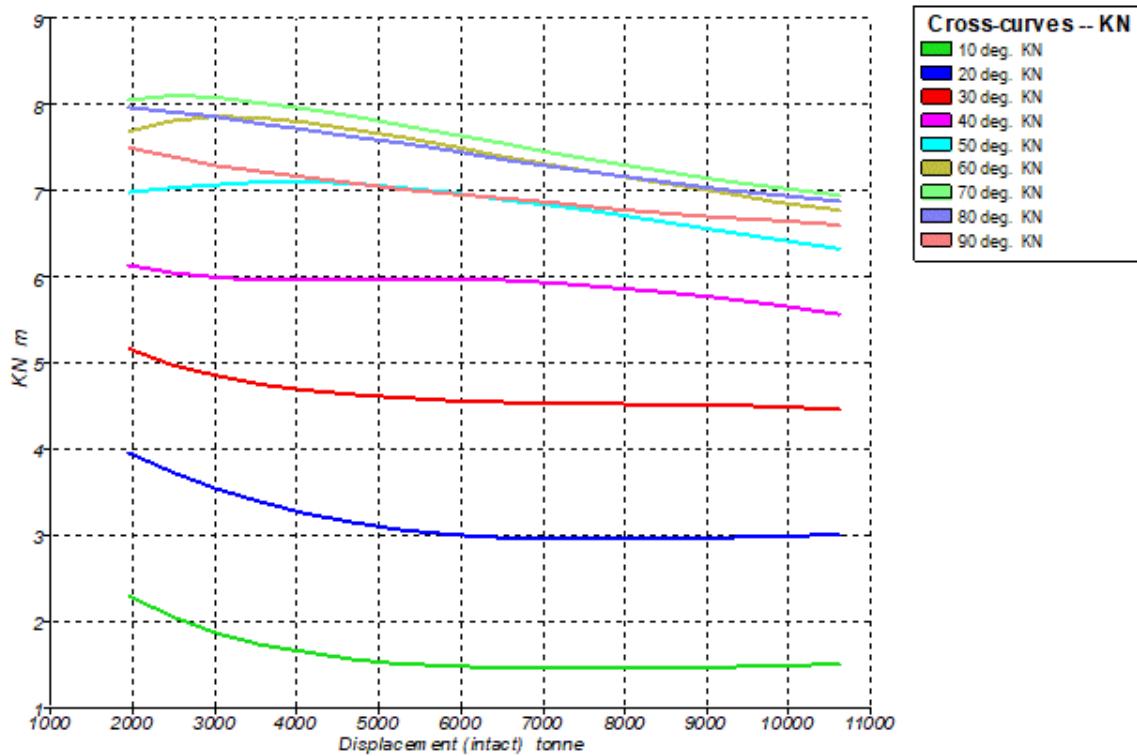
Initial Trim = 1.00 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1949	2.000	2.290	3.952	5.153	6.124	6.940	7.643	8.030	7.948	7.486
2473	2.400	2.050	3.714	4.961	6.019	6.994	7.784	8.076	7.905	7.377
3012	2.800	1.866	3.522	4.822	5.955	7.036	7.836	8.062	7.844	7.286
3563	3.200	1.728	3.362	4.719	5.923	7.072	7.827	8.013	7.774	7.208
4126	3.600	1.626	3.230	4.643	5.912	7.076	7.775	7.942	7.698	7.139
4700	4.000	1.553	3.126	4.588	5.914	7.052	7.697	7.856	7.619	7.075
5287	4.400	1.502	3.045	4.552	5.921	7.010	7.603	7.757	7.537	7.016
5886	4.800	1.468	2.986	4.529	5.931	6.953	7.500	7.651	7.453	6.959
6499	5.200	1.448	2.948	4.513	5.928	6.886	7.393	7.541	7.365	6.905
7127	5.600	1.438	2.930	4.502	5.907	6.809	7.287	7.431	7.276	6.851
7774	6.000	1.437	2.930	4.496	5.869	6.725	7.182	7.322	7.187	6.796
8444	6.400	1.444	2.940	4.495	5.814	6.634	7.077	7.219	7.100	6.742
9133	6.800	1.455	2.957	4.494	5.745	6.536	6.973	7.121	7.018	6.690
9838	7.200	1.472	2.978	4.482	5.663	6.434	6.871	7.029	6.944	6.643
10553	7.600	1.493	3.003	4.457	5.572	6.327	6.769	6.944	6.880	6.604



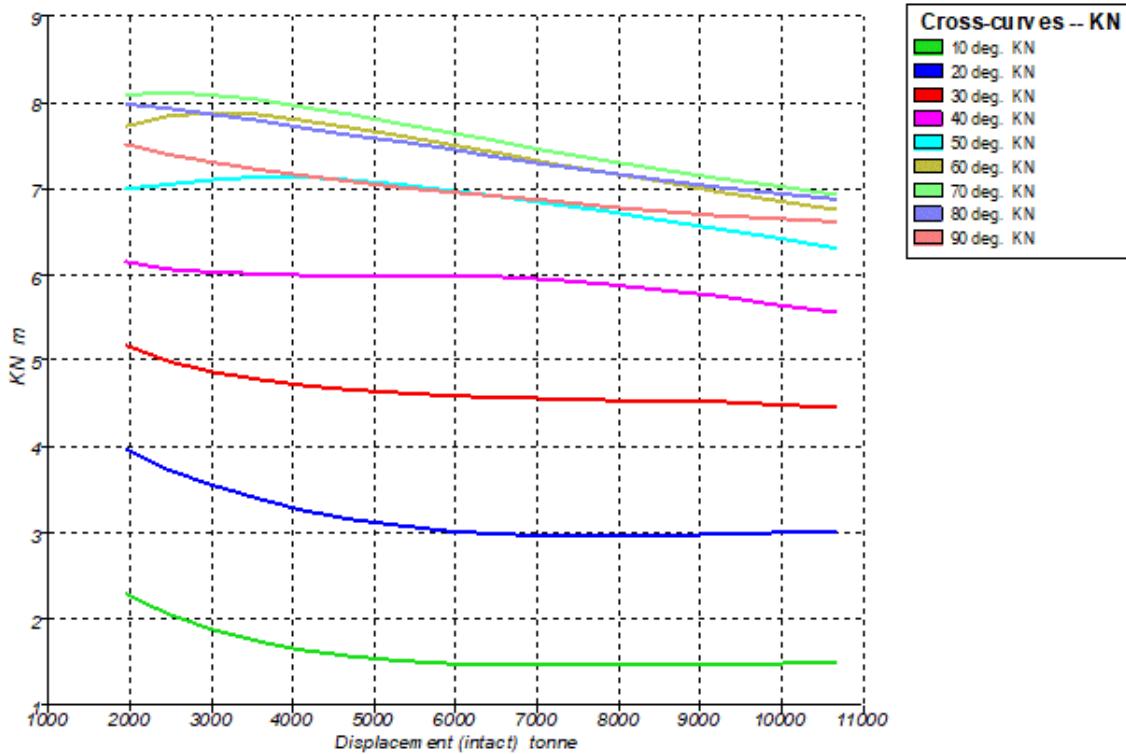
Initial Trim = 1.50 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1951	2.000	2.295	3.961	5.165	6.137	6.972	7.683	8.057	7.967	7.499
2474	2.400	2.055	3.727	4.981	6.045	7.024	7.813	8.095	7.918	7.387
3011	2.800	1.872	3.537	4.847	5.990	7.068	7.857	8.076	7.854	7.295
3562	3.200	1.734	3.378	4.747	5.962	7.102	7.841	8.023	7.782	7.215
4126	3.600	1.632	3.248	4.673	5.952	7.104	7.785	7.949	7.704	7.144
4702	4.000	1.560	3.144	4.621	5.952	7.077	7.705	7.861	7.624	7.079
5291	4.400	1.509	3.064	4.586	5.957	7.030	7.611	7.760	7.540	7.019
5892	4.800	1.476	3.006	4.561	5.961	6.970	7.508	7.652	7.455	6.962
6509	5.200	1.457	2.969	4.542	5.952	6.899	7.401	7.543	7.366	6.906
7144	5.600	1.449	2.953	4.527	5.924	6.818	7.293	7.433	7.275	6.851
7801	6.000	1.449	2.951	4.519	5.880	6.730	7.185	7.324	7.186	6.795
8480	6.400	1.455	2.957	4.515	5.820	6.635	7.077	7.219	7.100	6.741
9178	6.800	1.466	2.971	4.507	5.745	6.534	6.971	7.120	7.018	6.690
9889	7.200	1.481	2.990	4.487	5.659	6.428	6.866	7.027	6.944	6.645
10609	7.600	1.499	3.013	4.456	5.565	6.319	6.763	6.940	6.879	6.606



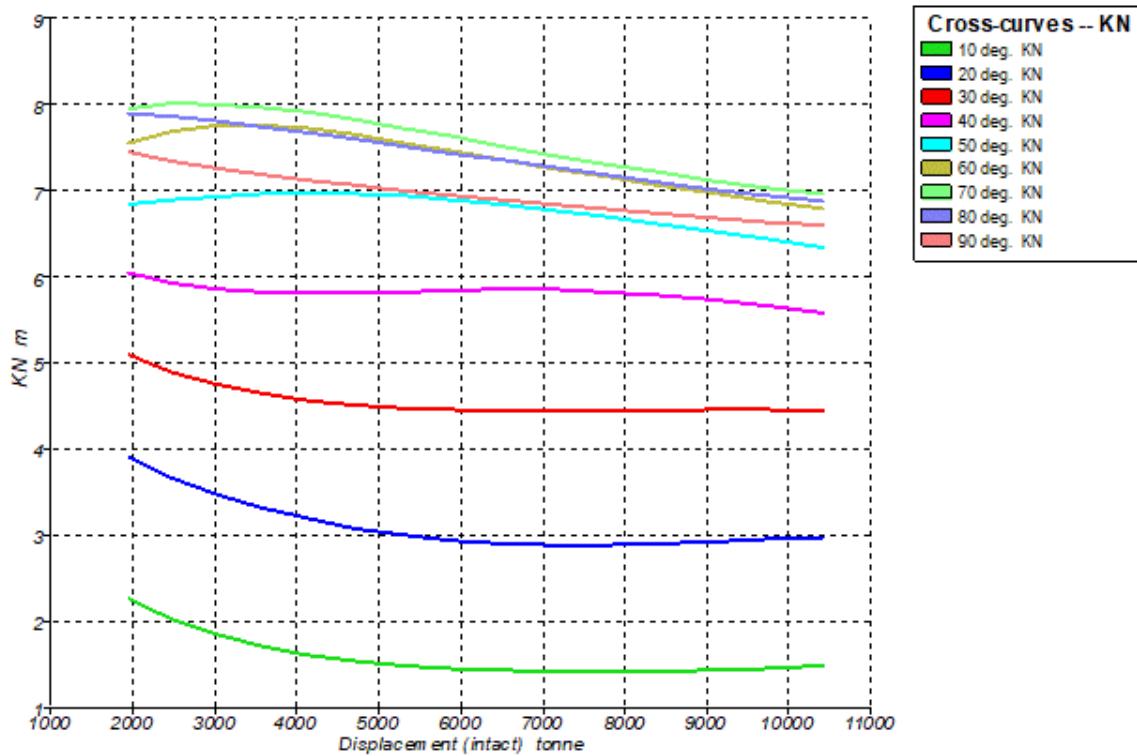
Initial Trim = 2.00 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1956	2.000	2.297	3.966	5.174	6.148	7.003	7.723	8.084	7.984	7.511
2476	2.400	2.060	3.739	4.999	6.070	7.054	7.840	8.112	7.930	7.396
3013	2.800	1.878	3.552	4.872	6.026	7.100	7.874	8.087	7.863	7.303
3564	3.200	1.741	3.395	4.777	6.003	7.129	7.851	8.031	7.788	7.222
4128	3.600	1.640	3.267	4.707	5.994	7.127	7.791	7.954	7.709	7.149
4706	4.000	1.568	3.164	4.658	5.992	7.098	7.709	7.862	7.626	7.083
5296	4.400	1.518	3.086	4.623	5.995	7.048	7.615	7.759	7.542	7.021
5902	4.800	1.486	3.030	4.595	5.992	6.985	7.513	7.651	7.454	6.963
6524	5.200	1.468	2.995	4.572	5.974	6.910	7.406	7.542	7.364	6.906
7168	5.600	1.461	2.977	4.554	5.940	6.826	7.296	7.433	7.272	6.850
7835	6.000	1.462	2.972	4.542	5.889	6.733	7.186	7.324	7.183	6.793
8523	6.400	1.468	2.976	4.533	5.823	6.634	7.076	7.218	7.098	6.739
9227	6.800	1.477	2.986	4.517	5.744	6.530	6.967	7.118	7.018	6.690
9943	7.200	1.490	3.002	4.490	5.654	6.422	6.861	7.023	6.944	6.646
10667	7.600	1.505	3.023	4.453	5.555	6.310	6.755	6.935	6.878	6.609



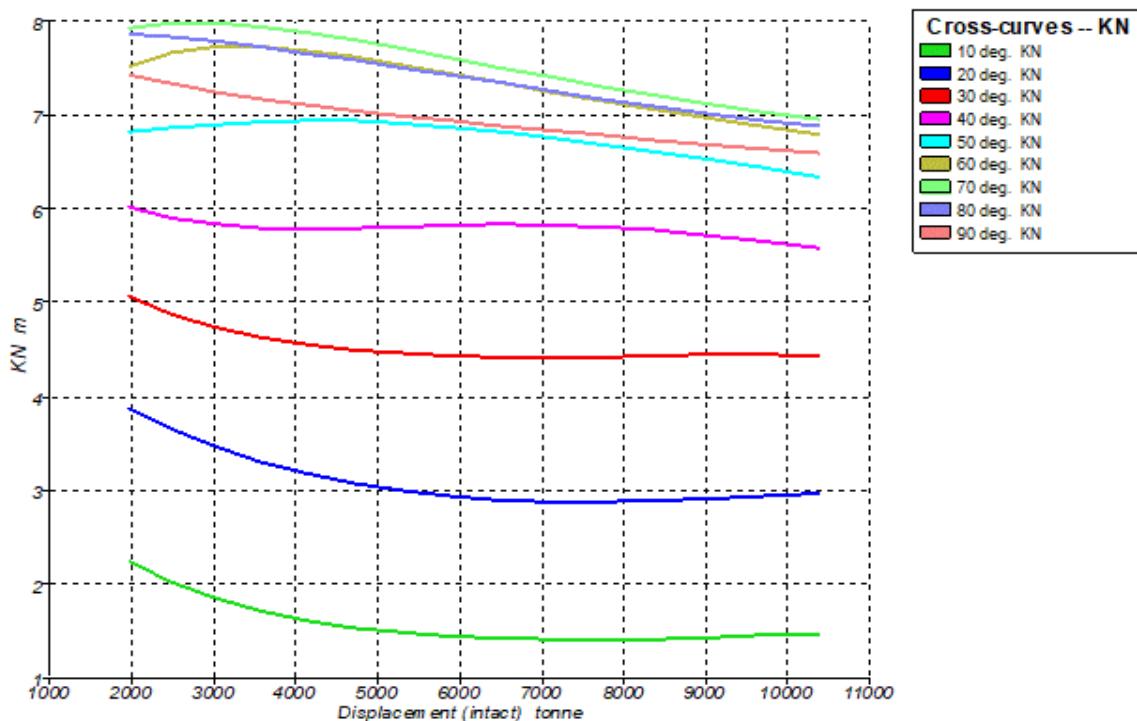
Initial Trim = - 0.50 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1957	2.000	2.257	3.902	5.091	6.053	6.847	7.540	7.950	7.886	7.443
2483	2.400	2.025	3.666	4.895	5.931	6.896	7.695	8.007	7.855	7.341
3023	2.800	1.847	3.475	4.752	5.859	6.935	7.757	8.006	7.803	7.257
3574	3.200	1.711	3.317	4.645	5.825	6.966	7.757	7.967	7.741	7.183
4135	3.600	1.610	3.186	4.567	5.813	6.979	7.715	7.903	7.671	7.118
4707	4.000	1.537	3.081	4.511	5.815	6.967	7.645	7.822	7.596	7.058
5289	4.400	1.485	3.000	4.474	5.827	6.937	7.556	7.728	7.517	7.001
5881	4.800	1.449	2.940	4.452	5.844	6.892	7.460	7.626	7.436	6.947
6484	5.200	1.427	2.901	4.439	5.854	6.837	7.360	7.520	7.352	6.894
7099	5.600	1.414	2.883	4.435	5.847	6.771	7.261	7.413	7.265	6.842
7726	6.000	1.411	2.882	4.437	5.824	6.699	7.164	7.310	7.179	6.790
8367	6.400	1.416	2.895	4.443	5.784	6.619	7.069	7.212	7.095	6.737
9025	6.800	1.430	2.917	4.453	5.730	6.533	6.974	7.121	7.017	6.687
9703	7.200	1.451	2.945	4.456	5.662	6.441	6.879	7.036	6.946	6.641
10409	7.600	1.476	2.976	4.444	5.581	6.341	6.783	6.953	6.883	6.601



Initial Trim = - 1.00 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m³)

Displacement (intact) tonne	Draft Amidships m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
1964	2.000	2.240	3.878	5.063	6.015	6.817	7.513	7.924	7.864	7.426
2490	2.400	2.015	3.647	4.871	5.900	6.861	7.664	7.982	7.835	7.328
3029	2.800	1.840	3.459	4.729	5.831	6.897	7.726	7.982	7.787	7.245
3580	3.200	1.706	3.303	4.623	5.798	6.931	7.725	7.946	7.726	7.174
4141	3.600	1.606	3.174	4.546	5.787	6.945	7.685	7.884	7.658	7.109
4712	4.000	1.533	3.070	4.492	5.790	6.937	7.617	7.804	7.584	7.050
5293	4.400	1.481	2.988	4.456	5.801	6.910	7.534	7.712	7.507	6.995
5883	4.800	1.445	2.929	4.434	5.819	6.870	7.442	7.611	7.426	6.941
6484	5.200	1.422	2.891	4.422	5.830	6.817	7.346	7.507	7.342	6.888
7095	5.600	1.409	2.873	4.418	5.827	6.756	7.251	7.404	7.257	6.836
7717	6.000	1.405	2.872	4.420	5.806	6.687	7.156	7.304	7.172	6.785
8351	6.400	1.411	2.885	4.428	5.770	6.611	7.064	7.209	7.092	6.733
9000	6.800	1.425	2.907	4.440	5.720	6.529	6.972	7.120	7.016	6.684
9671	7.200	1.446	2.935	4.444	5.656	6.439	6.879	7.036	6.947	6.640
10373	7.600	1.472	2.967	4.435	5.579	6.341	6.784	6.955	6.885	6.600



ALLOWABLE VERTICAL CENTRE OF GRAVITY - KG_{max}

KGmax Tables

Index of KGmax Tables by Trim and Specific Gravity Value

KGmax for trim = - 0.50 m and S.G. = 1.025 t/m ³	45
KGmax for trim = 0.00 m and S.G. = 1.025 t/m ³	46
KGmax for trim = 0.50 m and S.G. = 1.025 t/m ³	47
KGmax for trim = 1.00 m and S.G. = 1.025 t/m ³	48
KGmax for trim = 1.50 m and S.G. = 1.025 t/m ³	49
KGmax for trim = 2.00 m and S.G. = 1.025 t/m ³	50

KGmax for trim = -0.50 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.147	9.905	8.602	1.303	Angle of maximum GZ
3750	3.326	9.593	8.744	0.849	Angle of maximum GZ
4000	3.505	9.328	8.785	0.543	Area 30 to 40
4250	3.681	9.103	8.753	0.35	Area 0 to 40
4500	3.856	8.91	8.656	0.254	Area 0 to 30
4750	4.03	8.745	8.544	0.201	Area 0 to 30
5000	4.202	8.606	8.447	0.159	Area 0 to 30
5250	4.374	8.487	8.337	0.15	Initial GMt
5500	4.544	8.386	8.236	0.15	Initial GMt
5750	4.712	8.302	8.152	0.15	Initial GMt
6000	4.88	8.232	8.082	0.15	Initial GMt
6250	5.046	8.176	8.026	0.15	Initial GMt
6500	5.211	8.131	7.981	0.15	Initial GMt
6750	5.374	8.097	7.947	0.15	Initial GMt
7000	5.536	8.072	7.923	0.149	Initial GMt
7250	5.697	8.057	7.907	0.15	Initial GMt
7500	5.857	8.049	7.899	0.15	Initial GMt
7750	6.015	8.047	7.897	0.15	Initial GMt
8000	6.173	8.051	7.901	0.15	Initial GMt
8250	6.328	8.062	7.912	0.15	Initial GMt
8500	6.482	8.077	7.927	0.15	Initial GMt
8750	6.634	8.097	7.947	0.15	Initial GMt
9000	6.785	8.12	7.97	0.15	Initial GMt
9250	6.934	8.147	7.997	0.15	Initial GMt
9500	7.082	8.178	8.028	0.15	Initial GMt
9750	7.227	8.231	8.081	0.15	Initial GMt
10000	7.37	8.308	8.158	0.15	Initial GMt
10250	7.512	8.386	8.236	0.15	Initial GMt
10500	7.651	8.454	8.304	0.15	Initial GMt
10750	7.788	8.517	8.34	0.177	Area 0 to 30
11000	7.924	8.58	8.367	0.213	Area 0 to 40

KGmax for trim = 0.00 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.151	9.924	8.645	1.279	Angle of maximum GZ
3750	3.33	9.613	8.787	0.826	Angle of maximum GZ
4000	3.508	9.349	8.83	0.519	Area 30 to 40
4250	3.684	9.124	8.793	0.331	Area 0 to 40
4500	3.859	8.931	8.692	0.239	Area 0 to 30
4750	4.033	8.767	8.58	0.187	Area 0 to 30
5000	4.205	8.628	8.478	0.15	Initial GMt
5250	4.375	8.51	8.36	0.15	Initial GMt
5500	4.545	8.41	8.26	0.15	Initial GMt
5750	4.713	8.328	8.178	0.15	Initial GMt
6000	4.88	8.259	8.109	0.15	Initial GMt
6250	5.045	8.204	8.054	0.15	Initial GMt
6500	5.209	8.161	8.011	0.15	Initial GMt
6750	5.371	8.129	7.979	0.15	Initial GMt
7000	5.533	8.107	7.957	0.15	Initial GMt
7250	5.693	8.094	7.944	0.15	Initial GMt
7500	5.851	8.088	7.938	0.15	Initial GMt
7750	6.008	8.09	7.94	0.15	Initial GMt
8000	6.163	8.097	7.947	0.15	Initial GMt
8250	6.317	8.109	7.959	0.15	Initial GMt
8500	6.468	8.125	7.975	0.15	Initial GMt
8750	6.618	8.145	7.995	0.15	Initial GMt
9000	6.767	8.17	8.02	0.15	Initial GMt
9250	6.914	8.198	8.048	0.15	Initial GMt
9500	7.06	8.232	8.082	0.15	Initial GMt
9750	7.204	8.27	8.12	0.15	Initial GMt
10000	7.347	8.319	8.169	0.15	Initial GMt
10250	7.488	8.386	8.236	0.15	Initial GMt
10500	7.627	8.451	8.301	0.15	Initial GMt
10750	7.765	8.514	8.356	0.158	Area 0 to 30
11000	7.901	8.576	8.377	0.199	Area 0 to 40

KGmax for trim = 0.50 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.153	9.948	8.677	1.271	Angle of maximum GZ
3750	3.333	9.638	8.817	0.821	Angle of maximum GZ
4000	3.51	9.374	8.881	0.493	Area 30 to 40
4250	3.687	9.149	8.838	0.311	Area 0 to 40
4500	3.861	8.958	8.734	0.224	Area 0 to 30
4750	4.034	8.794	8.622	0.172	Area 0 to 30
5000	4.206	8.656	8.506	0.15	Initial GMt
5250	4.376	8.538	8.388	0.15	Initial GMt
5500	4.545	8.44	8.29	0.15	Initial GMt
5750	4.712	8.359	8.209	0.15	Initial GMt
6000	4.878	8.292	8.142	0.15	Initial GMt
6250	5.043	8.239	8.089	0.15	Initial GMt
6500	5.206	8.198	8.048	0.15	Initial GMt
6750	5.367	8.168	8.018	0.15	Initial GMt
7000	5.528	8.148	7.998	0.15	Initial GMt
7250	5.686	8.138	7.988	0.15	Initial GMt
7500	5.843	8.135	7.985	0.15	Initial GMt
7750	5.998	8.139	7.989	0.15	Initial GMt
8000	6.151	8.148	7.998	0.15	Initial GMt
8250	6.302	8.161	8.011	0.15	Initial GMt
8500	6.452	8.179	8.029	0.15	Initial GMt
8750	6.6	8.2	8.05	0.15	Initial GMt
9000	6.747	8.227	8.077	0.15	Initial GMt
9250	6.892	8.259	8.109	0.15	Initial GMt
9500	7.035	8.296	8.146	0.15	Initial GMt
9750	7.178	8.329	8.179	0.15	Initial GMt
10000	7.319	8.355	8.205	0.15	Initial GMt
10250	7.46	8.387	8.237	0.15	Initial GMt
10500	7.6	8.448	8.298	0.15	Initial GMt
10750	7.738	8.512	8.362	0.15	Initial GMt
11000	7.875	8.574	8.381	0.193	Area 0 to 40

KGmax for trim = 1.00 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.155	9.976	8.696	1.28	Angle of maximum GZ
3750	3.334	9.666	8.835	0.831	Angle of maximum GZ
4000	3.511	9.404	8.939	0.465	Area 30 to 40
4250	3.688	9.18	8.889	0.291	Area 0 to 40
4500	3.862	8.99	8.781	0.209	Area 0 to 30
4750	4.034	8.827	8.67	0.157	Area 0 to 30
5000	4.205	8.689	8.539	0.15	Initial GMt
5250	4.375	8.573	8.423	0.15	Initial GMt
5500	4.543	8.476	8.326	0.15	Initial GMt
5750	4.71	8.396	8.246	0.15	Initial GMt
6000	4.875	8.331	8.181	0.15	Initial GMt
6250	5.039	8.28	8.13	0.15	Initial GMt
6500	5.201	8.242	8.092	0.15	Initial GMt
6750	5.361	8.215	8.065	0.15	Initial GMt
7000	5.52	8.198	8.048	0.15	Initial GMt
7250	5.677	8.19	8.04	0.15	Initial GMt
7500	5.832	8.189	8.039	0.15	Initial GMt
7750	5.985	8.195	8.045	0.15	Initial GMt
8000	6.136	8.205	8.055	0.15	Initial GMt
8250	6.286	8.22	8.07	0.15	Initial GMt
8500	6.433	8.239	8.089	0.15	Initial GMt
8750	6.58	8.264	8.114	0.15	Initial GMt
9000	6.724	8.295	8.145	0.15	Initial GMt
9250	6.867	8.329	8.179	0.15	Initial GMt
9500	7.009	8.356	8.206	0.15	Initial GMt
9750	7.151	8.378	8.228	0.15	Initial GMt
10000	7.291	8.401	8.251	0.15	Initial GMt
10250	7.432	8.426	8.276	0.15	Initial GMt
10500	7.571	8.458	8.308	0.15	Initial GMt
10750	7.709	8.512	8.363	0.149	Initial GMt
11000	7.846	8.574	8.377	0.197	Area 0 to 40

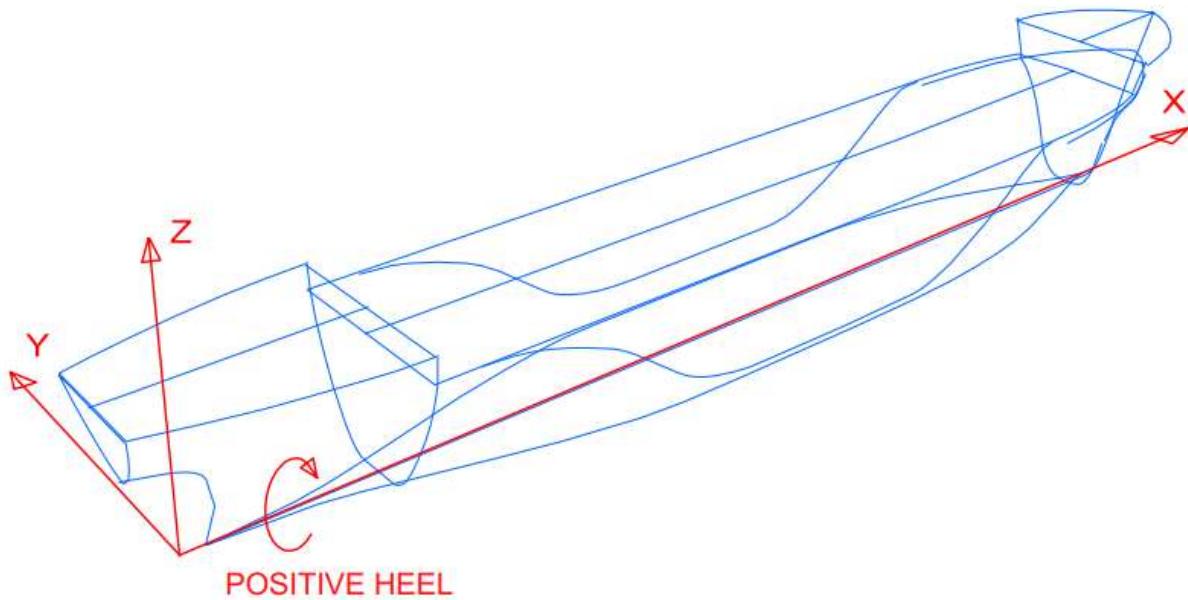
KGmax for trim = 1.50 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.155	10.011	8.708	1.303	Angle of maximum GZ
3750	3.334	9.702	8.847	0.855	Angle of maximum GZ
4000	3.511	9.44	9	0.44	Max GZ at 30 or greater
4250	3.687	9.217	8.946	0.271	Area 0 to 40
4500	3.861	9.027	8.833	0.194	Area 0 to 30
4750	4.033	8.866	8.716	0.15	Initial GMt
5000	4.204	8.729	8.579	0.15	Initial GMt
5250	4.373	8.612	8.463	0.149	Initial GMt
5500	4.54	8.518	8.368	0.15	Initial GMt
5750	4.706	8.44	8.29	0.15	Initial GMt
6000	4.871	8.378	8.228	0.15	Initial GMt
6250	5.033	8.33	8.18	0.15	Initial GMt
6500	5.194	8.295	8.145	0.15	Initial GMt
6750	5.353	8.271	8.121	0.15	Initial GMt
7000	5.51	8.256	8.107	0.149	Initial GMt
7250	5.665	8.25	8.1	0.15	Initial GMt
7500	5.818	8.25	8.1	0.15	Initial GMt
7750	5.97	8.256	8.107	0.149	Initial GMt
8000	6.118	8.268	8.119	0.149	Initial GMt
8250	6.266	8.286	8.136	0.15	Initial GMt
8500	6.411	8.31	8.16	0.15	Initial GMt
8750	6.556	8.339	8.19	0.149	Initial GMt
9000	6.699	8.369	8.219	0.15	Initial GMt
9250	6.841	8.39	8.241	0.149	Initial GMt
9500	6.982	8.408	8.259	0.149	Initial GMt
9750	7.122	8.428	8.278	0.15	Initial GMt
10000	7.262	8.45	8.3	0.15	Initial GMt
10250	7.402	8.473	8.324	0.149	Initial GMt
10500	7.54	8.498	8.349	0.149	Initial GMt
10750	7.678	8.532	8.382	0.15	Initial GMt
11000	7.815	8.58	8.346	0.234	Area 30 to 40

KGmax for trim = 2.00 m and S.G. = 1.025 t/m³

Displacement ton	Draft Amidships m	KM m	Limit KG m	min. GM m	Criterion
3500	3.154	10.049	8.733	1.316	Angle of maximum GZ
3750	3.333	9.741	8.925	0.816	Angle of maximum GZ
4000	3.51	9.481	9.048	0.433	Max GZ at 30 or greater
4250	3.685	9.26	9.009	0.251	Area 0 to 40
4500	3.859	9.071	8.893	0.178	Area 0 to 30
4750	4.031	8.91	8.761	0.149	Initial GMt
5000	4.201	8.775	8.625	0.15	Initial GMt
5250	4.369	8.66	8.511	0.149	Initial GMt
5500	4.536	8.567	8.418	0.149	Initial GMt
5750	4.701	8.491	8.342	0.149	Initial GMt
6000	4.864	8.433	8.283	0.15	Initial GMt
6250	5.026	8.388	8.239	0.149	Initial GMt
6500	5.185	8.357	8.208	0.149	Initial GMt
6750	5.342	8.336	8.187	0.149	Initial GMt
7000	5.497	8.323	8.174	0.149	Initial GMt
7250	5.65	8.318	8.168	0.15	Initial GMt
7500	5.801	8.319	8.169	0.15	Initial GMt
7750	5.95	8.327	8.177	0.15	Initial GMt
8000	6.097	8.341	8.192	0.149	Initial GMt
8250	6.243	8.363	8.214	0.149	Initial GMt
8500	6.387	8.39	8.241	0.149	Initial GMt
8750	6.53	8.415	8.265	0.15	Initial GMt
9000	6.672	8.432	8.282	0.15	Initial GMt
9250	6.813	8.447	8.297	0.15	Initial GMt
9500	6.953	8.463	8.313	0.15	Initial GMt
9750	7.093	8.481	8.332	0.149	Initial GMt
10000	7.232	8.501	8.352	0.149	Initial GMt
10250	7.37	8.524	8.374	0.15	Initial GMt
10500	7.508	8.547	8.398	0.149	Initial GMt
10750	7.645	8.574	8.37	0.204	Area 30 to 40
11000	7.783	8.608	8.278	0.33	Area 30 to 40

Reference system

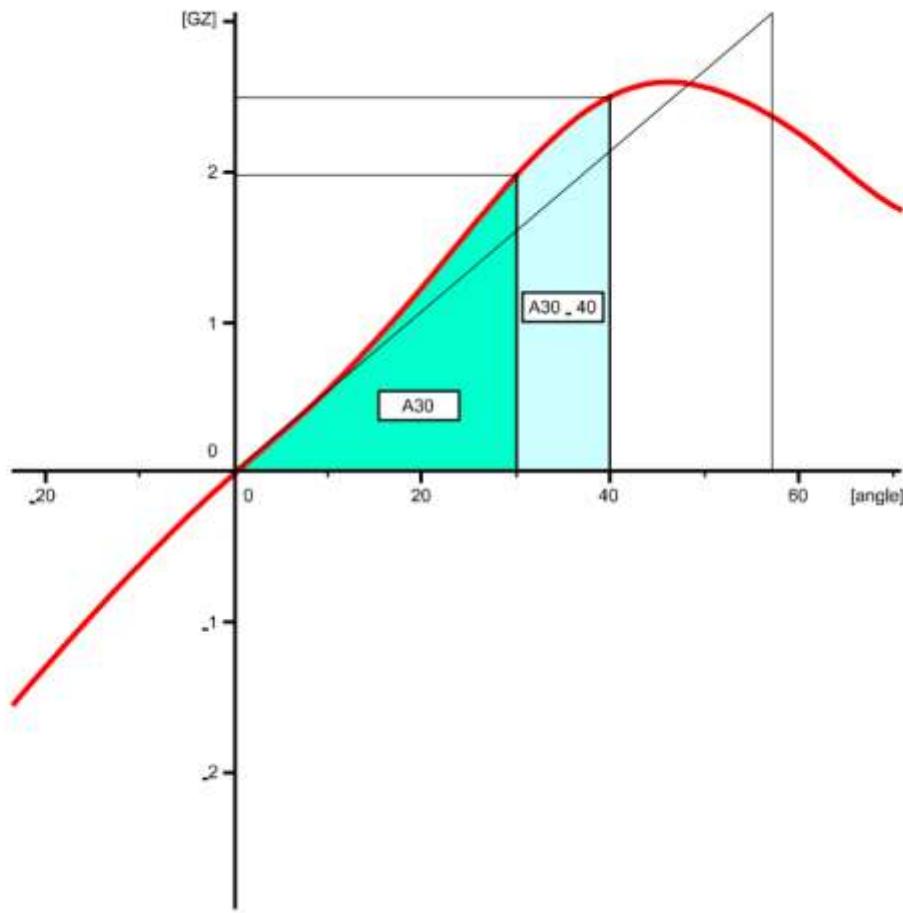


X	-	Zero in AP and positive forward
Y	-	Zero in center line and positive Starboard
Z	-	Zero in baseline and positive upwards
trim	-	Positive when trim by stern
heel	-	Positive when heel towards Starboard
draught	-	Moulded draught (above keel)
keel draught	-	Extreme draught for loading conditions

8.1.2. Terms, symbols, units

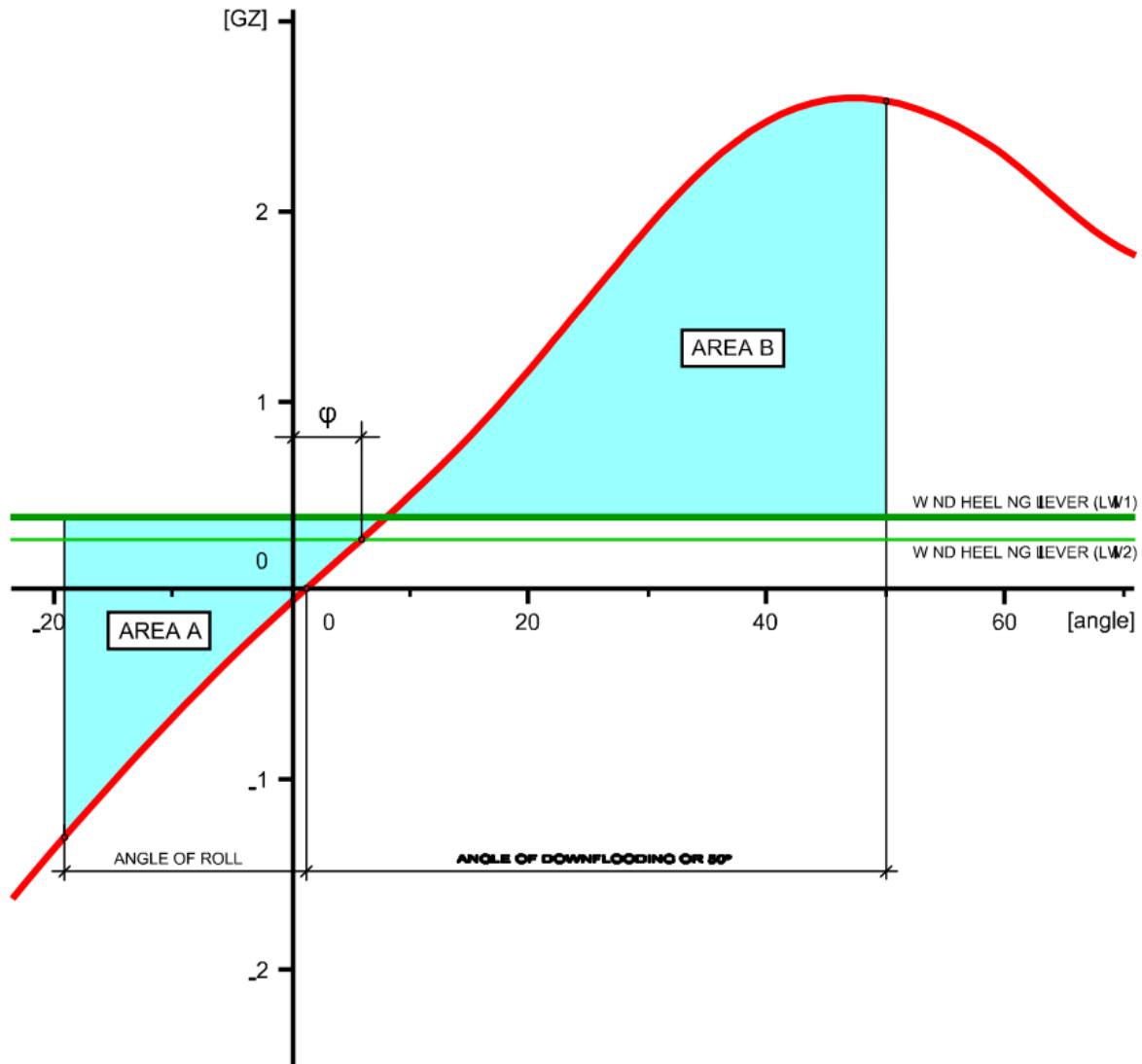
Terms	symbols	units
After perpendicular	AP	-
Fore perpendicular	FP	-
Baseline	BL	-
Bottom of Keel	BK	-
Center Line	CL	-
Heel Angle		m.deg
Length between perpendiculars	LBP	m
Breadth	B	m
Depth	D	m
Freeboard	f	m
Mean keel draught	T _k	m
Mean moulded draught = 0.5 (TAP + TFP)	T	m
Moulded draught at AP	T _{AP}	m
Moulded draught at FP	T _{FP}	m
Keel draught reading at aft draught mark	T _{AR}	m
Keel draught reading at fwd draught mark	T _{FR}	m
Trim	t, TRIM	m
Displacement volume	DISV	m ³
Displacement mass	DISM	t
Displacement mass per centimeter change of draught	TPC	t/cm
x coordinate of centre of buoyancy	XCB, LCB	m
x coordinate of centre of flotation	XCF, LCF	m
x coordinate of centre of gravity	XCG, LCG	m
y coordinate of centre of gravity	YCG, TCG	m
z coordinate of centre of gravity	ZCG, VCG	m
Corrected z coordinate of center of gravity	KG	m
z coordinate of metacentre	KMT	m
Metacentric height	GM	m
Righting lever	GZ	m
Longitudinal moment	MTL	tm
Vertical moment	MTV	tm
Mass	M	t
Free surface moment	FSM	t.m
Moment to change trim one centimeter	MTC	tm/cm
Wind pressure	pV	N/m ²
Ship's speed	V	kn

Applied intact stability criteria

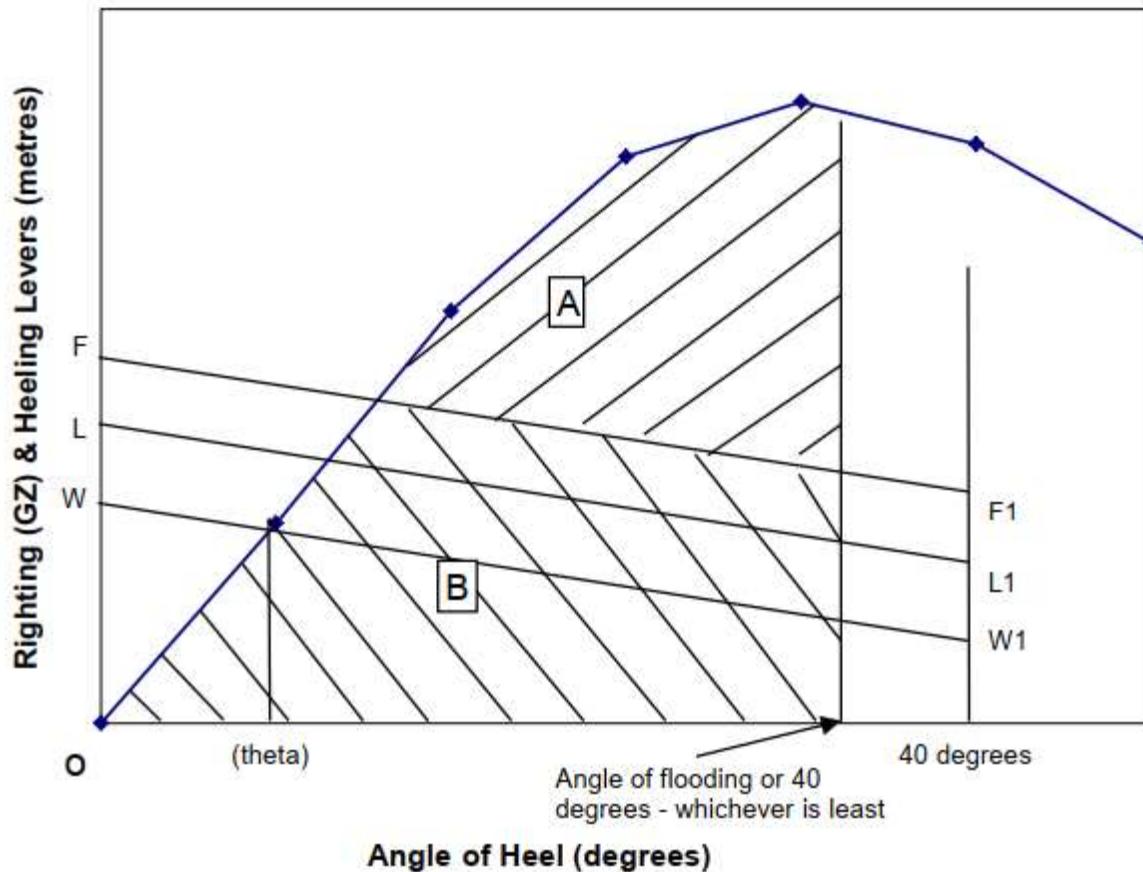


- A Area under curve up to 30 degrees to be not less than 0.055 meter-radian.
- B Area under curve up to angle of 40 degrees to be not less than 0.09 meter-radian.
- C Area between 30 degrees and 40 degrees to be not less than 0.030 meter-radian.
- D Maximum GZ to occur at angle not less than 25 degrees.
- E GZ to be at least 0.20 meter at an angle not less than 30 degrees, but not greater than 40 degrees.
- F Initial GM to be not less than 0.15 metre

Applied weather criteria



- I Angle of heel under action of steady wind is not to be greater than 16 deg.
- II Area "B" should be equal to or greater than area "A".



- 1) the area under righting lever curve is at least:
 - A) 3.15 metre-degrees up to 30° angle of heel; and e-degrees
 - B) 5.16 metre-degrees up to 40° angle of heel, or angle of flooding if this angle is less than 40° .
- 2) the area under righting lever curve between the angles of heel of 30° and 40° , or, if this angle is less than 40° , between 30° and angle of flooding, is at least 1.72 metre-degrees to 30° angle .
- 3) the righting lever GZ is at least 0.20 metres at an angle of heel of at least 30° .
- 4) the maximum righting lever occurs at an angle of heel of at least 25° .
- 5) the initial metacentric height GM is at least 0.15 m.
- 6) the angle of heel due to wind effect is not more than 10° .
- 7) the area A is at least [1.03 metre-degrees + 0.2 area (A+B)].

Notes to the master

Stability:

The metacentric height GM, the distance between the points G and M, means the stability for small angles and is given by the following equation:

$$GM = KMT - KG$$

The center of gravity (KG) above keel depends on the distribution of cargo in the vessel. By adding the single weights and their moments related to base line and by division of the total moments with the total weights, the center of gravity KG may be obtained.

The transverse metacentric (M) above keel (K) only dependent on the lines of the vessel, may be obtained from the hydrostatic tables.

Curves of righting levers:

Curves of righting levers are generally used to represent stability during inclinations. To ensure that the vessel's stability is positive, the stability arm GZ must be positive. To illustrate righting levers at various inclinations of the vessel in a condition, the effective righting lever GZ is derived from:

$$GZ = KMT - KG * \sin\theta, \quad \text{where } KN = \text{Cross curve ordinate above base line.}$$

The righting levers GZ calculated in accordance with the mentioned formula are plotted over the angle of inclination

Free surface effects:

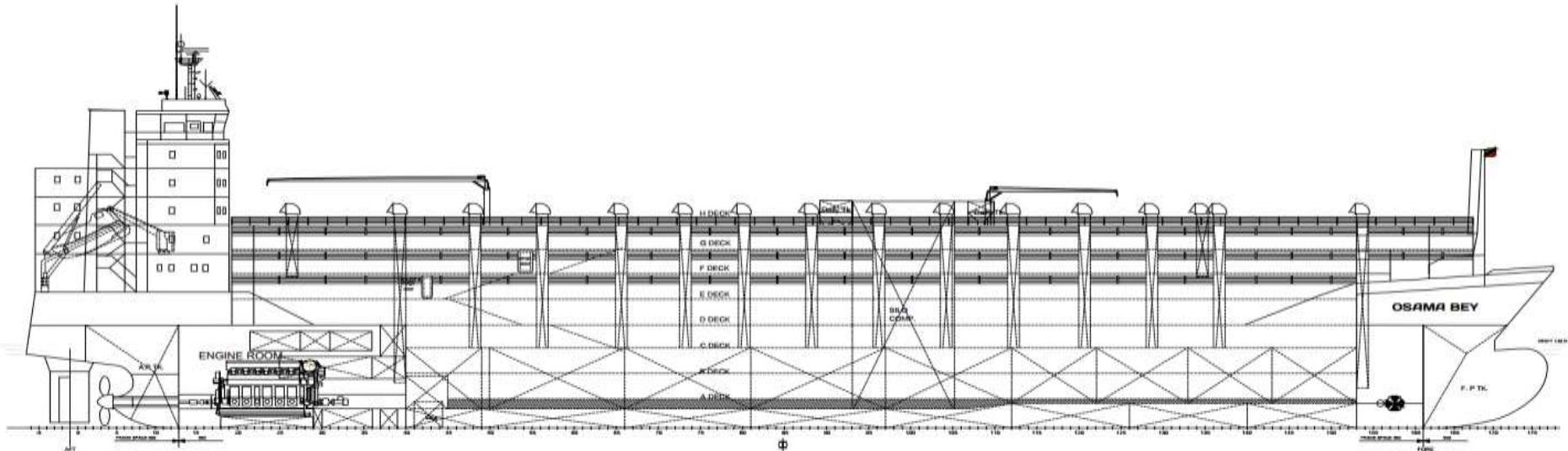
The 'free Surface Effect' of all oil, fuel, freshwater, feed water and service tanks should be taken into account in all conditions, when these tanks are not completely filled as follows:

$$\text{Loss in GM [in meters]} = (\text{Sum of Free Surface Moments [in tons x meters]}) / (\text{Displacement of Vessel [in tons]})$$

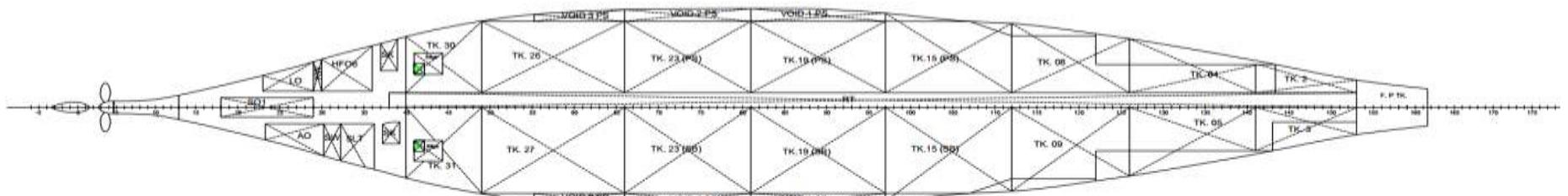
where:

$$\text{Free Surface Moment} = \text{transverse inertia moment [m}^4\text{]} \times \text{density of tank content [t/m}^3\text{]}$$

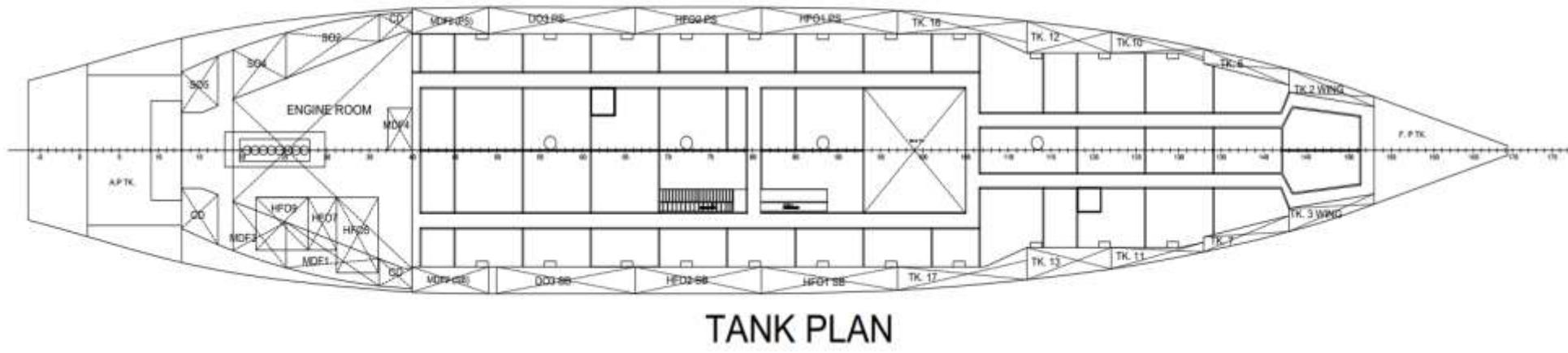
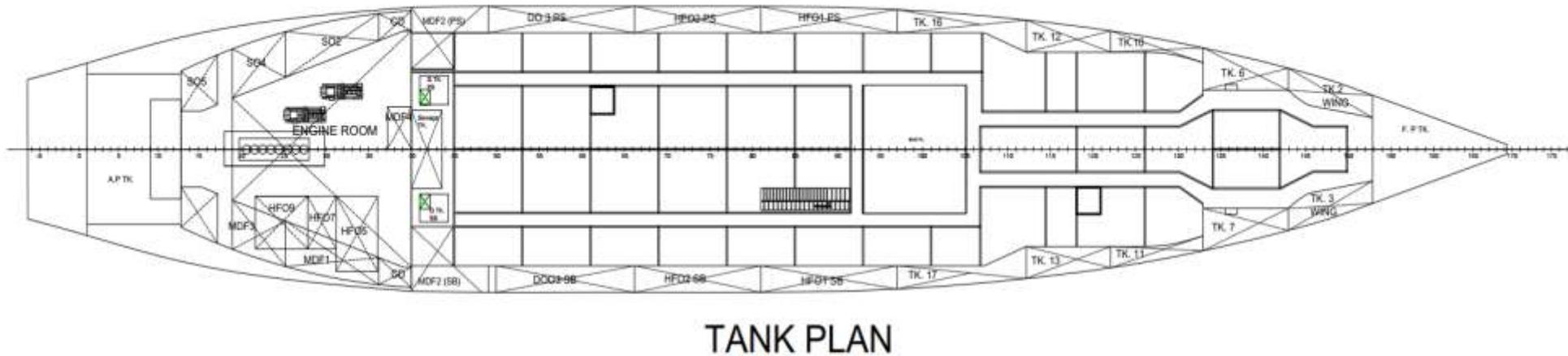
Tanks Identification



PROFILE



DOUBLE BOTTOM





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- AO

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
AO	1.655	0.000	100.000	8.870	8.870	17.258	2.286	1.167	0.000
	1.636	0.019	98.000	8.693	8.693	17.260	2.280	1.156	3.800
	1.600	0.055	94.235	8.359	8.359	17.263	2.270	1.133	3.654
	1.500	0.155	84.127	7.462	7.462	17.274	2.240	1.072	3.260
	1.400	0.255	74.428	6.602	6.602	17.287	2.209	1.010	2.880
	1.300	0.355	65.161	5.780	5.780	17.303	2.176	0.948	2.514
	1.200	0.455	56.351	4.998	4.998	17.321	2.143	0.886	2.166
	1.100	0.555	48.020	4.259	4.259	17.342	2.107	0.824	1.839
	1.000	0.655	40.193	3.565	3.565	17.369	2.071	0.761	1.535
	0.900	0.755	32.901	2.918	2.918	17.402	2.032	0.699	1.254
	0.800	0.855	26.173	2.322	2.322	17.443	1.991	0.635	1.000
	0.700	0.955	20.050	1.779	1.779	17.498	1.947	0.571	0.768
	0.600	1.055	14.609	1.296	1.296	17.571	1.900	0.506	0.552
	0.500	1.155	9.941	0.882	0.882	17.674	1.851	0.440	0.364
	0.400	1.255	6.121	0.543	0.543	17.823	1.803	0.373	0.218
	0.300	1.355	3.201	0.284	0.284	18.049	1.756	0.305	0.113
	0.200	1.455	1.249	0.111	0.111	18.343	1.703	0.235	0.043
	0.182	1.473	1.000	0.089	0.089	18.399	1.692	0.223	0.033
	0.100	1.555	0.241	0.021	0.021	18.662	1.627	0.166	0.007
	0.000	1.655	0.000	0.000	0.000	19.176	1.001	0.095	0.000

- SK

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SK	1.656	0.000	100.000	3.754	3.754	24.471	2.253	0.996	0.000
	1.626	0.030	98.000	3.679	3.679	24.471	2.253	0.981	0.791
	1.600	0.056	96.280	3.614	3.614	24.471	2.252	0.968	0.791
	1.500	0.156	89.630	3.365	3.365	24.471	2.250	0.917	0.791
	1.400	0.256	82.981	3.115	3.115	24.471	2.247	0.867	0.791
	1.300	0.356	76.332	2.865	2.865	24.471	2.244	0.817	0.791
	1.200	0.456	69.683	2.616	2.616	24.472	2.240	0.767	0.791
	1.100	0.556	63.033	2.366	2.366	24.472	2.235	0.716	0.791
	1.000	0.656	56.384	2.117	2.117	24.472	2.229	0.666	0.791
	0.900	0.756	49.735	1.867	1.867	24.472	2.222	0.615	0.791
	0.800	0.856	43.086	1.617	1.617	24.473	2.212	0.565	0.791
	0.700	0.956	36.436	1.368	1.368	24.473	2.198	0.514	0.791
	0.600	1.056	29.787	1.118	1.118	24.474	2.179	0.462	0.791
	0.500	1.156	23.138	0.869	0.869	24.475	2.149	0.410	0.791
	0.400	1.256	16.489	0.619	0.619	24.477	2.094	0.356	0.791
	0.300	1.356	9.873	0.371	0.371	24.480	1.969	0.296	0.711
	0.200	1.456	4.319	0.162	0.162	24.478	1.758	0.231	0.260
	0.102	1.554	1.000	0.038	0.038	24.484	1.516	0.165	0.027
	0.100	1.556	0.950	0.036	0.036	24.484	1.511	0.163	0.025
	0.000	1.656	0.000	0.000	0.000	25.090	1.166	0.094	0.000

– SK PS

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SK PS	1.350	0.000	100.000	2.652	2.652	24.496	-4.276	1.264	0.000
	1.334	0.016	98.000	2.599	2.599	24.496	-4.268	1.254	1.913
	1.300	0.050	93.712	2.485	2.485	24.497	-4.253	1.233	1.823
	1.200	0.150	81.656	2.166	2.166	24.498	-4.205	1.171	1.569
	1.100	0.250	70.219	1.862	1.862	24.499	-4.156	1.109	1.331
	1.000	0.350	59.426	1.576	1.576	24.500	-4.104	1.047	1.109
	0.900	0.450	49.308	1.308	1.308	24.502	-4.049	0.985	0.905
	0.800	0.550	39.901	1.058	1.058	24.504	-3.990	0.923	0.717
	0.700	0.650	31.257	0.829	0.829	24.507	-3.926	0.860	0.546
	0.600	0.750	23.448	0.622	0.622	24.510	-3.857	0.796	0.391
	0.500	0.850	16.576	0.440	0.440	24.515	-3.782	0.732	0.255
	0.400	0.950	10.751	0.285	0.285	24.522	-3.701	0.668	0.146
	0.300	1.050	6.076	0.161	0.161	24.534	-3.616	0.603	0.069
	0.200	1.150	2.636	0.070	0.070	24.558	-3.526	0.538	0.023
	0.129	1.222	1.000	0.027	0.027	24.600	-3.455	0.491	0.007
	0.100	1.250	0.550	0.015	0.015	24.636	-3.426	0.472	0.003
	0.000	1.350	0.000	0.000	0.000	25.103	-2.214	0.400	0.000

– SW

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SW	1.687	0.000	100.000	4.069	4.069	19.899	2.554	1.103	0.000
	1.666	0.021	98.000	3.987	3.987	19.899	2.546	1.090	2.559
	1.600	0.087	91.947	3.741	3.741	19.899	2.523	1.050	2.394
	1.500	0.187	82.984	3.376	3.376	19.899	2.486	0.989	2.150
	1.400	0.287	74.349	3.025	3.025	19.900	2.448	0.928	1.914
	1.300	0.387	66.057	2.688	2.688	19.900	2.409	0.868	1.687
	1.200	0.487	58.122	2.365	2.365	19.901	2.368	0.807	1.471
	1.100	0.587	50.556	2.057	2.057	19.902	2.326	0.746	1.268
	1.000	0.687	43.371	1.765	1.765	19.903	2.282	0.685	1.079
	0.900	0.787	36.579	1.488	1.488	19.904	2.235	0.624	0.905
	0.800	0.887	30.198	1.229	1.229	19.906	2.185	0.563	0.743
	0.700	0.987	24.253	0.987	0.987	19.908	2.132	0.501	0.592
	0.600	1.087	18.789	0.764	0.764	19.910	2.073	0.439	0.447
	0.500	1.187	13.874	0.564	0.564	19.913	2.011	0.377	0.314
	0.400	1.287	9.571	0.389	0.389	19.918	1.945	0.316	0.203
	0.300	1.387	5.908	0.240	0.240	19.925	1.874	0.255	0.119
	0.200	1.487	2.930	0.119	0.119	19.940	1.790	0.193	0.057
	0.112	1.575	1.000	0.041	0.041	19.976	1.694	0.138	0.018
	0.100	1.587	0.807	0.033	0.033	19.986	1.679	0.131	0.014
	0.000	1.687	0.000	0.000	0.000	20.343	1.001	0.063	0.000

- SLT

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SLT	1.684	0.000	100.000	9.577	9.577	21.904	2.803	1.108	0.000
	1.663	0.021	98.000	9.385	9.385	21.904	2.794	1.095	9.040
	1.600	0.084	92.221	8.832	8.832	21.904	2.768	1.058	8.532
	1.500	0.184	83.265	7.974	7.974	21.904	2.726	0.998	7.743
	1.400	0.284	74.609	7.145	7.145	21.904	2.681	0.938	6.977
	1.300	0.384	66.266	6.346	6.346	21.904	2.634	0.877	6.232
	1.200	0.484	58.252	5.579	5.579	21.903	2.585	0.817	5.507
	1.100	0.584	50.586	4.844	4.844	21.902	2.533	0.756	4.798
	1.000	0.684	43.294	4.146	4.146	21.900	2.478	0.696	4.090
	0.900	0.784	36.403	3.486	3.486	21.898	2.420	0.635	3.419
	0.800	0.884	29.936	2.867	2.867	21.895	2.358	0.575	2.792
	0.700	0.984	23.917	2.290	2.290	21.891	2.291	0.514	2.214
	0.600	1.084	18.379	1.760	1.760	21.885	2.219	0.453	1.683
	0.500	1.184	13.370	1.280	1.280	21.875	2.138	0.391	1.205
	0.400	1.284	8.963	0.858	0.858	21.858	2.047	0.329	0.769
	0.300	1.384	5.257	0.503	0.503	21.826	1.945	0.267	0.414
	0.200	1.484	2.349	0.225	0.225	21.754	1.823	0.205	0.163
	0.136	1.548	1.000	0.096	0.096	21.636	1.728	0.163	0.057
	0.100	1.584	0.469	0.045	0.045	21.488	1.670	0.139	0.023
	0.000	1.684	0.000	0.000	0.000	20.622	1.000	0.066	0.000

- KW

Fluid Type =

Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
KW	1.655	0.000	100.000	1.607	1.607	18.904	-2.453	1.120	0.000
	1.634	0.021	98.000	1.575	1.575	18.904	-2.446	1.108	0.855
	1.600	0.055	94.719	1.522	1.522	18.904	-2.435	1.087	0.825
	1.500	0.155	85.391	1.372	1.372	18.904	-2.400	1.026	0.739
	1.400	0.255	76.411	1.228	1.228	18.904	-2.365	0.965	0.656
	1.300	0.355	67.794	1.090	1.090	18.904	-2.328	0.904	0.577
	1.200	0.455	59.555	0.957	0.957	18.904	-2.289	0.843	0.502
	1.100	0.555	51.706	0.831	0.831	18.905	-2.250	0.781	0.431
	1.000	0.655	44.261	0.711	0.711	18.905	-2.208	0.720	0.365
	0.900	0.755	37.240	0.599	0.599	18.905	-2.164	0.659	0.303
	0.800	0.855	30.661	0.493	0.493	18.905	-2.117	0.597	0.247
	0.700	0.955	24.543	0.394	0.394	18.906	-2.067	0.535	0.196
	0.600	1.055	18.930	0.304	0.304	18.906	-2.011	0.473	0.146
	0.500	1.155	13.905	0.223	0.223	18.907	-1.952	0.411	0.101
	0.400	1.255	9.534	0.153	0.153	18.908	-1.891	0.349	0.063
	0.300	1.355	5.848	0.094	0.094	18.910	-1.825	0.287	0.036
	0.200	1.455	2.887	0.046	0.046	18.913	-1.748	0.225	0.016
	0.113	1.542	1.000	0.016	0.016	18.921	-1.662	0.170	0.005
	0.100	1.555	0.795	0.013	0.013	18.923	-1.647	0.162	0.004
	0.000	1.655	0.000	0.000	0.000	19.190	-1.312	0.095	0.000

- LO

Fluid Type = Lub. oil

Specific gravity = 0.920

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
LO	1.638	0.000	100.000	7.235	6.656	16.885	-2.248	1.178	0.000
	1.619	0.019	98.000	7.090	6.523	16.886	-2.242	1.166	2.596
	1.600	0.038	95.997	6.945	6.390	16.888	-2.237	1.155	2.543
	1.500	0.138	85.640	6.196	5.700	16.897	-2.208	1.093	2.268
	1.400	0.238	75.701	5.477	5.039	16.907	-2.178	1.032	2.002
	1.300	0.338	66.205	4.790	4.407	16.919	-2.146	0.970	1.745
	1.200	0.438	57.180	4.137	3.806	16.933	-2.113	0.908	1.500
	1.100	0.538	48.649	3.520	3.238	16.951	-2.078	0.846	1.269
	1.000	0.638	40.640	2.940	2.705	16.972	-2.042	0.783	1.054
	0.900	0.738	33.184	2.401	2.209	16.999	-2.004	0.720	0.856
	0.800	0.838	26.315	1.904	1.752	17.032	-1.963	0.657	0.677
	0.700	0.938	20.073	1.452	1.336	17.077	-1.920	0.593	0.515
	0.600	1.038	14.535	1.052	0.967	17.138	-1.873	0.527	0.364
	0.500	1.138	9.796	0.709	0.652	17.224	-1.825	0.461	0.236
	0.400	1.238	5.938	0.430	0.395	17.354	-1.776	0.395	0.137
	0.300	1.338	3.018	0.218	0.201	17.561	-1.730	0.326	0.069
	0.200	1.438	1.110	0.080	0.074	17.859	-1.680	0.256	0.025
	0.192	1.446	1.000	0.072	0.067	17.885	-1.675	0.250	0.022
	0.100	1.538	0.191	0.014	0.013	18.187	-1.613	0.185	0.003
	0.000	1.638	0.000	0.000	0.000	18.533	-1.000	0.112	0.000

– F.O.T 1 SB

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
F.O.T 1 SB	6.400	0.000	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	6.300	0.100	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	6.200	0.200	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	6.100	0.300	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	6.000	0.400	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	5.900	0.500	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	5.800	0.600	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	5.700	0.700	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	5.600	0.800	100.000	76.945	72.659	57.507	8.564	4.736	0.000
	5.500	0.900	97.880	75.314	71.119	57.505	8.561	4.681	3.262
	5.400	1.000	95.771	73.691	69.587	57.503	8.559	4.626	3.208
	5.300	1.100	93.675	72.078	68.063	57.501	8.556	4.571	3.155
	5.200	1.200	91.590	70.474	66.548	57.499	8.554	4.517	3.104
	5.100	1.300	89.516	68.878	65.042	57.497	8.552	4.462	3.053
	5.000	1.400	87.455	67.292	63.544	57.495	8.549	4.408	3.004
	4.900	1.500	85.404	65.714	62.054	57.493	8.547	4.353	2.956
	4.800	1.600	83.365	64.145	60.572	57.490	8.544	4.299	2.908
	4.700	1.700	81.337	62.585	59.099	57.488	8.542	4.245	2.862
	4.600	1.800	79.320	61.033	57.633	57.486	8.539	4.191	2.817
	4.500	1.900	77.314	59.489	56.176	57.484	8.537	4.137	2.772
	4.400	2.000	75.319	57.954	54.726	57.481	8.535	4.082	2.728
	4.300	2.100	73.335	56.428	53.285	57.479	8.532	4.029	2.685
	4.200	2.200	71.362	54.910	51.851	57.477	8.530	3.975	2.643
	4.100	2.300	69.400	53.399	50.425	57.474	8.527	3.921	2.601
	4.000	2.400	67.448	51.898	49.007	57.472	8.525	3.867	2.561
	3.900	2.500	65.506	50.404	47.596	57.469	8.522	3.813	2.521
	3.800	2.600	63.575	48.918	46.193	57.467	8.520	3.760	2.482
	3.700	2.700	61.655	47.440	44.798	57.464	8.517	3.706	2.443
	3.600	2.800	59.745	45.971	43.410	57.462	8.514	3.652	2.405
	3.500	2.900	57.845	44.509	42.030	57.459	8.512	3.599	2.368
	3.400	3.000	55.956	43.055	40.657	57.456	8.509	3.546	2.331
	3.300	3.100	54.076	41.609	39.291	57.454	8.506	3.492	2.295
	3.200	3.200	52.207	40.171	37.934	57.451	8.504	3.439	2.259
	3.100	3.300	50.349	38.741	36.583	57.448	8.501	3.385	2.223
	3.000	3.400	48.501	37.319	35.240	57.445	8.498	3.332	2.188
	2.900	3.500	46.663	35.905	33.905	57.442	8.495	3.279	2.153
	2.800	3.600	44.835	34.498	32.577	57.439	8.492	3.225	2.118
	2.700	3.700	43.018	33.100	31.257	57.435	8.489	3.172	2.083
	2.600	3.800	41.212	31.711	29.944	57.432	8.486	3.119	2.047
	2.500	3.900	39.417	30.329	28.640	57.429	8.483	3.066	2.011
	2.400	4.000	37.633	28.957	27.344	57.425	8.479	3.013	1.975
	2.300	4.100	35.861	27.594	26.057	57.422	8.476	2.959	1.937
	2.200	4.200	34.102	26.240	24.778	57.418	8.473	2.906	1.900
	2.100	4.300	32.354	24.895	23.508	57.414	8.469	2.853	1.862
	2.000	4.400	30.619	23.560	22.248	57.410	8.465	2.800	1.824

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	1.900	4.500	28.897	22.235	20.997	57.406	8.461	2.747	1.786
	1.800	4.600	27.189	20.921	19.755	57.402	8.457	2.694	1.746
	1.700	4.700	25.495	19.617	18.524	57.398	8.453	2.641	1.704
	1.600	4.800	23.815	18.325	17.304	57.393	8.449	2.588	1.661
	1.500	4.900	22.152	17.045	16.095	57.388	8.444	2.535	1.617
	1.400	5.000	20.504	15.777	14.898	57.384	8.440	2.482	1.572
	1.300	5.100	18.874	14.522	13.713	57.378	8.435	2.429	1.525
	1.200	5.200	17.261	13.282	12.542	57.373	8.430	2.376	1.477
	1.100	5.300	15.668	12.056	11.384	57.368	8.424	2.323	1.426
	1.000	5.400	14.097	10.847	10.243	57.362	8.419	2.270	1.370
	0.900	5.500	12.549	9.656	9.118	57.357	8.413	2.217	1.312
	0.800	5.600	11.027	8.485	8.012	57.351	8.407	2.164	1.250
	0.700	5.700	9.532	7.334	6.926	57.346	8.400	2.111	1.186
	0.600	5.800	8.066	6.206	5.861	57.341	8.393	2.059	1.121
	0.500	5.900	6.631	5.102	4.818	57.336	8.386	2.007	1.053
	0.400	6.000	5.229	4.023	3.799	57.332	8.379	1.955	0.983
	0.300	6.100	3.862	2.971	2.806	57.328	8.371	1.903	0.911
	0.200	6.200	2.532	1.948	1.840	57.324	8.363	1.851	0.838
	0.100	6.300	1.243	0.957	0.903	57.321	8.354	1.800	0.761
	0.000	6.400	0.000	0.000	0.000	57.319	8.345	1.750	0.000

– F.O.T 1 PS

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
F.O.T 1 PS	6.400	0.000	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	6.300	0.100	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	6.200	0.200	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	6.100	0.300	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	6.000	0.400	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	5.900	0.500	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	5.800	0.600	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	5.700	0.700	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	5.600	0.800	100.000	76.945	72.659	57.507	-8.564	4.736	0.000
	5.500	0.900	97.880	75.313	71.118	57.505	-8.561	4.681	3.262
	5.400	1.000	95.771	73.691	69.586	57.503	-8.559	4.626	3.208
	5.300	1.100	93.675	72.078	68.063	57.501	-8.556	4.571	3.155
	5.200	1.200	91.590	70.474	66.548	57.499	-8.554	4.517	3.104
	5.100	1.300	89.516	68.878	65.042	57.497	-8.552	4.462	3.053
	5.000	1.400	87.454	67.292	63.544	57.495	-8.549	4.408	3.004
	4.900	1.500	85.404	65.714	62.054	57.493	-8.547	4.353	2.956
	4.800	1.600	83.365	64.145	60.572	57.490	-8.544	4.299	2.908
	4.700	1.700	81.337	62.585	59.099	57.488	-8.542	4.245	2.862
	4.600	1.800	79.320	61.033	57.633	57.486	-8.539	4.191	2.817
	4.500	1.900	77.314	59.489	56.176	57.484	-8.537	4.137	2.772
	4.400	2.000	75.319	57.954	54.726	57.481	-8.535	4.082	2.728
	4.300	2.100	73.335	56.428	53.285	57.479	-8.532	4.029	2.685
	4.200	2.200	71.362	54.909	51.851	57.477	-8.530	3.975	2.643
	4.100	2.300	69.399	53.399	50.425	57.474	-8.527	3.921	2.601
	4.000	2.400	67.448	51.898	49.007	57.472	-8.525	3.867	2.561
	3.900	2.500	65.506	50.404	47.596	57.469	-8.522	3.813	2.521
	3.800	2.600	63.575	48.918	46.193	57.467	-8.520	3.760	2.482
	3.700	2.700	61.655	47.440	44.798	57.464	-8.517	3.706	2.443
	3.600	2.800	59.745	45.971	43.410	57.462	-8.514	3.652	2.405
	3.500	2.900	57.845	44.509	42.030	57.459	-8.512	3.599	2.368
	3.400	3.000	55.956	43.055	40.657	57.456	-8.509	3.546	2.331
	3.300	3.100	54.076	41.609	39.291	57.454	-8.506	3.492	2.295
	3.200	3.200	52.207	40.171	37.933	57.451	-8.504	3.439	2.259
	3.100	3.300	50.349	38.741	36.583	57.448	-8.501	3.385	2.223
	3.000	3.400	48.501	37.319	35.240	57.445	-8.498	3.332	2.188
	2.900	3.500	46.663	35.905	33.905	57.442	-8.495	3.279	2.153
	2.800	3.600	44.835	34.498	32.577	57.439	-8.492	3.225	2.118
	2.700	3.700	43.018	33.100	31.257	57.435	-8.489	3.172	2.083
	2.600	3.800	41.212	31.711	29.944	57.432	-8.486	3.119	2.047
	2.500	3.900	39.417	30.329	28.640	57.429	-8.483	3.066	2.011
	2.400	4.000	37.633	28.957	27.344	57.425	-8.479	3.013	1.975

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.300	4.100	35.861	27.594	26.057	57.422	-8.476	2.959	1.937
	2.200	4.200	34.102	26.239	24.778	57.418	-8.473	2.906	1.900
	2.100	4.300	32.354	24.895	23.508	57.414	-8.469	2.853	1.862
	2.000	4.400	30.619	23.560	22.248	57.410	-8.465	2.800	1.824
	1.900	4.500	28.897	22.235	20.997	57.406	-8.461	2.747	1.786
	1.800	4.600	27.189	20.921	19.755	57.402	-8.457	2.694	1.746
	1.700	4.700	25.495	19.617	18.524	57.398	-8.453	2.641	1.704
	1.600	4.800	23.815	18.325	17.304	57.393	-8.449	2.588	1.661
	1.500	4.900	22.152	17.045	16.095	57.388	-8.444	2.535	1.617
	1.400	5.000	20.504	15.777	14.898	57.384	-8.440	2.482	1.572
	1.300	5.100	18.874	14.522	13.713	57.378	-8.435	2.429	1.525
	1.200	5.200	17.261	13.282	12.542	57.373	-8.430	2.376	1.477
	1.100	5.300	15.668	12.056	11.384	57.368	-8.424	2.323	1.426
	1.000	5.400	14.097	10.847	10.243	57.362	-8.419	2.270	1.370
	0.900	5.500	12.549	9.656	9.118	57.357	-8.413	2.217	1.312
	0.800	5.600	11.027	8.485	8.012	57.351	-8.407	2.164	1.250
	0.700	5.700	9.532	7.334	6.926	57.346	-8.400	2.111	1.186
	0.600	5.800	8.066	6.206	5.861	57.341	-8.393	2.059	1.121
	0.500	5.900	6.631	5.102	4.818	57.336	-8.386	2.007	1.053
	0.400	6.000	5.229	4.023	3.799	57.332	-8.379	1.955	0.983
	0.300	6.100	3.862	2.971	2.806	57.328	-8.371	1.903	0.911
	0.200	6.200	2.532	1.948	1.840	57.324	-8.363	1.851	0.838
	0.100	6.300	1.243	0.957	0.903	57.321	-8.354	1.800	0.761
	0.000	6.400	0.000	0.000	0.000	57.319	-8.345	1.750	0.000

– F.O.T 2 SB

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
F.O.T 2 SB	6.400	0.000	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	6.300	0.100	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	6.200	0.200	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	6.100	0.300	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	6.000	0.400	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	5.900	0.500	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	5.800	0.600	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	5.700	0.700	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	5.600	0.800	100.000	78.845	74.453	47.471	8.612	4.700	0.000
	5.500	0.900	97.953	77.231	72.929	47.471	8.610	4.646	3.505
	5.400	1.000	95.916	75.625	71.412	47.472	8.608	4.592	3.456
	5.300	1.100	93.888	74.026	69.903	47.472	8.606	4.539	3.409
	5.200	1.200	91.869	72.434	68.400	47.473	8.604	4.485	3.364
	5.100	1.300	89.859	70.849	66.903	47.473	8.602	4.431	3.320
	5.000	1.400	87.858	69.272	65.413	47.474	8.600	4.378	3.278
	4.900	1.500	85.865	67.700	63.929	47.475	8.598	4.324	3.238
	4.800	1.600	83.880	66.135	62.452	47.475	8.595	4.271	3.198
	4.700	1.700	81.904	64.577	60.980	47.476	8.593	4.218	3.160
	4.600	1.800	79.935	63.025	59.514	47.477	8.591	4.164	3.123
	4.500	1.900	77.974	61.478	58.054	47.477	8.589	4.111	3.087
	4.400	2.000	76.020	59.938	56.599	47.478	8.587	4.058	3.051
	4.300	2.100	74.074	58.404	55.150	47.479	8.585	4.004	3.016
	4.200	2.200	72.135	56.875	53.707	47.480	8.583	3.951	2.982
	4.100	2.300	70.204	55.352	52.269	47.481	8.580	3.898	2.948
	4.000	2.400	68.280	53.836	50.837	47.481	8.578	3.845	2.913
	3.900	2.500	66.364	52.325	49.411	47.482	8.576	3.792	2.878
	3.800	2.600	64.456	50.821	47.990	47.483	8.574	3.739	2.842
	3.700	2.700	62.556	49.323	46.575	47.484	8.571	3.685	2.805
	3.600	2.800	60.665	47.831	45.167	47.485	8.569	3.632	2.768
	3.500	2.900	58.782	46.346	43.765	47.486	8.566	3.579	2.732
	3.400	3.000	56.907	44.868	42.369	47.487	8.564	3.526	2.695
	3.300	3.100	55.041	43.397	40.980	47.488	8.562	3.473	2.658
	3.200	3.200	53.183	41.932	39.596	47.489	8.559	3.420	2.622
	3.100	3.300	51.334	40.474	38.220	47.490	8.556	3.368	2.586
	3.000	3.400	49.493	39.023	36.849	47.492	8.554	3.315	2.550
	2.900	3.500	47.661	37.579	35.485	47.493	8.551	3.262	2.514
	2.800	3.600	45.838	36.141	34.128	47.494	8.549	3.209	2.477

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.700	3.700	44.024	34.711	32.778	47.495	8.546	3.156	2.440
	2.600	3.800	42.220	33.288	31.434	47.496	8.543	3.103	2.403
	2.500	3.900	40.425	31.873	30.097	47.497	8.540	3.050	2.365
	2.400	4.000	38.639	30.465	28.768	47.499	8.537	2.998	2.326
	2.300	4.100	36.864	29.065	27.446	47.500	8.534	2.945	2.286
	2.200	4.200	35.099	27.674	26.132	47.501	8.531	2.892	2.246
	2.100	4.300	33.345	26.291	24.827	47.502	8.528	2.840	2.204
	2.000	4.400	31.602	24.917	23.529	47.504	8.524	2.787	2.162
	1.900	4.500	29.871	23.552	22.240	47.505	8.521	2.734	2.119
	1.800	4.600	28.152	22.196	20.960	47.506	8.518	2.682	2.075
	1.700	4.700	26.445	20.850	19.689	47.507	8.514	2.629	2.029
	1.600	4.800	24.751	19.515	18.428	47.508	8.510	2.577	1.983
	1.500	4.900	23.071	18.190	17.177	47.508	8.507	2.525	1.935
	1.400	5.000	21.405	16.877	15.937	47.509	8.503	2.472	1.888
	1.300	5.100	19.753	15.574	14.707	47.509	8.499	2.420	1.839
	1.200	5.200	18.116	14.284	13.488	47.509	8.495	2.368	1.789
	1.100	5.300	16.494	13.005	12.281	47.509	8.490	2.316	1.737
	1.000	5.400	14.889	11.739	11.086	47.510	8.486	2.264	1.684
	0.900	5.500	13.301	10.487	9.903	47.510	8.481	2.212	1.629
	0.800	5.600	11.731	9.249	8.734	47.510	8.476	2.160	1.573
	0.700	5.700	10.179	8.026	7.579	47.510	8.471	2.108	1.516
	0.600	5.800	8.648	6.818	6.439	47.511	8.466	2.057	1.456
	0.500	5.900	7.137	5.627	5.314	47.512	8.460	2.005	1.395
	0.400	6.000	5.649	4.454	4.206	47.514	8.454	1.954	1.329
	0.300	6.100	4.188	3.302	3.118	47.516	8.447	1.902	1.256
	0.200	6.200	2.755	2.172	2.051	47.519	8.439	1.851	1.178
	0.100	6.300	1.357	1.070	1.010	47.522	8.431	1.800	1.087
	0.000	6.400	0.000	0.000	0.000	47.526	8.422	1.750	0.000

– F.O.T 2 PS

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
F.O.T 2 PS	6.400	0.000	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	6.300	0.100	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	6.200	0.200	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	6.100	0.300	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	6.000	0.400	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	5.900	0.500	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	5.800	0.600	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	5.700	0.700	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	5.600	0.800	100.000	78.845	74.453	47.471	-8.612	4.700	0.000
	5.500	0.900	97.953	77.231	72.929	47.471	-8.610	4.646	3.505
	5.400	1.000	95.916	75.625	71.412	47.472	-8.608	4.592	3.456
	5.300	1.100	93.888	74.026	69.903	47.472	-8.606	4.539	3.409
	5.200	1.200	91.869	72.434	68.400	47.473	-8.604	4.485	3.364
	5.100	1.300	89.859	70.849	66.903	47.473	-8.602	4.431	3.320
	5.000	1.400	87.858	69.272	65.413	47.474	-8.600	4.378	3.278
	4.900	1.500	85.865	67.700	63.929	47.475	-8.598	4.324	3.238
	4.800	1.600	83.880	66.135	62.452	47.475	-8.595	4.271	3.198
	4.700	1.700	81.904	64.577	60.980	47.476	-8.593	4.218	3.160
	4.600	1.800	79.935	63.025	59.514	47.477	-8.591	4.164	3.123
	4.500	1.900	77.974	61.478	58.054	47.477	-8.589	4.111	3.087
	4.400	2.000	76.020	59.938	56.599	47.478	-8.587	4.058	3.051
	4.300	2.100	74.074	58.404	55.150	47.479	-8.585	4.004	3.016
	4.200	2.200	72.135	56.875	53.707	47.480	-8.583	3.951	2.982
	4.100	2.300	70.204	55.352	52.269	47.481	-8.580	3.898	2.948
	4.000	2.400	68.280	53.836	50.837	47.481	-8.578	3.845	2.913
	3.900	2.500	66.364	52.325	49.411	47.482	-8.576	3.792	2.878
	3.800	2.600	64.456	50.821	47.990	47.483	-8.574	3.739	2.842
	3.700	2.700	62.556	49.323	46.575	47.484	-8.571	3.685	2.805
	3.600	2.800	60.665	47.831	45.167	47.485	-8.569	3.632	2.768
	3.500	2.900	58.782	46.346	43.765	47.486	-8.566	3.579	2.732
	3.400	3.000	56.907	44.868	42.369	47.487	-8.564	3.526	2.695
	3.300	3.100	55.041	43.397	40.980	47.488	-8.562	3.473	2.658
	3.200	3.200	53.183	41.932	39.596	47.489	-8.559	3.420	2.622
	3.100	3.300	51.334	40.474	38.220	47.490	-8.556	3.368	2.586
	3.000	3.400	49.493	39.023	36.849	47.492	-8.554	3.315	2.550
	2.900	3.500	47.661	37.579	35.485	47.493	-8.551	3.262	2.514
	2.800	3.600	45.838	36.141	34.128	47.494	-8.549	3.209	2.477

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.700	3.700	44.024	34.711	32.778	47.495	-8.546	3.156	2.440
	2.600	3.800	42.220	33.288	31.434	47.496	-8.543	3.103	2.403
	2.500	3.900	40.425	31.873	30.097	47.497	-8.540	3.050	2.365
	2.400	4.000	38.639	30.465	28.768	47.499	-8.537	2.998	2.326
	2.300	4.100	36.864	29.065	27.446	47.500	-8.534	2.945	2.286
	2.200	4.200	35.099	27.674	26.132	47.501	-8.531	2.892	2.246
	2.100	4.300	33.345	26.291	24.827	47.502	-8.528	2.840	2.204
	2.000	4.400	31.602	24.917	23.529	47.504	-8.524	2.787	2.162
	1.900	4.500	29.871	23.552	22.240	47.505	-8.521	2.734	2.119
	1.800	4.600	28.152	22.196	20.960	47.506	-8.518	2.682	2.075
	1.700	4.700	26.445	20.850	19.689	47.507	-8.514	2.629	2.029
	1.600	4.800	24.751	19.515	18.428	47.508	-8.510	2.577	1.983
	1.500	4.900	23.071	18.190	17.177	47.508	-8.507	2.525	1.935
	1.400	5.000	21.405	16.877	15.937	47.509	-8.503	2.472	1.888
	1.300	5.100	19.753	15.574	14.707	47.509	-8.499	2.420	1.839
	1.200	5.200	18.116	14.284	13.488	47.509	-8.495	2.368	1.789
	1.100	5.300	16.494	13.005	12.281	47.509	-8.490	2.316	1.737
	1.000	5.400	14.889	11.739	11.086	47.510	-8.486	2.264	1.684
	0.900	5.500	13.301	10.487	9.903	47.510	-8.481	2.212	1.629
	0.800	5.600	11.731	9.249	8.734	47.510	-8.476	2.160	1.573
	0.700	5.700	10.179	8.026	7.579	47.510	-8.471	2.108	1.516
	0.600	5.800	8.648	6.818	6.439	47.511	-8.466	2.057	1.456
	0.500	5.900	7.137	5.627	5.314	47.512	-8.460	2.005	1.395
	0.400	6.000	5.649	4.454	4.206	47.514	-8.454	1.954	1.329
	0.300	6.100	4.188	3.302	3.118	47.516	-8.447	1.902	1.256
	0.200	6.200	2.755	2.172	2.051	47.519	-8.439	1.851	1.178
	0.100	6.300	1.357	1.070	1.010	47.522	-8.431	1.800	1.087
	0.000	6.400	0.000	0.000	0.000	47.526	-8.422	1.750	0.000

– DO 3 SB

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
DO 3 SB	6.400	0.000	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	6.300	0.100	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	6.200	0.200	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	6.100	0.300	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	6.000	0.400	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	5.900	0.500	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	5.800	0.600	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	5.700	0.700	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	5.600	0.800	100.000	76.057	63.888	37.479	8.552	4.903	0.000
	5.500	0.900	97.713	74.317	62.426	37.482	8.549	4.847	3.672
	5.400	1.000	95.437	72.586	60.972	37.485	8.545	4.790	3.616
	5.300	1.100	93.173	70.864	59.526	37.488	8.542	4.734	3.560
	5.200	1.200	90.920	69.151	58.087	37.491	8.538	4.678	3.504
	5.100	1.300	88.680	67.447	56.655	37.495	8.535	4.622	3.449
	5.000	1.400	86.451	65.752	55.232	37.498	8.531	4.566	3.393
	4.900	1.500	84.235	64.066	53.815	37.502	8.528	4.510	3.339
	4.800	1.600	82.030	62.389	52.407	37.506	8.524	4.454	3.286
	4.700	1.700	79.837	60.721	51.006	37.510	8.520	4.397	3.234
	4.600	1.800	77.655	59.062	49.612	37.515	8.516	4.341	3.183
	4.500	1.900	75.485	57.412	48.226	37.520	8.512	4.285	3.132
	4.400	2.000	73.327	55.770	46.847	37.524	8.508	4.228	3.082
	4.300	2.100	71.180	54.138	45.476	37.530	8.504	4.172	3.031
	4.200	2.200	69.046	52.515	44.113	37.535	8.500	4.115	2.976
	4.100	2.300	66.925	50.901	42.757	37.541	8.496	4.059	2.920
	4.000	2.400	64.818	49.299	41.411	37.547	8.491	4.002	2.863
	3.900	2.500	62.725	47.707	40.074	37.554	8.487	3.946	2.806
	3.800	2.600	60.646	46.126	38.746	37.561	8.482	3.889	2.745
	3.700	2.700	58.583	44.556	37.427	37.568	8.477	3.832	2.682
	3.600	2.800	56.536	43.000	36.120	37.576	8.472	3.775	2.619
	3.500	2.900	54.505	41.455	34.822	37.584	8.468	3.719	2.556
	3.400	3.000	52.492	39.924	33.536	37.592	8.463	3.662	2.493
	3.300	3.100	50.495	38.405	32.260	37.601	8.457	3.605	2.431
	3.200	3.200	48.515	36.899	30.995	37.611	8.452	3.548	2.369
	3.100	3.300	46.552	35.406	29.741	37.621	8.447	3.491	2.307
	3.000	3.400	44.607	33.927	28.499	37.631	8.441	3.434	2.245
	2.900	3.500	42.681	32.462	27.268	37.642	8.436	3.377	2.181
	2.800	3.600	40.774	31.011	26.049	37.654	8.430	3.319	2.116

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.700	3.700	38.886	29.576	24.844	37.667	8.424	3.262	2.050
	2.600	3.800	37.021	28.157	23.652	37.680	8.418	3.205	1.981
	2.500	3.900	35.177	26.755	22.474	37.694	8.412	3.147	1.910
	2.400	4.000	33.358	25.371	21.312	37.709	8.405	3.090	1.837
	2.300	4.100	31.564	24.007	20.166	37.724	8.399	3.033	1.761
	2.200	4.200	29.797	22.663	19.037	37.741	8.392	2.975	1.685
	2.100	4.300	28.059	21.340	17.926	37.759	8.385	2.918	1.606
	2.000	4.400	26.350	20.041	16.834	37.777	8.378	2.861	1.529
	1.900	4.500	24.671	18.764	15.762	37.797	8.372	2.803	1.452
	1.800	4.600	23.024	17.511	14.709	37.818	8.365	2.746	1.378
	1.700	4.700	21.408	16.283	13.678	37.840	8.358	2.690	1.306
	1.600	4.800	19.825	15.078	12.666	37.863	8.351	2.633	1.236
	1.500	4.900	18.274	13.899	11.675	37.888	8.343	2.576	1.170
	1.400	5.000	16.755	12.743	10.704	37.915	8.336	2.520	1.106
	1.300	5.100	15.270	11.614	9.756	37.944	8.328	2.463	1.044
	1.200	5.200	13.818	10.510	8.828	37.975	8.321	2.407	0.983
	1.100	5.300	12.403	9.433	7.924	38.009	8.313	2.350	0.923
	1.000	5.400	11.025	8.385	7.043	38.047	8.304	2.294	0.863
	0.900	5.500	9.688	7.368	6.189	38.087	8.296	2.238	0.804
	0.800	5.600	8.392	6.383	5.362	38.132	8.287	2.182	0.747
	0.700	5.700	7.142	5.432	4.563	38.181	8.278	2.126	0.690
	0.600	5.800	5.939	4.517	3.794	38.236	8.269	2.071	0.634
	0.500	5.900	4.788	3.642	3.059	38.296	8.259	2.016	0.579
	0.400	6.000	3.693	2.809	2.360	38.365	8.250	1.961	0.523
	0.300	6.100	2.659	2.023	1.699	38.443	8.240	1.907	0.469
	0.200	6.200	1.694	1.288	1.082	38.534	8.229	1.853	0.410
	0.100	6.300	0.804	0.612	0.514	38.640	8.219	1.801	0.353
	0.000	6.400	0.000	0.000	0.000	38.769	8.209	1.750	0.000

– DO 3 PS

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
DO 3 PS	6.400	0.000	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	6.300	0.100	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	6.200	0.200	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	6.100	0.300	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	6.000	0.400	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	5.900	0.500	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	5.800	0.600	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	5.700	0.700	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	5.600	0.800	100.000	79.757	66.996	37.211	-8.550	4.912	0.000
	5.500	0.900	97.703	77.925	65.457	37.214	-8.546	4.856	3.847
	5.400	1.000	95.417	76.102	63.926	37.218	-8.543	4.800	3.788
	5.300	1.100	93.142	74.288	62.402	37.221	-8.539	4.744	3.729
	5.200	1.200	90.880	72.483	60.886	37.225	-8.536	4.688	3.671
	5.100	1.300	88.630	70.689	59.379	37.229	-8.532	4.631	3.612
	5.000	1.400	86.392	68.903	57.879	37.233	-8.529	4.575	3.554
	4.900	1.500	84.165	67.128	56.388	37.238	-8.525	4.519	3.497
	4.800	1.600	81.951	65.362	54.904	37.242	-8.521	4.463	3.441
	4.700	1.700	79.749	63.605	53.428	37.247	-8.517	4.407	3.386
	4.600	1.800	77.558	61.858	51.961	37.252	-8.514	4.350	3.332
	4.500	1.900	75.379	60.120	50.501	37.257	-8.510	4.294	3.279
	4.400	2.000	73.212	58.392	49.049	37.263	-8.506	4.237	3.227
	4.300	2.100	71.056	56.673	47.605	37.269	-8.501	4.181	3.172
	4.200	2.200	68.914	54.964	46.170	37.275	-8.497	4.124	3.115
	4.100	2.300	66.784	53.265	44.743	37.282	-8.493	4.068	3.057
	4.000	2.400	64.668	51.578	43.326	37.289	-8.488	4.011	2.997
	3.900	2.500	62.567	49.901	41.917	37.297	-8.484	3.954	2.937
	3.800	2.600	60.479	48.237	40.519	37.304	-8.479	3.898	2.873
	3.700	2.700	58.408	46.584	39.131	37.313	-8.474	3.841	2.807
	3.600	2.800	56.353	44.945	37.754	37.322	-8.469	3.784	2.741
	3.500	2.900	54.314	43.319	36.388	37.331	-8.465	3.727	2.675
	3.400	3.000	52.292	41.706	35.033	37.341	-8.459	3.670	2.609
	3.300	3.100	50.287	40.107	33.690	37.351	-8.454	3.613	2.544
	3.200	3.200	48.299	38.522	32.358	37.362	-8.449	3.556	2.480
	3.100	3.300	46.328	36.950	31.038	37.373	-8.444	3.499	2.414
	3.000	3.400	44.376	35.393	29.730	37.386	-8.438	3.441	2.348
	2.900	3.500	42.443	33.851	28.435	37.398	-8.432	3.384	2.280
	2.800	3.600	40.529	32.325	27.153	37.412	-8.426	3.327	2.211

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.700	3.700	38.636	30.815	25.885	37.427	-8.420	3.269	2.141
	2.600	3.800	36.765	29.323	24.631	37.442	-8.414	3.212	2.067
	2.500	3.900	34.917	27.849	23.393	37.459	-8.408	3.154	1.992
	2.400	4.000	33.094	26.395	22.172	37.476	-8.401	3.096	1.914
	2.300	4.100	31.297	24.961	20.967	37.494	-8.394	3.039	1.834
	2.200	4.200	29.527	23.550	19.782	37.514	-8.388	2.981	1.752
	2.100	4.300	27.787	22.162	18.616	37.534	-8.381	2.924	1.670
	2.000	4.400	26.077	20.798	17.470	37.556	-8.374	2.866	1.588
	1.900	4.500	24.399	19.460	16.346	37.579	-8.367	2.809	1.507
	1.800	4.600	22.753	18.147	15.243	37.603	-8.360	2.751	1.428
	1.700	4.700	21.140	16.860	14.162	37.629	-8.353	2.694	1.352
	1.600	4.800	19.560	15.600	13.104	37.657	-8.346	2.637	1.278
	1.500	4.900	18.013	14.367	12.068	37.687	-8.338	2.580	1.209
	1.400	5.000	16.500	13.160	11.054	37.719	-8.331	2.523	1.142
	1.300	5.100	15.022	11.981	10.064	37.753	-8.323	2.467	1.076
	1.200	5.200	13.579	10.830	9.097	37.790	-8.315	2.410	1.012
	1.100	5.300	12.173	9.709	8.156	37.831	-8.307	2.353	0.949
	1.000	5.400	10.807	8.619	7.240	37.875	-8.299	2.297	0.887
	0.900	5.500	9.482	7.562	6.352	37.923	-8.291	2.240	0.826
	0.800	5.600	8.201	6.541	5.494	37.977	-8.282	2.184	0.766
	0.700	5.700	6.966	5.556	4.667	38.036	-8.273	2.128	0.707
	0.600	5.800	5.782	4.611	3.873	38.102	-8.264	2.072	0.650
	0.500	5.900	4.651	3.709	3.116	38.176	-8.255	2.017	0.594
	0.400	6.000	3.578	2.854	2.397	38.260	-8.246	1.962	0.536
	0.300	6.100	2.569	2.049	1.721	38.356	-8.236	1.907	0.479
	0.200	6.200	1.631	1.301	1.093	38.468	-8.227	1.854	0.418
	0.100	6.300	0.772	0.615	0.517	38.600	-8.218	1.801	0.358
	0.000	6.400	0.000	0.000	0.000	38.750	-8.202	1.750	0.000

– HFO5

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
HFO5	1.780	0.000	100.000	29.194	27.568	21.500	5.585	7.790	0.000
	1.744	0.036	98.000	28.610	27.016	21.500	5.585	7.772	31.880
	1.700	0.080	95.506	27.882	26.329	21.500	5.585	7.750	31.880
	1.600	0.180	89.888	26.242	24.780	21.500	5.585	7.700	31.880
	1.500	0.280	84.270	24.601	23.231	21.500	5.585	7.650	31.880
	1.400	0.380	78.652	22.961	21.682	21.500	5.585	7.600	31.880
	1.300	0.480	73.034	21.321	20.134	21.500	5.585	7.550	31.880
	1.200	0.580	67.416	19.681	18.585	21.500	5.585	7.500	31.880
	1.100	0.680	61.798	18.041	17.036	21.500	5.585	7.450	31.880
	1.000	0.780	56.180	16.401	15.487	21.500	5.585	7.400	31.880
	0.900	0.880	50.562	14.761	13.939	21.500	5.585	7.350	31.880
	0.800	0.980	44.944	13.121	12.390	21.500	5.585	7.300	31.880
	0.700	1.080	39.326	11.481	10.841	21.500	5.585	7.250	31.880
	0.600	1.180	33.708	9.841	9.292	21.500	5.585	7.200	31.880
	0.500	1.280	28.090	8.200	7.744	21.500	5.585	7.150	31.880
	0.400	1.380	22.472	6.560	6.195	21.500	5.585	7.100	31.880
	0.300	1.480	16.854	4.920	4.646	21.500	5.585	7.050	31.880
	0.200	1.580	11.236	3.280	3.097	21.500	5.585	7.000	31.880
	0.100	1.680	5.618	1.640	1.549	21.500	5.585	6.950	31.880
	0.018	1.762	1.000	0.292	0.276	21.500	5.585	6.909	31.880
	0.000	1.780	0.000	0.000	0.000	21.500	5.585	6.900	0.000

– HFO6

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
HFO6	1.685	0.000	100.000	13.686	12.924	21.312	-2.730	1.107	0.000
	1.664	0.021	98.000	13.413	12.666	21.312	-2.721	1.094	11.243
	1.600	0.085	92.123	12.608	11.906	21.312	-2.696	1.055	10.591
	1.500	0.185	83.164	11.382	10.748	21.312	-2.655	0.995	9.596
	1.400	0.285	74.515	10.198	9.630	21.312	-2.612	0.935	8.630
	1.300	0.385	66.187	9.059	8.554	21.312	-2.568	0.874	7.692
	1.200	0.485	58.196	7.965	7.521	21.311	-2.521	0.814	6.783
	1.100	0.585	50.559	6.920	6.534	21.310	-2.471	0.753	5.899
	1.000	0.685	43.299	5.926	5.596	21.308	-2.420	0.693	5.028
	0.900	0.785	36.438	4.987	4.709	21.305	-2.365	0.632	4.203
	0.800	0.885	29.997	4.106	3.877	21.301	-2.306	0.571	3.435
	0.700	0.985	24.001	3.285	3.102	21.297	-2.243	0.510	2.725
	0.600	1.085	18.485	2.530	2.389	21.289	-2.175	0.449	2.070
	0.500	1.185	13.505	1.848	1.745	21.277	-2.099	0.387	1.477
	0.400	1.285	9.130	1.250	1.180	21.254	-2.015	0.325	0.944
	0.300	1.385	5.439	0.744	0.703	21.211	-1.922	0.263	0.515
	0.200	1.485	2.514	0.344	0.325	21.119	-1.811	0.201	0.210
	0.129	1.557	1.000	0.137	0.129	20.959	-1.715	0.155	0.068
	0.100	1.585	0.567	0.078	0.073	20.832	-1.674	0.135	0.035
	0.000	1.685	0.000	0.000	0.000	20.292	-1.000	0.065	0.000

– HFO7

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
HFO7	1.780	0.000	100.000	14.519	13.710	18.710	4.953	7.790	0.000
	1.744	0.036	98.000	14.229	13.436	18.710	4.953	7.772	8.215
	1.700	0.080	95.506	13.866	13.094	18.710	4.953	7.750	8.215
	1.600	0.180	89.888	13.051	12.324	18.710	4.953	7.700	8.215
	1.500	0.280	84.270	12.235	11.554	18.710	4.953	7.650	8.215
	1.400	0.380	78.652	11.419	10.783	18.710	4.953	7.600	8.215
	1.300	0.480	73.034	10.604	10.013	18.710	4.953	7.550	8.215
	1.200	0.580	67.416	9.788	9.243	18.710	4.953	7.500	8.215
	1.100	0.680	61.798	8.972	8.473	18.710	4.953	7.450	8.215
	1.000	0.780	56.180	8.157	7.702	18.710	4.953	7.400	8.215
	0.900	0.880	50.562	7.341	6.932	18.710	4.953	7.350	8.215
	0.800	0.980	44.944	6.525	6.162	18.710	4.953	7.300	8.215
	0.700	1.080	39.326	5.710	5.392	18.710	4.953	7.250	8.215
	0.600	1.180	33.708	4.894	4.621	18.710	4.953	7.200	8.215
	0.500	1.280	28.090	4.078	3.851	18.710	4.953	7.150	8.215
	0.400	1.380	22.472	3.263	3.081	18.710	4.953	7.100	8.215
	0.300	1.480	16.854	2.447	2.311	18.710	4.953	7.050	8.215
	0.200	1.580	11.236	1.631	1.540	18.710	4.953	7.000	8.215
	0.100	1.680	5.618	0.816	0.770	18.710	4.953	6.950	8.215
	0.018	1.762	1.000	0.145	0.137	18.710	4.953	6.909	8.215
	0.000	1.780	0.000	0.000	0.000	18.710	4.953	6.900	0.000

– HFO9

Fluid Type = Fuel Oil Specific gravity = 0.9443

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
HFO9	1.780	0.000	100.000	24.455	23.092	15.635	4.875	7.790	0.000
	1.744	0.036	98.000	23.965	22.631	15.635	4.875	7.772	13.625
	1.700	0.080	95.506	23.355	22.055	15.635	4.875	7.750	13.625
	1.600	0.180	89.888	21.982	20.757	15.635	4.875	7.700	13.625
	1.500	0.280	84.270	20.608	19.460	15.635	4.875	7.650	13.625
	1.400	0.380	78.652	19.234	18.163	15.635	4.875	7.600	13.625
	1.300	0.480	73.034	17.860	16.865	15.635	4.875	7.550	13.625
	1.200	0.580	67.416	16.486	15.568	15.635	4.875	7.500	13.625
	1.100	0.680	61.798	15.112	14.271	15.635	4.875	7.450	13.625
	1.000	0.780	56.180	13.739	12.973	15.635	4.875	7.400	13.625
	0.900	0.880	50.562	12.365	11.676	15.635	4.875	7.350	13.625
	0.800	0.980	44.944	10.991	10.379	15.635	4.875	7.300	13.625
	0.700	1.080	39.326	9.617	9.081	15.635	4.875	7.250	13.625
	0.600	1.180	33.708	8.243	7.784	15.635	4.875	7.200	13.625
	0.500	1.280	28.090	6.869	6.487	15.635	4.875	7.150	13.625
	0.400	1.380	22.472	5.495	5.189	15.635	4.875	7.100	13.625
	0.300	1.480	16.854	4.122	3.892	15.635	4.875	7.050	13.625
	0.200	1.580	11.236	2.748	2.595	15.635	4.875	7.000	13.625
	0.100	1.680	5.618	1.374	1.297	15.635	4.875	6.950	13.625
	0.018	1.762	1.000	0.245	0.231	15.635	4.875	6.909	13.625
	0.000	1.780	0.000	0.000	0.000	15.635	4.875	6.900	0.000

– MDF1

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
MDF1	2.080	0.000	100.000	19.977	16.781	19.238	6.725	5.626	0.000
	2.055	0.025	98.000	19.578	16.445	19.239	6.718	5.610	9.551
	2.000	0.080	93.707	18.720	15.725	19.240	6.703	5.576	9.244
	1.900	0.180	86.064	17.193	14.442	19.243	6.676	5.512	8.693
	1.800	0.280	78.679	15.718	13.203	19.246	6.649	5.449	8.152
	1.700	0.380	71.562	14.296	12.009	19.249	6.620	5.385	7.623
	1.600	0.480	64.722	12.930	10.861	19.251	6.591	5.321	7.101
	1.500	0.580	58.173	11.621	9.762	19.254	6.562	5.257	6.588
	1.400	0.680	51.927	10.373	8.714	19.257	6.532	5.193	6.086
	1.300	0.780	45.995	9.189	7.718	19.259	6.501	5.128	5.599
	1.200	0.880	40.389	8.069	6.778	19.262	6.470	5.064	5.130
	1.100	0.980	35.117	7.015	5.893	19.263	6.439	5.000	4.681
	1.000	1.080	30.184	6.030	5.065	19.265	6.408	4.936	4.252
	0.900	1.180	25.594	5.113	4.295	19.266	6.376	4.873	3.845
	0.800	1.280	21.352	4.265	3.583	19.266	6.345	4.810	3.457
	0.700	1.380	17.457	3.487	2.929	19.265	6.314	4.747	3.089
	0.600	1.480	13.914	2.780	2.335	19.264	6.282	4.685	2.739
	0.500	1.580	10.722	2.142	1.799	19.262	6.251	4.624	2.406
	0.400	1.680	7.881	1.574	1.322	19.258	6.220	4.563	2.087
	0.300	1.780	5.391	1.077	0.905	19.254	6.189	4.504	1.781
	0.200	1.880	3.249	0.649	0.545	19.247	6.159	4.447	1.487
	0.100	1.980	1.454	0.290	0.244	19.239	6.130	4.392	1.202
	0.071	2.009	1.000	0.200	0.168	19.236	6.121	4.377	1.121
	0.000	2.080	0.000	0.000	0.000	19.227	6.101	4.340	0.000

– MDF2 SB

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
MDF2 SB	6.500	0.000	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	6.400	0.100	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	6.300	0.200	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	6.200	0.300	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	6.100	0.400	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	6.000	0.500	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	5.900	0.600	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	5.800	0.700	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	5.700	0.800	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	5.600	0.900	100.000	50.223	42.187	28.198	7.524	4.467	0.000
	5.500	1.000	98.294	49.366	41.468	28.190	7.505	4.418	1.378
	5.400	1.100	96.601	48.516	40.754	28.183	7.485	4.369	1.344
	5.300	1.200	94.924	47.674	40.046	28.175	7.465	4.321	1.306
	5.200	1.300	93.264	46.840	39.346	28.167	7.445	4.273	1.268
	5.100	1.400	91.621	46.015	38.653	28.158	7.424	4.226	1.228
	5.000	1.500	89.997	45.200	37.968	28.150	7.403	4.180	1.187
	4.900	1.600	88.393	44.394	37.291	28.141	7.381	4.134	1.146
	4.800	1.700	86.809	43.598	36.623	28.131	7.359	4.089	1.106
	4.700	1.800	85.246	42.813	35.963	28.121	7.337	4.045	1.066
	4.600	1.900	83.703	42.038	35.312	28.111	7.314	4.001	1.028
	4.500	2.000	82.181	41.274	34.670	28.100	7.291	3.959	0.991
	4.400	2.100	80.681	40.521	34.037	28.089	7.268	3.917	0.956
	4.300	2.200	79.202	39.778	33.413	28.078	7.244	3.876	0.922
	4.200	2.300	77.744	39.046	32.798	28.066	7.220	3.836	0.888
	4.100	2.400	76.308	38.325	32.193	28.053	7.196	3.797	0.855
	4.000	2.500	74.896	37.615	31.597	28.040	7.171	3.760	0.822
	3.900	2.600	73.506	36.917	31.010	28.026	7.146	3.723	0.788
	3.800	2.700	72.142	36.232	30.435	28.012	7.120	3.687	0.754
	3.700	2.800	70.804	35.560	29.870	27.997	7.094	3.653	0.720
	3.600	2.900	69.493	34.901	29.317	27.982	7.068	3.620	0.684
	3.500	3.000	68.211	34.258	28.776	27.966	7.042	3.589	0.648
	3.400	3.100	66.960	33.629	28.249	27.950	7.016	3.559	0.612
	3.300	3.200	65.740	33.017	27.734	27.933	6.990	3.530	0.576
	3.200	3.300	64.554	32.421	27.234	27.915	6.963	3.503	0.541
	3.100	3.400	63.401	31.842	26.747	27.897	6.937	3.477	0.506
	3.000	3.500	62.284	31.281	26.276	27.879	6.911	3.454	13.986
	2.900	3.600	59.504	29.885	25.103	27.874	6.894	3.395	13.630

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.800	3.700	56.759	28.506	23.945	27.868	6.877	3.337	13.276
	2.700	3.800	54.052	27.146	22.803	27.862	6.859	3.279	12.921
	2.600	3.900	51.381	25.805	21.676	27.855	6.841	3.221	12.565
	2.500	4.000	48.749	24.483	20.566	27.848	6.822	3.162	12.205
	2.400	4.100	46.156	23.181	19.472	27.841	6.803	3.104	11.839
	2.300	4.200	43.603	21.899	18.395	27.833	6.783	3.045	11.466
	2.200	4.300	41.092	20.638	17.336	27.825	6.762	2.987	11.080
	2.100	4.400	38.625	19.399	16.295	27.816	6.741	2.929	10.686
	2.000	4.500	36.204	18.183	15.273	27.806	6.719	2.870	10.277
	1.900	4.600	33.830	16.990	14.272	27.796	6.696	2.812	9.860
	1.800	4.700	31.505	15.823	13.291	27.786	6.673	2.754	9.436
	1.700	4.800	29.231	14.681	12.332	27.775	6.649	2.696	9.001
	1.600	4.900	27.010	13.565	11.395	27.763	6.624	2.638	8.573
	1.500	5.000	24.842	12.476	10.480	27.751	6.599	2.580	8.135
	1.400	5.100	22.729	11.415	9.589	27.738	6.572	2.522	7.701
	1.300	5.200	20.672	10.382	8.721	27.724	6.545	2.465	7.262
	1.200	5.300	18.673	9.378	7.878	27.709	6.516	2.407	6.823
	1.100	5.400	16.733	8.404	7.059	27.693	6.487	2.350	6.372
	1.000	5.500	14.855	7.461	6.267	27.676	6.455	2.292	5.909
	0.900	5.600	13.039	6.549	5.501	27.658	6.424	2.236	5.451
	0.800	5.700	11.290	5.670	4.763	27.640	6.392	2.180	4.954
	0.700	5.800	9.611	4.827	4.055	27.620	6.356	2.123	4.460
	0.600	5.900	8.003	4.019	3.376	27.600	6.322	2.068	3.937
	0.500	6.000	6.472	3.250	2.730	27.582	6.283	2.012	3.402
	0.400	6.100	5.017	2.520	2.117	27.564	6.250	1.958	2.904
	0.300	6.200	3.642	1.829	1.536	27.548	6.212	1.904	2.394
	0.200	6.300	2.347	1.179	0.990	27.536	6.179	1.852	1.943
	0.100	6.400	1.133	0.569	0.478	27.531	6.146	1.801	1.533
	0.000	6.500	0.000	0.000	0.000	27.537	6.116	1.750	0.000

– MDF2 PS

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
MDF2 PS	6.500	0.000	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	6.400	0.100	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	6.300	0.200	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	6.200	0.300	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	6.100	0.400	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	6.000	0.500	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	5.900	0.600	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	5.800	0.700	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	5.700	0.800	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	5.600	0.900	100.000	48.273	40.549	28.230	-7.612	4.516	0.000
	5.500	1.000	98.225	47.416	39.830	28.223	-7.594	4.466	1.378
	5.400	1.100	96.464	46.566	39.116	28.216	-7.575	4.416	1.344
	5.300	1.200	94.719	45.724	38.408	28.209	-7.556	4.367	1.306
	5.200	1.300	92.992	44.890	37.708	28.201	-7.536	4.318	1.268
	5.100	1.400	91.283	44.065	37.015	28.192	-7.516	4.269	1.228
	5.000	1.500	89.593	43.250	36.330	28.184	-7.495	4.222	1.187
	4.900	1.600	87.924	42.444	35.653	28.175	-7.474	4.175	1.146
	4.800	1.700	86.276	41.648	34.985	28.166	-7.453	4.128	1.106
	4.700	1.800	84.650	40.863	34.325	28.156	-7.432	4.083	1.066
	4.600	1.900	83.045	40.088	33.674	28.146	-7.410	4.038	1.028
	4.500	2.000	81.462	39.324	33.032	28.136	-7.388	3.994	0.991
	4.400	2.100	79.901	38.571	32.399	28.125	-7.365	3.951	0.956
	4.300	2.200	78.362	37.828	31.775	28.113	-7.342	3.908	0.922
	4.200	2.300	76.845	37.096	31.160	28.101	-7.318	3.867	0.888
	4.100	2.400	75.351	36.375	30.555	28.089	-7.295	3.827	0.855
	4.000	2.500	73.882	35.665	29.959	28.075	-7.270	3.788	0.822
	3.900	2.600	72.436	34.967	29.372	28.062	-7.246	3.749	0.788
	3.800	2.700	71.017	34.282	28.797	28.047	-7.221	3.712	0.754
	3.700	2.800	69.624	33.610	28.232	28.032	-7.196	3.677	0.720
	3.600	2.900	68.260	32.951	27.679	28.017	-7.170	3.642	0.684
	3.500	3.000	66.927	32.308	27.138	28.001	-7.144	3.609	0.648
	3.400	3.100	65.625	31.679	26.611	27.984	-7.119	3.578	0.612
	3.300	3.200	64.356	31.067	26.096	27.967	-7.093	3.547	0.576
	3.200	3.300	63.122	30.471	25.596	27.949	-7.067	3.519	0.541
	3.100	3.400	61.923	29.892	25.109	27.931	-7.041	3.492	0.506
	3.000	3.500	60.761	29.331	24.638	27.912	-7.015	3.467	11.851
	2.900	3.600	58.002	28.000	23.520	27.906	-6.998	3.409	11.537

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
	2.800	3.700	55.282	26.686	22.416	27.900	-6.981	3.350	11.224
	2.700	3.800	52.599	25.391	21.329	27.894	-6.963	3.291	10.912
	2.600	3.900	49.956	24.115	20.257	27.888	-6.945	3.232	10.599
	2.500	4.000	47.352	22.858	19.201	27.881	-6.927	3.174	10.283
	2.400	4.100	44.789	21.621	18.162	27.873	-6.908	3.115	9.962
	2.300	4.200	42.268	20.404	17.139	27.865	-6.888	3.056	9.636
	2.200	4.300	39.790	19.208	16.135	27.857	-6.867	2.997	9.298
	2.100	4.400	37.358	18.034	15.148	27.848	-6.846	2.939	8.953
	2.000	4.500	34.973	16.883	14.181	27.838	-6.824	2.880	8.596
	1.900	4.600	32.638	15.755	13.235	27.828	-6.802	2.821	8.233
	1.800	4.700	30.354	14.653	12.308	27.817	-6.778	2.762	7.865
	1.700	4.800	28.123	13.576	11.404	27.806	-6.755	2.704	7.487
	1.600	4.900	25.947	12.525	10.521	27.794	-6.730	2.645	7.116
	1.500	5.000	23.826	11.501	9.661	27.781	-6.705	2.587	6.738
	1.400	5.100	21.762	10.505	8.824	27.768	-6.678	2.528	6.363
	1.300	5.200	19.756	9.537	8.011	27.753	-6.651	2.470	5.985
	1.200	5.300	17.812	8.598	7.223	27.738	-6.622	2.412	5.608
	1.100	5.400	15.928	7.689	6.459	27.721	-6.593	2.355	5.221
	1.000	5.500	14.108	6.811	5.721	27.704	-6.560	2.296	4.825
	0.900	5.600	12.354	5.964	5.010	27.685	-6.530	2.240	4.433
	0.800	5.700	10.669	5.150	4.326	27.665	-6.497	2.183	4.009
	0.700	5.800	9.057	4.372	3.672	27.644	-6.460	2.126	3.588
	0.600	5.900	7.518	3.629	3.049	27.623	-6.426	2.070	3.142
	0.500	6.000	6.060	2.925	2.457	27.603	-6.387	2.013	2.687
	0.400	6.100	4.681	2.260	1.898	27.584	-6.353	1.959	2.264
	0.300	6.200	3.385	1.634	1.373	27.567	-6.315	1.905	1.833
	0.200	6.300	2.172	1.049	0.881	27.555	-6.282	1.853	1.454
	0.100	6.400	1.044	0.504	0.423	27.550	-6.248	1.801	1.113
	0.000	6.500	0.000	0.000	0.000	27.557	-6.219	1.750	0.000

– MDF S3

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
MDF S3	2.080	0.000	100.000	13.717	11.522	14.017	5.163	5.687	0.000
	2.000	0.080	92.862	12.738	10.700	14.020	5.126	5.634	8.868
	1.900	0.180	84.271	11.560	9.710	14.025	5.078	5.567	7.886
	1.800	0.280	76.068	10.434	8.765	14.030	5.030	5.499	6.948
	1.700	0.380	68.270	9.365	7.866	14.035	4.982	5.432	6.064
	1.600	0.480	60.891	8.352	7.016	14.041	4.933	5.364	5.243
	1.500	0.580	53.943	7.399	6.215	14.047	4.885	5.296	4.488
	1.400	0.680	47.436	6.507	5.466	14.053	4.837	5.229	3.806
	1.300	0.780	41.376	5.676	4.768	14.060	4.790	5.161	3.200
	1.200	0.880	35.764	4.906	4.121	14.068	4.744	5.093	2.672
	1.100	0.980	30.594	4.197	3.525	14.076	4.700	5.026	2.220
	1.000	1.080	25.857	3.547	2.979	14.084	4.657	4.960	1.837
	0.900	1.180	21.543	2.955	2.482	14.094	4.616	4.893	1.515
	0.800	1.280	17.639	2.420	2.032	14.104	4.576	4.827	1.245
	0.700	1.380	14.137	1.939	1.629	14.116	4.537	4.762	1.018
	0.600	1.480	11.025	1.512	1.270	14.130	4.501	4.697	0.827
	0.500	1.580	8.293	1.138	0.956	14.145	4.466	4.633	0.666
	0.400	1.680	5.932	0.814	0.684	14.162	4.434	4.571	0.531
	0.300	1.780	3.933	0.539	0.453	14.183	4.405	4.509	0.415
	0.200	1.880	2.285	0.313	0.263	14.208	4.379	4.450	0.316
	0.100	1.980	0.977	0.134	0.113	14.239	4.358	4.393	0.229
	0.000	2.080	0.000	0.000	0.000	14.279	4.343	4.340	0.000

– MDFT4

Fluid Type = Diesel

Specific gravity = 0.84

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
MDFT4	3.030	0.000	100.000	16.459	13.826	24.750	-1.400	7.935	0.000
	2.969	0.061	98.000	16.130	13.549	24.750	-1.400	7.905	2.981
	2.800	0.230	92.409	15.210	12.776	24.750	-1.400	7.820	2.981
	2.600	0.430	85.809	14.123	11.863	24.750	-1.400	7.720	2.981
	2.400	0.630	79.208	13.037	10.951	24.750	-1.400	7.620	2.981
	2.200	0.830	72.607	11.950	10.038	24.750	-1.400	7.520	2.981
	2.000	1.030	66.007	10.864	9.126	24.750	-1.400	7.420	2.981
	1.800	1.230	59.406	9.778	8.213	24.750	-1.400	7.320	2.981
	1.600	1.430	52.805	8.691	7.301	24.750	-1.400	7.220	2.981
	1.400	1.630	46.205	7.605	6.388	24.750	-1.400	7.120	2.981
	1.200	1.830	39.604	6.518	5.475	24.750	-1.400	7.020	2.981
	1.000	2.030	33.003	5.432	4.563	24.750	-1.400	6.920	2.981
	0.800	2.230	26.403	4.346	3.650	24.750	-1.400	6.820	2.981
	0.600	2.430	19.802	3.259	2.738	24.750	-1.400	6.720	2.981
	0.400	2.630	13.201	2.173	1.825	24.750	-1.400	6.620	2.981
	0.200	2.830	6.601	1.086	0.913	24.750	-1.400	6.520	2.981
	0.030	3.000	1.000	0.165	0.138	24.750	-1.400	6.435	2.981
	0.000	3.030	0.000	0.000	0.000	24.750	-1.400	6.420	0.000

– SO1

Fluid Type = lub Oil

Specific gravity = 0.89

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SO1	0.900	0.000	100.000	10.565	9.403	15.049	0.000	0.477	0.000
	0.883	0.017	98.000	10.354	9.215	15.051	0.000	0.468	2.908
	0.850	0.050	94.061	9.937	8.844	15.055	0.000	0.452	2.908
	0.800	0.100	88.121	9.310	8.286	15.062	0.000	0.426	2.908
	0.750	0.150	82.182	8.682	7.727	15.070	0.000	0.401	2.908
	0.700	0.200	76.242	8.055	7.169	15.080	0.000	0.376	2.908
	0.650	0.250	70.303	7.427	6.610	15.091	0.000	0.351	2.908
	0.600	0.300	64.363	6.800	6.052	15.103	0.000	0.326	2.908
	0.550	0.350	58.424	6.172	5.493	15.119	0.000	0.300	2.908
	0.500	0.400	52.484	5.545	4.935	15.138	0.000	0.275	2.908
	0.450	0.450	46.545	4.917	4.376	15.162	0.000	0.249	2.908
	0.400	0.500	40.605	4.290	3.818	15.193	0.000	0.223	2.908
	0.350	0.550	34.666	3.662	3.260	15.235	0.000	0.197	2.908
	0.300	0.600	28.726	3.035	2.701	15.294	0.000	0.171	2.908
	0.250	0.650	22.794	2.408	2.143	15.382	0.000	0.144	2.869
	0.200	0.700	16.946	1.790	1.593	15.515	0.000	0.116	2.670
	0.150	0.750	11.397	1.204	1.072	15.706	0.000	0.087	2.177
	0.100	0.800	6.471	0.684	0.608	15.974	0.000	0.058	1.592
	0.050	0.850	2.473	0.261	0.232	16.383	0.000	0.029	1.035
	0.025	0.875	1.000	0.106	0.094	16.709	0.000	0.014	0.650
	0.000	0.900	0.000	0.000	0.000	17.447	0.000	0.000	0.000

– SO2

Fluid Type = Specific gravity = 0.89

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SO2	2.080	0.000	100.000	19.977	17.780	19.238	-6.725	5.626	0.000
	2.000	0.080	93.707	18.720	16.661	19.240	-6.703	5.576	9.794
	1.900	0.180	86.064	17.193	15.302	19.243	-6.676	5.512	9.210
	1.800	0.280	78.679	15.718	13.989	19.246	-6.649	5.449	8.638
	1.700	0.380	71.562	14.296	12.723	19.249	-6.620	5.385	8.076
	1.600	0.480	64.722	12.930	11.507	19.251	-6.591	5.321	7.524
	1.500	0.580	58.173	11.621	10.343	19.254	-6.562	5.257	6.980
	1.400	0.680	51.927	10.373	9.232	19.257	-6.532	5.193	6.448
	1.300	0.780	45.995	9.189	8.178	19.259	-6.501	5.128	5.933
	1.200	0.880	40.389	8.069	7.181	19.262	-6.470	5.064	5.435
	1.100	0.980	35.117	7.015	6.244	19.263	-6.439	5.000	4.959
	1.000	1.080	30.184	6.030	5.367	19.265	-6.408	4.936	4.505
	0.900	1.180	25.594	5.113	4.551	19.266	-6.376	4.873	4.074
	0.800	1.280	21.352	4.265	3.796	19.266	-6.345	4.810	3.663
	0.700	1.380	17.457	3.487	3.104	19.265	-6.314	4.747	3.273
	0.600	1.480	13.914	2.780	2.474	19.264	-6.282	4.685	2.902
	0.500	1.580	10.722	2.142	1.906	19.262	-6.251	4.624	2.549
	0.400	1.680	7.881	1.574	1.401	19.258	-6.220	4.563	2.211
	0.300	1.780	5.391	1.077	0.958	19.254	-6.189	4.504	1.887
	0.200	1.880	3.249	0.649	0.578	19.247	-6.159	4.447	1.575
	0.100	1.980	1.454	0.290	0.258	19.239	-6.130	4.392	1.273
	0.000	2.080	0.000	0.000	0.000	19.227	-6.101	4.340	0.000

– SO4

Fluid Type = Specific gravity = 0.89

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SO4	2.080	0.000	100.000	13.717	12.208	14.017	-5.163	5.687	0.000
	2.000	0.080	92.862	12.738	11.337	14.020	-5.126	5.634	9.396
	1.900	0.180	84.271	11.560	10.288	14.025	-5.078	5.567	8.356
	1.800	0.280	76.068	10.434	9.287	14.030	-5.030	5.499	7.361
	1.700	0.380	68.270	9.365	8.335	14.035	-4.982	5.432	6.425
	1.600	0.480	60.891	8.352	7.434	14.041	-4.933	5.364	5.555
	1.500	0.580	53.943	7.399	6.585	14.047	-4.885	5.296	4.755
	1.400	0.680	47.436	6.507	5.791	14.053	-4.837	5.229	4.032
	1.300	0.780	41.376	5.676	5.051	14.060	-4.790	5.161	3.391
	1.200	0.880	35.764	4.906	4.366	14.068	-4.744	5.093	2.832
	1.100	0.980	30.594	4.197	3.735	14.076	-4.700	5.026	2.352
	1.000	1.080	25.857	3.547	3.157	14.084	-4.657	4.960	1.946
	0.900	1.180	21.543	2.955	2.630	14.094	-4.616	4.893	1.605
	0.800	1.280	17.639	2.420	2.153	14.104	-4.576	4.827	1.319
	0.700	1.380	14.137	1.939	1.726	14.116	-4.537	4.762	1.078
	0.600	1.480	11.025	1.512	1.346	14.130	-4.501	4.697	0.876
	0.500	1.580	8.293	1.138	1.012	14.145	-4.466	4.633	0.706
	0.400	1.680	5.932	0.814	0.724	14.162	-4.434	4.571	0.562
	0.300	1.780	3.933	0.539	0.480	14.183	-4.405	4.509	0.440
	0.200	1.880	2.285	0.313	0.279	14.208	-4.379	4.450	0.335
	0.100	1.980	0.977	0.134	0.119	14.239	-4.358	4.393	0.243
	0.000	2.080	0.000	0.000	0.000	14.279	-4.343	4.340	0.000

– SO5

Fluid Type = Specific gravity = 0.89

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SO5	2.000	0.000	100.000	7.141	6.355	9.582	-3.822	5.813	0.000
	1.900	0.100	88.428	6.314	5.620	9.591	-3.753	5.743	6.060
	1.800	0.200	77.584	5.540	4.931	9.601	-3.683	5.672	4.989
	1.700	0.300	67.496	4.820	4.290	9.613	-3.613	5.601	4.028
	1.600	0.400	58.190	4.155	3.698	9.626	-3.544	5.529	3.184
	1.500	0.500	49.685	3.548	3.158	9.640	-3.477	5.456	2.460
	1.400	0.600	41.988	2.998	2.668	9.656	-3.413	5.384	1.862
	1.300	0.700	35.081	2.505	2.229	9.675	-3.352	5.312	1.387
	1.200	0.800	28.931	2.066	1.839	9.695	-3.295	5.239	1.018
	1.100	0.900	23.495	1.678	1.493	9.719	-3.242	5.167	0.738
	1.000	1.000	18.735	1.338	1.191	9.748	-3.192	5.095	0.527
	0.900	1.100	14.612	1.043	0.929	9.782	-3.147	5.023	0.371
	0.800	1.200	11.095	0.792	0.705	9.823	-3.105	4.950	0.256
	0.700	1.300	8.153	0.582	0.518	9.874	-3.069	4.878	0.172
	0.600	1.400	5.750	0.411	0.365	9.936	-3.039	4.805	0.111
	0.500	1.500	3.845	0.275	0.244	10.014	-3.014	4.732	0.068
	0.400	1.600	2.403	0.172	0.153	10.103	-2.995	4.657	0.037
	0.300	1.700	1.372	0.098	0.087	10.194	-2.980	4.587	0.018
	0.200	1.800	0.678	0.048	0.043	10.279	-2.964	4.516	0.007
	0.100	1.900	0.243	0.017	0.015	10.359	-2.954	4.456	0.003
	0.000	2.000	0.000	0.000	0.000	10.424	-2.920	4.400	0.000

- TK. 2

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 02	2.137	0.000	100.000	20.037	20.037	94.137	-2.284	1.461	0.000
	2.110	0.027	98.000	19.637	19.637	94.134	-2.278	1.445	10.601
	2.109	0.028	97.900	19.617	19.617	94.134	-2.278	1.444	10.592
	2.100	0.037	97.263	19.489	19.489	94.133	-2.276	1.439	10.540
	2.000	0.137	89.902	18.014	18.014	94.120	-2.256	1.380	9.915
	1.900	0.237	82.708	16.572	16.572	94.107	-2.234	1.321	9.286
	1.800	0.337	75.688	15.166	15.166	94.092	-2.211	1.261	8.646
	1.700	0.437	68.853	13.796	13.796	94.075	-2.188	1.201	8.001
	1.600	0.537	62.212	12.466	12.466	94.055	-2.163	1.141	7.363
	1.500	0.637	55.777	11.176	11.176	94.034	-2.136	1.081	6.730
	1.400	0.737	49.563	9.931	9.931	94.009	-2.109	1.020	6.095
	1.300	0.837	43.587	8.734	8.734	93.980	-2.079	0.959	5.456
	1.200	0.937	37.868	7.588	7.588	93.947	-2.048	0.898	4.815
	1.100	1.037	32.426	6.497	6.497	93.908	-2.016	0.837	4.178
	1.000	1.137	27.284	5.467	5.467	93.860	-1.981	0.775	3.555
	0.900	1.237	22.465	4.501	4.501	93.800	-1.945	0.713	2.960
	0.800	1.337	17.992	3.605	3.605	93.726	-1.906	0.651	2.409
	0.700	1.437	13.897	2.785	2.785	93.629	-1.865	0.588	1.903
	0.600	1.537	10.220	2.048	2.048	93.504	-1.820	0.524	1.440
	0.500	1.637	7.012	1.405	1.405	93.336	-1.772	0.460	1.016
	0.400	1.737	4.331	0.868	0.868	93.105	-1.719	0.395	0.655
	0.300	1.837	2.237	0.448	0.448	92.781	-1.656	0.328	0.354
	0.216	1.921	1.000	0.200	0.200	92.435	-1.587	0.270	0.148
	0.200	1.937	0.823	0.165	0.165	92.361	-1.572	0.258	0.118
	0.100	2.037	0.132	0.026	0.026	91.775	-1.467	0.187	0.010
	0.000	2.137	0.000	0.000	0.000	90.862	-1.025	0.113	0.000

– TK. 2 WING

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 02 WING	5.100	0.000	100.000	43.846	44.942	95.797	-3.590	5.255	0.000
	5.031	0.069	98.000	42.969	44.043	95.797	-3.585	5.213	6.728
	5.027	0.073	97.900	42.925	43.998	95.797	-3.585	5.211	6.723
	5.000	0.100	97.123	42.585	43.649	95.797	-3.583	5.194	6.684
	4.800	0.300	91.493	40.116	41.119	95.798	-3.568	5.074	6.405
	4.600	0.500	85.973	37.696	38.638	95.799	-3.553	4.953	6.141
	4.400	0.700	80.561	35.323	36.206	95.800	-3.537	4.833	5.887
	4.200	0.900	75.255	32.996	33.821	95.801	-3.521	4.712	5.642
	4.000	1.100	70.057	30.717	31.485	95.802	-3.504	4.590	5.395
	3.800	1.300	64.974	28.488	29.201	95.804	-3.486	4.468	5.123
	3.600	1.500	60.021	26.317	26.975	95.806	-3.468	4.345	4.804
	3.400	1.700	55.215	24.210	24.815	95.808	-3.450	4.223	4.458
	3.200	1.900	50.566	22.171	22.725	95.809	-3.431	4.101	4.130
	3.000	2.100	46.077	20.203	20.708	95.811	-3.412	3.979	3.820
	2.800	2.300	41.748	18.305	18.763	95.812	-3.393	3.858	3.530
	2.600	2.500	37.582	16.478	16.890	95.814	-3.374	3.737	3.257
	2.400	2.700	33.579	14.723	15.091	95.815	-3.354	3.616	2.993
	2.200	2.900	29.746	13.042	13.368	95.816	-3.334	3.496	2.737
	2.000	3.100	26.088	11.438	11.724	95.818	-3.314	3.376	2.491
	1.800	3.300	22.611	9.914	10.162	95.819	-3.294	3.256	2.257
	1.600	3.500	19.322	8.472	8.684	95.821	-3.274	3.138	2.034
	1.400	3.700	16.223	7.113	7.291	95.824	-3.254	3.021	1.825
	1.200	3.900	13.315	5.838	5.984	95.828	-3.233	2.905	1.629
	1.000	4.100	10.599	4.647	4.763	95.833	-3.212	2.791	1.445
	0.800	4.300	8.074	3.540	3.629	95.838	-3.192	2.678	1.272
	0.600	4.500	5.742	2.518	2.581	95.843	-3.171	2.567	1.111
	0.400	4.700	3.609	1.582	1.622	95.848	-3.149	2.459	0.957
	0.200	4.900	1.688	0.740	0.759	95.852	-3.126	2.352	0.807
	0.122	4.978	1.000	0.438	0.449	95.854	-3.118	2.312	0.750
	0.000	5.100	0.000	0.000	0.000	95.857	-3.103	2.250	0.000

- TK. 3

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 03	2.250	0.000	100.000	44.356	44.356	94.488	1.480	1.311	0.000
	2.217	0.033	98.000	43.469	43.469	94.487	1.473	1.292	36.860
	2.215	0.035	97.900	43.424	43.424	94.487	1.472	1.291	36.836
	2.200	0.050	96.983	43.018	43.018	94.487	1.469	1.282	36.616
	2.100	0.150	91.011	40.369	40.369	94.485	1.446	1.226	35.148
	2.000	0.250	85.123	37.757	37.757	94.483	1.422	1.169	33.647
	1.900	0.350	79.323	35.184	35.184	94.481	1.396	1.111	32.103
	1.800	0.450	73.617	32.653	32.653	94.479	1.370	1.054	30.527
	1.700	0.550	68.009	30.166	30.166	94.476	1.342	0.997	28.931
	1.600	0.650	62.505	27.725	27.725	94.473	1.312	0.939	27.301
	1.500	0.750	57.113	25.333	25.333	94.470	1.281	0.881	25.623
	1.400	0.850	51.843	22.995	22.995	94.466	1.247	0.824	23.884
	1.300	0.950	46.703	20.715	20.715	94.462	1.212	0.766	22.089
	1.200	1.050	41.703	18.498	18.498	94.458	1.174	0.708	20.248
	1.100	1.150	36.856	16.348	16.348	94.452	1.134	0.649	18.376
	1.000	1.250	32.173	14.270	14.270	94.445	1.091	0.591	16.505
	0.900	1.350	27.665	12.271	12.271	94.437	1.045	0.532	14.655
	0.800	1.450	23.350	10.357	10.357	94.427	0.994	0.474	12.819
	0.700	1.550	19.248	8.537	8.537	94.416	0.938	0.415	10.972
	0.600	1.650	15.385	6.824	6.824	94.405	0.876	0.355	9.110
	0.500	1.750	11.791	5.230	5.230	94.392	0.806	0.296	7.308
	0.400	1.850	8.498	3.769	3.769	94.377	0.724	0.236	5.490
	0.300	1.950	5.576	2.473	2.473	94.355	0.630	0.176	3.588
	0.200	2.050	3.120	1.384	1.384	94.302	0.527	0.116	1.901
	0.100	2.150	1.205	0.535	0.535	94.144	0.416	0.057	0.796
	0.087	2.163	1.000	0.444	0.444	94.103	0.400	0.050	0.691
	0.000	2.250	0.000	0.000	0.000	91.672	0.230	0.000	0.000

– TK. 3 WING

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 03 WING	5.100	0.000	100.000	43.846	44.942	95.797	3.590	5.255	0.000
	5.031	0.069	98.000	42.969	44.043	95.797	3.585	5.213	6.728
	5.027	0.073	97.900	42.925	43.998	95.797	3.585	5.211	6.723
	5.000	0.100	97.123	42.585	43.649	95.797	3.583	5.194	6.684
	4.800	0.300	91.493	40.116	41.119	95.798	3.568	5.074	6.405
	4.600	0.500	85.973	37.696	38.638	95.799	3.553	4.953	6.141
	4.400	0.700	80.561	35.323	36.206	95.800	3.537	4.833	5.887
	4.200	0.900	75.255	32.996	33.821	95.801	3.521	4.712	5.642
	4.000	1.100	70.057	30.717	31.485	95.802	3.504	4.590	5.395
	3.800	1.300	64.974	28.488	29.201	95.804	3.486	4.468	5.123
	3.600	1.500	60.021	26.317	26.975	95.806	3.468	4.345	4.804
	3.400	1.700	55.215	24.210	24.815	95.808	3.450	4.223	4.458
	3.200	1.900	50.566	22.171	22.725	95.809	3.431	4.101	4.130
	3.000	2.100	46.077	20.203	20.708	95.811	3.412	3.979	3.820
	2.800	2.300	41.748	18.305	18.763	95.812	3.393	3.858	3.530
	2.600	2.500	37.582	16.478	16.890	95.814	3.374	3.737	3.257
	2.400	2.700	33.579	14.723	15.091	95.815	3.354	3.616	2.993
	2.200	2.900	29.746	13.042	13.368	95.816	3.334	3.496	2.737
	2.000	3.100	26.088	11.438	11.724	95.818	3.314	3.376	2.491
	1.800	3.300	22.611	9.914	10.162	95.819	3.294	3.256	2.257
	1.600	3.500	19.322	8.472	8.684	95.821	3.274	3.138	2.034
	1.400	3.700	16.223	7.113	7.291	95.824	3.254	3.021	1.825
	1.200	3.900	13.315	5.838	5.984	95.828	3.233	2.905	1.629
	1.000	4.100	10.599	4.647	4.763	95.833	3.212	2.791	1.445
	0.800	4.300	8.074	3.540	3.629	95.838	3.192	2.678	1.272
	0.600	4.500	5.742	2.518	2.581	95.843	3.171	2.567	1.111
	0.400	4.700	3.609	1.582	1.622	95.848	3.149	2.459	0.957
	0.200	4.900	1.688	0.740	0.759	95.852	3.126	2.352	0.807
	0.122	4.978	1.000	0.438	0.449	95.854	3.118	2.312	0.750
	0.000	5.100	0.000	0.000	0.000	95.857	3.103	2.250	0.000

- TK. 4

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 4	2.200	0.000	100.000	58.972	58.972	85.735	-3.024	1.374	0.000
	2.100	0.100	93.498	55.137	55.137	85.729	-2.995	1.316	60.004
	2.000	0.200	87.110	51.370	51.370	85.723	-2.965	1.259	57.494
	1.900	0.300	80.823	47.663	47.663	85.716	-2.932	1.201	54.839
	1.800	0.400	74.648	44.021	44.021	85.709	-2.899	1.144	52.021
	1.700	0.500	68.596	40.452	40.452	85.702	-2.863	1.086	49.002
	1.600	0.600	62.678	36.962	36.962	85.694	-2.825	1.028	45.862
	1.500	0.700	56.904	33.557	33.557	85.686	-2.785	0.970	42.658
	1.400	0.800	51.282	30.242	30.242	85.677	-2.744	0.912	39.441
	1.300	0.900	45.820	27.021	27.021	85.667	-2.699	0.853	36.244
	1.200	1.000	40.527	23.899	23.899	85.656	-2.652	0.795	33.090
	1.100	1.100	35.410	20.882	20.882	85.644	-2.601	0.736	29.990
	1.000	1.200	30.481	17.975	17.975	85.631	-2.545	0.678	26.924
	0.900	1.300	25.758	15.190	15.190	85.618	-2.483	0.619	23.805
	0.800	1.400	21.265	12.540	12.540	85.605	-2.414	0.559	20.512
	0.700	1.500	17.036	10.046	10.046	85.592	-2.336	0.499	17.042
	0.600	1.600	13.106	7.729	7.729	85.577	-2.248	0.439	13.548
	0.500	1.700	9.518	5.613	5.613	85.561	-2.146	0.378	10.093
	0.400	1.800	6.335	3.736	3.736	85.539	-2.026	0.316	6.723
	0.300	1.900	3.639	2.146	2.146	85.490	-1.880	0.253	3.629
	0.200	2.000	1.575	0.929	0.929	85.351	-1.704	0.188	1.276
	0.100	2.100	0.333	0.196	0.196	84.921	-1.506	0.121	0.160
	0.000	2.200	0.000	0.000	0.000	81.658	-0.874	0.050	0.000

– TK. 5

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 5	2.250	0.000	100.000	85.681	85.681	85.862	2.285	1.298	0.000
	2.200	0.050	97.066	83.166	83.166	85.861	2.270	1.270	133.471
	2.100	0.150	91.243	78.177	78.177	85.858	2.238	1.214	129.310
	2.000	0.250	85.487	73.246	73.246	85.856	2.205	1.158	124.871
	1.900	0.350	79.805	68.377	68.377	85.854	2.170	1.101	120.133
	1.800	0.450	74.203	63.577	63.577	85.852	2.133	1.045	115.029
	1.700	0.550	68.689	58.853	58.853	85.850	2.094	0.988	109.588
	1.600	0.650	63.272	54.212	54.212	85.847	2.052	0.931	103.932
	1.500	0.750	57.956	49.657	49.657	85.845	2.009	0.875	98.146
	1.400	0.850	52.748	45.195	45.195	85.843	1.963	0.818	92.294
	1.300	0.950	47.653	40.829	40.829	85.841	1.913	0.761	86.416
	1.200	1.050	42.676	36.565	36.565	85.840	1.860	0.704	80.529
	1.100	1.150	37.825	32.408	32.408	85.838	1.803	0.647	74.614
	1.000	1.250	33.108	28.367	28.367	85.838	1.739	0.589	68.561
	0.900	1.350	28.541	24.454	24.454	85.839	1.669	0.531	62.134
	0.800	1.450	24.142	20.685	20.685	85.843	1.590	0.473	55.158
	0.700	1.550	19.938	17.083	17.083	85.849	1.502	0.415	47.741
	0.600	1.650	15.953	13.668	13.668	85.858	1.401	0.356	40.045
	0.500	1.750	12.223	10.472	10.472	85.873	1.285	0.296	31.983
	0.400	1.850	8.797	7.537	7.537	85.892	1.148	0.236	23.599
	0.300	1.950	5.749	4.926	4.926	85.913	0.985	0.175	15.142
	0.200	2.050	3.201	2.743	2.743	85.941	0.802	0.114	7.640
	0.100	2.150	1.267	1.085	1.085	85.994	0.613	0.055	2.716
	0.000	2.250	0.000	0.000	0.000	86.027	0.432	0.000	0.000

– TK. 6

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 06	4.850	0.000	100.000	54.880	56.252	88.320	-5.169	4.662	0.000
	4.800	0.050	98.924	54.289	55.646	88.314	-5.164	4.635	5.373
	4.757	0.093	98.000	53.782	55.127	88.310	-5.159	4.613	5.340
	4.752	0.098	97.900	53.727	55.070	88.309	-5.158	4.610	5.336
	4.600	0.250	94.658	51.948	53.247	88.292	-5.141	4.531	5.214
	4.400	0.450	90.461	49.644	50.886	88.267	-5.117	4.428	5.041
	4.200	0.650	86.339	47.382	48.567	88.240	-5.092	4.327	4.855
	4.000	0.850	82.301	45.166	46.296	88.210	-5.066	4.227	4.652
	3.800	1.050	78.360	43.004	44.079	88.178	-5.039	4.131	4.430
	3.600	1.250	74.536	40.905	41.928	88.143	-5.011	4.037	4.185
	3.400	1.450	70.858	38.887	39.859	88.106	-4.982	3.948	3.916
	3.200	1.650	67.349	36.961	37.885	88.066	-4.954	3.865	3.636
	3.000	1.850	64.010	35.129	36.007	88.024	-4.925	3.788	3.359
	2.800	2.050	60.842	33.390	34.225	87.980	-4.897	3.717	3.089
	2.600	2.250	57.845	31.745	32.539	87.932	-4.869	3.653	2.827
	2.400	2.450	53.550	29.388	30.123	87.898	-4.846	3.566	6.485
	2.200	2.650	47.962	26.321	26.979	87.879	-4.829	3.451	5.975
	2.000	2.850	42.561	23.357	23.941	87.858	-4.811	3.337	5.485
	1.800	3.050	37.352	20.499	21.011	87.836	-4.793	3.223	5.017
	1.600	3.250	32.340	17.748	18.192	87.812	-4.776	3.111	4.570
	1.400	3.450	27.530	15.108	15.486	87.786	-4.758	2.999	4.145
	1.200	3.650	22.924	12.581	12.895	87.758	-4.740	2.888	3.741
	1.000	3.850	18.528	10.168	10.423	87.727	-4.723	2.778	3.356
	0.800	4.050	14.348	7.874	8.071	87.693	-4.705	2.669	2.991
	0.600	4.250	10.390	5.702	5.844	87.654	-4.687	2.562	2.645
	0.400	4.450	6.665	3.658	3.749	87.611	-4.669	2.456	2.310
	0.200	4.650	3.191	1.751	1.795	87.560	-4.650	2.352	1.974
	0.065	4.785	1.000	0.549	0.563	87.521	-4.637	2.283	1.742
	0.000	4.850	0.000	0.000	0.000	87.500	-4.630	2.250	0.000

- TK. 7

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 07	4.850	0.000	100.000	50.853	52.124	88.187	5.198	4.562	0.000
	4.800	0.050	99.007	50.348	51.606	88.182	5.192	4.536	3.472
	4.749	0.101	98.000	49.836	51.082	88.178	5.186	4.511	3.442
	4.744	0.106	97.900	49.785	51.029	88.178	5.185	4.508	3.439
	4.600	0.250	95.077	48.349	49.558	88.165	5.166	4.437	3.353
	4.400	0.450	91.222	46.389	47.548	88.145	5.139	4.339	3.224
	4.200	0.650	87.447	44.469	45.581	88.125	5.111	4.243	3.086
	4.000	0.850	83.764	42.596	43.661	88.102	5.082	4.151	2.936
	3.800	1.050	80.185	40.776	41.795	88.078	5.052	4.061	2.774
	3.600	1.250	76.732	39.020	39.996	88.053	5.021	3.976	2.596
	3.400	1.450	73.437	37.345	38.278	88.027	4.990	3.897	2.403
	3.200	1.650	70.323	35.761	36.655	88.001	4.959	3.824	2.205
	3.000	1.850	67.394	34.272	35.129	87.975	4.928	3.757	2.009
	2.800	2.050	64.649	32.876	33.698	87.948	4.898	3.698	1.819
	2.600	2.250	62.089	31.574	32.363	87.921	4.869	3.646	1.637
	2.400	2.450	57.790	29.388	30.123	87.898	4.846	3.566	6.485
	2.200	2.650	51.760	26.321	26.979	87.879	4.829	3.451	5.975
	2.000	2.850	45.931	23.357	23.941	87.858	4.811	3.337	5.485
	1.800	3.050	40.310	20.499	21.011	87.836	4.793	3.223	5.017
	1.600	3.250	34.901	17.748	18.192	87.812	4.776	3.111	4.570
	1.400	3.450	29.710	15.108	15.486	87.786	4.758	2.999	4.145
	1.200	3.650	24.740	12.581	12.895	87.758	4.740	2.888	3.741
	1.000	3.850	19.996	10.168	10.423	87.727	4.723	2.778	3.356
	0.800	4.050	15.484	7.874	8.071	87.693	4.705	2.669	2.991
	0.600	4.250	11.213	5.702	5.844	87.654	4.687	2.562	2.645
	0.400	4.450	7.193	3.658	3.749	87.611	4.669	2.456	2.310
	0.200	4.650	3.444	1.751	1.795	87.560	4.650	2.352	1.974
	0.060	4.790	1.000	0.509	0.521	87.519	4.636	2.280	1.734
	0.000	4.850	0.000	0.000	0.000	87.500	4.630	2.250	0.000

- TK. 8

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 8	2.213	0.000	100.000	88.055	88.055	76.845	-3.777	1.331	0.000
	2.100	0.113	93.548	82.374	82.374	76.843	-3.754	1.272	134.088
	2.000	0.213	87.834	77.342	77.342	76.842	-3.731	1.219	134.088
	1.900	0.313	82.120	72.310	72.310	76.840	-3.705	1.165	134.088
	1.800	0.413	76.405	67.278	67.278	76.838	-3.675	1.111	134.088
	1.700	0.513	70.692	62.248	62.248	76.836	-3.640	1.056	133.901
	1.600	0.613	64.996	57.232	57.232	76.834	-3.600	1.001	131.958
	1.500	0.713	59.364	52.272	52.272	76.832	-3.556	0.946	126.134
	1.400	0.813	53.824	47.395	47.395	76.831	-3.508	0.890	119.834
	1.300	0.913	48.386	42.606	42.606	76.829	-3.455	0.834	113.149
	1.200	1.013	43.060	37.917	37.917	76.828	-3.398	0.778	106.118
	1.100	1.113	37.856	33.334	33.334	76.827	-3.334	0.722	98.799
	1.000	1.213	32.785	28.868	28.868	76.827	-3.262	0.665	91.240
	0.900	1.313	27.858	24.530	24.530	76.828	-3.180	0.608	83.402
	0.800	1.413	23.091	20.333	20.333	76.830	-3.082	0.550	75.154
	0.700	1.513	18.510	16.299	16.299	76.836	-2.964	0.492	65.984
	0.600	1.613	14.164	12.472	12.472	76.847	-2.816	0.431	54.672
	0.500	1.713	10.145	8.933	8.933	76.866	-2.629	0.369	40.791
	0.400	1.813	6.596	5.808	5.808	76.889	-2.400	0.306	24.935
	0.300	1.913	3.698	3.256	3.256	76.905	-2.136	0.240	11.414
	0.200	2.013	1.593	1.403	1.403	76.896	-1.851	0.173	3.311
	0.100	2.113	0.364	0.321	0.321	76.793	-1.564	0.106	0.345
	0.000	2.213	0.000	0.000	0.000	72.627	-0.972	0.037	0.000

- TK. 9

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 9	2.250	0.000	100.000	114.668	114.668	76.896	3.052	1.284	0.000
	2.200	0.050	97.289	111.560	111.560	76.895	3.041	1.258	250.052
	2.100	0.150	91.867	105.342	105.342	76.895	3.017	1.205	250.052
	2.000	0.250	86.445	99.125	99.125	76.894	2.990	1.152	250.052
	1.900	0.350	81.023	92.908	92.908	76.894	2.959	1.099	250.052
	1.800	0.450	75.601	86.690	86.690	76.893	2.924	1.045	250.045
	1.700	0.550	70.182	80.477	80.477	76.892	2.884	0.990	249.159
	1.600	0.650	64.787	74.290	74.290	76.892	2.838	0.935	243.491
	1.500	0.750	59.454	68.175	68.175	76.892	2.788	0.880	234.234
	1.400	0.850	54.194	62.144	62.144	76.892	2.734	0.825	224.298
	1.300	0.950	49.016	56.206	56.206	76.893	2.675	0.769	213.717
	1.200	1.050	43.926	50.369	50.369	76.894	2.609	0.714	202.535
	1.100	1.150	38.932	44.643	44.643	76.896	2.536	0.658	190.831
	1.000	1.250	34.044	39.038	39.038	76.899	2.453	0.601	178.603
	0.900	1.350	29.271	33.564	33.564	76.903	2.357	0.544	165.725
	0.800	1.450	24.626	28.239	28.239	76.909	2.244	0.487	151.787
	0.700	1.550	20.135	23.089	23.089	76.919	2.106	0.428	135.408
	0.600	1.650	15.848	18.172	18.172	76.934	1.936	0.367	114.485
	0.500	1.750	11.846	13.584	13.584	76.956	1.728	0.306	87.884
	0.400	1.850	8.257	9.468	9.468	76.978	1.486	0.242	57.954
	0.300	1.950	5.213	5.977	5.977	76.996	1.221	0.178	31.692
	0.200	2.050	2.808	3.220	3.220	77.007	0.952	0.115	13.578
	0.100	2.150	1.082	1.241	1.241	77.014	0.704	0.055	4.152
	0.000	2.250	0.000	0.000	0.000	77.051	0.499	0.000	0.000

– TK. 10

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 10	5.100	0.000	100.000	31.099	31.877	81.764	-6.576	4.764	0.000
	5.001	0.099	98.000	30.477	31.239	81.770	-6.565	4.712	0.848
	5.000	0.100	97.971	30.468	31.230	81.770	-6.565	4.712	0.848
	4.996	0.104	97.900	30.446	31.207	81.770	-6.564	4.710	0.848
	4.800	0.300	93.981	29.227	29.958	81.784	-6.541	4.608	0.825
	4.600	0.500	90.041	28.002	28.702	81.800	-6.516	4.505	0.799
	4.400	0.700	86.161	26.795	27.465	81.817	-6.489	4.404	0.767
	4.200	0.900	82.354	25.612	26.252	81.835	-6.461	4.305	0.730
	4.000	1.100	78.637	24.456	25.067	81.856	-6.431	4.208	0.687
	3.800	1.300	75.028	23.333	23.916	81.879	-6.400	4.115	0.637
	3.600	1.500	71.544	22.250	22.806	81.904	-6.368	4.025	0.583
	3.400	1.700	68.203	21.211	21.741	81.932	-6.335	3.941	0.527
	3.200	1.900	65.018	20.220	20.726	81.962	-6.301	3.862	0.470
	3.000	2.100	62.000	19.282	19.764	81.995	-6.267	3.789	0.415
	2.800	2.300	59.158	18.398	18.858	82.031	-6.233	3.723	0.364
	2.600	2.500	56.497	17.570	18.009	82.070	-6.198	3.666	0.315
	2.400	2.700	52.377	16.289	16.696	82.094	-6.172	3.582	3.505
	2.200	2.900	46.802	14.555	14.919	82.100	-6.152	3.466	3.271
	2.000	3.100	41.422	12.882	13.204	82.107	-6.133	3.351	3.046
	1.800	3.300	36.238	11.270	11.552	82.115	-6.112	3.237	2.830
	1.600	3.500	31.254	9.720	9.963	82.124	-6.090	3.122	2.619
	1.400	3.700	26.478	8.234	8.440	82.134	-6.068	3.009	2.410
	1.200	3.900	21.920	6.817	6.987	82.146	-6.045	2.896	2.200
	1.000	4.100	17.594	5.472	5.609	82.159	-6.021	2.785	1.989
	0.800	4.300	13.516	4.203	4.308	82.174	-5.994	2.674	1.781
	0.600	4.500	9.697	3.016	3.091	82.192	-5.964	2.563	1.576
	0.400	4.700	6.156	1.914	1.962	82.212	-5.939	2.457	1.373
	0.200	4.900	2.911	0.905	0.928	82.236	-5.903	2.350	1.172
	0.072	5.028	1.000	0.311	0.319	82.253	-5.886	2.285	1.039
	0.000	5.100	0.000	0.000	0.000	0.000	0.000	2.250	0.000

- TK. 11

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 11	5.100	0.000	100.000	33.462	34.299	81.699	6.523	4.675	0.000
	5.000	0.100	98.114	32.831	33.652	81.704	6.511	4.625	0.848
	4.994	0.106	98.000	32.793	33.613	81.704	6.510	4.622	0.847
	4.988	0.112	97.900	32.760	33.579	81.705	6.510	4.619	0.847
	4.800	0.300	94.406	31.590	32.380	81.715	6.487	4.525	0.825
	4.600	0.500	90.744	30.365	31.124	81.726	6.461	4.427	0.799
	4.400	0.700	87.138	29.158	29.887	81.739	6.435	4.331	0.767
	4.200	0.900	83.600	27.975	28.674	81.752	6.406	4.237	0.730
	4.000	1.100	80.145	26.819	27.489	81.768	6.377	4.146	0.687
	3.800	1.300	76.791	25.696	26.339	81.785	6.346	4.058	0.637
	3.600	1.500	73.553	24.613	25.228	81.803	6.315	3.975	0.583
	3.400	1.700	70.448	23.574	24.163	81.823	6.283	3.897	0.527
	3.200	1.900	67.488	22.583	23.148	81.846	6.250	3.824	0.470
	3.000	2.100	64.684	21.645	22.186	81.870	6.218	3.758	0.415
	2.800	2.300	62.042	20.761	21.280	81.897	6.185	3.698	0.364
	2.600	2.500	59.569	19.933	20.431	81.926	6.153	3.646	0.315
	2.400	2.700	55.457	18.557	19.021	81.942	6.128	3.566	3.904
	2.200	2.900	49.712	16.635	17.051	81.944	6.110	3.452	3.644
	2.000	3.100	44.146	14.772	15.142	81.947	6.092	3.338	3.394
	1.800	3.300	38.763	12.971	13.295	81.950	6.073	3.226	3.153
	1.600	3.500	33.567	11.232	11.513	81.953	6.053	3.113	2.919
	1.400	3.700	28.563	9.558	9.797	81.957	6.034	3.001	2.688
	1.200	3.900	23.762	7.951	8.150	81.961	6.012	2.890	2.456
	1.000	4.100	19.177	6.417	6.577	81.967	5.991	2.780	2.224
	0.800	4.300	14.821	4.959	5.083	81.973	5.967	2.670	1.996
	0.600	4.500	10.707	3.583	3.672	81.980	5.940	2.561	1.772
	0.400	4.700	6.851	2.292	2.350	81.988	5.919	2.456	1.554
	0.200	4.900	3.270	1.094	1.122	81.997	5.888	2.350	1.340
	0.063	5.037	1.000	0.335	0.343	82.004	5.873	2.282	1.192
	0.000	5.100	0.000	0.000	0.000	82.007	5.849	2.250	0.000

- TK. 12

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 12	5.100	0.000	100.000	46.140	47.293	75.472	-7.397	5.093	0.000
	5.019	0.081	98.000	45.217	46.348	75.471	-7.394	5.048	3.257
	5.015	0.085	97.900	45.171	46.300	75.471	-7.394	5.046	3.256
	5.000	0.100	97.521	44.996	46.121	75.470	-7.394	5.037	3.250
	4.800	0.300	92.605	42.728	43.796	75.465	-7.386	4.925	3.171
	4.600	0.500	87.730	40.479	41.491	75.460	-7.378	4.813	3.088
	4.400	0.700	82.900	38.250	39.206	75.454	-7.369	4.700	3.001
	4.200	0.900	78.119	36.044	36.945	75.448	-7.360	4.586	2.907
	4.000	1.100	73.393	33.863	34.710	75.440	-7.351	4.473	2.806
	3.800	1.300	68.729	31.712	32.504	75.433	-7.341	4.359	2.697
	3.600	1.500	64.137	29.593	30.332	75.424	-7.331	4.245	2.581
	3.400	1.700	59.622	27.510	28.197	75.415	-7.321	4.131	2.459
	3.200	1.900	55.192	25.465	26.102	75.406	-7.310	4.017	2.335
	3.000	2.100	50.852	23.463	24.050	75.396	-7.299	3.903	2.208
	2.800	2.300	46.607	21.505	22.042	75.386	-7.288	3.790	2.079
	2.600	2.500	42.462	19.592	20.082	75.375	-7.277	3.676	1.951
	2.400	2.700	38.421	17.727	18.170	75.363	-7.265	3.563	1.824
	2.200	2.900	34.485	15.911	16.309	75.350	-7.253	3.451	1.700
	2.000	3.100	30.658	14.146	14.499	75.337	-7.240	3.338	1.580
	1.800	3.300	26.941	12.431	12.741	75.322	-7.227	3.226	1.465
	1.600	3.500	23.339	10.769	11.038	75.305	-7.214	3.114	1.350
	1.400	3.700	19.859	9.163	9.392	75.287	-7.200	3.003	1.235
	1.200	3.900	16.511	7.618	7.809	75.267	-7.185	2.892	1.116
	1.000	4.100	13.310	6.141	6.295	75.245	-7.169	2.781	0.996
	0.800	4.300	10.268	4.738	4.856	75.220	-7.153	2.672	0.875
	0.600	4.500	7.398	3.414	3.499	75.192	-7.136	2.563	0.758
	0.400	4.700	4.717	2.176	2.231	75.159	-7.118	2.457	0.642
	0.200	4.900	2.242	1.035	1.060	75.121	-7.100	2.352	0.528
	0.092	5.008	1.000	0.461	0.473	75.098	-7.089	2.296	0.467
	0.000	5.100	0.000	0.000	0.000	75.076	-7.081	2.250	0.000

– TK. 13

Fluid Type = VOID SPACE Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 13	5.100	0.000	100.000	46.140	47.293	75.472	7.397	5.093	0.000
	5.019	0.081	98.000	45.217	46.348	75.471	7.394	5.048	3.257
	5.015	0.085	97.900	45.171	46.300	75.471	7.394	5.046	3.256
	5.000	0.100	97.521	44.996	46.121	75.470	7.394	5.037	3.250
	4.800	0.300	92.605	42.728	43.796	75.465	7.386	4.925	3.171
	4.600	0.500	87.730	40.479	41.491	75.460	7.378	4.813	3.088
	4.400	0.700	82.900	38.250	39.206	75.454	7.369	4.700	3.001
	4.200	0.900	78.119	36.044	36.945	75.448	7.360	4.586	2.907
	4.000	1.100	73.393	33.863	34.710	75.440	7.351	4.473	2.806
	3.800	1.300	68.729	31.712	32.504	75.433	7.341	4.359	2.697
	3.600	1.500	64.137	29.593	30.332	75.424	7.331	4.245	2.581
	3.400	1.700	59.622	27.510	28.197	75.415	7.321	4.131	2.459
	3.200	1.900	55.192	25.465	26.102	75.406	7.310	4.017	2.335
	3.000	2.100	50.852	23.463	24.050	75.396	7.299	3.903	2.208
	2.800	2.300	46.607	21.505	22.042	75.386	7.288	3.790	2.079
	2.600	2.500	42.462	19.592	20.082	75.375	7.277	3.676	1.951
	2.400	2.700	38.421	17.727	18.170	75.363	7.265	3.563	1.824
	2.200	2.900	34.485	15.911	16.309	75.350	7.253	3.451	1.700
	2.000	3.100	30.658	14.146	14.499	75.337	7.240	3.338	1.580
	1.800	3.300	26.941	12.431	12.741	75.322	7.227	3.226	1.465
	1.600	3.500	23.339	10.769	11.038	75.305	7.214	3.114	1.350
	1.400	3.700	19.859	9.163	9.392	75.287	7.200	3.003	1.235
	1.200	3.900	16.511	7.618	7.809	75.267	7.185	2.892	1.116
	1.000	4.100	13.310	6.141	6.295	75.245	7.169	2.781	0.996
	0.800	4.300	10.268	4.738	4.856	75.220	7.153	2.672	0.875
	0.600	4.500	7.398	3.414	3.499	75.192	7.136	2.563	0.758
	0.400	4.700	4.717	2.176	2.231	75.159	7.118	2.457	0.642
	0.200	4.900	2.242	1.035	1.060	75.121	7.100	2.352	0.528
	0.092	5.008	1.000	0.461	0.473	75.098	7.089	2.296	0.467
	0.000	5.100	0.000	0.000	0.000	75.076	7.081	2.250	0.000

– TK. 15 SB

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 15 SB	2.250	0.000	100.000	110.070	110.070	67.778	3.391	1.064	0.000
	2.200	0.050	99.945	110.009	110.009	67.775	3.391	1.063	7.751
	2.100	0.150	99.551	109.576	109.576	67.758	3.392	1.059	26.466
	2.000	0.250	98.750	108.694	108.694	67.724	3.391	1.051	47.773
	1.900	0.350	97.513	107.332	107.332	67.676	3.390	1.040	63.553
	1.800	0.450	95.836	105.486	105.486	67.615	3.388	1.026	89.797
	1.700	0.550	91.450	100.659	100.659	67.580	3.369	0.991	368.717
	1.600	0.650	84.681	93.208	93.208	67.582	3.332	0.939	368.662
	1.500	0.750	77.914	85.760	85.760	67.584	3.288	0.886	367.615
	1.400	0.850	71.158	78.323	78.323	67.586	3.237	0.832	364.915
	1.300	0.950	64.423	70.910	70.910	67.590	3.177	0.778	360.142
	1.200	1.050	57.725	63.537	63.537	67.595	3.105	0.723	352.845
	1.100	1.150	51.082	56.226	56.226	67.601	3.020	0.668	341.663
	1.000	1.250	44.531	49.016	49.016	67.608	2.918	0.612	323.157
	0.900	1.350	38.112	41.950	41.950	67.615	2.798	0.554	301.378
	0.800	1.450	31.854	35.062	35.062	67.623	2.652	0.496	276.560
	0.700	1.550	25.792	28.390	28.390	67.634	2.469	0.437	247.979
	0.600	1.650	19.993	22.006	22.006	67.648	2.234	0.375	209.673
	0.500	1.750	14.624	16.097	16.097	67.665	1.939	0.310	150.800
	0.400	1.850	9.992	10.999	10.999	67.678	1.620	0.244	86.889
	0.300	1.950	6.228	6.856	6.856	67.685	1.309	0.179	43.176
	0.200	2.050	3.331	3.666	3.666	67.688	1.012	0.116	17.721
	0.100	2.150	1.269	1.397	1.397	67.685	0.739	0.055	5.353
	0.000	2.250	0.000	0.000	0.000	67.670	0.500	0.000	0.000

– TK. 15 PS

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 15 PS	2.216	0.000	100.000	86.728	86.728	67.760	-4.128	1.101	0.000
	2.100	0.116	99.724	86.488	86.488	67.747	-4.128	1.098	10.385
	2.000	0.216	99.047	85.901	85.901	67.719	-4.129	1.092	21.377
	1.900	0.316	97.928	84.930	84.930	67.674	-4.129	1.082	29.728
	1.800	0.416	96.351	83.563	83.563	67.614	-4.129	1.069	43.962
	1.700	0.516	93.515	81.103	81.103	67.555	-4.122	1.047	211.216
	1.600	0.616	86.395	74.928	74.928	67.556	-4.092	0.995	211.216
	1.500	0.716	79.276	68.754	68.754	67.558	-4.056	0.942	210.825
	1.400	0.816	72.167	62.589	62.589	67.561	-4.013	0.889	209.365
	1.300	0.916	65.080	56.442	56.442	67.564	-3.963	0.835	206.570
	1.200	1.016	58.032	50.330	50.330	67.569	-3.903	0.780	202.154
	1.100	1.116	51.045	44.270	44.270	67.575	-3.830	0.725	195.571
	1.000	1.216	44.156	38.296	38.296	67.583	-3.744	0.669	184.512
	0.900	1.316	37.421	32.454	32.454	67.591	-3.641	0.612	170.286
	0.800	1.416	30.876	26.778	26.778	67.600	-3.516	0.555	154.365
	0.700	1.516	24.564	21.304	21.304	67.612	-3.359	0.496	136.572
	0.600	1.616	18.548	16.086	16.086	67.629	-3.153	0.434	114.478
	0.500	1.716	12.983	11.259	11.259	67.653	-2.879	0.370	82.888
	0.400	1.816	8.224	7.132	7.132	67.677	-2.556	0.303	43.563
	0.300	1.916	4.544	3.941	3.941	67.697	-2.228	0.236	17.499
	0.200	2.016	1.970	1.709	1.709	67.717	-1.907	0.168	4.788
	0.100	2.116	0.473	0.411	0.411	67.748	-1.599	0.101	0.536
	0.000	2.216	0.000	0.000	0.000	70.441	-0.874	0.034	0.000

– TK. 16

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 16	5.600	0.000	100.000	57.956	57.956	67.885	-8.185	4.983	0.000
	5.519	0.081	98.000	56.796	56.796	67.885	-8.182	4.936	4.020
	5.515	0.085	97.900	56.738	56.738	67.885	-8.181	4.933	4.017
	5.500	0.100	97.545	56.533	56.533	67.884	-8.181	4.925	4.006
	5.250	0.350	91.504	53.032	53.032	67.882	-8.171	4.780	3.822
	5.000	0.600	85.596	49.608	49.608	67.880	-8.161	4.635	3.650
	4.750	0.850	79.815	46.258	46.258	67.876	-8.151	4.491	3.489
	4.500	1.100	74.158	42.979	42.979	67.873	-8.141	4.347	3.338
	4.250	1.350	68.620	39.769	39.769	67.868	-8.131	4.204	3.195
	4.000	1.600	63.198	36.627	36.627	67.862	-8.120	4.060	3.060
	3.750	1.850	57.893	33.552	33.552	67.855	-8.109	3.917	2.931
	3.500	2.100	52.703	30.544	30.544	67.847	-8.098	3.773	2.805
	3.250	2.350	47.634	27.607	27.607	67.836	-8.086	3.629	2.677
	3.000	2.600	42.700	24.747	24.747	67.824	-8.073	3.485	2.543
	2.750	2.850	37.917	21.975	21.975	67.810	-8.061	3.341	2.403
	2.500	3.100	33.297	19.297	19.297	67.793	-8.048	3.197	2.261
	2.250	3.350	28.846	16.718	16.718	67.772	-8.035	3.054	2.122
	2.000	3.600	24.566	14.237	14.237	67.744	-8.021	2.911	1.983
	1.750	3.850	20.467	11.862	11.862	67.706	-8.008	2.768	1.844
	1.500	4.100	16.566	9.601	9.601	67.652	-7.995	2.624	1.704
	1.250	4.350	12.884	7.467	7.467	67.571	-7.984	2.481	1.560
	1.000	4.600	9.449	5.476	5.476	67.441	-7.977	2.337	1.409
	0.750	4.850	6.294	3.648	3.648	67.197	-7.982	2.192	1.252
	0.500	5.100	3.451	2.000	2.000	66.601	-8.028	2.039	1.086
	0.250	5.350	1.323	0.767	0.767	65.686	-8.073	1.877	0.189
	0.198	5.402	1.000	0.580	0.580	65.546	-8.098	1.853	0.178
	0.000	5.600	0.000	0.000	0.000	65.149	-8.105	1.750	0.000

– TK. 17

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 17	5.600	0.000	100.000	57.956	57.956	67.885	8.185	4.983	0.000
	5.519	0.081	98.000	56.796	56.796	67.885	8.182	4.936	4.020
	5.515	0.085	97.900	56.738	56.738	67.885	8.181	4.933	4.017
	5.500	0.100	97.545	56.533	56.533	67.884	8.181	4.925	4.006
	5.250	0.350	91.504	53.032	53.032	67.882	8.171	4.780	3.822
	5.000	0.600	85.596	49.608	49.608	67.880	8.161	4.635	3.650
	4.750	0.850	79.815	46.258	46.258	67.876	8.151	4.491	3.489
	4.500	1.100	74.158	42.979	42.979	67.873	8.141	4.347	3.338
	4.250	1.350	68.620	39.769	39.769	67.868	8.131	4.204	3.195
	4.000	1.600	63.198	36.627	36.627	67.862	8.120	4.060	3.060
	3.750	1.850	57.893	33.552	33.552	67.855	8.109	3.917	2.931
	3.500	2.100	52.703	30.544	30.544	67.847	8.098	3.773	2.805
	3.250	2.350	47.634	27.607	27.607	67.836	8.086	3.629	2.677
	3.000	2.600	42.700	24.747	24.747	67.824	8.073	3.485	2.543
	2.750	2.850	37.917	21.975	21.975	67.810	8.061	3.341	2.403
	2.500	3.100	33.297	19.297	19.297	67.793	8.048	3.197	2.261
	2.250	3.350	28.846	16.718	16.718	67.772	8.035	3.054	2.122
	2.000	3.600	24.566	14.237	14.237	67.744	8.021	2.911	1.983
	1.750	3.850	20.467	11.862	11.862	67.706	8.008	2.768	1.844
	1.500	4.100	16.566	9.601	9.601	67.652	7.995	2.624	1.704
	1.250	4.350	12.884	7.467	7.467	67.571	7.984	2.481	1.560
	1.000	4.600	9.449	5.476	5.476	67.441	7.977	2.337	1.409
	0.750	4.850	6.294	3.648	3.648	67.197	7.982	2.192	1.252
	0.500	5.100	3.451	2.000	2.000	66.601	8.028	2.039	1.086
	0.250	5.350	1.323	0.767	0.767	65.686	8.073	1.877	0.189
	0.198	5.402	1.000	0.580	0.580	65.546	8.098	1.853	0.178
	0.000	5.600	0.000	0.000	0.000	65.149	8.105	1.750	0.000

– TK. 19 SB

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 19 SB	1.750	0.000	100.000	116.554	116.554	57.578	3.542	1.014	0.000
	1.700	0.050	96.507	112.482	112.482	57.578	3.529	0.989	416.042
	1.600	0.150	89.520	104.339	104.339	57.576	3.499	0.937	416.042
	1.500	0.250	82.533	96.196	96.196	57.574	3.463	0.885	416.042
	1.400	0.350	75.547	88.052	88.052	57.571	3.422	0.833	416.042
	1.300	0.450	68.560	79.909	79.909	57.568	3.371	0.780	416.042
	1.200	0.550	61.573	71.766	71.766	57.565	3.310	0.727	416.042
	1.100	0.650	54.587	63.623	63.623	57.560	3.232	0.673	416.042
	1.000	0.750	47.600	55.480	55.480	57.555	3.132	0.617	415.736
	0.900	0.850	40.636	47.363	47.363	57.549	3.000	0.560	405.412
	0.800	0.950	33.786	39.379	39.379	57.547	2.830	0.501	376.055
	0.700	1.050	27.170	31.667	31.667	57.548	2.615	0.441	331.050
	0.600	1.150	20.885	24.342	24.342	57.547	2.342	0.377	272.760
	0.500	1.250	15.150	17.657	17.657	57.546	2.010	0.312	186.026
	0.400	1.350	10.279	11.981	11.981	57.545	1.665	0.246	103.481
	0.300	1.450	6.366	7.420	7.420	57.547	1.333	0.180	49.841
	0.200	1.550	3.383	3.943	3.943	57.557	1.022	0.116	19.920
	0.100	1.650	1.282	1.495	1.495	57.576	0.741	0.055	5.774
	0.000	1.750	0.000	0.000	0.000	57.600	0.500	0.000	0.000

- TK.19 PS

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 19 PS	1.717	0.000	100.000	93.157	93.157	57.572	-4.298	1.051	0.000
	1.700	0.017	98.755	91.998	91.998	57.572	-4.294	1.042	245.220
	1.600	0.117	91.426	85.170	85.170	57.569	-4.270	0.991	245.220
	1.500	0.217	84.097	78.342	78.342	57.567	-4.242	0.939	245.220
	1.400	0.317	76.768	71.515	71.515	57.564	-4.208	0.887	245.220
	1.300	0.417	69.439	64.687	64.687	57.560	-4.168	0.835	245.220
	1.200	0.517	62.110	57.860	57.860	57.555	-4.118	0.782	245.220
	1.100	0.617	54.781	51.032	51.032	57.549	-4.054	0.728	245.220
	1.000	0.717	47.452	44.205	44.205	57.541	-3.971	0.673	245.141
	0.900	0.817	40.143	37.396	37.396	57.532	-3.860	0.617	239.296
	0.800	0.917	32.956	30.701	30.701	57.528	-3.714	0.559	221.892
	0.700	1.017	26.029	24.248	24.248	57.527	-3.527	0.499	192.846
	0.600	1.117	19.474	18.141	18.141	57.523	-3.284	0.436	157.873
	0.500	1.217	13.486	12.563	12.563	57.516	-2.968	0.371	107.999
	0.400	1.317	8.470	7.890	7.890	57.506	-2.613	0.303	54.320
	0.300	1.417	4.642	4.324	4.324	57.491	-2.261	0.236	21.101
	0.200	1.517	1.994	1.858	1.858	57.476	-1.923	0.168	5.616
	0.100	1.617	0.470	0.438	0.438	57.464	-1.601	0.101	0.594
	0.000	1.717	0.000	0.000	0.000	52.493	-1.062	0.033	0.000

– TK. 23 SB

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 23 SB	1.750	0.000	100.000	109.511	109.511	47.464	3.569	1.009	0.000
	1.721	0.029	98.000	107.320	107.320	47.464	3.561	0.995	393.978
	1.720	0.030	97.900	107.211	107.211	47.464	3.561	0.994	393.978
	1.700	0.050	96.519	105.699	105.699	47.465	3.556	0.984	393.978
	1.600	0.150	89.558	98.075	98.075	47.467	3.526	0.932	393.978
	1.500	0.250	82.597	90.452	90.452	47.469	3.491	0.881	393.978
	1.400	0.350	75.635	82.828	82.828	47.471	3.449	0.829	393.978
	1.300	0.450	68.674	75.205	75.205	47.474	3.399	0.776	393.978
	1.200	0.550	61.712	67.582	67.582	47.478	3.338	0.723	393.978
	1.100	0.650	54.751	59.958	59.958	47.483	3.262	0.669	393.978
	1.000	0.750	47.790	52.335	52.335	47.489	3.163	0.614	393.927
	0.900	0.850	40.841	44.725	44.725	47.496	3.031	0.557	388.112
	0.800	0.950	33.972	37.202	37.202	47.499	2.857	0.498	364.776
	0.700	1.050	27.350	29.951	29.951	47.496	2.639	0.437	315.046
	0.600	1.150	21.121	23.130	23.130	47.485	2.372	0.375	251.603
	0.500	1.250	15.465	16.936	16.936	47.465	2.064	0.310	174.847
	0.400	1.350	10.585	11.591	11.591	47.446	1.737	0.246	102.515
	0.300	1.450	6.575	7.200	7.200	47.439	1.406	0.181	53.591
	0.200	1.550	3.457	3.786	3.786	47.446	1.068	0.117	21.856
	0.100	1.650	1.288	1.410	1.410	47.454	0.757	0.055	5.758
	0.082	1.668	1.000	1.095	1.095	47.454	0.707	0.045	4.367
	0.000	1.750	0.000	0.000	0.000	47.440	0.502	0.000	0.000

- TK. 23 PS

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 23 PS	1.718	0.000	100.000	87.369	87.369	47.470	-4.304	1.043	0.000
	1.700	0.018	98.704	86.237	86.237	47.470	-4.300	1.034	228.257
	1.690	0.027	98.000	85.622	85.622	47.470	-4.298	1.029	228.257
	1.689	0.029	97.900	85.535	85.535	47.470	-4.297	1.028	228.257
	1.600	0.118	91.430	79.882	79.882	47.472	-4.276	0.983	228.257
	1.500	0.218	84.156	73.527	73.527	47.475	-4.249	0.932	228.257
	1.400	0.318	76.882	67.171	67.171	47.478	-4.216	0.880	228.257
	1.300	0.418	69.608	60.816	60.816	47.482	-4.177	0.828	228.257
	1.200	0.518	62.334	54.461	54.461	47.487	-4.128	0.775	228.257
	1.100	0.618	55.060	48.105	48.105	47.493	-4.067	0.722	228.257
	1.000	0.718	47.786	41.750	41.750	47.502	-3.987	0.668	228.257
	0.900	0.818	40.517	35.400	35.400	47.512	-3.878	0.612	226.324
	0.800	0.918	33.311	29.104	29.104	47.520	-3.730	0.553	216.418
	0.700	1.018	26.338	23.011	23.011	47.520	-3.535	0.493	186.089
	0.600	1.118	19.803	17.302	17.302	47.513	-3.292	0.431	146.974
	0.500	1.218	13.905	12.149	12.149	47.490	-2.997	0.366	99.525
	0.400	1.318	8.903	7.779	7.779	47.458	-2.669	0.300	53.497
	0.300	1.418	4.980	4.351	4.351	47.440	-2.335	0.234	23.009
	0.200	1.518	2.154	1.882	1.882	47.443	-1.983	0.168	6.742
	0.139	1.579	1.000	0.874	0.874	47.467	-1.760	0.127	2.123
	0.100	1.618	0.498	0.435	0.435	47.494	-1.621	0.100	0.674
	0.000	1.718	0.000	0.000	0.000	42.705	-1.166	0.032	0.000

– TK. 26

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 26	1.718	0.000	100.000	91.023	91.023	37.180	-4.099	1.084	0.000
	1.700	0.018	98.521	89.676	89.676	37.182	-4.092	1.074	263.960
	1.600	0.118	90.448	82.328	82.328	37.198	-4.048	1.020	263.053
	1.500	0.218	82.392	74.995	74.995	37.216	-3.995	0.965	260.709
	1.400	0.318	74.372	67.696	67.696	37.236	-3.933	0.909	256.444
	1.300	0.418	66.416	60.454	60.454	37.256	-3.860	0.853	249.627
	1.200	0.518	58.558	53.302	53.302	37.277	-3.773	0.795	239.829
	1.100	0.618	50.847	46.282	46.282	37.295	-3.670	0.737	225.799
	1.000	0.718	43.352	39.460	39.460	37.311	-3.549	0.677	205.262
	0.900	0.818	36.173	32.926	32.926	37.324	-3.411	0.616	177.435
	0.800	0.918	29.402	26.763	26.763	37.337	-3.257	0.555	146.595
	0.700	1.018	23.121	21.045	21.045	37.348	-3.086	0.494	115.103
	0.600	1.118	17.389	15.828	15.828	37.360	-2.896	0.431	85.134
	0.500	1.218	12.272	11.171	11.171	37.382	-2.681	0.368	57.728
	0.400	1.318	7.865	7.159	7.159	37.431	-2.435	0.304	33.858
	0.300	1.418	4.320	3.932	3.932	37.535	-2.159	0.238	15.356
	0.200	1.518	1.783	1.623	1.623	37.767	-1.857	0.170	4.399
	0.100	1.618	0.377	0.343	0.343	38.301	-1.567	0.101	0.459
	0.000	1.718	0.000	0.000	0.000	42.291	-0.874	0.032	0.000

– TK. 27

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 27	1.750	0.000	100.000	116.619	116.619	37.141	3.343	1.039	0.000
	1.700	0.050	96.219	112.209	112.209	37.146	3.320	1.012	455.377
	1.600	0.150	88.663	103.397	103.397	37.158	3.267	0.957	453.513
	1.500	0.250	81.124	94.606	94.606	37.172	3.206	0.902	449.284
	1.400	0.350	73.620	85.854	85.854	37.185	3.135	0.847	441.918
	1.300	0.450	66.173	77.170	77.170	37.199	3.051	0.790	430.587
	1.200	0.550	58.813	68.587	68.587	37.212	2.953	0.732	414.296
	1.100	0.650	51.582	60.155	60.155	37.221	2.838	0.674	390.647
	1.000	0.750	44.543	51.946	51.946	37.228	2.705	0.614	355.834
	0.900	0.850	37.776	44.054	44.054	37.232	2.556	0.554	312.169
	0.800	0.950	31.348	36.558	36.558	37.234	2.391	0.493	263.794
	0.700	1.050	25.318	29.526	29.526	37.232	2.208	0.432	214.438
	0.600	1.150	19.732	23.012	23.012	37.230	2.004	0.370	166.393
	0.500	1.250	14.646	17.080	17.080	37.231	1.775	0.307	120.744
	0.400	1.350	10.147	11.833	11.833	37.239	1.517	0.244	77.915
	0.300	1.450	6.360	7.417	7.417	37.255	1.238	0.179	42.494
	0.200	1.550	3.394	3.958	3.958	37.267	0.952	0.115	17.589
	0.100	1.650	1.312	1.530	1.530	37.202	0.704	0.055	5.227
	0.000	1.750	0.000	0.000	0.000	37.015	0.499	0.000	0.000

– TK. 30

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 30	1.687	0.000	100.000	31.615	31.615	28.910	-3.566	1.100	0.000
	1.665	0.022	98.000	30.983	30.983	28.910	-3.550	1.087	96.598
	1.664	0.023	97.900	30.951	30.951	28.910	-3.549	1.087	96.534
	1.600	0.087	92.110	29.121	29.121	28.912	-3.503	1.048	92.704
	1.500	0.187	83.278	26.329	26.329	28.914	-3.427	0.989	86.323
	1.400	0.287	74.707	23.619	23.619	28.916	-3.345	0.929	79.493
	1.300	0.387	66.424	21.000	21.000	28.918	-3.258	0.868	72.370
	1.200	0.487	58.451	18.479	18.479	28.918	-3.164	0.808	65.102
	1.100	0.587	50.814	16.065	16.065	28.917	-3.064	0.747	57.650
	1.000	0.687	43.547	13.768	13.768	28.914	-2.956	0.686	49.855
	0.900	0.787	36.695	11.601	11.601	28.907	-2.843	0.625	41.700
	0.800	0.887	30.306	9.581	9.581	28.894	-2.725	0.565	33.310
	0.700	0.987	24.427	7.723	7.723	28.873	-2.608	0.505	25.050
	0.600	1.087	19.040	6.020	6.020	28.842	-2.491	0.446	18.439
	0.500	1.187	14.076	4.450	4.450	28.805	-2.364	0.387	13.137
	0.400	1.287	9.572	3.026	3.026	28.761	-2.219	0.327	8.420
	0.300	1.387	5.619	1.776	1.776	28.716	-2.041	0.266	4.504
	0.200	1.487	2.415	0.763	0.763	28.710	-1.793	0.200	1.529
	0.133	1.554	1.000	0.316	0.316	28.736	-1.613	0.154	0.369
	0.100	1.587	0.536	0.170	0.170	28.776	-1.530	0.132	0.138
	0.000	1.687	0.000	0.000	0.000	30.438	-1.091	0.063	0.000

– TK. 31

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TK. 31	1.750	0.000	100.000	44.397	44.397	28.818	2.728	1.037	0.000
	1.725	0.025	98.000	43.509	43.509	28.818	2.710	1.023	175.706
	1.724	0.026	97.900	43.465	43.465	28.818	2.709	1.022	175.592
	1.700	0.050	95.934	42.592	42.592	28.818	2.692	1.008	173.335
	1.600	0.150	87.923	39.035	39.035	28.817	2.618	0.949	163.597
	1.500	0.250	80.092	35.558	35.558	28.816	2.538	0.891	152.929
	1.400	0.350	72.458	32.169	32.169	28.814	2.454	0.832	141.627
	1.300	0.450	65.039	28.875	28.875	28.811	2.364	0.773	129.938
	1.200	0.550	57.852	25.685	25.685	28.807	2.268	0.714	117.849
	1.100	0.650	50.919	22.607	22.607	28.801	2.167	0.655	105.115
	1.000	0.750	44.269	19.654	19.654	28.793	2.059	0.595	91.595
	0.900	0.850	37.935	16.842	16.842	28.781	1.947	0.536	77.361
	0.800	0.950	31.955	14.187	14.187	28.765	1.834	0.477	62.685
	0.700	1.050	26.338	11.693	11.693	28.742	1.719	0.419	49.708
	0.600	1.150	21.035	9.339	9.339	28.716	1.595	0.361	39.723
	0.500	1.250	16.043	7.123	7.123	28.688	1.454	0.302	30.334
	0.400	1.350	11.415	5.068	5.068	28.658	1.285	0.242	21.566
	0.300	1.450	7.246	3.217	3.217	28.639	1.067	0.179	13.667
	0.200	1.550	3.865	1.716	1.716	28.636	0.820	0.115	5.413
	0.100	1.650	1.490	0.661	0.661	28.652	0.606	0.055	1.637
	0.073	1.677	1.000	0.444	0.444	28.662	0.554	0.039	1.105
	0.000	1.750	0.000	0.000	0.000	28.701	0.426	0.000	0.000

– TUNNEL

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
TUNNEL	1.85	0	100	143.964	143.964	64.268	-0.65	1.201	0
	1.8	0.05	98.802	142.239	142.239	64.006	-0.65	1.188	4.857
	1.767	0.083	98	141.085	141.085	63.828	-0.65	1.18	4.857
	1.762	0.088	97.9	140.941	140.941	63.806	-0.65	1.179	4.857
	1.7	0.15	96.406	138.791	138.791	63.465	-0.65	1.164	4.857
	1.6	0.25	94.011	135.342	135.342	62.896	-0.65	1.142	4.857
	1.5	0.35	91.615	131.893	131.893	62.296	-0.65	1.121	4.857
	1.4	0.45	89.219	128.444	128.444	61.665	-0.65	1.101	4.857
	1.3	0.55	84.673	121.898	121.898	61.311	-0.65	1.067	13.579
	1.2	0.65	77.975	112.256	112.256	61.253	-0.65	1.017	13.579
	1.1	0.75	71.278	102.614	102.614	61.184	-0.65	0.967	13.579
	1	0.85	64.58	92.972	92.972	61.101	-0.65	0.917	13.579
	0.9	0.95	57.883	83.33	83.33	60.999	-0.65	0.867	13.579
	0.8	1.05	51.185	73.688	73.688	60.870	-0.65	0.816	13.579
	0.7	1.15	44.487	64.046	64.046	60.702	-0.65	0.766	13.579
	0.6	1.25	37.79	54.404	54.404	60.475	-0.65	0.716	13.579
	0.5	1.35	31.092	44.762	44.762	60.150	-0.65	0.665	13.579
	0.4	1.45	24.395	35.119	35.119	59.646	-0.65	0.615	13.579
	0.3	1.55	17.697	25.477	25.477	58.760	-0.65	0.564	13.579
	0.2	1.65	10.999	15.835	15.835	56.797	-0.65	0.511	13.579
	0.1	1.75	4.302	6.193	6.193	48.720	-0.65	0.45	8.722
	0.023	1.827	1	1.44	1.44	48.720	-0.65	0.412	8.722
	0	1.85	0	0	0	48.720	-0.65	0.4	0

– FOREPEAK

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m ³	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
FOREPEAK	9.089	0.000	100.000	176.645	176.645	107.108	0.000	5.149	0.000
	9.000	0.089	98.291	173.627	173.627	107.118	0.000	5.081	111.164
	8.500	0.589	89.832	158.684	158.684	107.184	0.000	4.734	68.086
	8.000	1.089	83.185	146.941	146.941	107.262	0.000	4.451	38.273
	7.500	1.589	77.979	137.746	137.746	107.340	0.000	4.230	18.334
	7.000	2.089	73.837	130.429	130.429	107.407	0.000	4.059	13.211
	6.500	2.589	69.009	121.901	121.901	107.456	0.000	3.871	16.045
	6.000	3.089	63.127	111.511	111.511	107.476	0.000	3.649	19.367
	5.500	3.589	56.451	99.718	99.718	107.466	0.000	3.400	21.743
	5.000	4.089	49.389	87.242	87.242	107.434	0.000	3.134	22.425
	4.500	4.589	42.227	74.591	74.591	107.384	0.000	2.858	22.336
	4.000	5.089	35.072	61.952	61.952	107.313	0.000	2.572	21.651
	3.500	5.589	28.086	49.612	49.612	107.216	0.000	2.276	19.719
	3.000	6.089	21.484	37.951	37.951	107.091	0.000	1.972	16.701
	2.500	6.589	15.468	27.324	27.324	106.938	0.000	1.664	13.117
	2.000	7.089	10.178	17.979	17.979	106.746	0.000	1.350	9.487
	1.500	7.589	5.757	10.169	10.169	106.487	0.000	1.028	5.671
	1.000	8.089	2.480	4.382	4.382	106.121	0.000	0.699	2.425
	0.500	8.589	0.530	0.935	0.935	105.551	0.000	0.360	0.444
	0.000	9.089	0.000	0.000	0.000	104.136	0.000	0.011	0.000

– AFTPEAK

Fluid Type = Fresh Water Specific gravity = 1

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
AFTPEAK	7.800	0.000	100.000	196.720	196.720	5.114	0.159	6.107	0.000
	7.761	0.039	98.000	192.786	192.786	5.133	0.150	6.073	1299.655
	7.759	0.041	97.900	192.589	192.589	5.134	0.150	6.071	1298.922
	7.500	0.300	84.770	166.759	166.759	5.280	0.094	5.830	1199.484
	7.000	0.800	61.255	120.500	120.500	5.658	0.019	5.282	803.106
	6.500	1.300	42.247	83.109	83.109	6.142	0.000	4.616	414.063
	6.000	1.800	29.622	58.272	58.272	6.536	0.000	3.904	146.808
	5.500	2.300	22.956	45.160	45.160	6.638	0.000	3.346	48.725
	5.000	2.800	18.812	37.007	37.007	6.648	0.000	2.926	20.454
	4.500	3.300	15.790	31.061	31.061	6.633	0.000	2.578	10.612
	4.000	3.800	13.393	26.347	26.347	6.602	0.000	2.279	6.409
	3.500	4.300	11.344	22.316	22.316	6.561	0.000	2.014	4.429
	3.000	4.800	9.433	18.556	18.556	6.524	0.000	1.765	3.409
	2.500	5.300	7.459	14.673	14.673	6.533	0.000	1.507	2.925
	2.000	5.800	5.463	10.747	10.747	6.591	0.000	1.240	2.740
	1.500	6.300	3.490	6.865	6.865	6.710	0.000	0.948	2.548
	1.000	6.800	1.755	3.452	3.452	6.874	0.000	0.642	1.742
	0.729	7.071	1.000	1.967	1.967	6.991	0.000	0.474	1.091
	0.500	7.300	0.506	0.995	0.995	7.104	0.000	0.327	0.587
	0.000	7.800	0.000	0.000	0.000	8.010	0.000	0.000	0.000

– SILO

Fluid Type = SILO

Specific gravity = 0.65

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
SILO	18.410	0.000	100.000	1197.895	778.632	64.115	0.000	11.655	0.000
	18.000	0.410	97.773	1171.217	761.291	64.115	0.000	11.450	268.734
	17.500	0.910	95.057	1138.683	740.144	64.115	0.000	11.200	268.734
	17.000	1.410	92.341	1106.149	718.997	64.115	0.000	10.950	268.734
	16.500	1.910	89.625	1073.616	697.850	64.115	0.000	10.700	268.734
	16.000	2.410	86.909	1041.082	676.703	64.115	0.000	10.450	268.734
	15.500	2.910	84.193	1008.548	655.556	64.115	0.000	10.200	268.734
	15.000	3.410	81.477	976.014	634.409	64.115	0.000	9.950	268.734
	14.500	3.910	78.762	943.480	613.262	64.115	0.000	9.700	268.734
	14.000	4.410	76.046	910.947	592.115	64.115	0.000	9.450	268.734
	13.500	4.910	73.330	878.413	570.968	64.115	0.000	9.200	268.734
	13.000	5.410	70.614	845.879	549.821	64.115	0.000	8.950	268.734
	12.500	5.910	67.898	813.345	528.674	64.115	0.000	8.700	268.734
	12.000	6.410	65.182	780.811	507.527	64.115	0.000	8.450	268.734
	11.500	6.910	62.466	748.278	486.380	64.115	0.000	8.200	268.734
	11.000	7.410	59.750	715.744	465.233	64.115	0.000	7.950	268.734
	10.500	7.910	57.034	683.210	444.086	64.115	0.000	7.700	268.734
	10.000	8.410	54.318	650.676	422.939	64.115	0.000	7.450	268.734
	9.500	8.910	51.602	618.142	401.792	64.115	0.000	7.200	268.734
	9.000	9.410	48.886	585.609	380.646	64.115	0.000	6.950	268.734
	8.500	9.910	46.171	553.075	359.499	64.115	0.000	6.700	268.734
	8.000	10.410	43.455	520.541	338.352	64.115	0.000	6.450	268.734
	7.500	10.910	40.739	488.007	317.205	64.115	0.000	6.200	268.734
	7.000	11.410	38.023	455.473	296.058	64.115	0.000	5.950	268.734
	6.500	11.910	35.307	422.939	274.911	64.115	0.000	5.700	268.734
	6.000	12.410	32.591	390.406	253.764	64.115	0.000	5.450	268.734
	5.500	12.910	29.875	357.872	232.617	64.115	0.000	5.200	268.734
	5.000	13.410	27.159	325.338	211.470	64.115	0.000	4.950	268.734
	4.500	13.910	24.443	292.804	190.323	64.115	0.000	4.700	268.734
	4.000	14.410	21.727	260.270	169.176	64.115	0.000	4.450	268.734
	3.500	14.910	19.011	227.737	148.029	64.115	0.000	4.200	268.734
	3.000	15.410	16.295	195.203	126.882	64.115	0.000	3.950	268.734
	2.500	15.910	13.580	162.669	105.735	64.115	0.000	3.700	268.734
	2.000	16.410	10.864	130.135	84.588	64.115	0.000	3.450	268.734
	1.500	16.910	8.148	97.601	63.441	64.115	0.000	3.200	268.734
	1.000	17.410	5.432	65.068	42.294	64.115	0.000	2.950	268.734
	0.500	17.910	2.716	32.534	21.147	64.115	0.000	2.700	268.734
	0.000	18.410	0.000	0.000	0.000	64.115	0.000	2.450	0.000

INCLINING TEST REPORT

VESSEL PARTICULARS

NAME	OSAMA BEY		
TYPE	LIVESTOCK CARRIER		
BUILDER	DETLEF HEGEMANN ROLANDWERFT GMBH & CO. KG, BERNE		
OWNERS	ALBANYASIA LIVESTOCK SHIPPING LINE		
PORT OF REGISTRY	BASSETERRE		
CLASSIFICATION SOCIETY	CRS		
DIMENSIONS	L.O.A.	118.02	m
	L.B.P.	110.04	m
	BEAM	19.40	m
	DEPTH AMIDSHIP:	9.45	m
	DRAFT	7.60	m
STATUS OF VESSEL	Completed		

INCLINING CONDITIONS

PLACE	ALEX - EGYPT
DATE	18 NOV 2025
WEATHER CONDITIONS	SUNNY
WIND STRENGTH	BREEZE
SPECIFIC GRAVITY OF WATER (t/m³)	1.025
SEA TEMPERATURE (C°)	27° C
WATER DEPTH (m)	10 m
NO. OF PERSONS ONBOARD	---

PERSONS IN ATTENDANCE

NAME	COMPANY / AUTHORITY
Eng. Khaled kassem	(Infinity Marine Consultants Office)
Eng. Mohamed sami	(Infinity Marine Consultants Office)
Eng. Youssef AboGhaly	(Infinity Marine Consultants Office)
Dr. Waleed Yehia	(Class Representative)
Mr. Khaled Yassein	(Owner)
Eng. Ammar	(Chief Eng.)

INCLINING WEIGHTS:

GROUP	Weight (kg)		Center of Weight (m)		
			LCG (m)	TCG (m)	VCG (m)
A	15000		68.00	-8.30	19.600
B	14000		63.00	8.30	19.600
C	4000		58.00	-8.05	19.300
D	4000		53.00	8.05	19.300

PENDULUMS:

INCLINATOR	Length (meters)		LOCATION		
			LCG (m)	TCG (m)	VCG (m)
PENDULUM AFT	1.75		16.10	0	10.02
PENDULUM FORE	1.65		102.00	0	9.67

OBSERVED DRAFTS

Draught Reading as Surveyed:		
Draught Mark Location	T_F	T_A
Port (m)	4.58	6.10
Starboard (m)	4.58	6.10
Mean (m)	4.58	6.10
Mean draught	=	$(T_F + T_A) / 2$
	=	<u>5.34</u> m (Ext)

FROM TABLE OF HYDROSTATIC PROPERTIES (SG = 1.025)

Extreme Displacement	=	6741	TONNES
Longitudinal Centre of Buoyancy, LCB	=	56.087	M
Vertical Centre of Buoyancy, K'B	=	3.004	M
KM _T (as Inclined)	=	8.274	M

LCG CALCULATION

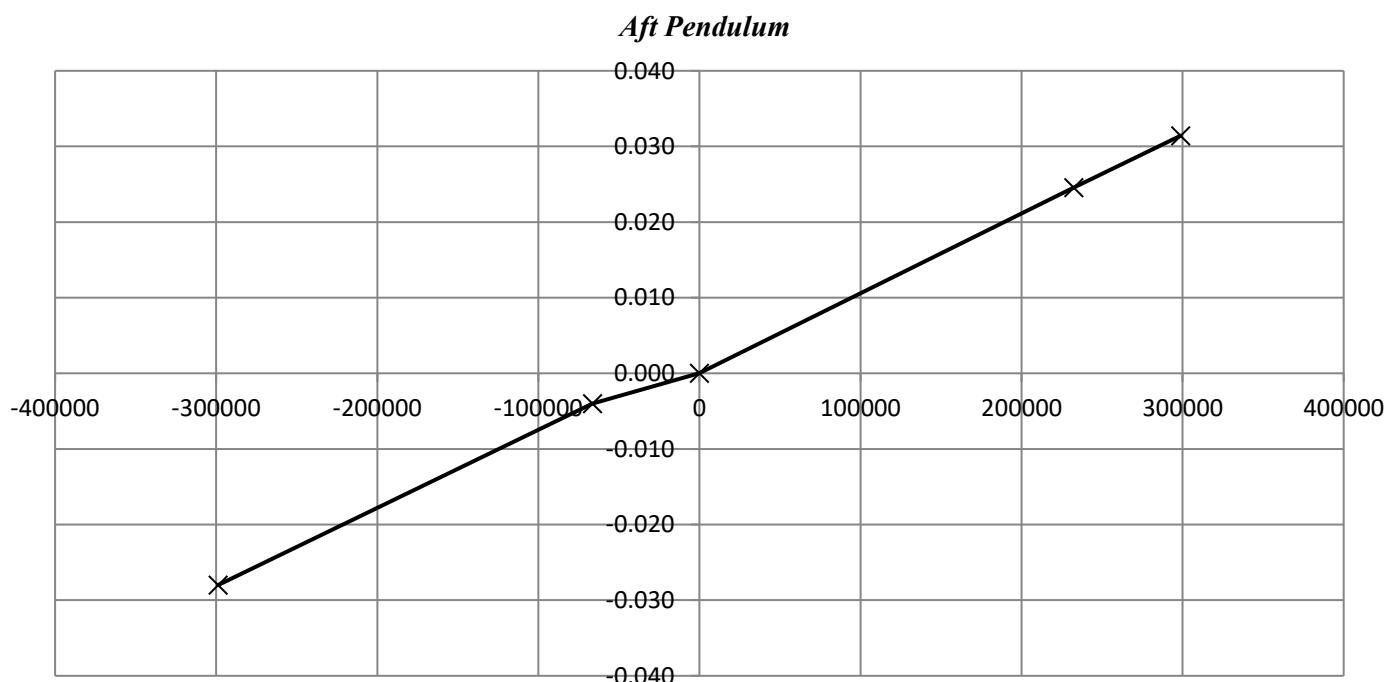
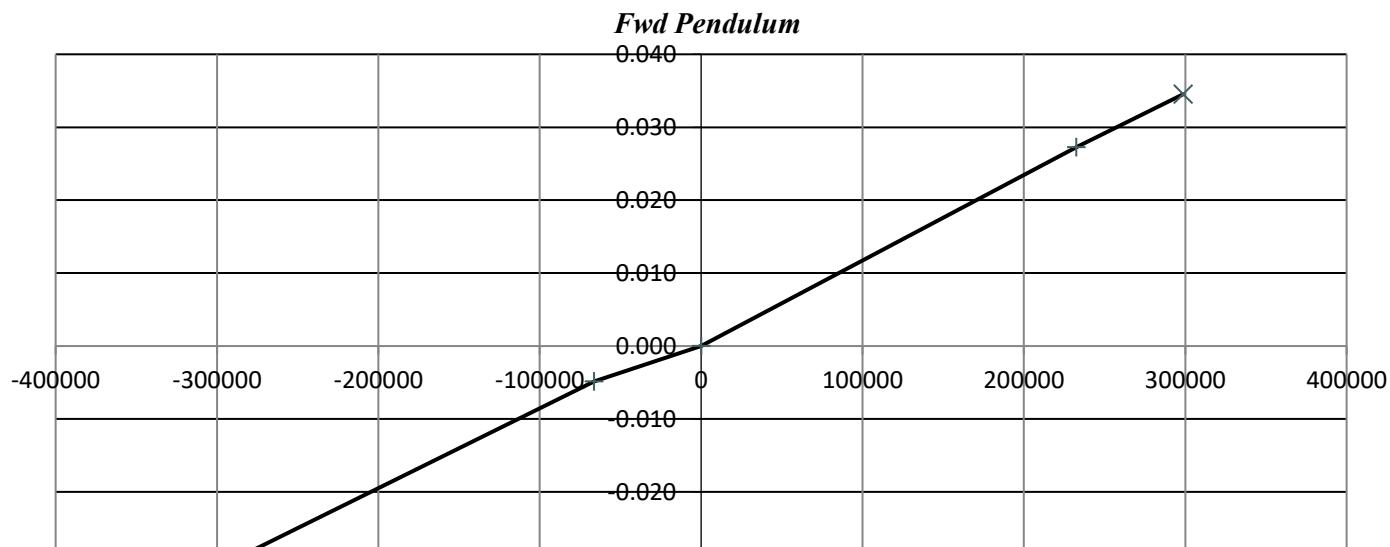
$$\text{LCG} = \text{LCB} + [(\text{MCTC} \times 100 \times \text{Trim}) / \Delta] = 56.571 \text{ M}$$

MOVEMENT OF WEIGHTS:

Shift No.	Weight Distribution (kg)		Weight Shifted (kg)		Transv. Spread	Pendulum Defln (mm)		Angle (degree)	
	Port	STBD	Port	STBD		(m)	Fwd	Aft	Fwd
	Port	STBD	Port	STBD	(m)	Fwd	Aft	Fwd	Aft
0	19000	18000	A C	B D	0.00	0.00	0.00	0.000	0.000
1	33000	4000	C	A B D	-16.60	-42.00	-40.00	-1.458	-1.309
2	37000	0	-	A B C D	-16.10	-50.00	-49.00	-1.736	-1.604
3	22000	15000	C	A B D	-16.60	-8.00	-7.00	-0.278	-0.229
4	18000	19000	A C	B D	0.00	0.00	0.00	0.000	0.000
5	4000	33000	A B C	D	16.60	45.00	43.00	1.562	1.408
6	0	37000	A B C D	-	16.10	57.00	55.00	1.979	1.800
7	15000	22000	A B C	D	16.60	11.00	10.00	0.382	0.327
8	19000	18000	A C	B D	0.00	0.00	0.00	0.000	0.000

Shift no.	Weight Shifted (kg)	Trans. Spread (m)	Heeling Moment (kg.m)	Δ (kg)	Tan Ø		GM	
					Fwd	Aft	Fwd	Aft
1	14000.00	-16.60	-232400.00	6741000.00	-0.0255	-0.0229	1.35	1.51
2	18000.00	-16.60	-298800.00	6741000.00	-0.0303	-0.0280	1.46	1.58
3	4000.00	-16.60	-66400.00	6741000.00	-0.0048	-0.0040	2.03	2.46
4	0.00	0.00	0.00	6741000.00	0.0000	0.0000	0.00	0.00
5	14000.00	16.60	232400.00	6741000.00	0.0273	0.0246	1.26	1.40
6	18000.00	16.60	298800.00	6741000.00	0.0345	0.0314	1.28	1.41
7	4000.00	16.60	66400.00	6741000.00	0.0067	0.0057	1.48	1.72
8	0.00	0.00	0.00	6741000.00	0.0000	0.0000	0.00	0.00

PENDULUMS GRAPH



Weight to be Deducted

Items (Solid)	Weights	LCG	VCG	TCG
	(kg)	(m)	(m)	(m)
<i>Inclining Weights and Test Equipment</i>				
Weight Group A	15000	68.00	19.600	-8.30
Weight Group B	14000	63.00	19.600	8.30
Weight Group C	4000	58.00	19.300	-8.05
Weight Group D	4000	53.00	19.300	8.05
<i>Pendulum (Including Oil Drums and Accessories)</i>				
	Accessories and pendulum weights are neglected			
CREW AND EFFECTS	7000.0	12.00	19.00	0.00
STORE	7000.0	4.00	10.00	0.00
SUN DECK	15000.0	50.00	19.00	0.00
Total	66000.0	48.61	18.35	0.00

Items (Liquid)	Weights	LCG	VCG	TCG	FSM
	(kg)	(m)	(m)	(m)	(tonne.m)
SO1	5678	18.719	0.3	0	3.006
SO2	6452	22.862	5	-6.439	10.507
SO4	748	17.762	4.571	-4.434	10.362
SO5	1901	13.295	5.239	-3.295	7.259
F.O.T 1 PS	53141	61.079	4.023	-8.532	3.265
F.O.T 1 SB	60614	61.091	4.31	8.545	3.265
HFO6	96	24.502	0.144	-1.691	11.257
HFO7	10000	22.31	7.549	4.953	8.04
HFO9	3000				
MDFT4	10000	28.35	7.516	-1.4	3.2
FOREPEAK	176735	110.71	5.14	0	0
AFTPEAK	34000	10.244	2.754	0	1299.655
TK. 02	20037	97.737	1.461	-2.284	0
TK. 03	44356	98.088	1.311	1.48	0
TK. 04	58968	89.335	1.374	-3.024	0
TK. 05	85677	89.462	1.298	2.285	0
TK. 08	88247	80.445	1.331	-3.771	0
TK. 09	114660	80.496	1.284	3.052	0
TK. 15 BS	112321	71.407	1.076	3.474	0
TK. 15 PS	88978	71.397	1.115	-4.214	0

TK. 16	48250	70.644	4.598	-8.266	2.522
TK. 17	27600	70.533	3.629	8.188	2.522
TK. 19 BS	114544	61.267	1.011	3.549	0
TK. 19 PS	91545	61.261	1.047	-4.3	0
TK. 23 SB	109511	51.064	1.009	3.569	0
TK. 23 PS	87369	51.07	1.043	-4.304	0
TK. 26	69	42.642	0.067	-1.437	0
TK. 30	409	32.325	0.166	-1.657	96.598
TK. 31	1137	32.241	0.085	0.709	175.706
SLT	2180	25.489	0.501	2.277	9.042
TK. 06	30123	91.498	3.566	-4.846	6.485
TK. 07	30123	91.498	3.566	4.846	6.485
TK. 12	34710	79.04	4.473	-7.351	3.257
TK. 13	46121	79.07	5.037	7.394	3.257
<i>Total</i>	1599300.000	73.566	2.363	0.040	1665.690

Derivation of Lightship

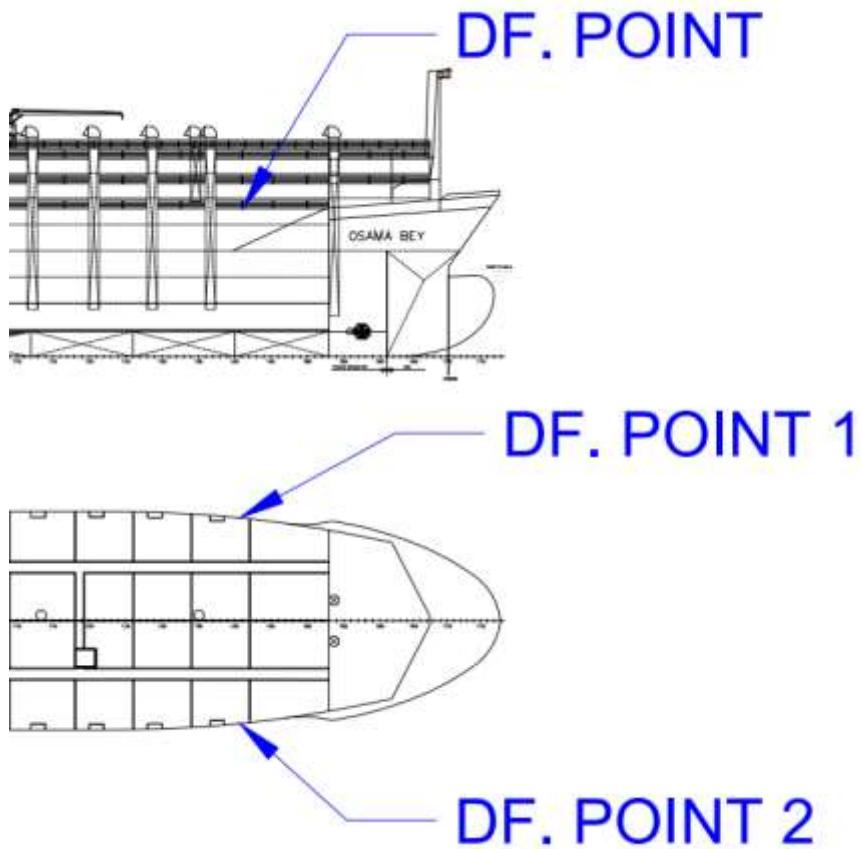
Items (Solid)	Weights	LCG	VCG	TCG	FSM
	(tonne)	(m)	(m)	(m)	(tonne.m)
Vessel As Inclined	6741.00	56.57	6.69	0.00	0.00
Weights to be Deducted (Solid)	66.00	48.61	18.35	0.00	0.00
Weights to be Deducted (Liquid)	1599.30	73.57	2.36	0.04	1665.69
TOTAL	5075.700	51.320	7.91	0.013	1665.690
FS CORRECTION			0.12		
LIGHTSHIP	5075.70	51.320	7.790	0.013	

Note:

1. LCG is taken or measured from AFT EXT.
2. VCG is taken or measured from BASELINE.
3. TCG is taken or measured from Vessel CENTER LINE (+ve SB, -ve PS)
4. **LCG @ AFT PERPENDICULAR (AP) = 47.72 m .**

DNWFLOODING POINTS

Point	Long't Position	Trans. Offsets (Measured from CI)	Height Above BL
DF POINT NO.1	91.400	9.000	13.400
DF POINT NO.2	91.400	-9.000	13.400



Load Case NO.01 – LIGHT WEIGHT

Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m³

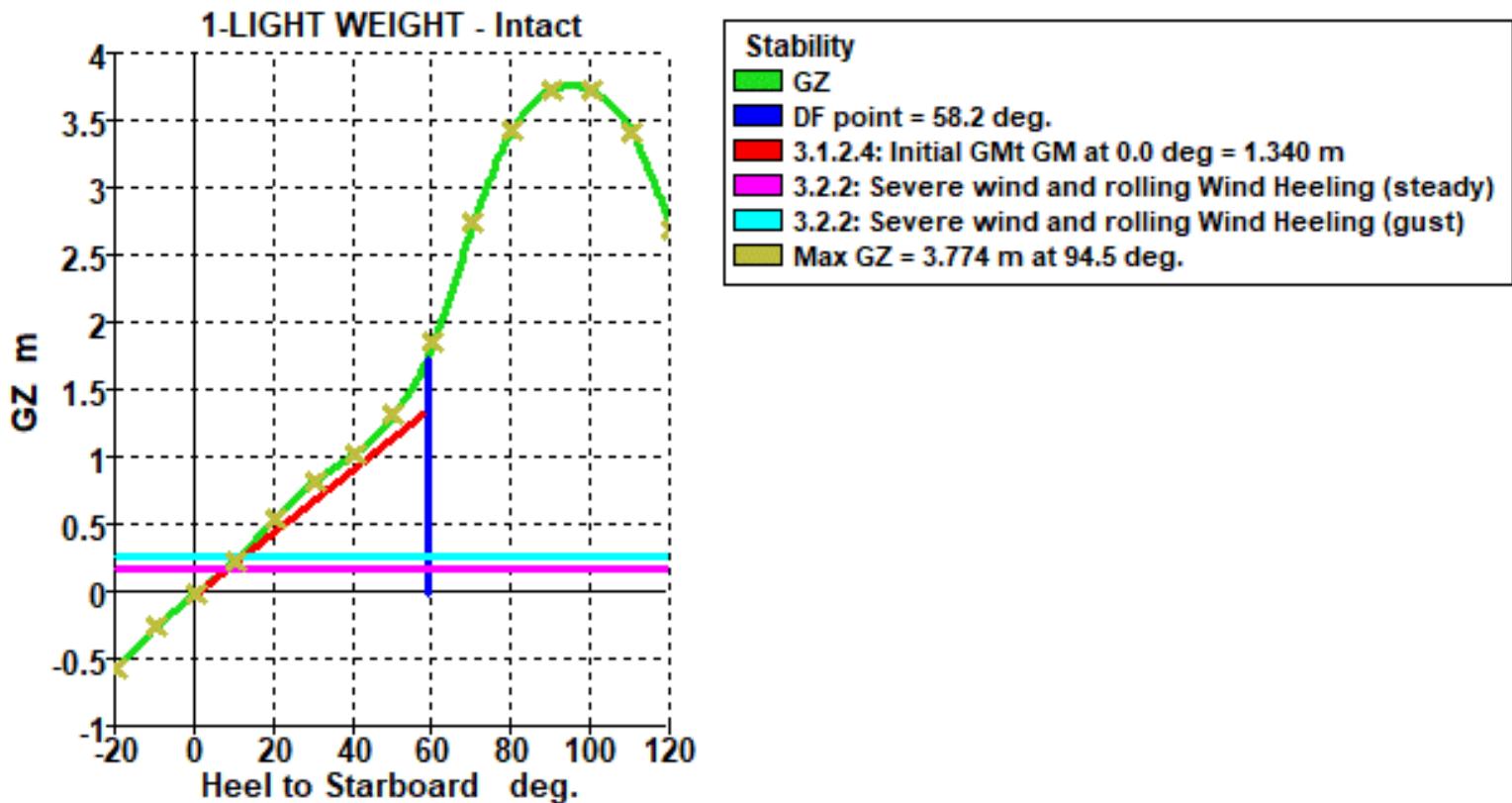
Item Name	Quantity	Unit Mass ton	Total Mass ton	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM ton.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
Total Loadgroup			5075.700	47.788	0.000	7.790	0.000	
FS correction						0.000		
VCG fluid						7.790		

EQUILIBRIUM DATA

Draft Amidships m	4.188	LCB from zero pt. (+ve fwd) m	47.570
Displacement t	5076	LCF from zero pt. (+ve fwd) m	50.548
Heel deg	0.0	KB m	2.552
Draft at FP m	1.912	KG fluid m	7.790
Draft at AP m	6.463	BMT m	6.582
Draft at LCF m	4.368	BML m	205.184
Trim (+ve by stern) m	4.551	GMT corrected m	1.340
WL Length m	114.315	GML m	199.942
Beam max extents on WL m	18.738	KMT m	9.128
Wetted Area m ²	1950.632	KML m	207.561
Waterpl. Area m ²	1504.851	Immersion (TPc) tonne/cm	15.425
Prismatic coeff. (Cp)	0.549	MTc tonne.m	92.415
Block coeff. (Cb)	0.377	RM at 1deg = GMt.Disp.sin(1) tonne.m	118.658
Max Sect. area coeff. (Cm)	0.836	Max deck inclination deg	2.3733
Waterpl. area coeff. (Cwp)	0.703	Trim angle (+ve by stern) deg	2.3733

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 58.20 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.555	5.1673	1.985	6.047	115.569	2001.960	1576.272	0.565	0.372	47.604	49.311	2.135	2.1186	1823.378
-10.0	-0.247	1.1962	1.938	6.361	113.470	1967.860	1530.859	0.559	0.386	47.580	50.161	1.656	2.3065	1823.378
0.0	0.000	0.0000	1.911	6.464	114.320	1950.661	1504.903	0.549	0.376	47.568	50.545	1.340	2.3739	1823.378
10.0	0.247	1.1941	1.936	6.362	113.480	1967.920	1530.954	0.559	0.386	47.576	50.156	1.656	2.3076	1823.378
20.0	0.555	5.1778	1.985	6.048	115.570	2002.058	1576.338	0.565	0.372	47.603	49.309	2.135	2.1190	1823.378
30.0	0.830	12.1740	1.921	5.468	115.485	1992.658	1560.877	0.588	0.351	47.645	49.034	1.589	1.8499	1823.378
40.0	1.030	21.4781	1.504	4.549	114.908	2000.015	1584.602	0.608	0.341	47.668	49.232	1.575	1.5884	1823.378
50.0	1.326	33.1200	0.438	3.109	112.674	2041.981	1672.754	0.628	0.339	47.697	49.497	2.485	1.3933	1823.378
60.0	1.871	48.8035	-2.020	0.644	105.014	2108.330	1794.312	0.676	0.360	47.717	49.185	4.158	1.3893	1823.378
70.0	2.752	71.8197	-8.068	-4.719	107.599	2200.940	1882.362	0.668	0.377	47.727	50.252	5.173	1.7465	1823.378
80.0	3.452	103.1514	-27.429	-20.773	109.280	2196.093	1768.524	0.676	0.485	47.713	50.557	2.707	3.4688	1823.378
90.0	3.744	139.4370	n/a	n/a	110.844	2200.218	1677.653	0.669	0.552	47.702	50.432	0.752	n/a	1823.378
100.0	3.738	177.0647	-50.064	-41.827	113.156	2193.212	1614.791	0.669	0.412	47.672	50.196	-0.772	4.2899	1823.378
110.0	3.420	213.1857	-30.835	-25.888	114.922	2156.814	1522.858	0.678	0.357	47.650	49.813	-3.015	2.5794	1823.378
120.0	2.698	244.0006	-24.629	-20.625	116.307	2112.790	1443.859	0.668	0.344	47.611	49.730	-4.880	2.0877	1823.378

	Key point	Margin Line	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m
Deck Edge	DF point			18.1	n/a	1.365	0.528	-0.126	-0.581	-0.862	-0.994	-0.974	-0.962	-2.521	-3.958	-5.249	-6.468	-7.414
Downflooding point	DF point			18.5	n/a	1.441	0.577	-0.105	-0.588	-0.899	-1.058	-1.064	-0.936	-2.508	-3.958	-5.262	-6.494	-7.452
Not immersed in positive	Downflooding point	58.2	0	10.865	9.131	7.129	5.025	3.012	1.206	-0.264	-1.269	-1.929	-2.412	-2.689	-2.722	-2.450		
		0	10.865	12.255	13.282	14.021	14.580	14.993	15.323	15.644	15.796	15.587	15.036	14.191	13.136			

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	12.1740	Pass	9.0227
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	21.4781	Pass	16.3215
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	9.3040	Pass	7.5851
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.744	Pass	3.544
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	94.5	Pass	69.5
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMT	0.150	m	1.340	Pass	1.190
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	7.8	Pass	2.2
	Area1 / Area2 shall not be less than (>=)	100.00	%	301.30	Pass	201.30

Load Case NO.02 – ballast dep.

Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	15.820	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.370	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	90%	74.026	66.623	57.405	-8.550	4.487	3.382	Maximum
F.O.T 1 SB	75%	74.026	55.519	57.388	8.532	4.084	3.329	Maximum
F.O.T 2 PS	90%	75.375	67.837	47.533	-8.600	4.444	3.549	Maximum
F.O.T 2 SB	75%	75.375	56.531	47.538	8.584	4.037	3.549	Maximum
D.O. 3 PS	90%	66.996	60.296	37.227	-8.535	4.666	3.428	Maximum
D.O. 3 SB	75%	63.888	47.916	37.521	8.511	4.272	3.272	Maximum
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum

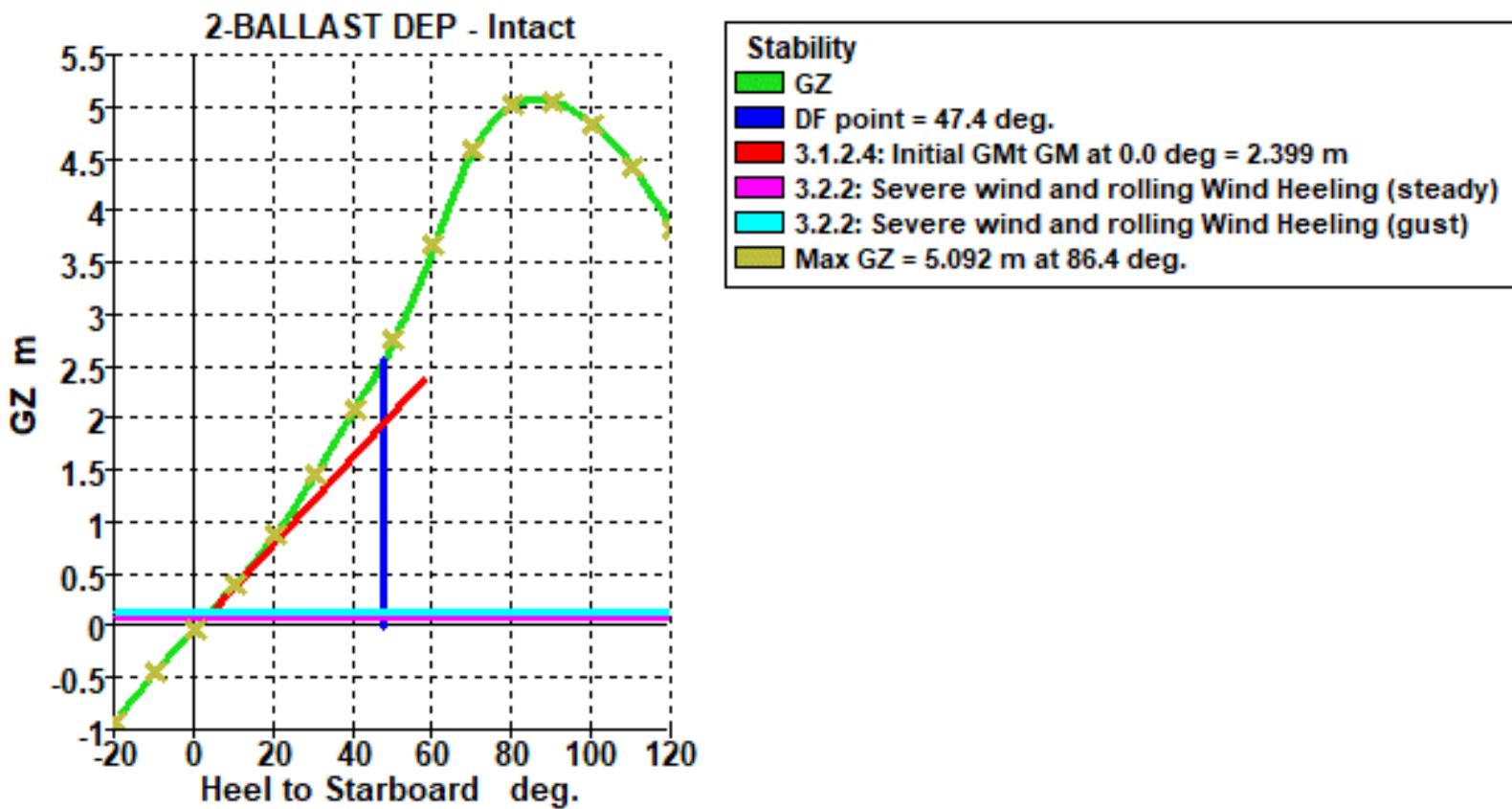
Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			7744.096	49.968	0.001	6.135	342.626	
FS correction						0.044		
VCG fluid						6.179		

EQUILIBRIUM DATA

Draft Amidships m	5.869	LCB from zero pt. (+ve fwd) m	49.881
Displacement t	7744	LCF from zero pt. (+ve fwd) m	48.420
Heel deg	0.0	KB m	3.418
Draft at FP m	4.181	KG fluid m	6.179
Draft at AP m	7.557	BMt m	5.162
Draft at LCF m	6.068	BML m	179.068
Trim (+ve by stern) m	3.376	GMt corrected m	2.399
WL Length m	117.203	GML m	176.305
Beam max extents on WL m	18.934	KMt m	8.577
Wetted Area m^2	2428.553	KML m	182.401
Waterpl. Area m^2	1692.026	Immersion (TPc) tonne/cm	17.343
Prismatic coeff. (Cp)	0.607	MTc tonne.m	124.330
Block coeff. (Cb)	0.465	RM at 1deg = GMt.Disp.sin(1) tonne.m	324.227
Max Sect. area coeff. (Cm)	0.890	Max deck inclination deg	1.7608
Waterpl. area coeff. (Cwp)	0.762	Trim angle (+ve by stern) deg	1.7608

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 47.40 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.894	8.6507	4.290	7.173	117.228	2442.525	1748.831	0.623	0.429	49.900	49.448	3.124	1.5038	1628.072
-10	-0.423	2.0956	4.217	7.456	117.212	2431.245	1700.132	0.611	0.471	49.894	48.748	2.555	1.6896	1628.072
0	-0.001	-0.0020	4.182	7.556	117.203	2428.548	1691.996	0.607	0.465	49.884	48.421	2.399	1.7602	1628.072
10	0.421	2.0829	4.213	7.459	117.211	2431.257	1700.258	0.611	0.471	49.884	48.742	2.556	1.6929	1628.072
20	0.892	8.5763	4.288	7.174	117.227	2442.491	1748.845	0.623	0.429	49.895	49.446	3.124	1.5056	1628.072
30	1.472	20.3160	4.278	6.739	117.215	2480.745	1831.895	0.642	0.381	49.909	50.559	3.747	1.2840	1628.072
40	2.101	38.1718	3.967	6.055	117.085	2511.374	1895.475	0.662	0.376	49.921	51.533	3.756	1.0894	1628.072
50	2.776	62.4331	3.102	4.890	116.684	2569.938	2017.435	0.675	0.374	49.929	52.314	4.417	0.9332	1628.072
60	3.684	94.5450	1.139	2.729	114.828	2667.528	2205.967	0.689	0.384	49.937	52.466	6.232	0.8292	1628.072
70	4.615	136.2789	-3.506	-1.529	111.736	2651.596	2073.478	0.709	0.433	49.931	52.324	3.913	1.0316	1628.072
80	5.036	184.9643	-17.821	-13.886	113.069	2605.992	1901.599	0.687	0.541	49.925	52.449	1.151	2.0519	1628.072
90	5.070	235.7430	n/a	n/a	114.181	2590.188	1810.133	0.676	0.606	49.916	52.463	-0.622	n/a	1628.072
100	4.850	285.5097	-39.576	-34.405	116.003	2584.935	1768.666	0.668	0.470	49.902	52.276	-1.830	2.6958	1628.072
110	4.445	332.1520	-25.283	-22.057	117.192	2604.745	1754.695	0.671	0.379	49.880	51.877	-2.785	1.6826	1628.072
120	3.837	373.6724	-20.653	-17.931	117.786	2624.693	1718.602	0.678	0.350	49.851	51.529	-4.202	1.4200	1628.072

DF point	DF point	Margin Line	Type	Key point	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg	Freeboard at 120.0 deg
Downfloodin	Downfloodin			3.8	n/a	0.311	-0.515	-1.149	-1.652	-1.993	-2.121	-2.000	-2.133	-3.798	-5.310	-6.706	-8.090	-9.101	
Downfloodin	Deck Edge			4.5	n/a	0.387	-0.466	-1.128	-1.659	-2.029	-2.185	-2.089	-2.107	-3.785	-5.310	-6.719	-8.116	-9.139	
Not immersed in positive	47.4	0	8.759	7.050	5.117	3.112	1.225	-0.430	-1.771	-2.766	-3.534	-4.093	-4.439	-4.542	-4.351				
Not immersed in positive	0	8.759	10.175	11.271	12.110	12.794	13.358	13.817	14.148	14.192	13.906	13.287	12.372	11.236					

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	20.3160	Pass	17.1647
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	38.1718	Pass	33.0152
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	17.8558	Pass	16.1369
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	5.092	Pass	4.892
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	86.4	Pass	61.4
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	2.399	Pass	2.249
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	2.6	Pass	7.4
	Area1 / Area2 shall not be less than (>=)	100.00	%	500.98	Pass	400.98

Load Case NO.03 – ballast intermed.
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	15.820	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.370	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.188	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	50%	12.921	6.461	21.310	-2.468	0.749	11.257	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	50%	16.777	8.389	19.257	6.521	5.172	9.594	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	50%	11.519	5.760	14.051	4.856	5.256	9.461	Maximum
MDFT4	50%	13.826	6.913	24.750	-1.400	7.177	2.981	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum

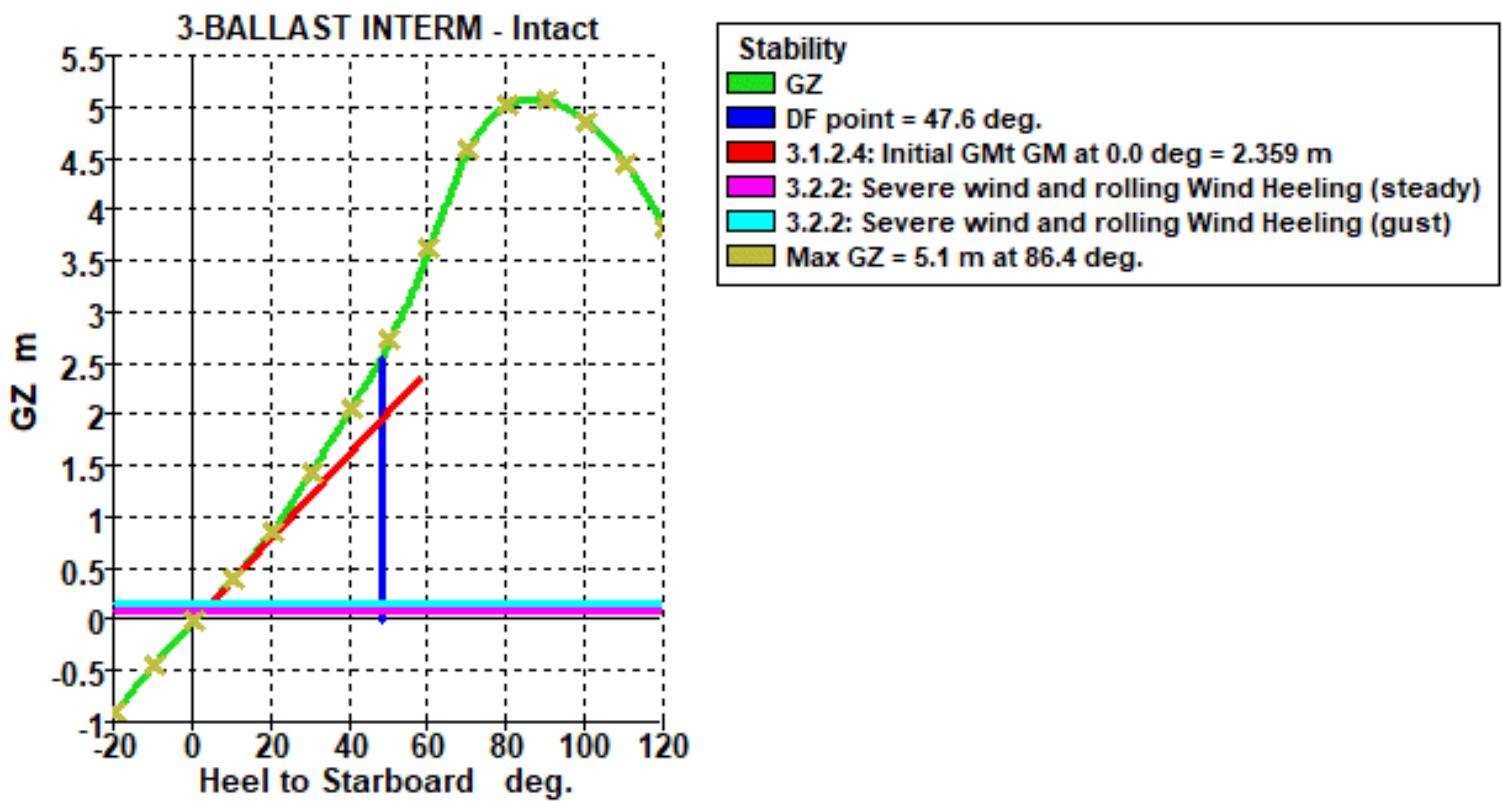
Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			7548.370	50.217	-0.002	6.129	432.890	
FS correction						0.057		
VCG fluid						6.187		

EQUILIBRIUM DATA

Draft Amidships m	5.763	LCB from zero pt. (+ve fwd) m	50.143
Displacement t	7548	LCF from zero pt. (+ve fwd) m	48.744
Heel deg	0.0	KB m	3.344
Draft at FP m	4.145	KG fluid m	6.187
Draft at AP m	7.382	BMt m	5.201
Draft at LCF m	5.945	BML m	179.953
Trim (+ve by stern) m	3.238	GMt corrected m	2.358
WL Length m	117.186	GML m	177.110
Beam max extents on WL m	18.923	KMt m	8.543
Wetted Area m^2	2399.206	KML m	183.219
Waterpl. Area m^2	1676.408	Immersion (TPc) tonne/cm	17.183
Prismatic coeff. (Cp)	0.605	MTc tonne.m	121.741
Block coeff. (Cb)	0.464	RM at 1deg = GMt.Disp.sin(1) tonne.m	310.571
Max Sect. area coeff. (Cm)	0.888	Max deck inclination deg	1.6888
Waterpl. area coeff. (Cwp)	0.756	Trim angle (+ve by stern) deg	1.6888

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 47.60 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.00	-0.884	8.5001	4.257	6.987	117.215	2413.713	1738.378	0.621	0.425	50.152	49.569	3.135	1.4243	1640.425
-10.00	-0.415	2.0381	4.179	7.280	117.195	2399.127	1686.660	0.609	0.470	50.145	49.008	2.532	1.6179	1640.425
0.00	0.002	0.0033	4.141	7.385	117.184	2399.289	1676.622	0.605	0.464	50.132	48.736	2.359	1.6923	1640.425
10.00	0.419	2.0833	4.176	7.282	117.194	2399.143	1686.762	0.609	0.470	50.137	49.004	2.532	1.6205	1640.425
20.00	0.887	8.5389	4.255	6.989	117.214	2413.679	1738.393	0.621	0.425	50.146	49.567	3.134	1.4262	1640.425
30.00	1.464	20.2255	4.251	6.538	117.203	2451.904	1817.517	0.641	0.379	50.162	50.633	3.705	1.1927	1640.425
40.00	2.083	37.9580	3.940	5.830	117.071	2481.148	1878.511	0.661	0.375	50.174	51.620	3.687	0.9858	1640.425
50.00	2.746	61.9797	3.071	4.635	116.664	2538.896	1998.890	0.673	0.374	50.184	52.395	4.351	0.8158	1640.425
60.00	3.647	93.7412	1.101	2.431	114.774	2638.871	2195.478	0.687	0.381	50.192	52.473	6.333	0.6937	1640.425
70.00	4.599	135.2014	-3.562	-1.993	111.685	2622.559	2065.032	0.705	0.428	50.187	52.381	4.014	0.8185	1640.425
80.00	5.036	183.8196	-17.926	-14.904	113.028	2579.644	1895.731	0.684	0.538	50.183	52.491	1.230	1.5763	1640.425
90.00	5.083	234.6630	n/a	n/a	114.150	2564.225	1804.422	0.673	0.609	50.177	52.499	-0.563	n/a	1640.425
100.00	4.870	284.5980	-39.681	-35.499	115.981	2558.814	1762.202	0.665	0.466	50.164	52.305	-1.790	2.1812	1640.425
110.00	4.469	331.4753	-25.345	-22.606	117.179	2571.820	1744.778	0.669	0.375	50.143	51.914	-2.795	1.4291	1640.425
120.00	3.849	373.1875	-20.708	-18.303	117.775	2593.878	1702.746	0.675	0.349	50.114	51.589	-4.302	1.2546	1640.425

DF point	DF point	Margin Line (immersion D _{OS}) =	Type	Key point	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg	Freeboard at 110.0 deg	Freeboard at 120.0 deg
	Deck Edge (immersion D _{OS}) =			5.9	n/a	0.488	-0.337	-0.971	-1.472	-1.815	-1.952	-1.847	-1.998	-3.649	-5.152	-6.607	-7.990	-8.999	
	Downfloodin g point	6.6	n/a	0.564	-0.288	-0.950	-1.480	-1.852	-2.016	-1.936	-1.972	-3.636	-5.152	-6.620	-8.016	-9.037			
DF point	Downfloodin g point	47.6	0	8.816	7.106	5.167	3.155	1.266	-0.391	-1.735	-2.728	-3.494	-4.053	-4.397	-4.498	-4.302			
	Not immersed in positive range	0	8.816	10.230	11.322	12.154	12.835	13.397	13.854	14.186	14.232	13.947	13.329	12.416	11.285				

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	20.2255	Pass	17.0742
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	37.9580	Pass	32.8014
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	17.7325	Pass	16.0136
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	5.100	Pass	4.900
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	86.4	Pass	61.4
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GM _t	0.150	m	2.359	Pass	2.209
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	2.7	Pass	7.3
	Area1 / Area2 shall not be less than (>=)	100.00	%	503.93	Pass	403.93

Load Case NO.04 – ballast Arr.
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	15.820	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.370	268.734	Maximum
SO1	10%	9.719	0.972	15.766	0.000	0.079	3.006	Maximum
SO2	10%	18.375	1.838	19.260	-6.243	4.609	10.507	Maximum
SO4	10%	12.617	1.262	14.134	-4.488	4.674	10.362	Maximum
SO5	10%	6.570	0.657	9.840	-3.092	4.925	7.259	Maximum
F.O.T 1 PS	20%	74.026	14.805	57.288	-8.436	2.466	3.382	Maximum
F.O.T 1 SB	0%	74.026	0.000	57.221	8.342	1.750	0.000	Maximum
F.O.T 2 PS	20%	75.375	15.075	47.568	-8.497	2.429	3.549	Maximum
F.O.T 2 SB	0%	75.375	0.000	47.585	8.420	1.750	0.000	Maximum
D.O. 3 PS	20%	66.996	13.399	37.649	-8.348	2.653	3.428	Maximum
D.O. 3 SB	0%	63.888	0.000	38.769	8.209	1.750	0.000	Maximum
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	10%	12.921	1.292	21.261	-2.033	0.339	11.257	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	10%	16.777	1.678	19.260	6.243	4.609	9.594	Maximum
MDF 2 SB	10%	42.187	4.219	27.625	6.363	2.136	13.986	Maximum
MDF 2 PS	10%	40.549	4.055	27.656	-6.480	2.158	11.851	Maximum
MDF S3	10%	11.519	1.152	14.134	4.488	4.674	9.461	Maximum
MDFT4	10%	13.826	1.383	24.750	-1.400	6.572	2.981	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	100%	37.047	37.047	26.925	0.000	3.250	0.000	Maximum
AO	100%	8.870	8.870	17.258	2.286	1.167	0.000	Maximum
SK	100%	3.754	3.754	24.471	2.253	0.996	0.000	Maximum
SK PS	100%	2.651	2.651	24.496	-4.275	1.264	0.000	Maximum
SW	100%	4.068	4.068	19.899	2.554	1.103	0.000	Maximum

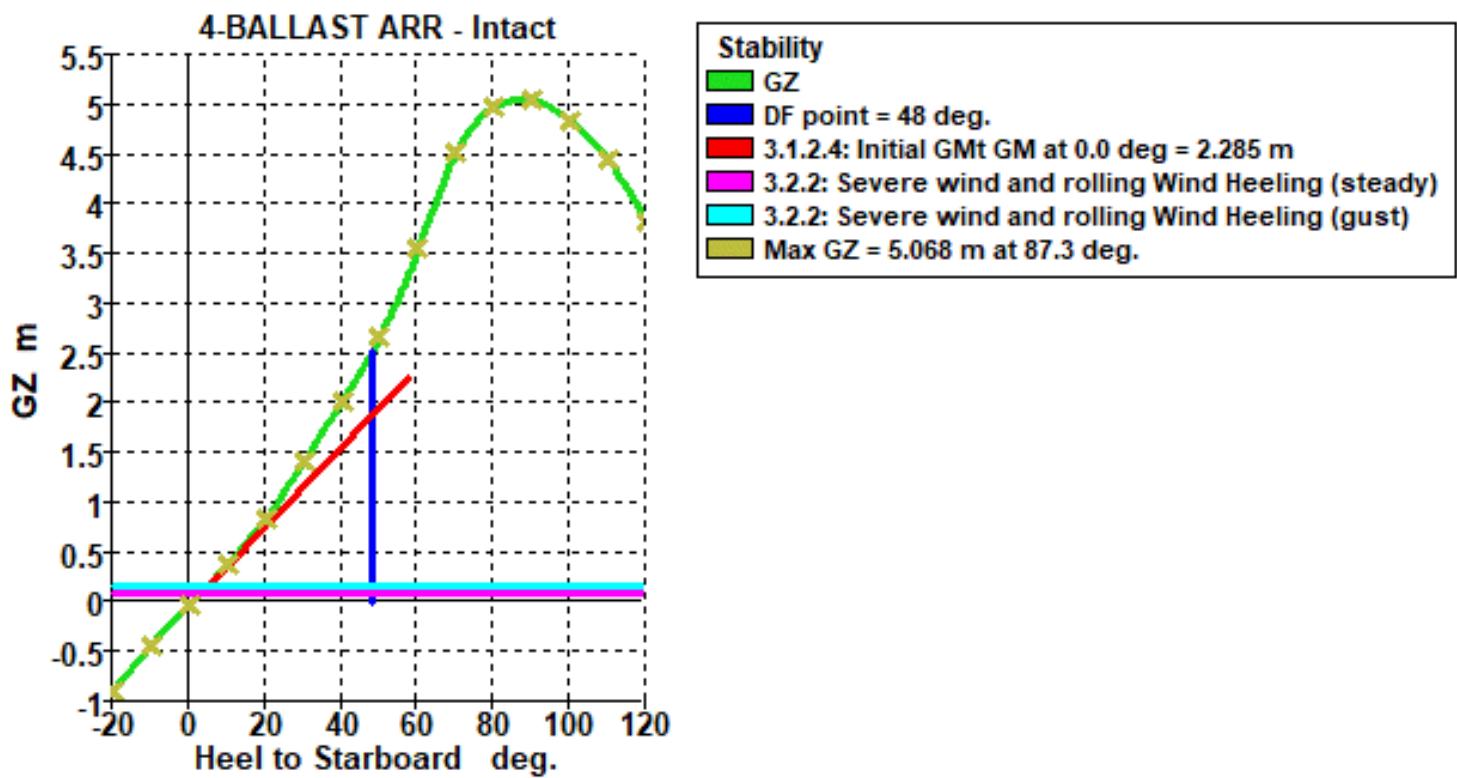
Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
SLT	100%	9.576	9.576	21.904	2.803	1.108	0.000	Maximum
LO	100%	6.657	6.657	16.885	-2.248	1.178	0.000	Maximum
KW	100%	1.607	1.607	18.904	-2.453	1.120	0.000	Maximum
BILGE PS	100%	8.354	8.354	27.497	-3.961	1.437	0.000	Maximum
BILGE SB	100%	8.354	8.354	27.497	3.961	1.437	0.000	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			7347.941	50.392	0.008	6.184	369.358	
FS correction						0.050		
VCG fluid						6.234		

EQUILIBRIUM DATA

Draft Amidships m	5.651	LCB from zero pt. (+ve fwd) m	50.313
Displacement t	7348	LCF from zero pt. (+ve fwd) m	49.097
Heel deg	0.0	KB m	3.271
Draft at FP m	4.073	KG fluid m	6.234
Draft at AP m	7.229	BMt m	5.249
Draft at LCF m	5.818	BML m	180.451
Trim (+ve by stern) m	3.156	GMt corrected m	2.284
WL Length m	117.154	GML m	177.486
Beam max extents on WL m	18.912	KMt m	8.517
Wetted Area m^2	2362.180	KML m	183.647
Waterpl. Area m^2	1659.177	Immersion (TPc) tonne/cm	17.007
Prismatic coeff. (Cp)	0.603	MTc tonne.m	118.760
Block coeff. (Cb)	0.462	RM at 1deg = GMt.Disp.sin(1) tonne.m	292.894
Max Sect. area coeff. (Cm)	0.887	Max deck inclination deg	1.6461
Waterpl. area coeff. (Cwp)	0.749	Trim angle (+ve by stern) deg	1.6461

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 47.80 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.00	-0.008	-0.0142	4.070	7.231	117.153	2362.248	1659.337	0.603	0.462	50.305	49.091	2.285	1.6486	1653.631
-10.00	0.399	1.9328	4.106	7.125	117.165	2365.811	1673.513	0.607	0.468	50.310	49.242	2.482	1.5745	1653.631
0.00	0.860	8.1499	4.189	6.824	117.190	2383.539	1727.832	0.620	0.421	50.320	49.658	3.117	1.3745	1653.631
10.00	1.429	19.5297	4.191	6.357	117.177	2420.894	1801.820	0.640	0.377	50.337	50.682	3.630	1.1300	1653.631
20.00	2.031	36.8274	3.879	5.626	117.043	2448.510	1859.960	0.659	0.374	50.351	51.661	3.595	0.9112	1653.631
30.00	2.679	60.2513	3.006	4.403	116.620	2506.034	1979.123	0.670	0.372	50.362	52.434	4.268	0.7287	1653.631
40.00	3.568	91.2631	1.022	2.161	114.652	2606.395	2178.758	0.684	0.375	50.369	52.461	6.366	0.5941	1653.631
50.00	4.539	132.0132	-3.682	-2.415	111.589	2592.511	2055.582	0.702	0.423	50.366	52.423	4.120	0.6612	1653.631
60.00	4.994	180.1254	-18.170	-15.820	112.942	2551.311	1888.221	0.681	0.534	50.364	52.476	1.320	1.2259	1653.631
70.00	5.055	230.6201	n/a	n/a	114.077	2536.965	1797.903	0.670	0.611	50.359	52.502	-0.485	n/a	1653.631
80.00	4.855	280.3423	-39.943	-36.483	115.924	2531.204	1754.662	0.663	0.461	50.347	52.297	-1.727	1.8046	1653.631
90.00	4.461	327.1119	-25.489	-23.101	117.147	2537.681	1733.420	0.667	0.371	50.326	51.917	-2.784	1.2454	1653.631
100.00	3.833	368.7116	-20.818	-18.641	117.754	2561.037	1685.662	0.673	0.348	50.298	51.614	-4.374	1.1356	1653.631
110.00	-0.008	-0.0142	4.070	7.231	117.153	2362.248	1659.337	0.603	0.462	50.305	49.091	2.285	1.6486	1653.631
120.00	0.399	1.9328	4.106	7.125	117.165	2365.811	1673.513	0.607	0.468	50.310	49.242	2.482	1.5745	1653.631

DF point	DF point	Margin Line (Immersion)	Type	Key point	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Deck Edge (Immersion)				7.8	n/a	0.644	-0.179	-0.813	-1.313	-1.656	-1.799	-1.709	-1.873	-3.511	-5.006	-6.503	-7.885	-8.890		
				8.5	n/a	0.720	-0.130	-0.792	-1.321	-1.692	-1.863	-1.798	-1.847	-3.497	-5.006	-6.516	-7.911	-8.928		
Downflooding point	Downflooding point	48	0	8.899	7.186	5.242	3.221	1.327	-0.334	-1.682	-2.673	-3.436	-3.993	-4.335	-4.433	-4.232				
Downflooding point	Not immersed in sea water	0	8.899	10.310	11.396	12.220	12.897	13.454	13.906	14.241	14.290	14.007	13.391	12.481	11.356					

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	19.5297	Pass	16.3784
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	36.8274	Pass	31.6708
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	17.2977	Pass	15.5788
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	5.068	Pass	4.868
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	87.3	Pass	62.3
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMT	0.150	m	2.285	Pass	2.135
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	3.1	Pass	6.9
	Area1 / Area2 shall not be less than (>=)	100.00	%	503.68	Pass	403.68

Load Case NO.05 – FULL LOAD300KG 90FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.735	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	100%	74.026	74.026	57.415	-8.562	4.750	0.000	Maximum
F.O.T 1 SB	90%	74.026	66.623	57.405	8.550	4.487	3.329	Maximum
F.O.T 2 PS	100%	75.375	75.375	47.530	-8.610	4.710	0.000	Maximum
F.O.T 2 SB	90%	75.375	67.837	47.533	8.600	4.444	3.549	Maximum
D.O. 3 PS	100%	66.996	66.996	37.211	-8.550	4.912	0.000	Maximum
D.O. 3 SB	90%	63.888	57.499	37.493	8.537	4.655	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10442.616	52.727	0.009	7.600	332.266	
FS correction						0.032		
VCG fluid						7.631		

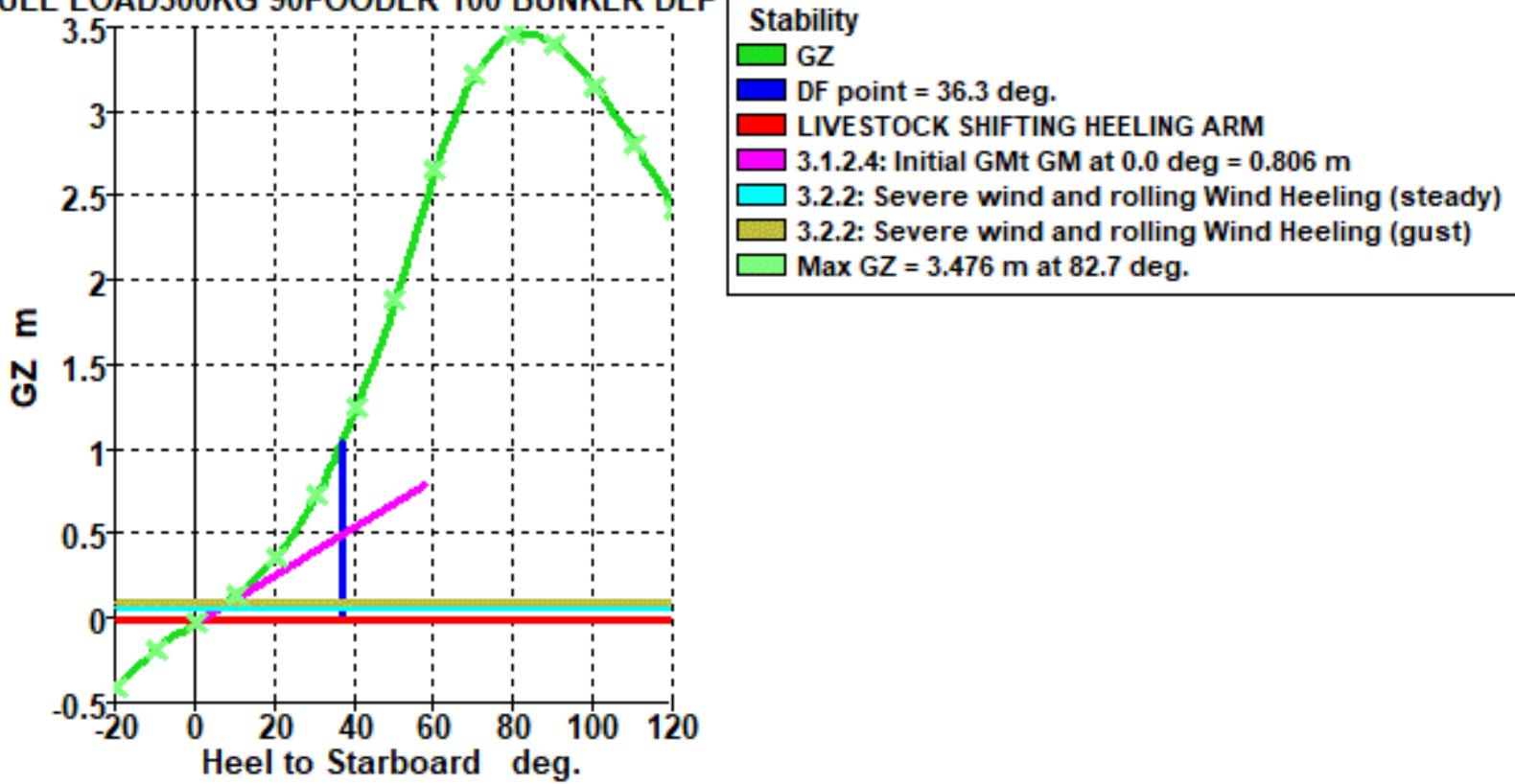
EQUILIBRIUM DATA

Draft Amidships m	7.549	LCB from zero pt. (+ve fwd) m	52.702
Displacement t	10443	LCF from zero pt. (+ve fwd) m	48.021
Heel deg	0.0	KB m	4.240
Draft at FP m	7.154	KG fluid m	7.631
Draft at AP m	7.944	BMt m	4.197
Draft at LCF m	7.599	BML m	138.023
Trim (+ve by stern) m	0.790	GMt corrected m	0.806
WL Length m	116.158	GML m	134.632
Beam max extents on WL m	19.156	KMt m	8.437
Wetted Area m^2	2841.404	KML m	142.259
Waterpl. Area m^2	1749.927	Immersion (TPc) tonne/cm	17.937
Prismatic coeff. (Cp)	0.657	MTc tonne.m	128.026
Block coeff. (Cb)	0.580	RM at 1deg = GMt.Disp.sin(1) tonne.m	146.889
Max Sect. area coeff. (Cm)	0.918	Max deck inclination deg	0.4123
Waterpl. area coeff. (Cwp)	0.786	Trim angle (+ve by stern) deg	0.4123

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 36.30 DEG.

FULL LOAD 300KG 90FOODER 100 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.399	3.6665	7.091	7.678	116.363	2873.487	1865.725	0.669	0.485	52.710	50.519	1.607	0.3062	1431.136
-10	-0.171	0.8608	7.143	7.875	116.203	2858.262	1798.108	0.660	0.560	52.705	49.023	1.099	0.3821	1431.136
0	-0.009	-0.0170	7.154	7.944	116.155	2841.408	1749.919	0.657	0.580	52.703	48.021	0.806	0.4119	1431.136
10	0.152	0.6818	7.142	7.875	116.203	2858.266	1798.111	0.660	0.560	52.705	49.023	1.102	0.3821	1431.136
20	0.381	3.2712	7.091	7.678	116.364	2873.383	1865.695	0.669	0.485	52.710	50.519	1.613	0.3062	1431.136
30	0.737	8.7300	6.946	7.374	116.664	2910.848	1988.279	0.685	0.424	52.715	51.928	2.564	0.2232	1431.136
40	1.262	18.6147	6.622	6.894	116.968	2959.684	2119.736	0.707	0.402	52.720	53.148	3.352	0.1417	1431.136
50	1.902	34.3044	5.910	5.952	117.293	3014.237	2264.987	0.720	0.403	52.724	53.812	4.167	0.0219	1431.136
60	2.673	57.1995	4.445	4.099	117.251	3072.441	2315.185	0.724	0.401	52.735	54.255	4.083	-0.1806	1431.136
70	3.230	86.9724	1.621	0.601	116.013	3064.521	2199.271	0.710	0.481	52.743	54.615	2.332	-0.5320	1431.136
80	3.466	120.7192	-6.689	-9.458	116.122	3014.668	2036.225	0.694	0.578	52.749	54.672	0.410	-1.4446	1431.136
90	3.408	155.2972	n/a	n/a	116.817	2982.614	1928.484	0.682	0.633	52.754	54.370	-0.960	n/a	1431.136
100	3.165	188.2752	-27.299	-29.887	117.610	2973.286	1888.855	0.674	0.504	52.754	54.090	-1.750	-1.3502	1431.136
110	2.824	218.2756	-18.938	-19.847	118.036	3018.772	1901.898	0.674	0.415	52.747	53.766	-2.101	-0.4743	1431.136
120	2.435	244.5874	-16.263	-16.441	118.048	3046.265	1932.285	0.680	0.362	52.733	53.271	-2.336	-0.0931	1431.136

DF point	DF point	Deck Edge (Immersion pos =	Margin Line (Immersion pos =	Key point		Type
Downflooding point	Downflooding point			Immersion angle deg		
Not immersed in positive	36.3	0	0.1	n/a	0.005	Freeboard at 0.0 deg m
		0.9	n/a	0.081	-0.847	Freeboard at 10.0 deg m
		0	6.139	4.502	-1.554	Freeboard at 20.0 deg m
		0	6.139	7.628	-2.146	Freeboard at 30.0 deg m
		0	6.139	8.932	-2.591	Freeboard at 40.0 deg m
		0	6.139	10.039	-2.768	Freeboard at 50.0 deg m
		0	6.139	10.949	-2.654	Freeboard at 60.0 deg m
		0	6.139	11.705	-3.259	Freeboard at 70.0 deg m
		0	6.139	12.295	-5.072	Freeboard at 80.0 deg m
		0	6.139	12.533	-6.641	Freeboard at 90.0 deg m
		0	6.139	12.416	-8.255	Freeboard at 100.0 deg m
		0	6.139	12.017	-9.629	Freeboard at 110.0 deg m
		0	6.139	11.337	-10.624	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 10443) = 0.138 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 10443 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.138 = 0.110 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 10443) = 0.0129 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0129 = 0.0103 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1431.136 \times 10.7 / 10443 = 0.073 \text{ m}$

P = 0.05 TONS / m^2

A = 1431.136 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.073 = 0.059 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.7300	Pass	5.5787
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	14.2924	Pass	9.1358
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	5.5624	Pass	3.8435
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.476	Pass	3.276
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.806	Pass	0.656
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	10.0	deg	5.3	Pass	4.7
	Area1 / Area2 shall not be less than (\geq)	100.00	%	278.77	Pass	178.77
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.8891	m.deg	14.2949	Pass	10.4058

Load Case NO.06 – FULL LOAD300KG 90FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.052	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
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TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
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TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9881.116	52.485	0.005	7.348	399.597	
FS correction						0.040		
VCG fluid						7.388		

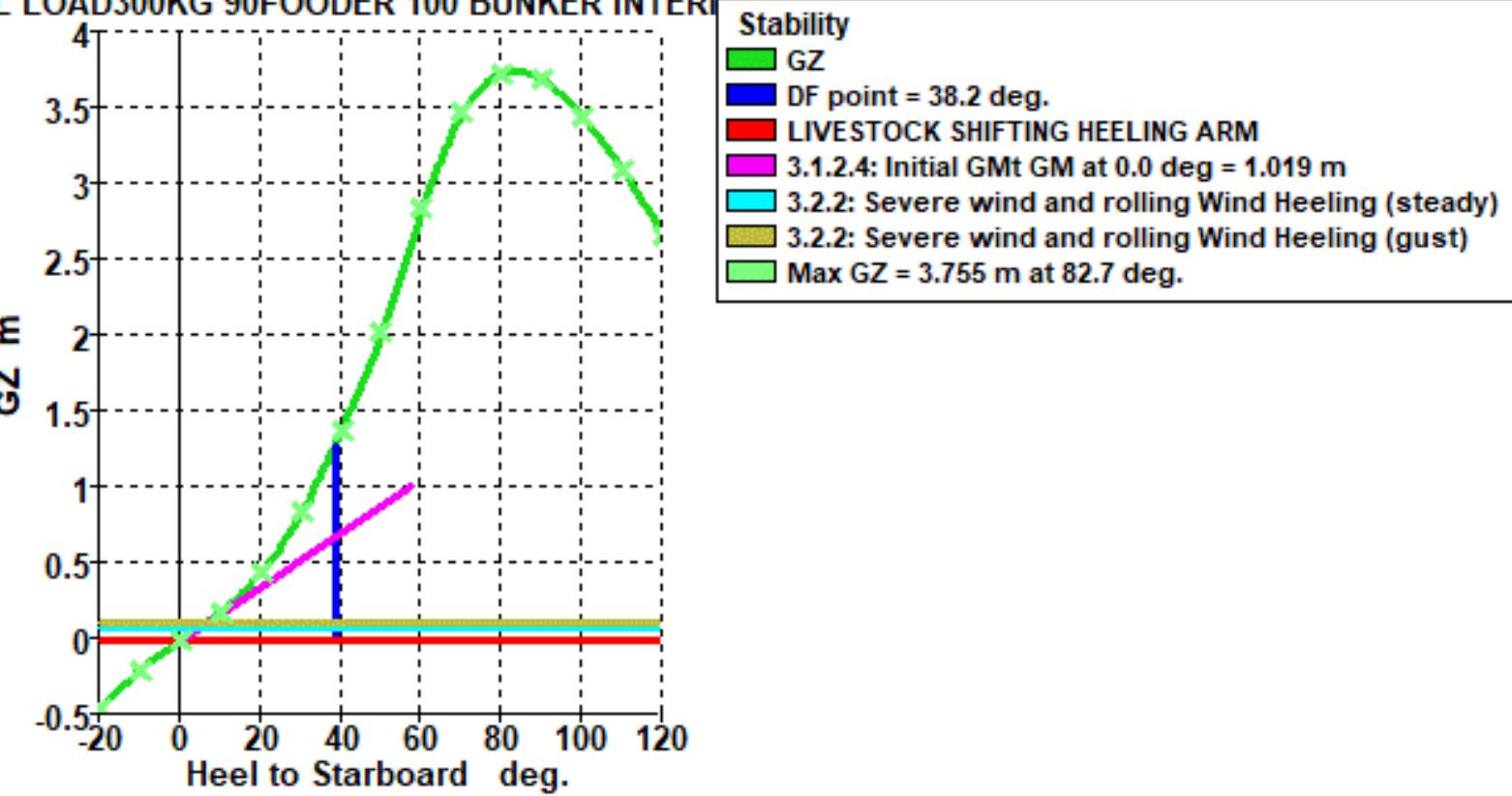
EQUILIBRIUM DATA

Draft Amidships m	7.211	LCB from zero pt. (+ve fwd) m	52.445
Displacement t	9881	LCF from zero pt. (+ve fwd) m	48.256
Heel deg	0.0	KB m	4.063
Draft at FP m	6.621	KG fluid m	7.388
Draft at AP m	7.801	BMt m	4.345
Draft at LCF m	7.282	BML m	145.291
Trim (+ve by stern) m	1.180	GMt corrected m	1.020
WL Length m	116.974	GML m	141.965
Beam max extents on WL m	19.115	KMt m	8.408
Wetted Area m^2	2757.485	KML m	149.345
Waterpl. Area m^2	1738.979	Immersion (TPc) tonne/cm	17.825
Prismatic coeff. (Cp)	0.646	MTc tonne.m	127.740
Block coeff. (Cb)	0.559	RM at 1deg = GMt.Disp.sin(1) tonne.m	175.846
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.6157
Waterpl. area coeff. (Cwp)	0.778	Trim angle (+ve by stern) deg	0.6157

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.20 DEG.

ILL LOAD300KG 90FOODER 100 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.458	4.1876	6.624	7.492	116.962	2791.576	1842.712	0.659	0.473	52.460	50.398	1.827	0.4527	1470.396
-10	-0.196	0.9626	6.639	7.717	116.958	2766.718	1771.068	0.649	0.548	52.452	48.928	1.273	0.5623	1470.396
0	-0.005	-0.0086	6.623	7.800	116.973	2757.505	1738.910	0.646	0.559	52.449	48.257	1.019	0.6141	1470.396
10	0.187	0.8757	6.640	7.717	116.957	2766.733	1771.063	0.649	0.548	52.453	48.928	1.275	0.5620	1470.396
20	0.449	3.9705	6.624	7.493	116.962	2791.566	1842.717	0.659	0.473	52.459	50.398	1.830	0.4532	1470.396
30	0.843	10.2970	6.510	7.159	117.037	2826.094	1963.726	0.677	0.414	52.468	51.812	2.792	0.3388	1470.396
40	1.389	21.3680	6.195	6.636	117.198	2876.016	2082.809	0.699	0.397	52.474	53.071	3.418	0.2301	1470.396
50	2.034	38.3512	5.454	5.645	117.362	2929.905	2221.239	0.712	0.399	52.479	53.738	4.180	0.0997	1470.396
60	2.844	62.7170	3.893	3.701	117.099	2995.454	2307.384	0.720	0.394	52.490	54.121	4.519	-0.1004	1470.396
70	3.475	94.5802	0.786	-0.027	115.213	2986.379	2184.191	0.709	0.472	52.497	54.393	2.641	-0.4245	1470.396
80	3.741	130.9646	-8.477	-10.787	115.708	2932.763	2010.999	0.691	0.571	52.504	54.354	0.500	-1.2050	1470.396
90	3.693	168.3505	n/a	n/a	116.521	2904.625	1906.905	0.679	0.630	52.508	54.120	-0.935	n/a	1470.396
100	3.448	204.1758	-29.302	-31.259	117.445	2896.365	1867.787	0.671	0.497	52.506	53.875	-1.787	-1.0210	1470.396
110	3.094	236.9596	-19.968	-20.521	117.977	2935.570	1877.488	0.671	0.407	52.498	53.534	-2.218	-0.2886	1470.396
120	2.672	265.8237	-16.974	-16.882	118.048	2966.683	1896.277	0.678	0.357	52.482	53.061	-2.633	0.0481	1470.396

DF point	DF point	Deck Edge (Immersion pos =	Margin Line (Immersion pos =	Key point	
				Type	
				Immersion angle deg	Emergence angle deg
				Freeboard at 0.0 deg m	Freeboard at 10.0 deg m
				Freeboard at 20.0 deg m	Freeboard at 30.0 deg m
				Freeboard at 40.0 deg m	Freeboard at 50.0 deg m
				Freeboard at 60.0 deg m	Freeboard at 70.0 deg m
				Freeboard at 80.0 deg m	Freeboard at 90.0 deg m
				Freeboard at 100.0 deg m	Freeboard at 110.0 deg m
				Freeboard at 120.0 deg m	
Downflooding point	Downflooding point	2.5	n/a	0.137	-0.702
Not immersed in positive	38.2	0	6.619	0.213	-0.652
	0	6.619	4.951	-1.368	-1.389
		8.077	3.179	-1.974	-1.966
		9.335	1.391	-2.434	-2.398
		10.391	-0.311	-2.637	-2.573
		11.259	-1.804	-2.547	-2.458
		11.985	-3.028	-2.963	-2.989
		12.560	-4.106	-4.764	-4.777
		12.809	-5.010	-5.662	-6.327
		12.716		-6.327	-6.056
		12.338		-7.959	-9.347
		11.670		-6.185	-6.013
		10.729		9.575	

1.4 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9881) = 0.146 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 9881 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.146 = 0.117 \text{ m}$

1.5 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9881) = 0.0133 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0133 = 0.0106 \text{ m}$

1.6 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1470.396 \times 10.7 / 9881 = 0.080 \text{ m}$

P = 0.05 TONS / m^2

A = 1470.396 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.080 = 0.064 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.2970	Pass	7.1457
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.9272	Pass	13.7706
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	8.6302	Pass	6.9113
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.755	Pass	3.555
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.019	Pass	0.869
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	10.0	deg	4.5	Pass	5.5
	Area1 / Area2 shall not be less than (\geq)	100.00	%	325.93	Pass	225.93
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.8156	m.deg	18.9273	Pass	14.1117

Load Case NO.07 – FULL LOAD300KG 90FOODER 100 BUNKER ARR
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	5.000	5.000	76.400	0.000	19.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.371	268.734	Maximum
SO1	10%	9.719	0.972	15.766	0.000	0.079	3.006	Maximum
SO2	10%	18.375	1.837	19.260	-6.243	4.609	10.507	Maximum
SO4	10%	12.617	1.262	14.134	-4.488	4.674	10.362	Maximum
SO5	10%	6.570	0.657	9.840	-3.092	4.925	7.259	Maximum
F.O.T 1 PS	20%	74.026	14.805	57.288	-8.436	2.466	3.382	Maximum
F.O.T 1 SB	0%	74.026	0.000	57.221	8.342	1.750	0.000	Maximum
F.O.T 2 PS	20%	75.375	15.075	47.568	-8.497	2.429	3.549	Maximum
F.O.T 2 SB	0%	75.375	0.000	47.585	8.420	1.750	0.000	Maximum
D.O. 3 PS	20%	66.996	13.399	37.649	-8.348	2.653	3.428	Maximum
D.O. 3 SB	0%	63.888	0.000	38.769	8.209	1.750	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	0%	42.187	0.000	27.537	6.116	1.750	0.000	Maximum
MDF 2 PS	20%	40.549	8.110	27.755	-6.654	2.478	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	100%	37.047	37.047	26.925	0.000	3.250	0.000	Maximum
AO	100%	8.870	8.870	17.258	2.286	1.167	0.000	Maximum
SK	100%	3.754	3.754	24.471	2.253	0.996	0.000	Maximum
SK PS	100%	2.651	2.651	24.496	-4.275	1.264	0.000	Maximum
SW	100%	4.068	4.068	19.899	2.554	1.103	0.000	Maximum
SLT	100%	9.576	9.576	21.904	2.803	1.108	0.000	Maximum
LO	100%	6.657	6.657	16.885	-2.248	1.178	0.000	Maximum
KW	100%	1.607	1.607	18.904	-2.453	1.120	0.000	Maximum
BILGE PS	100%	8.354	8.354	27.497	-3.961	1.437	0.000	Maximum
BILGE SB	100%	8.354	8.354	27.497	3.961	1.437	0.000	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9367.876	52.153	0.012	7.366	322.079	
FS correction						0.034		
VCG fluid						7.400		

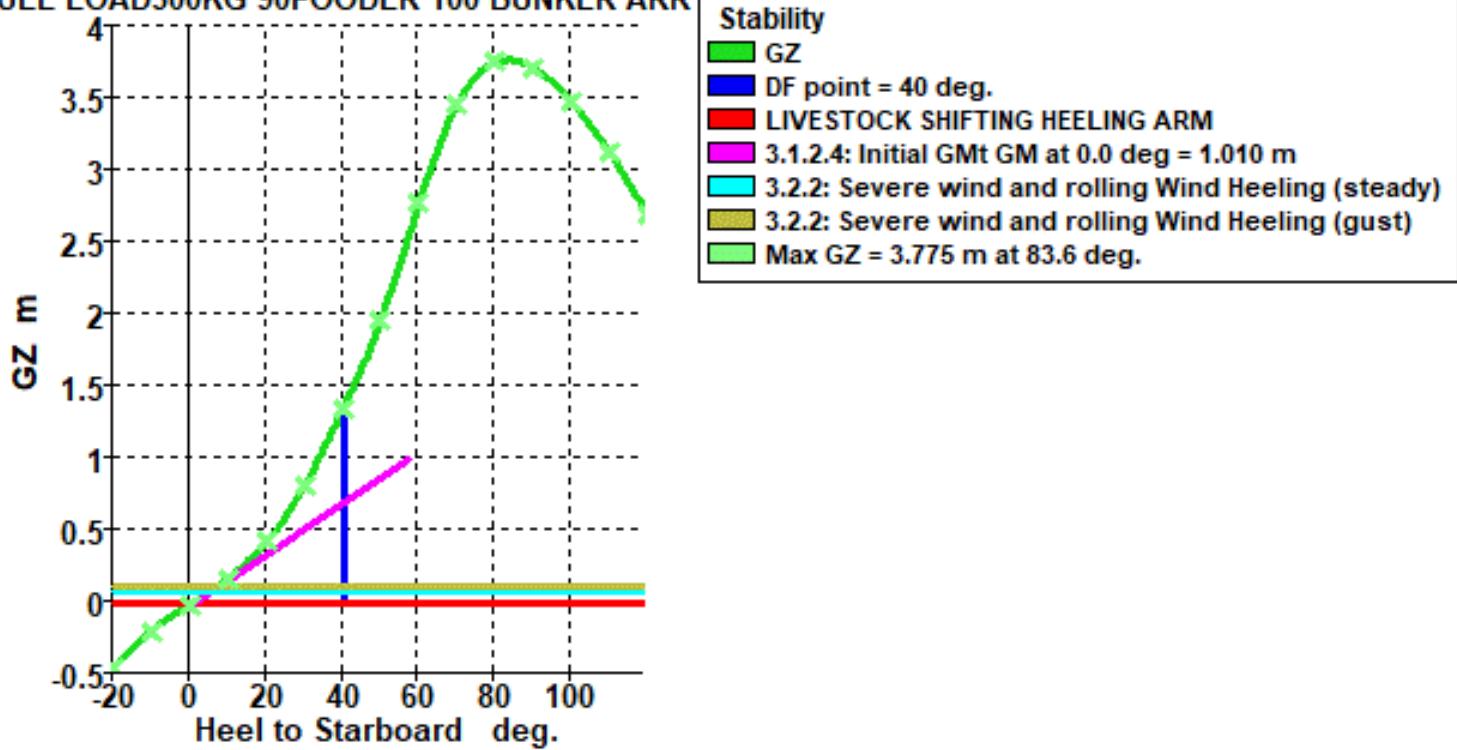
EQUILIBRIUM DATA

Draft Amidships m	6.898	LCB from zero pt. (+ve fwd) m	52.095
Displacement t	9368	LCF from zero pt. (+ve fwd) m	48.469
Heel deg	0.8	KB m	3.902
Draft at FP m	6.102	KG fluid m	7.400
Draft at AP m	7.693	BMt m	4.510
Draft at LCF m	6.991	BML m	152.837
Trim (+ve by stern) m	1.591	GMt corrected m	1.011
WL Length m	117.266	GML m	149.339
Beam max extents on WL m	19.076	KMt m	8.411
Wetted Area m^2	2679.825	KML m	156.708
Waterpl. Area m^2	1730.429	Immersion (TPc) tonne/cm	17.737
Prismatic coeff. (Cp)	0.637	MTc tonne.m	127.396
Block coeff. (Cb)	0.539	RM at 1deg = GMt.Disp.sin(1) tonne.m	165.332
Max Sect. area coeff. (Cm)	0.913	Max deck inclination deg	1.1666
Waterpl. area coeff. (Cwp)	0.774	Trim angle (+ve by stern) deg	0.8300

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 40 DEG.

FULL LOAD 300KG 90FOODER 100 BUNKER ARR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.449	4.1701	6.156	7.352	117.232	2709.287	1820.847	0.651	0.463	52.122	50.259	1.818	0.6242	1507.095
-10.0	-0.195	0.9940	6.139	7.597	117.247	2682.429	1748.821	0.640	0.539	52.118	48.907	1.213	0.7608	1507.095
0.0	-0.012	-0.0212	6.105	7.691	117.265	2679.872	1730.266	0.637	0.539	52.102	48.469	1.010	0.8277	1507.095
10.0	0.172	0.7707	6.135	7.601	117.249	2682.514	1749.001	0.640	0.539	52.107	48.901	1.218	0.7650	1507.095
20.0	0.427	3.6795	6.153	7.354	117.234	2709.095	1820.816	0.651	0.463	52.117	50.256	1.826	0.6263	1507.095
30.0	0.819	9.7818	6.067	6.993	117.261	2747.250	1938.252	0.670	0.405	52.127	51.645	2.795	0.4835	1507.095
40.0	1.350	20.5579	5.760	6.429	117.338	2795.378	2044.347	0.691	0.393	52.136	52.892	3.289	0.3492	1507.095
50.0	1.970	37.0201	4.992	5.395	117.343	2849.611	2178.319	0.705	0.395	52.142	53.591	4.051	0.2104	1507.095
60.0	2.788	60.7404	3.341	3.379	116.885	2922.414	2293.549	0.713	0.392	52.153	53.920	4.786	0.0199	1507.095
70.0	3.473	92.3114	-0.055	-0.536	113.936	2911.388	2164.956	0.711	0.466	52.160	54.103	2.844	-0.2511	1507.095
80.0	3.759	128.8013	-10.304	-11.854	115.240	2857.002	1987.273	0.688	0.565	52.165	54.017	0.573	-0.8090	1507.095
90.0	3.721	166.4130	n/a	n/a	116.167	2831.678	1886.054	0.676	0.629	52.171	53.835	-0.886	n/a	1507.095
100.0	3.484	202.5600	-31.330	-32.354	117.248	2825.830	1848.339	0.669	0.491	52.164	53.657	-1.754	-0.5341	1507.095
110.0	3.131	235.7173	-21.016	-21.058	117.889	2858.368	1852.628	0.669	0.400	52.154	53.258	-2.235	-0.0217	1507.095
120.0	2.694	264.8819	-17.699	-17.237	118.048	2890.543	1859.424	0.677	0.354	52.136	52.823	-2.814	0.2410	1507.095

DF point	DF point	Deck Edge)		Margin Line	Key point	Type													
Downflooding point	Downflooding point				Immersion angle deg														
Not immersed in positive	40	0	2.8	n/a	0.232	-0.600	-1.268	-1.830	-2.245	-2.417	-2.301	-2.724	-4.474	-6.018	-7.665	-9.051	-10.046		
			3.6	n/a	0.308	-0.551	-1.247	-1.838	-2.281	-2.481	-2.390	-2.698	-4.474	-6.018	-7.665	-9.051	-10.084		
			0	7.081	5.397	3.579	1.743	-0.002	-1.525	-2.767	-3.833	-4.711	-5.343	-5.726	-5.850	-5.676			
			0	7.081	8.522	9.735	10.742	11.568	12.264	12.821	13.081	13.016	12.657	12.001	11.064	9.913			

1.7 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9495) = 0.154 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 9495 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.154 = 0.123 \text{ m}$

1.8 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 9495) = 0.014 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.014 = 0.0112 \text{ m}$

1.9 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1507.095 \times 10.7) / 9495 = 0.086 \text{ m}$

P = 0.05 TONS / m^2

A = 1507.095 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.086 = 0.069 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.7818	Pass	+210.40
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	20.5455	Pass	+298.43
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	10.7637	Pass	+526.20
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.775	Pass	+1787.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	83.6	Pass	+234.54
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.010	Pass	+573.33
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	16.0	deg	5.4	Pass	+66.24
	Area1 / Area2 shall not be less than (\geq)	100.00	%	359.83	Pass	+259.83
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	5.1399	m.deg	20.5489	Pass	+299.79

Load Case NO.08 – FULL LOAD300KG 60FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	100%	74.026	74.026	57.415	-8.562	4.750	0.000	Maximum
F.O.T 1 SB	85%	74.026	62.922	57.400	8.544	4.354	3.329	Maximum
F.O.T 2 PS	100%	75.375	75.375	47.530	-8.610	4.710	0.000	Maximum
F.O.T 2 SB	85%	75.375	64.069	47.534	8.595	4.309	3.549	Maximum
D.O. 3 PS	100%	66.996	66.996	37.211	-8.550	4.912	0.000	Maximum
D.O. 3 SB	85%	63.888	54.305	37.501	8.529	4.529	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10185.953	52.445	0.001	7.389	332.266	
FS correction						0.033		
VCG fluid						7.421		

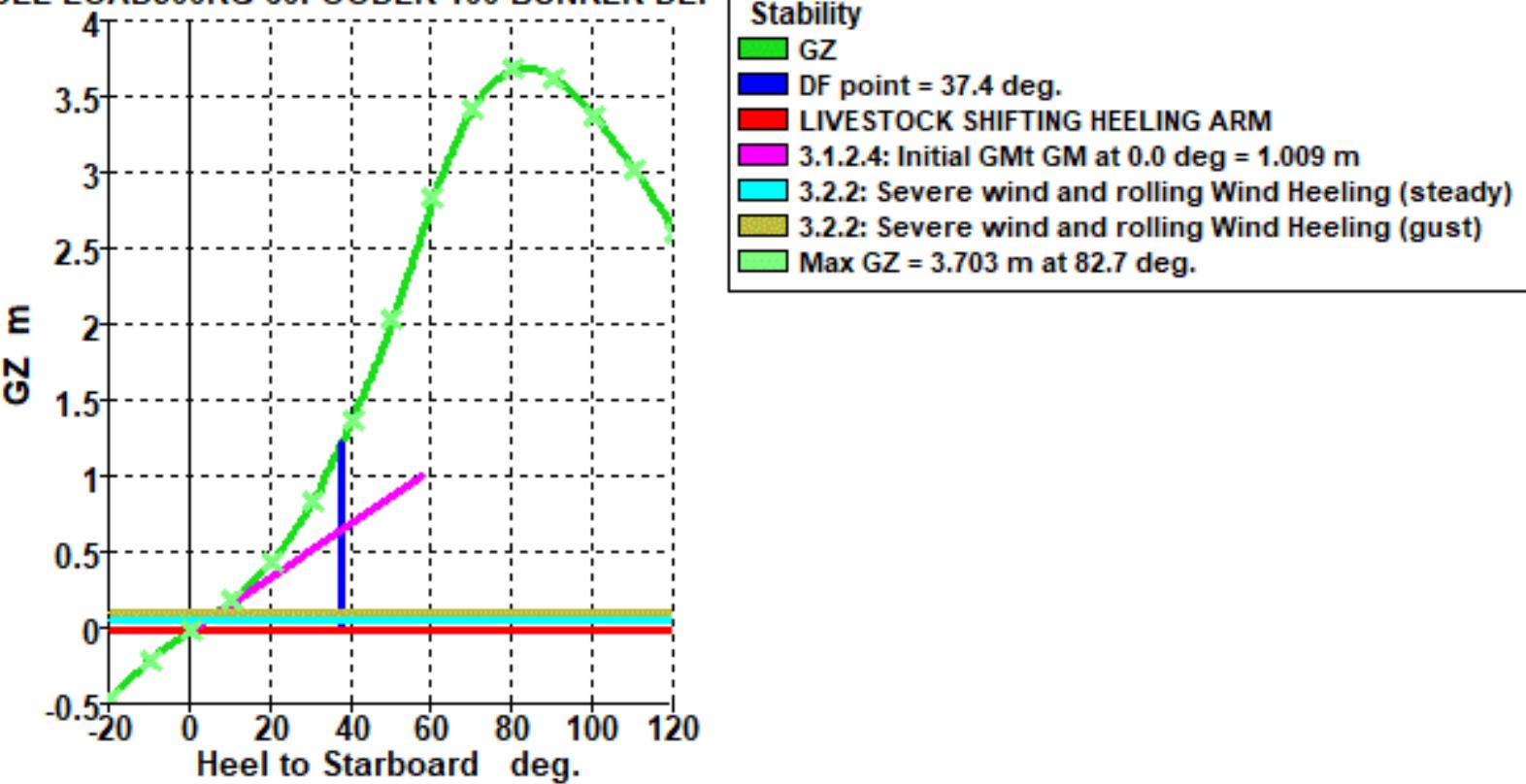
EQUILIBRIUM DATA

Draft Amidships m	7.386	LCB from zero pt. (+ve fwd) m	52.409
Displacement t	10186	LCF from zero pt. (+ve fwd) m	48.055
Heel deg	0.0	KB m	4.161
Draft at FP m	6.832	KG fluid m	7.421
Draft at AP m	7.940	BMt m	4.269
Draft at LCF m	7.455	BML m	141.812
Trim (+ve by stern) m	1.108	GMt corrected m	1.009
WL Length m	116.794	GML m	138.552
Beam max extents on WL m	19.140	KMt m	8.430
Wetted Area m^2	2802.098	KML m	145.966
Waterpl. Area m^2	1746.955	Immersion (TPc) tonne/cm	17.906
Prismatic coeff. (Cp)	0.650	MTc tonne.m	128.515
Block coeff. (Cb)	0.565	RM at 1deg = GMt.Disp.sin(1) tonne.m	179.327
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5782
Waterpl. area coeff. (Cwp)	0.781	Trim angle (+ve by stern) deg	0.5782

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.40 DEG.

FULL LOAD 300KG 60FOODER 100 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.455	4.1321	6.806	7.654	116.817	2831.825	1855.481	0.663	0.479	52.425	50.386	1.803	0.4424	1449.942
-10	-0.194	0.9320	6.839	7.863	116.787	2815.006	1786.646	0.653	0.553	52.415	48.856	1.285	0.5346	1449.942
0	-0.001	-0.0009	6.833	7.939	116.793	2802.109	1746.915	0.650	0.566	52.412	48.056	1.009	0.5772	1449.942
10	0.193	0.9291	6.839	7.863	116.787	2815.013	1786.647	0.653	0.553	52.415	48.856	1.285	0.5346	1449.942
20	0.454	4.0829	6.805	7.656	116.819	2831.775	1855.488	0.663	0.479	52.421	50.384	1.803	0.4442	1449.942
30	0.842	10.4299	6.675	7.341	116.926	2869.987	1977.336	0.681	0.419	52.427	51.800	2.751	0.3472	1449.942
40	1.390	21.4929	6.356	6.844	117.124	2920.038	2103.536	0.702	0.399	52.432	53.056	3.459	0.2544	1449.942
50	2.045	38.5380	5.628	5.885	117.351	2974.171	2244.787	0.716	0.401	52.437	53.699	4.235	0.1342	1449.942
60	2.843	62.9778	4.105	4.003	117.163	3036.557	2312.238	0.723	0.396	52.448	54.172	4.348	-0.0532	1449.942
70	3.439	94.6548	1.109	0.443	115.518	3027.949	2191.761	0.711	0.477	52.455	54.460	2.495	-0.3473	1449.942
80	3.692	130.5945	-7.794	-9.775	115.878	2975.650	2022.899	0.693	0.575	52.460	54.434	0.451	-1.0334	1449.942
90	3.637	167.4501	n/a	n/a	116.639	2946.454	1917.829	0.681	0.634	52.464	54.195	-0.960	n/a	1449.942
100	3.390	202.7010	-28.547	-30.191	117.512	2937.226	1878.231	0.673	0.502	52.462	53.921	-1.796	-0.8579	1449.942
110	3.036	234.8935	-19.578	-19.992	118.002	2981.778	1890.015	0.673	0.412	52.454	53.598	-2.200	-0.2158	1449.942
120	2.623	263.2126	-16.701	-16.533	118.048	3009.446	1915.441	0.680	0.360	52.439	53.109	-2.527	0.0877	1449.942

DF point	DF point	Deck Edge (immersion m)	Margin Line (immersion m)	Key point
Downfloodin g point	Downfloodin g point			Type
Not immersed in positive range	37.4	0	n/a	Immersion angle deg
0	0	6.418	4.763	Emergence angle deg
0	0	6.418	7.888	Freeboard at 0.0 deg m
0.9	n/a	0.076	- 0.795	Freeboard at 10.0 deg m
0	0	6.418	9.168	Freeboard at 20.0 deg m
				Freeboard at 30.0 deg m
				Freeboard at 40.0 deg m
				Freeboard at 50.0 deg m
				Freeboard at 60.0 deg m
				Freeboard at 70.0 deg m
				Freeboard at 80.0 deg m
				Freeboard at 90.0 deg m
				Freeboard at 100.0 deg m
				Freeboard at 110.0 deg m
				Freeboard at 120.0 deg m

1.10 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 10186) = 0.142$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 10186 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.142 = 0.113 \text{ m}$

1.11 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 10186) = 0.0129 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0129 = 0.0103 \text{ m}$

1.12 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1449.942 \times 10.7 / 10186 = 0.076 \text{ m}$

P = 0.05 TONS / m^2

A = 1449.942 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.076 = 0.061 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.4299	Pass	7.2786
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.0684	Pass	12.9118
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.6385	Pass	5.9196
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.703	Pass	3.503
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.009	Pass	0.859
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.0	Pass	6.0
	Area1 / Area2 shall not be less than (>=)	100.00	%	310.23	Pass	210.23
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.6437	m.deg	18.0680	Pass	13.4243

Load Case NO.09 – FULL LOAD300KG 60FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.998	64.115	0.000	5.211	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9718.784	52.285	0.005	7.302	399.597	
FS correction						0.041		
VCG fluid						7.343		

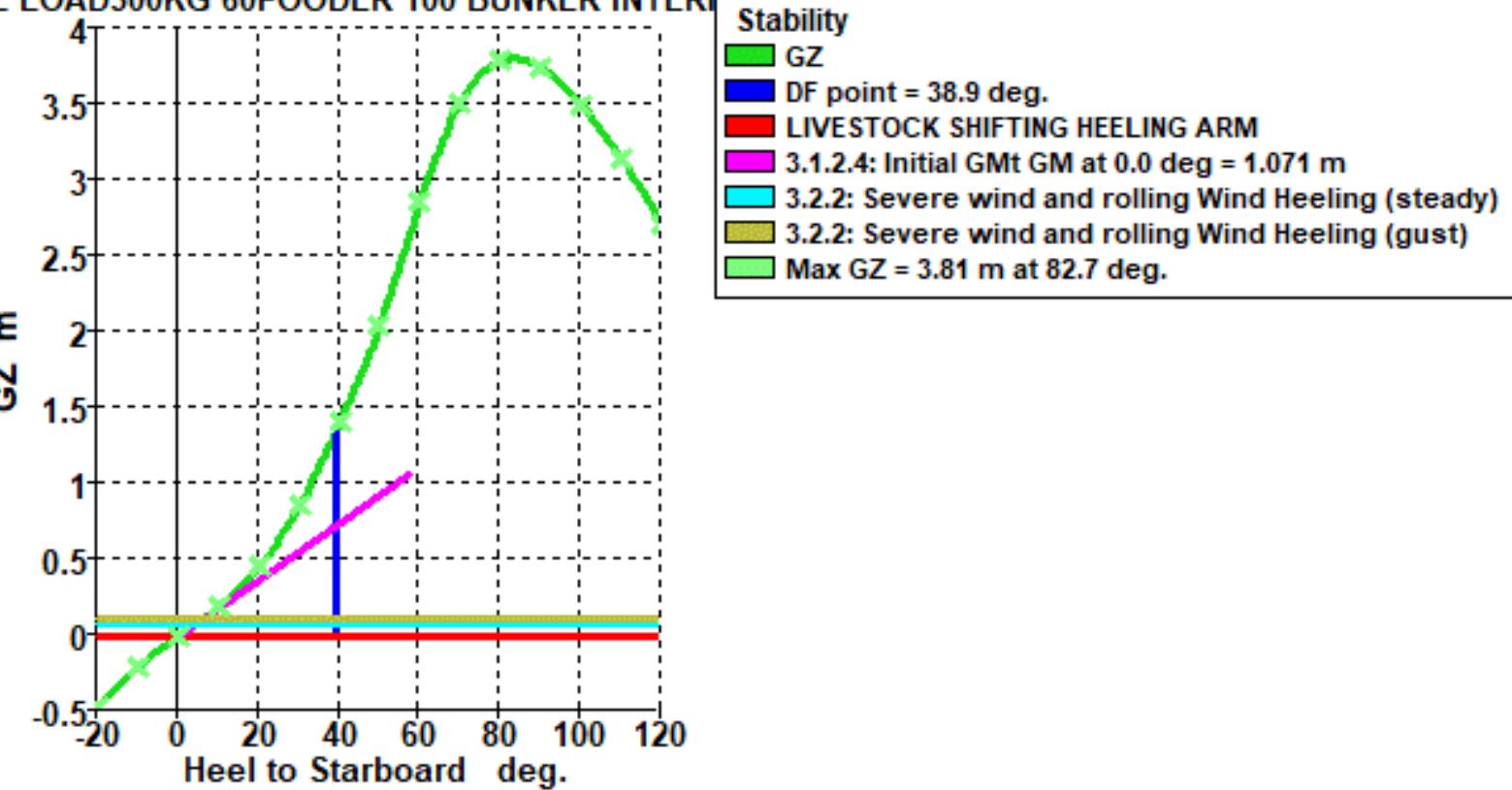
EQUILIBRIUM DATA

Draft Amidships m	7.107	LCB from zero pt. (+ve fwd) m	52.237
Displacement t	9719	LCF from zero pt. (+ve fwd) m	48.293
Heel deg	0.0	KB m	4.013
Draft at FP m	6.414	KG fluid m	7.343
Draft at AP m	7.801	BMt m	4.402
Draft at LCF m	7.191	BML m	148.058
Trim (+ve by stern) m	1.387	GMt corrected m	1.072
WL Length m	117.114	GML m	144.728
Beam max extents on WL m	19.104	KMt m	8.415
Wetted Area m^2	2732.518	KML m	152.060
Waterpl. Area m^2	1738.096	Immersion (TPc) tonne/cm	17.815
Prismatic coeff. (Cp)	0.643	MTc tonne.m	128.087
Block coeff. (Cb)	0.550	RM at 1deg = GMt.Disp.sin(1) tonne.m	181.781
Max Sect. area coeff. (Cm)	0.915	Max deck inclination deg	0.7234
Waterpl. area coeff. (Cwp)	0.777	Trim angle (+ve by stern) deg	0.7234

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.90 DEG.

ILL LOAD300KG 60FOODER 100 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.471	4.3209	6.437	7.481	117.090	2764.497	1836.156	0.656	0.470	52.259	50.314	1.871	0.5445	1482.518
-10	-0.203	0.9979	6.439	7.714	117.097	2739.156	1764.885	0.646	0.545	52.245	48.856	1.306	0.6654	1482.518
0	-0.005	-0.0088	6.416	7.799	117.113	2732.543	1738.007	0.643	0.550	52.242	48.295	1.071	0.7212	1482.518
10	0.193	0.9096	6.439	7.714	117.096	2739.174	1764.876	0.646	0.545	52.246	48.857	1.308	0.6650	1482.518
20	0.462	4.1000	6.435	7.483	117.091	2764.546	1836.205	0.656	0.470	52.253	50.311	1.874	0.5469	1482.518
30	0.862	10.5886	6.330	7.142	117.141	2800.056	1956.010	0.675	0.411	52.263	51.720	2.836	0.4235	1482.518
40	1.411	21.8717	6.019	6.608	117.271	2849.863	2070.979	0.696	0.395	52.270	52.980	3.417	0.3072	1482.518
50	2.054	39.0602	5.268	5.606	117.363	2904.026	2207.860	0.710	0.397	52.275	53.655	4.171	0.1767	1482.518
60	2.871	63.6474	3.672	3.646	117.022	2972.187	2303.028	0.719	0.394	52.286	54.049	4.621	-0.0136	1482.518
70	3.523	95.8846	0.449	-0.118	114.819	2962.544	2178.284	0.710	0.470	52.293	54.277	2.720	-0.2958	1482.518
80	3.796	132.7885	-9.213	-10.966	115.522	2907.946	2002.538	0.690	0.569	52.298	54.198	0.523	-0.9148	1482.518
90	3.751	170.7349	n/a	n/a	116.382	2880.970	1899.683	0.678	0.632	52.292	53.988	-0.926	n/a	1482.518
100	3.506	207.1359	-30.125	-31.427	117.369	2874.602	1862.146	0.671	0.496	52.298	53.801	-1.787	-0.6794	1482.518
110	3.149	240.4874	-20.392	-20.601	117.944	2911.621	1869.096	0.671	0.405	52.289	53.407	-2.245	-0.1093	1482.518
120	2.718	269.8632	-17.265	-16.935	118.048	2942.467	1884.555	0.678	0.356	52.273	52.948	-2.715	0.1726	1482.518

DF point	DF point	Deck Edge (Immersion nos.)	Margin Line (Immersion nos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	38.9	0	6.797	5.123	3.334	1.528	-0.192	-1.696	-2.416	-2.615	-2.522	-2.865	-4.002	-4.895	-4.669	-6.209	-7.857	-9.244	-10.270	-10.232	
	0	6.797	8.248	9.490	10.527	11.379	12.092	12.660	12.913	12.831	12.463	11.798	10.858	9.705							

1.13 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9719) = 0.148$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m²

Displacement = 10186 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.148 = 0.119$ m

1.14 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9719) = 0.0135$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0135 = 0.0108$ m

1.15 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1449.942 \times 10.7 / 9719 = 0.082$ m

P = 0.05 TONS / m²

A = 1449.942 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.082 = 0.065$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.5886	Pass	7.4373
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	20.3358	Pass	15.1792
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	9.7472	Pass	8.0283
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.810	Pass	3.610
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GM _t	0.150	m	1.071	Pass	0.921
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.4	Pass	5.6
	Area1 / Area2 shall not be less than (>=)	100.00	%	340.77	Pass	240.77
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	5.0973	m.deg	20.3359	Pass	15.2386

Load Case NO.10 – FULL LOAD300KG 90FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.735	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10240.374	52.945	0.001	7.629	399.597	
FS correction						0.039		
VCG fluid						7.668		

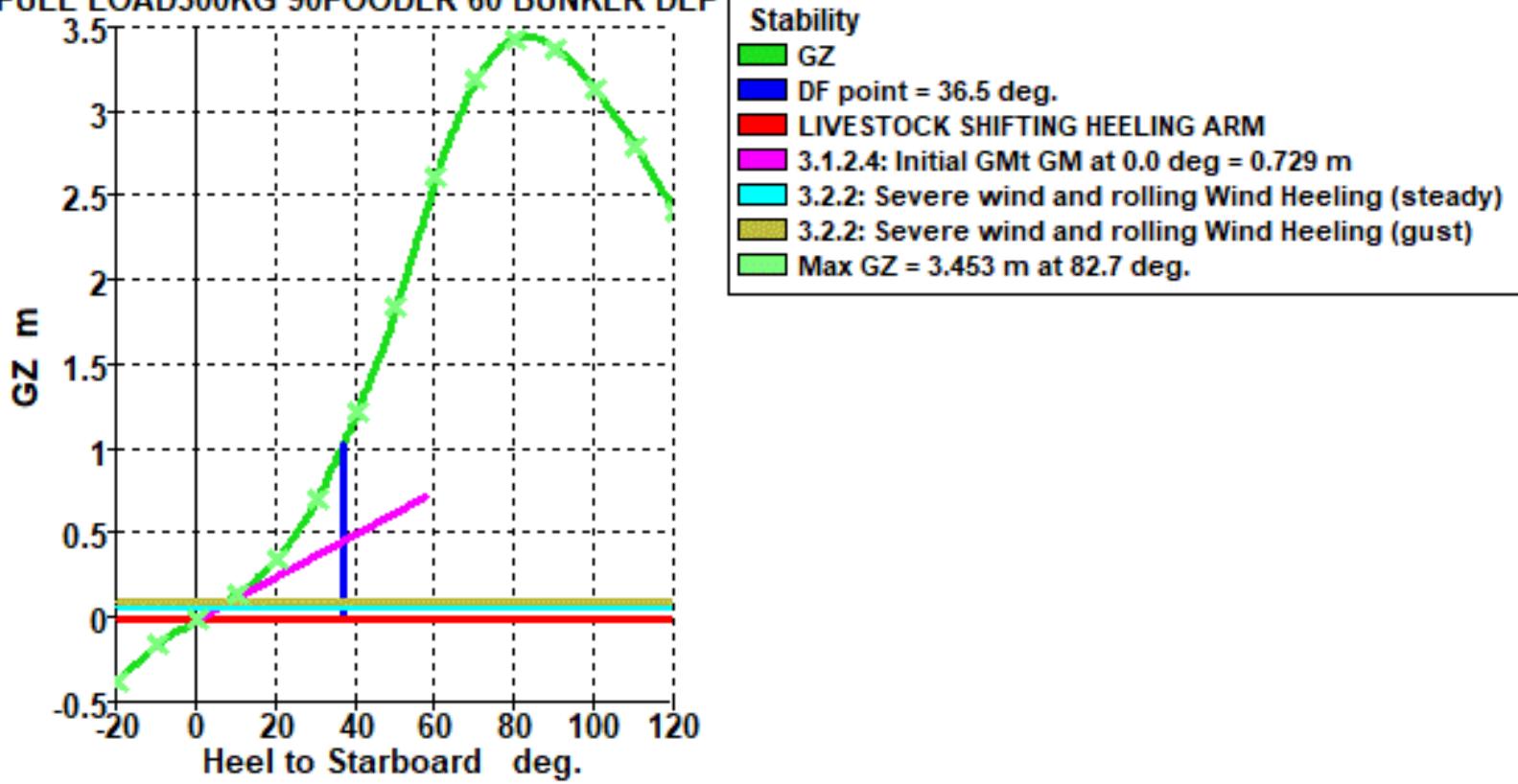
EQUILIBRIUM DATA

Draft Amidships m	7.442	LCB from zero pt. (+ve fwd) m	52.922
Displacement t	10240	LCF from zero pt. (+ve fwd) m	48.176
Heel deg	0.0	KB m	4.174
Draft at FP m	7.098	KG fluid m	7.668
Draft at AP m	7.787	BMt m	4.223
Draft at LCF m	7.485	BML m	139.182
Trim (+ve by stern) m	0.689	GMt corrected m	0.729
WL Length m	116.346	GML m	135.688
Beam max extents on WL m	19.139	KMt m	8.397
Wetted Area m^2	2812.562	KML m	143.354
Waterpl. Area m^2	1739.773	Immersion (TPc) tonne/cm	17.833
Prismatic coeff. (Cp)	0.654	MTc tonne.m	126.532
Block coeff. (Cb)	0.580	RM at 1deg = GMt.Disp.sin(1) tonne.m	130.232
Max Sect. area coeff. (Cm)	0.917	Max deck inclination deg	0.3593
Waterpl. area coeff. (Cwp)	0.781	Trim angle (+ve by stern) deg	0.3593

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 36.50 DEG.

-FULL LOAD 300KG 90FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.367	3.2369	7.052	7.501	116.444	2851.105	1857.027	0.667	0.482	52.930	50.612	1.567	0.2342	1443.505
-10	-0.148	0.7037	7.094	7.712	116.352	2828.448	1786.154	0.657	0.556	52.926	49.169	1.026	0.3224	1443.505
0	-0.001	-0.0015	7.099	7.786	116.345	2812.564	1739.756	0.654	0.580	52.923	48.177	0.729	0.3588	1443.505
10	0.147	0.6943	7.094	7.712	116.352	2828.454	1786.156	0.657	0.556	52.926	49.169	1.026	0.3224	1443.505
20	0.366	3.1739	7.052	7.501	116.444	2851.110	1857.027	0.667	0.482	52.930	50.612	1.568	0.2341	1443.505
30	0.715	8.4440	6.916	7.184	116.698	2884.328	1979.683	0.684	0.421	52.938	52.023	2.534	0.1396	1443.505
40	1.230	18.0660	6.594	6.684	116.982	2932.713	2106.469	0.705	0.401	52.943	53.238	3.272	0.0470	1443.505
50	1.856	33.3596	5.878	5.716	117.297	2986.425	2249.542	0.718	0.402	52.948	53.913	4.080	-0.0843	1443.505
60	2.628	55.7774	4.400	3.806	117.241	3047.015	2314.814	0.722	0.397	52.958	54.274	4.187	-0.3103	1443.505
70	3.201	85.1822	1.550	0.148	115.948	3038.900	2196.278	0.708	0.477	52.967	54.647	2.396	-0.7314	1443.505
80	3.443	118.6773	-6.818	-10.443	116.095	2988.051	2030.250	0.692	0.575	52.976	54.721	0.425	-1.8907	1443.505
90	3.387	153.0298	n/a	n/a	116.798	2957.778	1923.882	0.679	0.627	52.982	54.437	-0.948	n/a	1443.505
100	3.144	185.7938	-27.432	-30.945	117.598	2947.182	1883.027	0.672	0.500	52.982	54.138	-1.744	-1.8324	1443.505
110	2.804	215.5921	-19.009	-20.375	118.034	2987.557	1895.177	0.672	0.411	52.976	53.803	-2.098	-0.7129	1443.505
120	2.413	241.6985	-16.316	-16.789	118.048	3019.371	1921.265	0.678	0.359	52.962	53.314	-2.374	-0.2466	1443.505

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Key point
				Type
Downflooding point	Downflooding point			Immersion angle deg
Not immersed in positive range	36.5	2.8	n/a	Emergence angle deg
	0	0	6.209	Freeboard at 0.0 deg m
	0	6.209	7.691	Freeboard at 10.0 deg m
				Freeboard at 20.0 deg m
				Freeboard at 30.0 deg m
				Freeboard at 40.0 deg m
				Freeboard at 50.0 deg m
				Freeboard at 60.0 deg m
				Freeboard at 70.0 deg m
				Freeboard at 80.0 deg m
				Freeboard at 90.0 deg m
				Freeboard at 100.0 deg m
				Freeboard at 110.0 deg m
				Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 10240) = 0.141 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 10240 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.141 = 0.113 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 10240) = 0.0128 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0128 = 0.0103 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1443.505 \times 10.7 / 10240 = 0.075 \text{ m}$

P = 0.05 TONS / m^2

A = 1443.505 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.075 = 0.060 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.4440	Pass	5.2927
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	14.1144	Pass	8.9578
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	5.6704	Pass	3.9515
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.453	Pass	3.253
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.729	Pass	0.579
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	10.0	deg	5.3	Pass	4.7
	Area1 / Area2 shall not be less than (\geq)	100.00	%	289.97	Pass	189.97
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.8529	m.deg	14.1140	Pass	10.2611

Load Case NO.11 – FULL LOAD300KG 90FOODER 60 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.052	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9769.011	52.604	0.004	7.383	399.597	
FS correction						0.041		
VCG fluid						7.424		

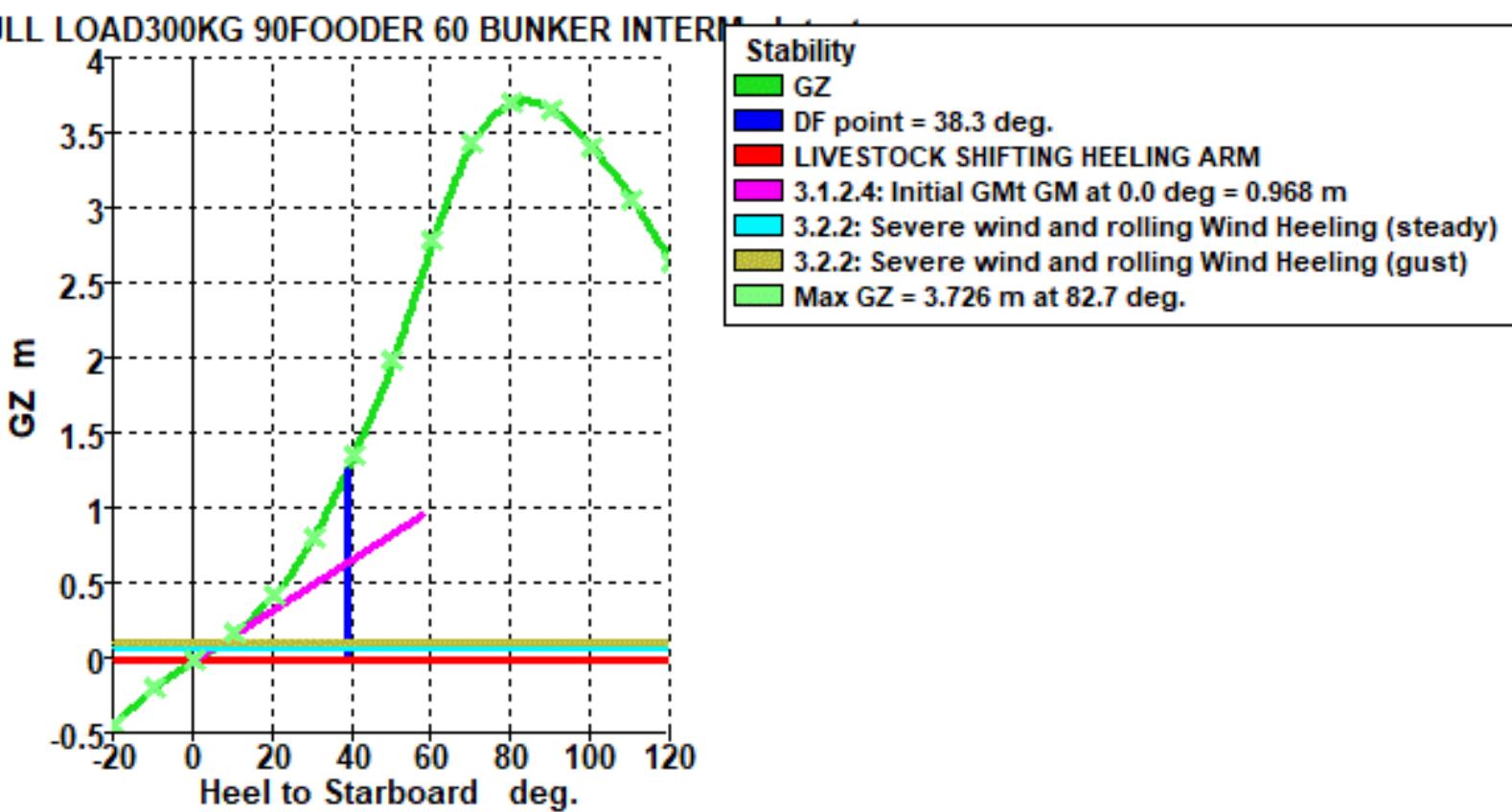
EQUILIBRIUM DATA

Draft Amidships m	7.151	LCB from zero pt. (+ve fwd) m	52.565
Displacement t	9769	LCF from zero pt. (+ve fwd) m	48.368
Heel deg	0.0	KB m	4.026
Draft at FP m	6.588	KG fluid m	7.424
Draft at AP m	7.714	BMt m	4.367
Draft at LCF m	7.218	BML m	146.118
Trim (+ve by stern) m	1.126	GMt corrected m	0.969
WL Length m	116.996	GML m	142.720
Beam max extents on WL m	19.105	KMt m	8.393
Wetted Area m^2	2741.338	KML m	150.137
Waterpl. Area m^2	1734.031	Immersion (TPc) tonne/cm	17.774
Prismatic coeff. (Cp)	0.644	MTc tonne.m	126.963
Block coeff. (Cb)	0.559	RM at 1deg = GMt.Disp.sin(1) tonne.m	165.127
Max Sect. area coeff. (Cm)	0.915	Max deck inclination deg	0.5874
Waterpl. area coeff. (Cwp)	0.776	Trim angle (+ve by stern) deg	0.5874

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.30 DEG.

ULL LOAD300KG 90FOODER 60 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.439	3.9774	6.599	7.397	116.977	2775.487	1837.570	0.658	0.471	52.577	50.452	1.791	0.4163	1477.384
-10	-0.185	0.9022	6.610	7.627	116.976	2749.654	1764.214	0.648	0.547	52.574	49.021	1.217	0.5305	1477.384
0	-0.004	-0.0070	6.590	7.713	116.995	2741.351	1733.961	0.644	0.559	52.569	48.369	0.968	0.5858	1477.384
10	0.177	0.8337	6.610	7.627	116.976	2749.656	1764.225	0.648	0.547	52.573	49.021	1.218	0.5308	1477.384
20	0.432	3.7947	6.601	7.395	116.976	2775.532	1837.561	0.658	0.471	52.581	50.453	1.794	0.4147	1477.384
30	0.820	9.9218	6.490	7.054	117.047	2811.151	1958.497	0.677	0.412	52.589	51.860	2.763	0.2943	1477.384
40	1.359	20.7307	6.176	6.520	117.203	2860.660	2075.045	0.698	0.397	52.595	53.120	3.362	0.1792	1477.384
50	1.994	37.3583	5.433	5.515	117.362	2913.985	2212.278	0.711	0.399	52.601	53.791	4.125	0.0424	1477.384
60	2.802	61.3050	3.866	3.541	117.091	2980.962	2305.797	0.719	0.393	52.611	54.125	4.559	-0.1694	1477.384
70	3.443	92.7985	0.743	-0.275	115.171	2972.046	2182.119	0.708	0.470	52.620	54.409	2.677	-0.5314	1477.384
80	3.712	128.8808	-8.559	-11.327	115.687	2917.999	2007.724	0.689	0.570	52.627	54.379	0.514	-1.4441	1477.384
90	3.666	165.9860	n/a	n/a	116.506	2890.112	1903.827	0.677	0.627	52.631	54.140	-0.923	n/a	1477.384
100	3.423	201.5496	-29.387	-31.839	117.437	2881.811	1864.506	0.670	0.495	52.630	53.899	-1.775	-1.2790	1477.384
110	3.072	234.0946	-20.014	-20.811	117.975	2918.075	1873.422	0.670	0.405	52.623	53.552	-2.207	-0.4158	1477.384
120	2.649	262.7327	-17.009	-17.074	118.048	2951.243	1889.450	0.677	0.356	52.607	53.084	-2.651	-0.0337	1477.384

DF point	DF point	Deck Edge (immersion nos.)	Margin Line (immersion nos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	38.3	0	6.659	4.989	3.210	1.418	-0.287	-1.781	-3.005	-4.081	-4.985	-5.636	-6.030	-6.158	-6.295	-7.914	-9.301	-10.275	-10.309	-10.756	-9.603

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9769) = 0.148 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 9769 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.148 = 0.118 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9769) = 0.0135 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0135 = 0.0108 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1477.384 \times 10.7 / 9769 = 0.081 \text{ m}$

P = 0.05 TONS / m^2

A = 1477.384 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.081 = 0.065 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.9218	Pass	6.7705
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.5250	Pass	13.3684
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	8.6032	Pass	6.8843
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.726	Pass	3.526
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.968	Pass	0.818
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	10.0	deg	4.8	Pass	5.2
	Area1 / Area2 shall not be less than (\geq)	100.00	%	329.91	Pass	229.91
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.7351	m.deg	18.5250	Pass	13.7899

Load Case NO.12 – FULL LOAD300KG 60FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9994.376	52.658	0.001	7.414	399.597	
FS correction						0.040		
VCG fluid						7.454		

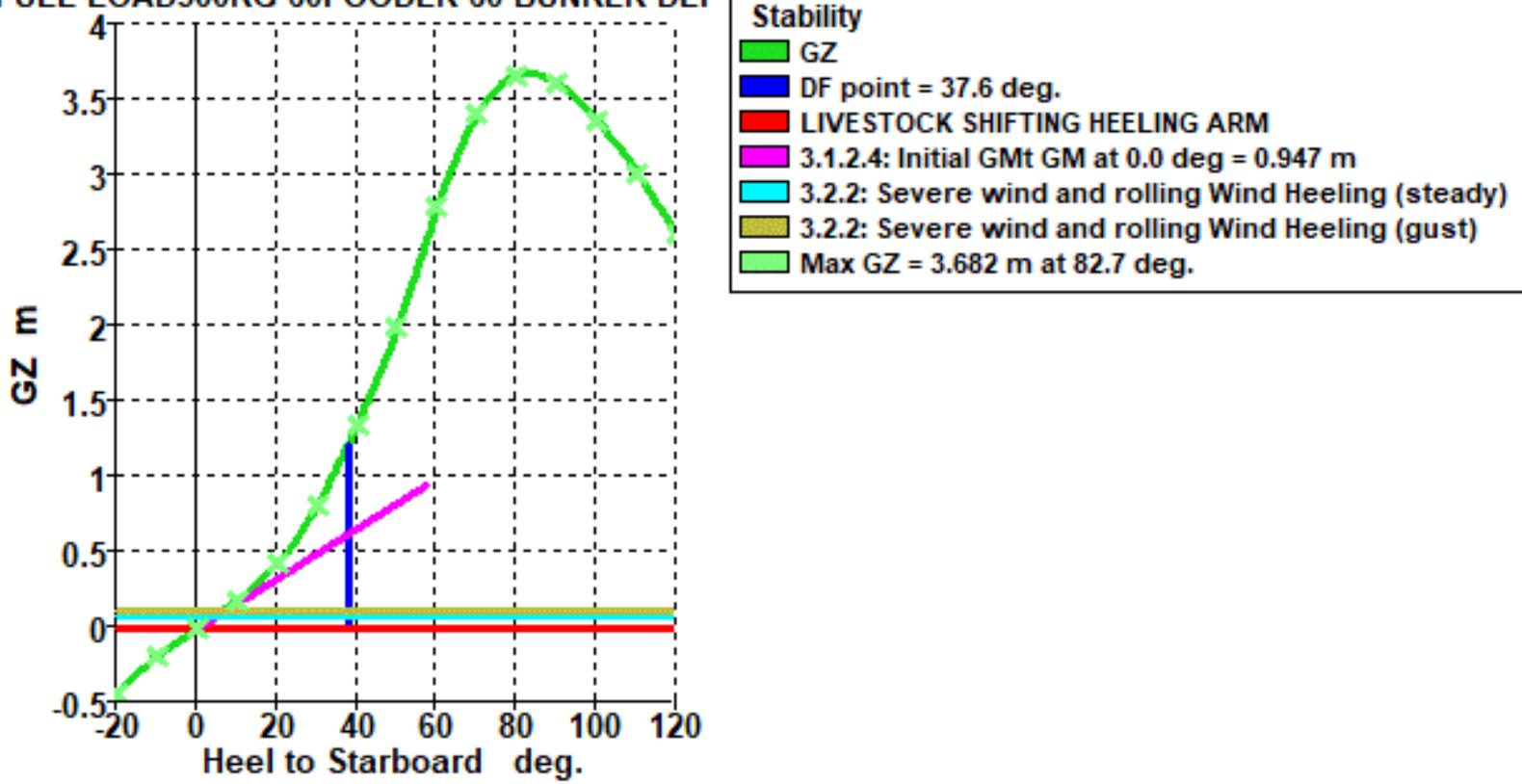
EQUILIBRIUM DATA

Draft Amidships m	7.285	LCB from zero pt. (+ve fwd) m	52.624
Displacement t	9994	LCF from zero pt. (+ve fwd) m	48.236
Heel deg	0.0	KB m	4.098
Draft at FP m	6.782	KG fluid m	7.454
Draft at AP m	7.788	BMt m	4.304
Draft at LCF m	7.346	BML m	143.194
Trim (+ve by stern) m	1.007	GMt corrected m	0.947
WL Length m	116.839	GML m	139.838
Beam max extents on WL m	19.123	KMt m	8.402
Wetted Area m^2	2775.114	KML m	147.286
Waterpl. Area m^2	1738.779	Immersion (TPc) tonne/cm	17.822
Prismatic coeff. (Cp)	0.648	MTc tonne.m	127.269
Block coeff. (Cb)	0.566	RM at 1deg = GMt.Disp.sin(1) tonne.m	165.264
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5253
Waterpl. area coeff. (Cwp)	0.778	Trim angle (+ve by stern) deg	0.5253

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.60 DEG.

-FULL LOAD 300KG 60FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.434	3.9023	6.770	7.486	116.845	2810.835	1847.081	0.662	0.476	52.636	50.472	1.766	0.3735	1461.750
-10	-0.182	0.8705	6.794	7.707	116.825	2786.469	1775.250	0.651	0.551	52.630	49.005	1.216	0.4762	1461.750
0	-0.001	-0.0016	6.783	7.787	116.838	2775.123	1738.730	0.648	0.566	52.627	48.237	0.947	0.5241	1461.750
10	0.180	0.8607	6.794	7.707	116.825	2786.479	1775.248	0.651	0.551	52.630	49.005	1.216	0.4760	1461.750
20	0.432	3.8378	6.770	7.486	116.845	2810.833	1847.084	0.662	0.476	52.635	50.472	1.767	0.3738	1461.750
30	0.815	9.9421	6.648	7.158	116.940	2844.784	1968.889	0.680	0.416	52.644	51.890	2.729	0.2656	1461.750
40	1.355	20.7002	6.331	6.642	117.132	2894.155	2090.477	0.701	0.398	52.650	53.137	3.388	0.1620	1461.750
50	1.996	37.3233	5.599	5.658	117.351	2947.498	2229.821	0.714	0.400	52.655	53.794	4.160	0.0307	1461.750
60	2.796	61.2715	4.066	3.722	117.152	3011.553	2310.114	0.721	0.394	52.665	54.168	4.429	-0.1792	1461.750
70	3.411	92.5736	1.047	0.010	115.467	3003.496	2188.627	0.709	0.474	52.674	54.493	2.569	-0.5411	1461.750
80	3.670	128.2702	-7.908	-10.720	115.850	2950.581	2017.418	0.691	0.573	52.681	54.485	0.477	-1.4666	1461.750
90	3.619	164.9259	n/a	n/a	116.620	2921.778	1912.642	0.679	0.629	52.686	54.236	-0.942	n/a	1461.750
100	3.374	200.0070	-28.663	-31.207	117.500	2912.476	1872.709	0.671	0.498	52.685	53.967	-1.781	-1.3270	1461.750
110	3.023	232.0591	-19.640	-20.498	117.999	2952.036	1883.460	0.671	0.408	52.678	53.635	-2.189	-0.4478	1461.750
120	2.608	260.2467	-16.749	-16.868	118.048	2983.583	1904.459	0.678	0.358	52.662	53.152	-2.563	-0.0618	1461.750

DF point	DF point	Deck Edge (immersion nos.)	Margin Line (immersion nos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	37.6	0	6.482	4.821	3.061	1.288	-0.402	-1.885	-3.104	-4.184	-5.097	-5.756	-6.153	-6.283	-6.112	9.477					
	0	6.482	7.947	9.217	10.287	11.168	11.904	12.484	12.730	12.629	12.244	11.573	10.631	9.422	-10.429						

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9994) = 0.144 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m^2

Displacement = 9994 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.144 = 0.115 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9994) = 0.0132 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0132 = 0.0105 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1461.75 \times 10.7 / 9994 = 0.078 \text{ m}$

P = 0.05 TONS / m^2

A = 1461.75 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.078 = 0.063 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.9421	Pass	6.7908
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.6392	Pass	12.4826
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.6971	Pass	5.9782
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.682	Pass	3.482
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.947	Pass	0.797
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	10.0	deg	4.5	Pass	5.5
	Area1 / Area2 shall not be less than (\geq)	100.00	%	315.86	Pass	215.86
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.5578	m.deg	17.6387	Pass	13.0809

Load Case NO.13 – FULL LOAD300KG 60FOODER 60 BUNKER INTERM

Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	175.300	175.300	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	190.070	190.070	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	191.050	191.050	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	324.700	324.700	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	329.060	329.060	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	364.540	364.540	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	370.840	370.840	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.998	64.115	0.000	5.212	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

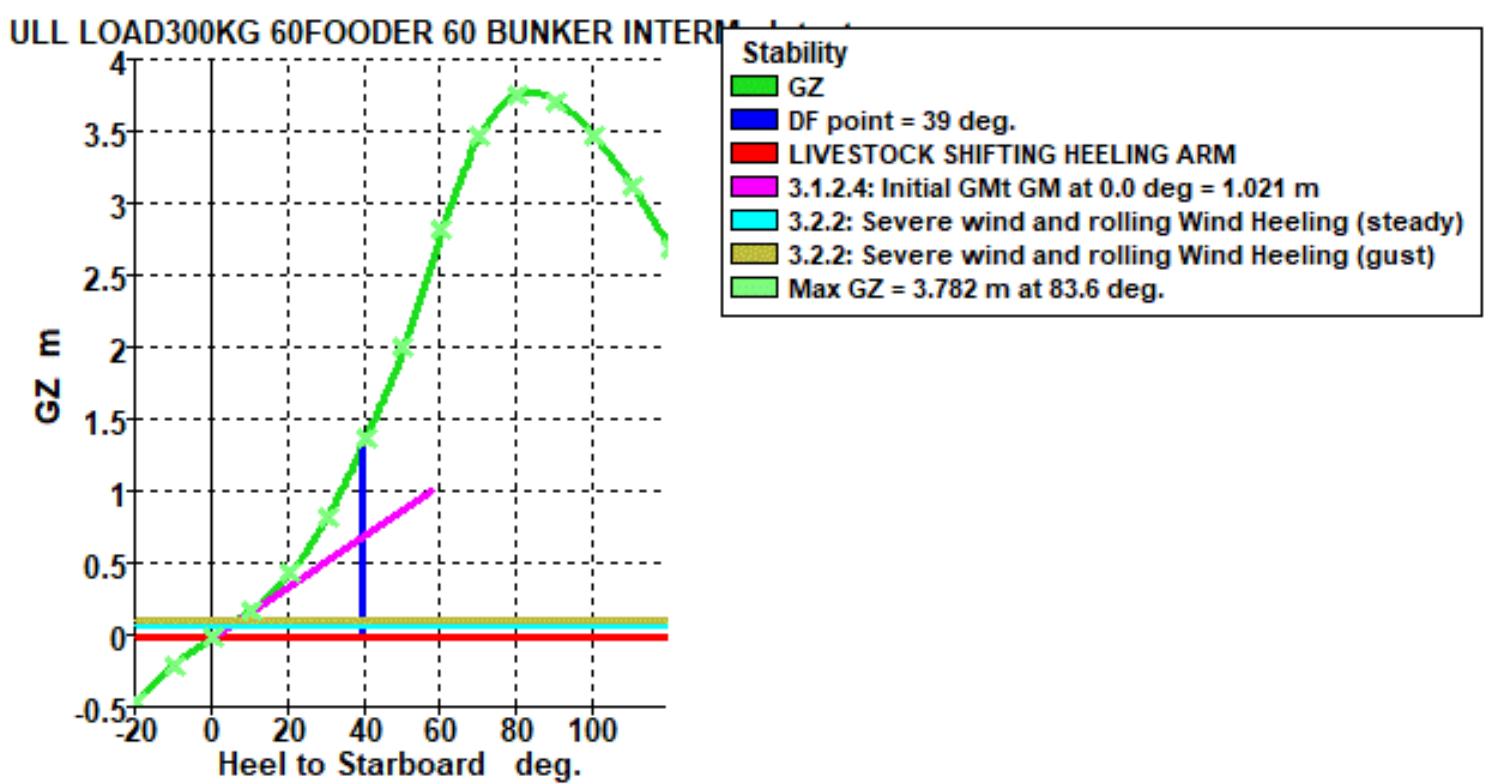
Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9606.680	52.403	0.004	7.338	399.597	
FS correction						0.042		
VCG fluid						7.379		

EQUILIBRIUM DATA

Draft Amidships m	7.048	LCB from zero pt. (+ve fwd) m	52.356
Displacement t	9607	LCF from zero pt. (+ve fwd) m	48.404
Heel deg	0.0	KB m	3.976
Draft at FP m	6.382	KG fluid m	7.379
Draft at AP m	7.714	BMt m	4.425
Draft at LCF m	7.127	BML m	148.920
Trim (+ve by stern) m	1.332	GMt corrected m	1.021
WL Length m	117.130	GML m	145.516
Beam max extents on WL m	19.094	KMt m	8.400
Wetted Area m^2	2716.368	KML m	152.885
Waterpl. Area m^2	1733.105	Immersion (TPc) tonne/cm	17.764
Prismatic coeff. (Cp)	0.641	MTc tonne.m	127.299
Block coeff. (Cb)	0.550	RM at 1deg = GMt.Disp.sin(1) tonne.m	171.202
Max Sect. area coeff. (Cm)	0.915	Max deck inclination deg	0.6950
Waterpl. area coeff. (Cwp)	0.775	Trim angle (+ve by stern) deg	0.6950

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 39 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.452	4.1134	6.409	7.388	117.104	2748.391	1830.976	0.655	0.468	52.369	50.363	1.836	0.5107	1489.514
-10.0	-0.192	0.9382	6.409	7.624	117.111	2722.094	1758.042	0.645	0.543	52.366	48.952	1.250	0.6338	1489.514
0.0	-0.004	-0.0071	6.384	7.712	117.129	2716.386	1733.014	0.641	0.550	52.362	48.406	1.021	0.6929	1489.514
10.0	0.184	0.8686	6.409	7.624	117.111	2722.100	1758.051	0.645	0.543	52.366	48.952	1.252	0.6340	1489.514
20.0	0.445	3.9270	6.411	7.386	117.103	2748.450	1830.965	0.655	0.468	52.374	50.366	1.838	0.5085	1489.514
30.0	0.840	10.2180	6.311	7.037	117.148	2785.022	1950.518	0.674	0.409	52.383	51.766	2.805	0.3790	1489.514
40.0	1.380	21.2393	6.000	6.491	117.274	2834.104	2062.791	0.695	0.395	52.391	53.020	3.360	0.2564	1489.514
50.0	2.014	38.0713	5.246	5.475	117.361	2887.961	2198.759	0.709	0.397	52.396	53.705	4.116	0.1194	1489.514
60.0	2.829	62.2361	3.644	3.486	117.012	2957.640	2301.241	0.717	0.393	52.407	54.052	4.663	-0.0823	1489.514
70.0	3.490	94.0995	0.406	-0.366	114.762	2948.046	2175.962	0.708	0.468	52.415	54.295	2.757	-0.4026	1489.514
80.0	3.767	130.6991	-9.296	-11.507	115.501	2893.122	1999.213	0.689	0.568	52.421	54.221	0.538	-1.1534	1489.514
90.0	3.724	168.3644	n/a	n/a	116.369	2866.361	1896.533	0.677	0.628	52.424	54.009	-0.913	n/a	1489.514
100.0	3.481	204.5054	-30.212	-32.008	117.360	2859.979	1858.796	0.669	0.493	52.422	53.823	-1.774	-0.9370	1489.514
110.0	3.127	237.6209	-20.438	-20.891	117.942	2894.065	1864.941	0.670	0.403	52.414	53.424	-2.234	-0.2362	1489.514
120.0	2.696	266.7730	-17.301	-17.126	118.048	2926.840	1877.495	0.677	0.355	52.397	52.971	-2.735	0.0910	1489.514

DF point	DF point Deck Edge)		Margin Line	Key point
			Type	
Downflooding point	Downflooding point		Immersion angle deg	
Not immersed in positive	39	n/a	Emergence angle deg	
0	0	2.6	Freeboard at 0.0 deg m	
		3.4	Freeboard at 10.0 deg m	
		0	Freeboard at 20.0 deg m	
		0	Freeboard at 30.0 deg m	
		0	Freeboard at 40.0 deg m	
		0	Freeboard at 50.0 deg m	
		0	Freeboard at 60.0 deg m	
		0	Freeboard at 70.0 deg m	
		0	Freeboard at 80.0 deg m	
		0	Freeboard at 90.0 deg m	
		0	Freeboard at 100.0 deg m	
		0	Freeboard at 110.0 deg m	
		0	Freeboard at 120.0 deg m	

1.16 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.300 \times 5646.666) / (1.175 \times 9607) = 0.150$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 300 kg

Floor area per head of livestock = 1.175 m²

Displacement = 9607 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.150 = 0.120$ m

1.17 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 9607) = 0.0137$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0137 = 0.0110$ m

1.18 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1489.5 \times 10.7) / 9607 = 0.083$ m

P = 0.05 TONS / m²

A = 1489.5 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.083 = 0.066$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.2180	Pass	+224.25
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	19.9258	Pass	+286.41
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	9.7079	Pass	+464.77
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.782	Pass	+1791.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	83.6	Pass	+234.54
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.021	Pass	+580.67
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.7	Pass	+70.56
	Area1 / Area2 shall not be less than (>=)	100.00	%	344.67	Pass	+244.67
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	5.0153	m.deg	19.9257	Pass	+297.30

Load Case NO.14 – FULL LOAD350KG 90FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.735	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	100%	74.026	74.026	57.415	-8.562	4.750	0.000	Maximum
F.O.T 1 SB	90%	74.026	66.623	57.405	8.550	4.487	3.329	Maximum
F.O.T 2 PS	100%	75.375	75.375	47.530	-8.610	4.710	0.000	Maximum
F.O.T 2 SB	90%	75.375	67.837	47.533	8.600	4.444	3.549	Maximum
D.O. 3 PS	100%	66.996	66.996	37.211	-8.550	4.912	0.000	Maximum
D.O. 3 SB	90%	63.888	57.499	37.493	8.537	4.655	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10548.595	52.795	0.009	7.641	332.266	
FS correction						0.031		
VCG fluid						7.672		

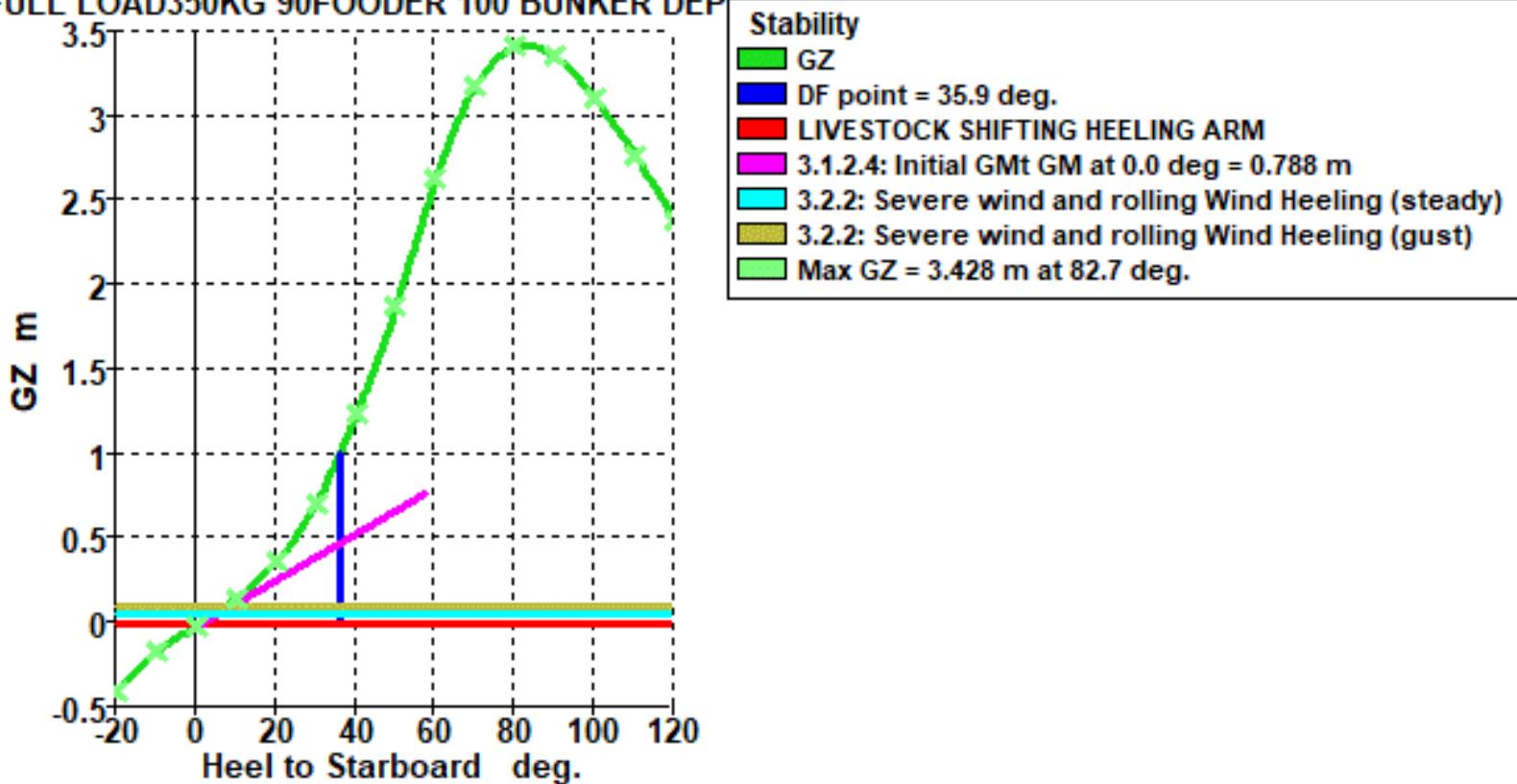
EQUILIBRIUM DATA

Draft Amidships m	7.614	LCB from zero pt. (+ve fwd) m	52.773
Displacement t	10549	LCF from zero pt. (+ve fwd) m	48.099
Heel deg	0.0	KB m	4.274
Draft at FP m	7.266	KG fluid m	7.672
Draft at AP m	7.962	BMt m	4.187
Draft at LCF m	7.657	BML m	137.506
Trim (+ve by stern) m	0.696	GMt corrected m	0.788
WL Length m	113.435	GML m	134.107
Beam max extents on WL m	19.162	KMt m	8.461
Wetted Area m^2	2858.455	KML m	141.777
Waterpl. Area m^2	1756.211	Immersion (TPc) tonne/cm	18.001
Prismatic coeff. (Cp)	0.674	MTc tonne.m	128.821
Block coeff. (Cb)	0.598	RM at 1deg = GMt.Disp.sin(1) tonne.m	145.101
Max Sect. area coeff. (Cm)	0.918	Max deck inclination deg	0.3629
Waterpl. area coeff. (Cwp)	0.808	Trim angle (+ve by stern) deg	0.3629

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 35.90 DEG.

FULL LOAD350KG 90FOODER 100 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.389	3.5710	7.191	7.701	113.440	2889.448	1870.142	0.688	0.500	52.785	50.562	1.571	0.2663	1423.937
-10	-0.166	0.8382	7.247	7.896	113.436	2874.752	1803.461	0.677	0.575	52.776	49.080	1.070	0.3383	1423.937
0	-0.009	-0.0168	7.267	7.962	113.435	2858.467	1756.217	0.674	0.598	52.774	48.100	0.788	0.3625	1423.937
10	0.148	0.6609	7.247	7.896	113.436	2874.755	1803.463	0.677	0.575	52.776	49.080	1.073	0.3383	1423.937
20	0.372	3.1800	7.189	7.703	113.440	2889.411	1870.142	0.688	0.500	52.780	50.560	1.578	0.2683	1423.937
30	0.721	8.5079	7.039	7.405	116.480	2927.153	1992.718	0.688	0.427	52.785	51.961	2.524	0.1911	1423.937
40	1.241	18.2059	6.713	6.932	116.904	2975.640	2126.225	0.708	0.403	52.790	53.166	3.340	0.1143	1423.937
50	1.882	33.6910	6.006	5.999	117.264	3030.345	2273.194	0.721	0.404	52.794	53.838	4.166	-0.0040	1423.937
60	2.644	56.3463	4.562	4.161	117.278	3086.459	2315.559	0.725	0.403	52.804	54.277	3.994	-0.2092	1423.937
70	3.188	85.7628	1.796	0.701	116.188	3078.958	2201.630	0.711	0.482	52.812	54.658	2.276	-0.5717	1423.937
80	3.419	119.0553	-6.313	-9.249	116.200	3030.439	2041.288	0.695	0.580	52.819	54.741	0.397	-1.5314	1423.937
90	3.360	153.1502	n/a	n/a	116.874	2998.918	1934.116	0.683	0.633	52.824	54.467	-0.958	n/a	1423.937
100	3.117	185.6411	-26.876	-29.677	117.641	2987.860	1892.954	0.675	0.506	52.824	54.141	-1.742	-1.4610	1423.937
110	2.777	215.1669	-18.721	-19.744	118.045	3034.203	1906.442	0.674	0.416	52.818	53.816	-2.081	-0.5337	1423.937
120	2.394	241.0443	-16.113	-16.374	118.048	3061.075	1938.816	0.680	0.362	52.804	53.319	-2.286	-0.1363	1423.937

DF point	DF point	Deck Edge (immersion nos.)	Margin Line (immersion nos.)	Key point	Type
Downflooding point	Downflooding point			Immersion angle deg	Immersion angle deg
Not immersed in positive range	35.9	0.8	n/a	0	n/a
				Emergence angle deg	Freeboard at 0.0 deg m
				Freeboard at 10.0 deg m	Freeboard at 20.0 deg m
				Freeboard at 30.0 deg m	Freeboard at 40.0 deg m
				Freeboard at 50.0 deg m	Freeboard at 60.0 deg m
				Freeboard at 70.0 deg m	Freeboard at 80.0 deg m
				Freeboard at 90.0 deg m	Freeboard at 100.0 deg m
				Freeboard at 110.0 deg m	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 10549) = 0.144$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9994 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.144 = 0.115$ m

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9994) = 0.0125$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0125 = 0.0100$ m

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1423.937 \times 10.7 / 10549 = 0.072$ m

P = 0.05 TONS / m²

A = 1423.937 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.072 = 0.058$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.5079	Pass	5.3566
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	13.5423	Pass	8.3857
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	5.0344	Pass	3.3155
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.428	Pass	3.228
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.788	Pass	0.638
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	5.3	Pass	4.7
	Area1 / Area2 shall not be less than (>=)	100.00	%	269.00	Pass	169.00
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.7391	m.deg	13.5449	Pass	9.8058

Load Case NO.15 – FULL LOAD350KG 90FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.053	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9987.096	52.560	0.005	7.394	399.597	
FS correction						0.040		
VCG fluid						7.434		

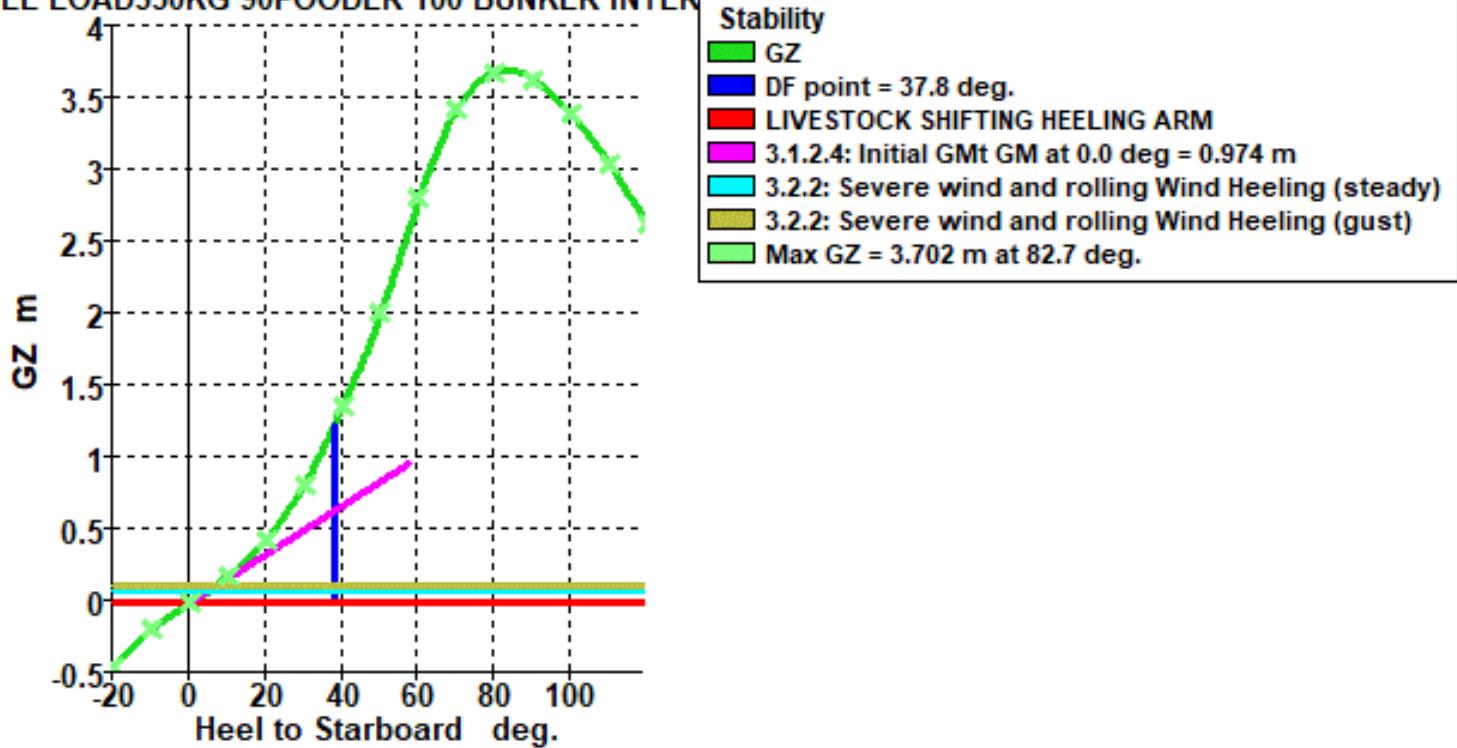
EQUILIBRIUM DATA

Draft Amidships m	7.276	LCB from zero pt. (+ve fwd) m	52.524
Displacement t	9987	LCF from zero pt. (+ve fwd) m	48.211
Heel deg	0.0	KB m	4.096
Draft at FP m	6.733	KG fluid m	7.434
Draft at AP m	7.819	BMt m	4.313
Draft at LCF m	7.342	BML m	143.699
Trim (+ve by stern) m	1.086	GMt corrected m	0.974
WL Length m	116.885	GML m	140.361
Beam max extents on WL m	19.123	KMt m	8.409
Wetted Area m^2	2773.547	KML m	147.788
Waterpl. Area m^2	1740.302	Immersion (TPc) tonne/cm	17.838
Prismatic coeff. (Cp)	0.648	MTc tonne.m	127.652
Block coeff. (Cb)	0.563	RM at 1deg = GMt.Disp.sin(1) tonne.m	169.809
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5666
Waterpl. area coeff. (Cwp)	0.779	Trim angle (+ve by stern) deg	0.5666

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.8 DEG.

JLL LOAD350KG 90FOODER 100 BUNKER INTER



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.445	4.0596	6.725	7.517	116.884	2808.663	1847.030	0.661	0.475	52.538	50.430	1.784	0.4132	1462.784
-10.0	-0.190	0.9304	6.747	7.737	116.870	2784.435	1775.705	0.651	0.550	52.530	48.949	1.239	0.5168	1462.784
0.0	-0.005	-0.0085	6.735	7.818	116.884	2773.563	1740.245	0.648	0.563	52.527	48.212	0.974	0.5653	1462.784
10.0	0.180	0.8444	6.747	7.737	116.870	2784.447	1775.703	0.651	0.550	52.530	48.949	1.240	0.5166	1462.784
20.0	0.436	3.8450	6.724	7.518	116.885	2808.645	1847.036	0.661	0.475	52.536	50.429	1.787	0.4140	1462.784
30.0	0.823	10.0076	6.604	7.189	116.974	2842.559	1968.642	0.679	0.416	52.544	51.849	2.749	0.3055	1462.784
40.0	1.365	20.8554	6.287	6.674	117.156	2892.059	2089.907	0.701	0.398	52.550	53.096	3.406	0.2020	1462.784
50.0	2.010	37.5959	5.553	5.692	117.356	2945.877	2229.384	0.714	0.400	52.555	53.758	4.176	0.0729	1462.784
60.0	2.812	61.6876	4.012	3.763	117.136	3010.104	2309.607	0.721	0.395	52.566	54.151	4.444	-0.1298	1462.784
70.0	3.429	93.1605	0.965	0.071	115.389	3001.806	2187.800	0.709	0.474	52.574	54.457	2.582	-0.4666	1462.784
80.0	3.690	129.0485	-8.089	-10.582	115.805	2948.868	2016.371	0.691	0.573	52.580	54.438	0.482	-1.3002	1462.784
90.0	3.639	165.9042	n/a	n/a	116.589	2920.086	1911.648	0.679	0.630	52.585	54.191	-0.940	n/a	1462.784
100.0	3.394	201.1888	-28.869	-31.051	117.483	2911.013	1871.910	0.672	0.498	52.583	53.927	-1.782	-1.1385	1462.784
110.0	3.043	233.4415	-19.745	-20.420	117.992	2951.361	1882.550	0.671	0.408	52.576	53.594	-2.196	-0.3518	1462.784
120.0	2.627	261.8182	-16.820	-16.815	118.048	2982.081	1903.511	0.678	0.358	52.560	53.112	-2.574	0.0026	1462.784

DF point	DF point	Deck Edge)	Margin Line	Key point
			Type	
Downfloodin g point	Downfloodin g point			
Not immersed in positive	37.8	0	Immersion angle deg	
0	6.520	1.5	Emergence angle deg	
		n/a	Freeboard at 0.0 deg m	
			Freeboard at 10.0 deg m	
			Freeboard at 20.0 deg m	
			Freeboard at 30.0 deg m	
			Freeboard at 40.0 deg m	
			Freeboard at 50.0 deg m	
			Freeboard at 60.0 deg m	
			Freeboard at 70.0 deg m	
			Freeboard at 80.0 deg m	
			Freeboard at 90.0 deg m	
			Freeboard at 100.0 deg m	
			Freeboard at 110.0 deg m	
			Freeboard at 120.0 deg m	

1.19 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 9987) = 0.152 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9987 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.152 = 0.122 \text{ m}$

1.20 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 9987) = 0.0132 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0132 = 0.0105 \text{ m}$

1.21 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1463 \times 10.7) / 9987 = 0.078 \text{ m}$

P = 0.05 TONS / m²

A = 1463 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.078 = 0.063 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.0076	Pass	+217.57
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.9647	Pass	+248.38
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.9571	Pass	+362.92
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.702	Pass	+1751.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.974	Pass	+549.33
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.6	Pass	+71.26
	Area1 / Area2 shall not be less than (>=)	100.00	%	317.24	Pass	+217.24
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.6231	m.deg	17.9648	Pass	+288.59

Load Case NO.16 – FULL LOAD350KG 90FOODER 100 BUNKER ARR
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	5.000	5.000	76.400	0.000	19.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.371	268.734	Maximum
SO1	10%	9.719	0.972	15.766	0.000	0.079	3.006	Maximum
SO2	10%	18.375	1.837	19.260	-6.243	4.609	10.507	Maximum
SO4	10%	12.617	1.262	14.134	-4.488	4.674	10.362	Maximum
SO5	10%	6.570	0.657	9.840	-3.092	4.925	7.259	Maximum
F.O.T 1 PS	20%	74.026	14.805	57.288	-8.436	2.466	3.382	Maximum
F.O.T 1 SB	0%	74.026	0.000	57.221	8.342	1.750	0.000	Maximum
F.O.T 2 PS	20%	75.375	15.075	47.568	-8.497	2.429	3.549	Maximum
F.O.T 2 SB	0%	75.375	0.000	47.585	8.420	1.750	0.000	Maximum
D.O. 3 PS	20%	66.996	13.399	37.649	-8.348	2.653	3.428	Maximum
D.O. 3 SB	0%	63.888	0.000	38.769	8.209	1.750	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	0%	42.187	0.000	27.537	6.116	1.750	0.000	Maximum
MDF 2 PS	20%	40.549	8.110	27.755	-6.654	2.478	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	100%	37.047	37.047	26.925	0.000	3.250	0.000	Maximum
AO	100%	8.870	8.870	17.258	2.286	1.167	0.000	Maximum
SK	100%	3.754	3.754	24.471	2.253	0.996	0.000	Maximum
SK PS	100%	2.651	2.651	24.496	-4.275	1.264	0.000	Maximum
SW	100%	4.068	4.068	19.899	2.554	1.103	0.000	Maximum
SLT	100%	9.576	9.576	21.904	2.803	1.108	0.000	Maximum
LO	100%	6.657	6.657	16.885	-2.248	1.178	0.000	Maximum
KW	100%	1.607	1.607	18.904	-2.453	1.120	0.000	Maximum
BILGE PS	100%	8.354	8.354	27.497	-3.961	1.437	0.000	Maximum
BILGE SB	100%	8.354	8.354	27.497	3.961	1.437	0.000	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9473.856	52.236	0.012	7.414	322.079	
FS correction						0.034		
VCG fluid						7.448		

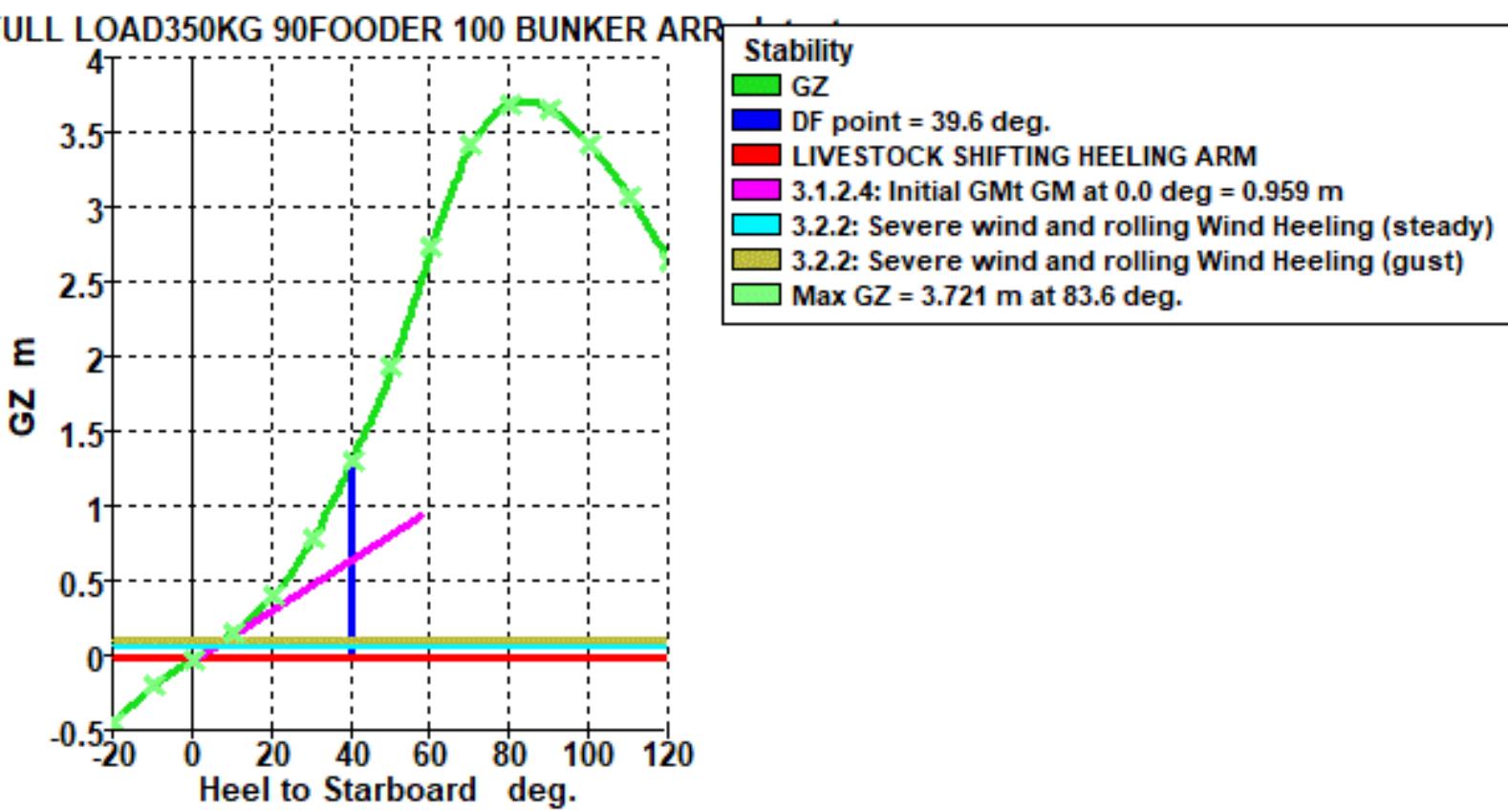
EQUILIBRIUM DATA

Draft Amidships m	6.963	LCB from zero pt. (+ve fwd) m	52.181
Displacement t	9474	LCF from zero pt. (+ve fwd) m	48.431
Heel deg	0.8	KB m	3.936
Draft at FP m	6.213	KG fluid m	7.448
Draft at AP m	7.712	BMt m	4.474
Draft at LCF m	7.051	BML m	151.225
Trim (+ve by stern) m	1.499	GMt corrected m	0.961
WL Length m	117.217	GML m	147.712
Beam max extents on WL m	19.085	KMt m	8.409
Wetted Area m^2	2695.935	KML m	155.130
Waterpl. Area m^2	1732.254	Immersion (TPc) tonne/cm	17.756
Prismatic coeff. (Cp)	0.639	MTc tonne.m	127.433
Block coeff. (Cb)	0.543	RM at 1deg = GMt.Disp.sin(1) tonne.m	158.868
Max Sect. area coeff. (Cm)	0.913	Max deck inclination deg	1.1520
Waterpl. area coeff. (Cwp)	0.774	Trim angle (+ve by stern) deg	0.7820

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 39.60 DEG.

FULL LOAD350KG 90FOODER 100 BUNKER ARR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.434	4.0163	6.257	7.377	117.185	2726.314	1825.446	0.653	0.465	52.205	50.294	1.771	0.5845	1499.449
-10	-0.187	0.9540	6.244	7.622	117.199	2699.806	1753.272	0.642	0.541	52.192	48.905	1.174	0.7187	1499.449
0	-0.012	-0.0210	6.216	7.711	117.216	2695.970	1732.060	0.639	0.543	52.188	48.432	0.959	0.7798	1499.449
10	0.165	0.7324	6.244	7.622	117.199	2699.817	1753.276	0.642	0.541	52.192	48.905	1.178	0.7187	1499.449
20	0.412	3.5295	6.256	7.379	117.186	2726.290	1825.454	0.653	0.465	52.202	50.293	1.779	0.5857	1499.449
30	0.797	9.4452	6.163	7.023	117.221	2763.643	1943.715	0.672	0.407	52.211	51.685	2.752	0.4488	1499.449
40	1.324	19.9760	5.855	6.468	117.318	2812.431	2052.669	0.693	0.394	52.220	52.940	3.279	0.3197	1499.449
50	1.944	36.1757	5.093	5.442	117.353	2866.368	2187.323	0.707	0.396	52.226	53.628	4.046	0.1825	1499.449
60	2.755	59.6076	3.461	3.440	116.938	2937.797	2296.692	0.715	0.393	52.236	53.970	4.704	-0.0109	1499.449
70	3.426	90.7780	0.129	-0.440	114.307	2927.387	2169.717	0.710	0.467	52.244	54.189	2.788	-0.2968	1499.449
80	3.705	126.7557	-9.903	-11.654	115.345	2872.394	1991.892	0.689	0.566	52.250	54.082	0.548	-0.9131	1499.449
90	3.665	163.8168	n/a	n/a	116.248	2846.852	1890.494	0.676	0.629	52.249	53.899	-0.896	n/a	1499.449
100	3.425	199.3838	-30.887	-32.148	117.294	2841.026	1853.022	0.669	0.492	52.249	53.725	-1.750	-0.6583	1499.449
110	3.076	231.9663	-20.787	-20.957	117.911	2874.349	1857.935	0.669	0.402	52.240	53.320	-2.213	-0.0889	1499.449
120	2.646	260.6154	-17.540	-17.170	118.048	2906.607	1867.417	0.677	0.354	52.222	52.878	-2.747	0.1931	1499.449

DF point	DF point	Deck Edge (immersion pos.)	Margin Line (immersion pos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	39.6	0	6.983	5.301	3.493	1.667	-0.069	-1.585	-2.823	-3.892	-4.776	-5.411	-5.797	-6.083	-6.714	-7.727	-9.114	-10.142	-10.088	-10.104	
		0	6.983	8.426	9.649	10.666	11.501	12.204	12.765	13.022	12.951	12.589	11.929	10.992	9.839						

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 9474) = 0.160$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9474 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.160 = 0.128$ m

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9474) = 0.0139$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0139 = 0.0111$ m

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1499.449 \times 10.7 / 9474 = 0.085$ m

P = 0.05 TONS / m²

A = 1499.449 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.085 = 0.068$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.4452	Pass	6.2939
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	19.4563	Pass	14.2997
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	10.0111	Pass	8.2922
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.721	Pass	3.521
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	83.6	Pass	58.6
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.959	Pass	0.809
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	5.6	Pass	4.4
	Area1 / Area2 shall not be less than (>=)	100.00	%	352.02	Pass	252.02
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.9221	m.deg	19.4599	Pass	14.5378

Load Case NO.17 – FULL LOAD350KG 60FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	100%	74.026	74.026	57.415	-8.562	4.750	0.000	Maximum
F.O.T 1 SB	85%	74.026	62.922	57.400	8.544	4.354	3.329	Maximum
F.O.T 2 PS	100%	75.375	75.375	47.530	-8.610	4.710	0.000	Maximum
F.O.T 2 SB	85%	75.375	64.069	47.534	8.595	4.309	3.549	Maximum
D.O. 3 PS	100%	66.996	66.996	37.211	-8.550	4.912	0.000	Maximum
D.O. 3 SB	85%	63.888	54.305	37.501	8.529	4.529	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10291.934	52.518	0.001	7.433	332.266	
FS correction						0.032		
VCG fluid						7.466		

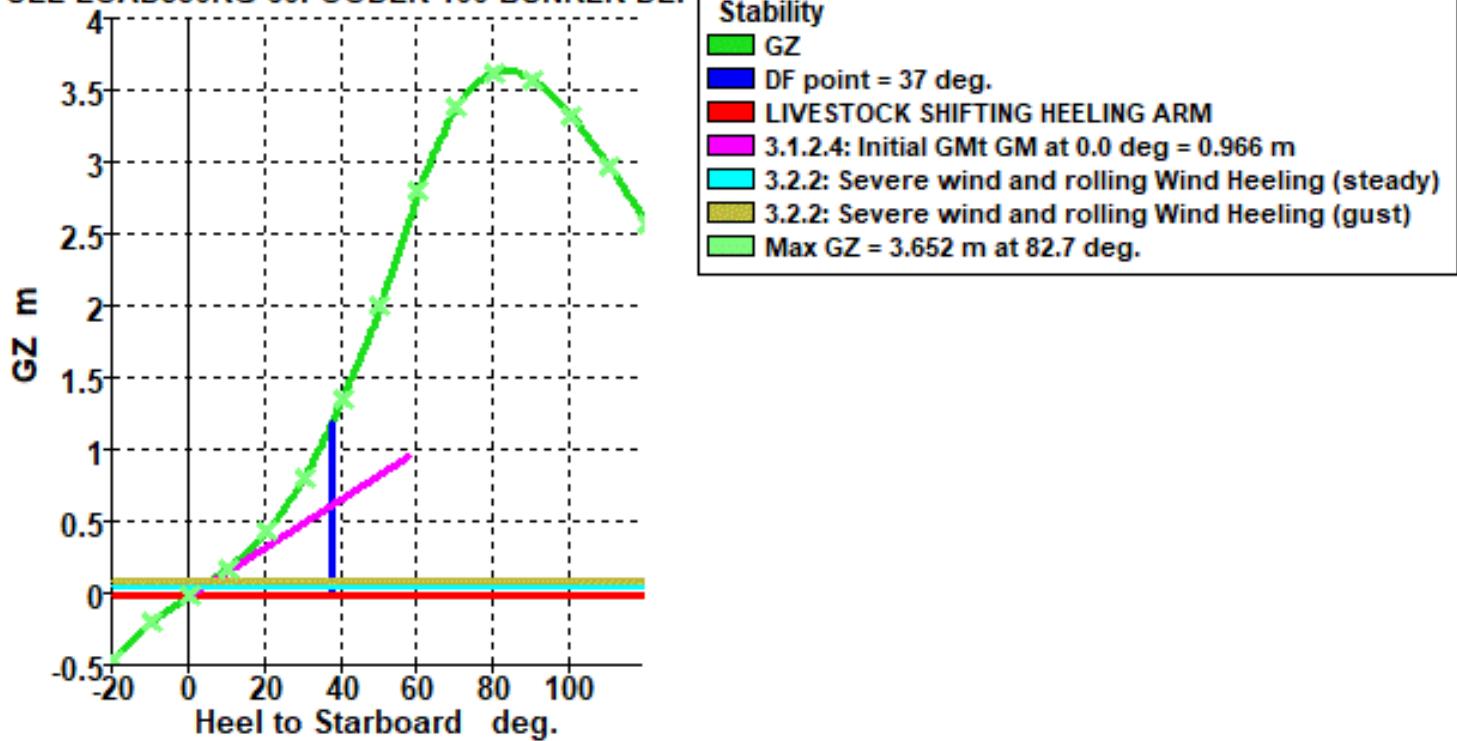
EQUILIBRIUM DATA

Draft Amidships m	7.451	LCB from zero pt. (+ve fwd) m	52.486
Displacement t	10292	LCF from zero pt. (+ve fwd) m	48.013
Heel deg	0.0	KB m	4.194
Draft at FP m	6.945	KG fluid m	7.466
Draft at AP m	7.958	BMt m	4.238
Draft at LCF m	7.515	BML m	140.304
Trim (+ve by stern) m	1.013	GMt corrected m	0.966
WL Length m	116.661	GML m	137.032
Beam max extents on WL m	19.147	KMt m	8.432
Wetted Area m^2	2817.928	KML m	144.492
Waterpl. Area m^2	1748.221	Immersion (TPc) tonne/cm	17.919
Prismatic coeff. (Cp)	0.652	MTc tonne.m	128.428
Block coeff. (Cb)	0.570	RM at 1deg = GMt.Disp.sin(1) tonne.m	173.586
Max Sect. area coeff. (Cm)	0.917	Max deck inclination deg	0.5286
Waterpl. area coeff. (Cwp)	0.783	Trim angle (+ve by stern) deg	0.5286

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37 DEG.

FULL LOAD 350KG 60FOODER 100 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.443	4.0180	6.906	7.679	116.714	2848.536	1859.869	0.665	0.481	52.501	50.423	1.763	0.4033	1442.356
-10.0	-0.188	0.9042	6.945	7.884	116.663	2832.495	1791.582	0.655	0.555	52.490	48.894	1.252	0.4896	1442.356
0.0	-0.001	-0.0009	6.945	7.957	116.660	2817.936	1748.191	0.652	0.570	52.488	48.013	0.966	0.5279	1442.356
10.0	0.187	0.9013	6.945	7.884	116.663	2832.502	1791.583	0.655	0.555	52.490	48.894	1.253	0.4896	1442.356
20.0	0.442	3.9695	6.904	7.681	116.716	2848.476	1859.877	0.665	0.481	52.496	50.421	1.764	0.4054	1442.356
30.0	0.824	10.1645	6.769	7.371	116.853	2886.549	1981.953	0.682	0.421	52.502	51.834	2.709	0.3143	1442.356
40.0	1.368	21.0169	6.448	6.882	117.076	2936.068	2110.497	0.704	0.400	52.507	53.082	3.447	0.2265	1442.356
50.0	2.021	37.8317	5.725	5.931	117.337	2990.844	2253.606	0.717	0.402	52.512	53.739	4.233	0.1074	1442.356
60.0	2.812	62.0076	4.223	4.065	117.196	3051.107	2313.407	0.724	0.398	52.522	54.202	4.257	-0.0824	1442.356
70.0	3.394	93.3036	1.287	0.542	115.676	3042.851	2194.720	0.711	0.479	52.529	54.511	2.438	-0.3885	1442.356
80.0	3.641	128.7607	-7.413	-9.572	115.965	2991.408	2028.073	0.694	0.577	52.535	54.513	0.436	-1.1260	1442.356
90.0	3.585	165.1028	n/a	n/a	116.702	2961.672	1922.349	0.682	0.634	52.539	54.261	-0.963	n/a	1442.356
100.0	3.338	199.8329	-28.118	-29.983	117.547	2951.808	1882.310	0.674	0.504	52.537	53.971	-1.789	-0.9732	1442.356
110.0	2.986	231.5165	-19.357	-19.890	118.015	2997.305	1894.707	0.673	0.414	52.530	53.651	-2.178	-0.2778	1442.356
120.0	2.579	259.3690	-16.550	-16.467	118.048	3024.517	1922.267	0.680	0.361	52.515	53.159	-2.473	0.0430	1442.356

DF point	DF point	Deck Edge)		Margin Line	Key point	Type	
					Immersion angle deg	Emergence angle deg	
Downflooding point	Downflooding point			0	n/a	Freeboard at 0.0 deg m	
Not immersed in positive	37	0	0.7	n/a	-0.015	-0.862	
					-1.563	-2.149	Freeboard at 10.0 deg m
							Freeboard at 20.0 deg m
							Freeboard at 30.0 deg m
							Freeboard at 40.0 deg m
							Freeboard at 50.0 deg m
							Freeboard at 60.0 deg m
							Freeboard at 70.0 deg m
							Freeboard at 80.0 deg m
							Freeboard at 90.0 deg m
							Freeboard at 100.0 deg m
							Freeboard at 110.0 deg m
							Freeboard at 120.0 deg m

1.22 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 10292) = 0.148 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 10292 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.148 = 0.118 \text{ m}$

1.23 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10292) = 0.0128 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0128 = 0.0102 \text{ m}$

1.24 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1442 \times 10.7) / 10292 = 0.075 \text{ m}$

P = 0.05 TONS / m²

A = 1423 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.075 = 0.060 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.1645	Pass	+222.55
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.1695	Pass	+232.96
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.0050	Pass	+307.53
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.652	Pass	+1726.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.966	Pass	+544.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.1	Pass	+74.31
	Area1 / Area2 shall not be less than (>=)	100.00	%	301.23	Pass	+201.23
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.4639	m.deg	17.1690	Pass	+284.62

Load Case NO.18 – FULL LOAD350KG 60FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.998	64.115	0.000	5.212	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9824.764	52.363	0.005	7.350	399.597	
FS correction						0.041		
VCG fluid						7.390		

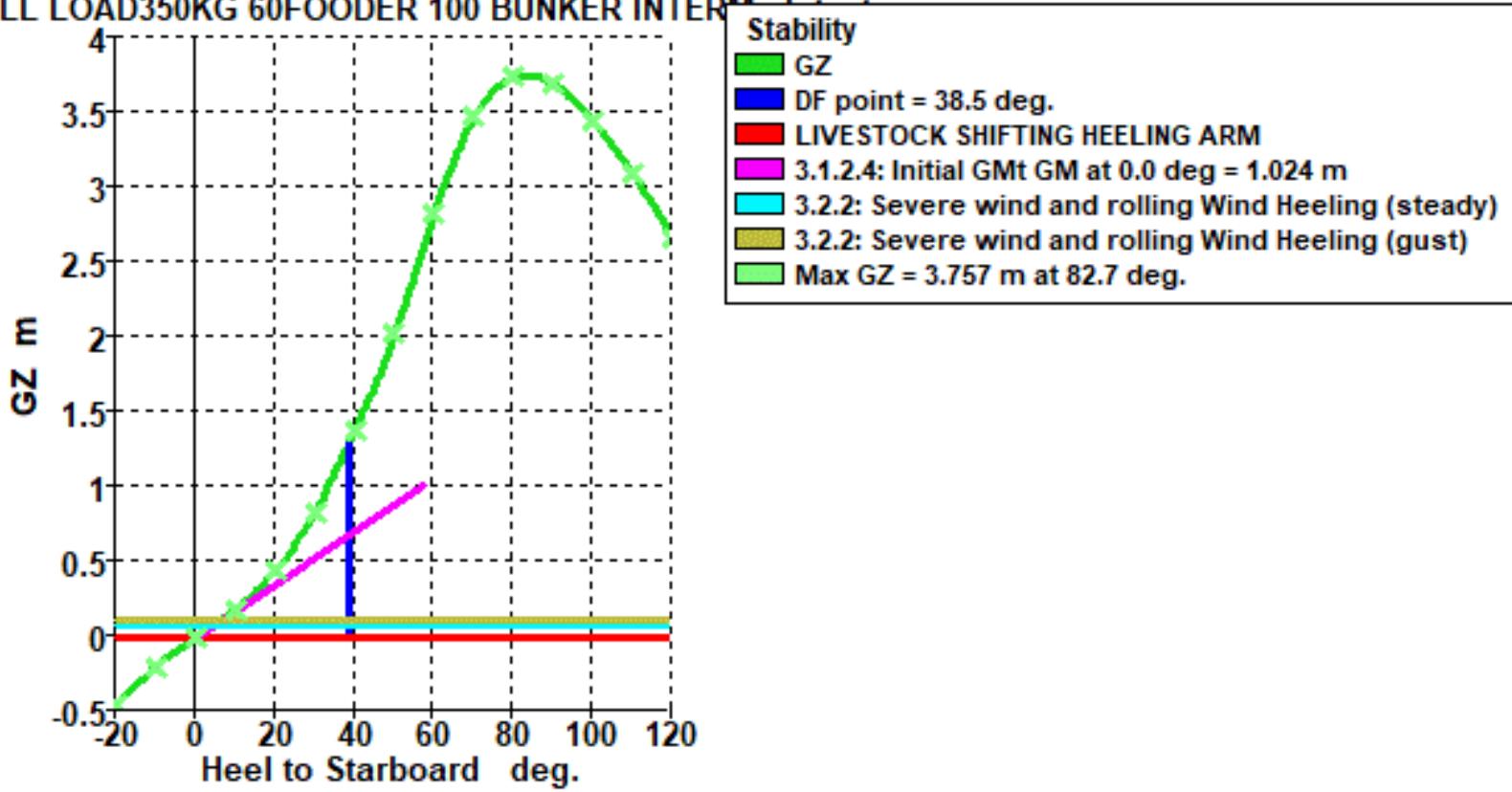
EQUILIBRIUM DATA

Draft Amidships m	7.172	LCB from zero pt. (+ve fwd) m	52.319
Displacement t	9825	LCF from zero pt. (+ve fwd) m	48.253
Heel deg	0.0	KB m	4.046
Draft at FP m	6.526	KG fluid m	7.390
Draft at AP m	7.819	BMt m	4.368
Draft at LCF m	7.251	BML m	146.466
Trim (+ve by stern) m	1.293	GMt corrected m	1.024
WL Length m	117.045	GML m	143.122
Beam max extents on WL m	19.112	KMt m	8.414
Wetted Area m^2	2748.549	KML m	150.502
Waterpl. Area m^2	1739.581	Immersion (TPc) tonne/cm	17.831
Prismatic coeff. (Cp)	0.644	MTc tonne.m	128.047
Block coeff. (Cb)	0.554	RM at 1deg = GMt.Disp.sin(1) tonne.m	175.575
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.6747
Waterpl. area coeff. (Cwp)	0.778	Trim angle (+ve by stern) deg	0.6747

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.50 DEG.

JLL LOAD350KG 60FOODER 100 BUNKER INTER



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.457	4.1821	6.536	7.509	117.027	2781.610	1840.610	0.658	0.472	52.332	50.343	1.826	0.5077	1474.895
-10	-0.196	0.9623	6.547	7.734	117.027	2756.669	1769.384	0.648	0.547	52.326	48.872	1.270	0.6194	1474.895
0	-0.005	-0.0087	6.528	7.817	117.044	2748.572	1739.501	0.644	0.555	52.323	48.254	1.024	0.6728	1474.895
10	0.186	0.8749	6.547	7.734	117.027	2756.685	1769.378	0.648	0.547	52.327	48.873	1.271	0.6191	1474.895
20	0.448	3.9634	6.536	7.508	117.027	2781.632	1840.607	0.658	0.472	52.333	50.344	1.829	0.5071	1474.895
30	0.841	10.2777	6.426	7.172	117.089	2816.393	1961.085	0.676	0.413	52.343	51.757	2.793	0.3896	1474.895
40	1.386	21.3269	6.112	6.646	117.235	2866.489	2078.763	0.698	0.396	52.349	53.020	3.405	0.2785	1474.895
50	2.028	38.2621	5.367	5.653	117.365	2920.378	2216.419	0.711	0.398	52.355	53.684	4.167	0.1492	1474.895
60	2.839	62.5662	3.790	3.707	117.065	2987.104	2305.658	0.720	0.394	52.366	54.087	4.544	-0.0433	1474.895
70	3.476	94.4046	0.630	-0.020	115.047	2977.675	2181.750	0.710	0.472	52.373	54.331	2.661	-0.3392	1474.895
80	3.743	130.8022	-8.820	-10.763	115.622	2924.095	2007.988	0.691	0.571	52.379	54.284	0.505	-1.0135	1474.895
90	3.695	168.2069	n/a	n/a	116.458	2896.157	1904.124	0.679	0.631	52.381	54.055	-0.933	n/a	1474.895
100	3.450	204.0540	-29.688	-31.221	117.410	2888.198	1865.173	0.671	0.497	52.379	53.817	-1.787	-0.8000	1474.895
110	3.096	236.8597	-20.166	-20.500	117.962	2927.478	1874.239	0.671	0.407	52.371	53.468	-2.222	-0.1743	1474.895
120	2.672	265.7344	-17.110	-16.868	118.048	2958.044	1891.969	0.678	0.357	52.354	53.001	-2.654	0.1261	1474.895

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Type	Key point
Downflooding point	Downflooding point				
Not immersed in positive range	0	38.5	n/a	1.4	Immersion angle deg
				n/a	Emergence angle deg
				0.115	Freeboard at 0.0 deg m
				-0.722	Freeboard at 10.0 deg m
				-1.406	Freeboard at 20.0 deg m
				-1.980	Freeboard at 30.0 deg m
				-2.408	Freeboard at 40.0 deg m
				-2.580	Freeboard at 50.0 deg m
				-2.463	Freeboard at 60.0 deg m
				-2.947	Freeboard at 70.0 deg m
				-4.730	Freeboard at 80.0 deg m
				-6.276	Freeboard at 90.0 deg m
				-7.905	Freeboard at 100.0 deg m
				-9.280	Freeboard at 110.0 deg m
				-10.289	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 9825) = 0.155 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9825 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.155 = 0.124 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9825) = 0.0134 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0134 = 0.0107 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1474.895 \times 10.7 / 9825 = 0.080 \text{ m}$

P = 0.05 TONS / m²

A = 1474.895 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.080 = 0.064 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.2777	Pass	7.1264
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	19.3060	Pass	14.1494
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	9.0282	Pass	7.3093
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.757	Pass	3.557
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.024	Pass	0.874
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.5	Pass	5.5
	Area1 / Area2 shall not be less than (>=)	100.00	%	332.52	Pass	232.52
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.8913	m.deg	19.3061	Pass	14.4148

Load Case NO.19 – FULL LOAD350KG 90FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.735	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10346.354	53.013	0.001	7.671	399.597	
FS correction						0.039		
VCG fluid						7.710		

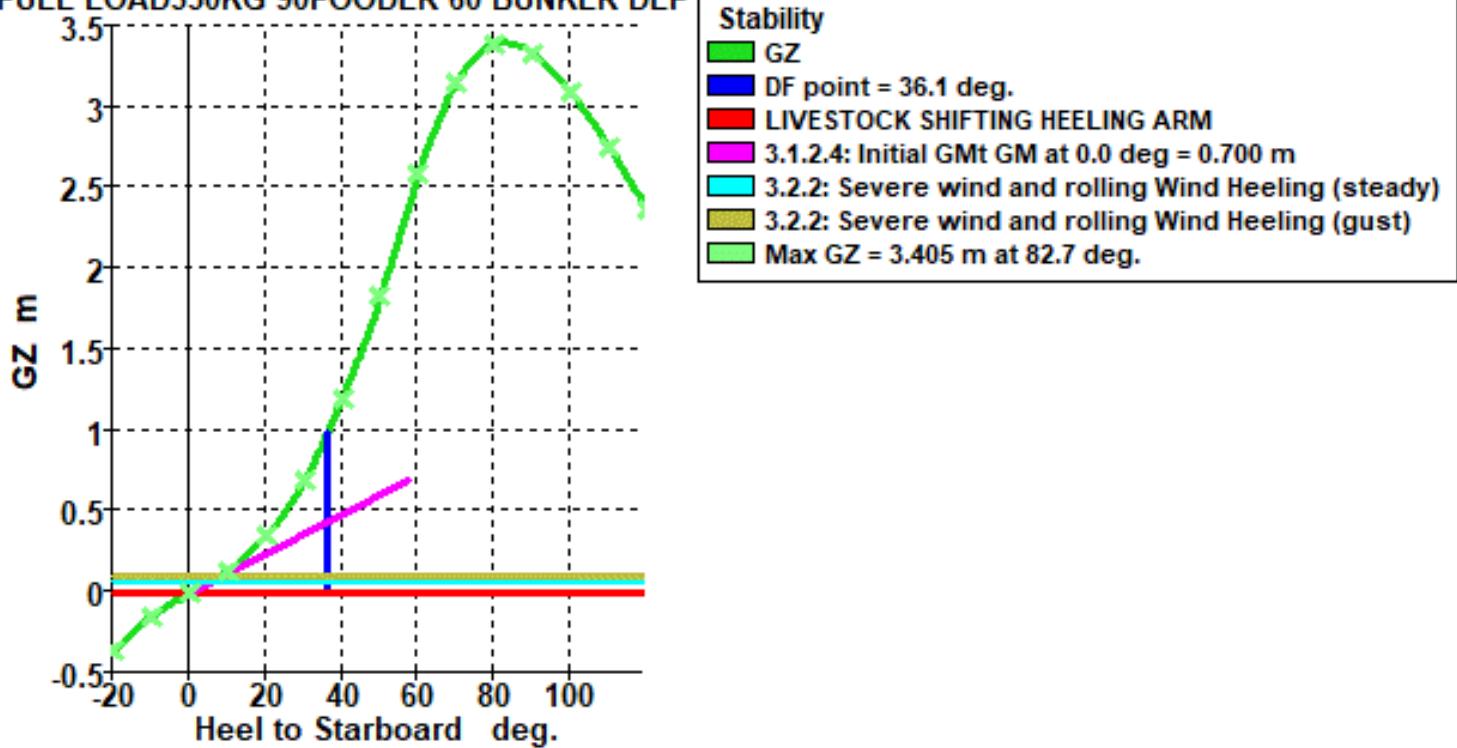
EQUILIBRIUM DATA

Draft Amidships m	7.508	LCB from zero pt. (+ve fwd) m	52.993
Displacement t	10346	LCF from zero pt. (+ve fwd) m	48.185
Heel deg	0.0	KB m	4.208
Draft at FP m	7.211	KG fluid m	7.710
Draft at AP m	7.804	BMt m	4.203
Draft at LCF m	7.544	BML m	138.125
Trim (+ve by stern) m	0.593	GMt corrected m	0.700
WL Length m	113.437	GML m	134.623
Beam max extents on WL m	19.146	KMt m	8.410
Wetted Area m^2	2828.536	KML m	142.331
Waterpl. Area m^2	1743.380	Immersion (TPc) tonne/cm	17.870
Prismatic coeff. (Cp)	0.672	MTc tonne.m	126.837
Block coeff. (Cb)	0.599	RM at 1deg = GMt.Disp.sin(1) tonne.m	126.486
Max Sect. area coeff. (Cm)	0.917	Max deck inclination deg	0.3096
Waterpl. area coeff. (Cwp)	0.803	Trim angle (+ve by stern) deg	0.3096

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 36.1 DEG.

-FULL LOAD 350KG 90FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.357	3.1403	7.151	7.527	116.131	2867.565	1861.395	0.670	0.485	53.000	50.648	1.531	0.1960	1436.203
-10.0	-0.144	0.6810	7.199	7.733	113.438	2845.371	1791.587	0.675	0.572	52.996	49.220	0.997	0.2785	1436.203
0.0	-0.001	-0.0015	7.211	7.804	113.437	2828.539	1743.376	0.672	0.599	52.994	48.186	0.700	0.3093	1436.203
10.0	0.142	0.6716	7.199	7.733	113.438	2845.376	1791.589	0.675	0.572	52.996	49.220	0.997	0.2785	1436.203
20.0	0.356	3.0781	7.151	7.527	116.132	2867.564	1861.396	0.670	0.485	53.000	50.648	1.531	0.1962	1436.203
30.0	0.699	8.2134	7.009	7.215	116.526	2900.545	1984.150	0.686	0.424	53.007	52.054	2.495	0.1076	1436.203
40.0	1.209	17.6450	6.685	6.723	116.919	2949.031	2113.371	0.707	0.402	53.012	53.263	3.261	0.0197	1436.203
50.0	1.835	32.7308	5.974	5.764	117.269	3002.099	2257.292	0.720	0.403	53.016	53.925	4.079	-0.1100	1436.203
60.0	2.599	54.9083	4.517	3.868	117.268	3061.301	2315.387	0.723	0.400	53.027	54.297	4.095	-0.3388	1436.203
70.0	3.159	83.9569	1.726	0.248	116.129	3053.640	2199.017	0.708	0.479	53.036	54.684	2.340	-0.7711	1436.203
80.0	3.395	116.9951	-6.441	-10.232	116.173	3003.283	2034.773	0.692	0.577	53.045	54.779	0.408	-1.9771	1436.203
90.0	3.337	150.8597	n/a	n/a	116.856	2972.063	1927.790	0.680	0.627	53.051	54.487	-0.952	n/a	1436.203
100.0	3.095	183.1298	-27.009	-30.734	117.629	2961.779	1887.134	0.673	0.501	53.052	54.189	-1.737	-1.9430	1436.203
110.0	2.757	212.4460	-18.791	-20.272	118.044	3003.028	1899.781	0.672	0.412	53.045	53.853	-2.078	-0.7722	1436.203
120.0	2.372	238.1106	-16.166	-16.721	118.048	3034.335	1927.991	0.679	0.360	53.032	53.362	-2.322	-0.2899	1436.203

DF point	DF point	Deck Edge)		Margin Line	Key point	Type
					Immersion angle deg	Emergence angle deg
Downflooding point	Downflooding point				Freeboard at 0.0 deg m	Freeboard at 10.0 deg m
Not immersed in positive	36.1	0	1.8	n/a	0.151	-0.701
	0	6.109	0.227	-0.651	-1.406	-2.002
	6.109	4.473	-0.651	-1.385	-2.010	-2.455
	7.599	2.747	1.011	-0.645	-2.491	-2.705
	8.903	10.011	10.925	-2.103	-3.309	-2.623
	10.011	11.686	11.686	-3.309	-4.396	-3.238
	10.925	12.279	12.279	-4.396	-5.329	-5.066
	11.686	12.518	12.518	-5.329	-6.005	-6.651
	12.279	12.397	12.397	-6.005	-6.413	-8.248
	12.518	11.994	11.994	-6.651	-8.234	-9.636
	12.397	11.313	11.313	-8.234	-9.610	-10.605
	11.994	10.369	10.369	-9.610	-10.643	-10.643
	11.313	9.215	9.215	-10.643	-6.374	-6.374

1.25 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 10346) = 0.147 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 10346 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.147 = 0.118 \text{ m}$

1.26 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10346) = 0.0127 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0127 = 0.0102 \text{ m}$

1.27 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1436 \times 10.7) / 10346 = 0.074 \text{ m}$

P = 0.05 TONS / m²

A = 1436 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.074 = 0.059 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.2134	Pass	+160.63
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	13.3554	Pass	+159.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	5.1421	Pass	+199.15
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.405	Pass	+1602.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.700	Pass	+366.67
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	5.4	Pass	+65.98
	Area1 / Area2 shall not be less than (>=)	100.00	%	280.07	Pass	+180.07
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.7011	m.deg	13.3550	Pass	+260.84

Load Case NO.20 – FULL LOAD350KG 90FOODER 60 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.052	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9874.991	52.679	0.004	7.430	399.597	
FS correction						0.040		
VCG fluid						7.471		

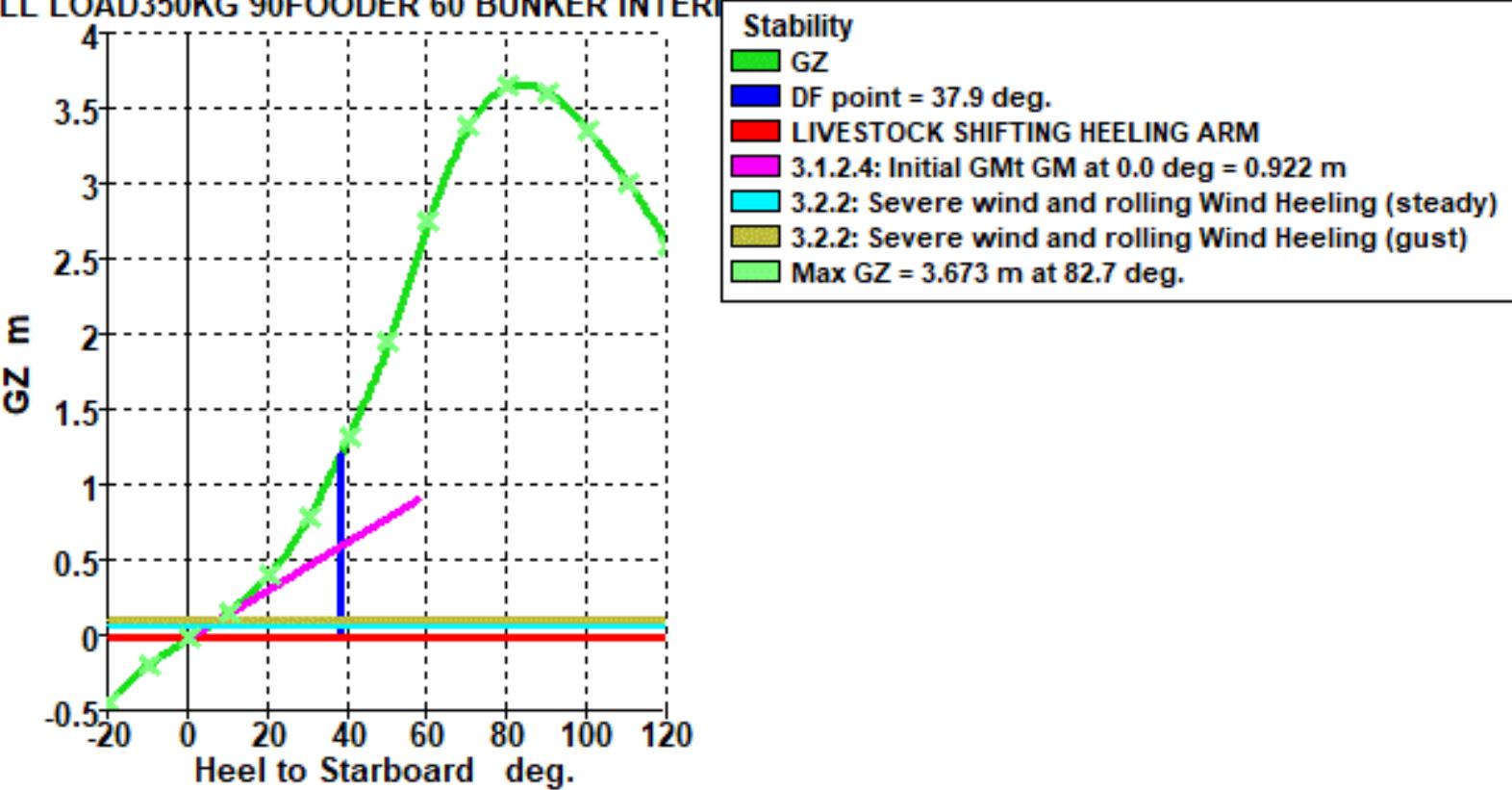
EQUILIBRIUM DATA

Draft Amidships m	7.216	LCB from zero pt. (+ve fwd) m	52.643
Displacement t	9875	LCF from zero pt. (+ve fwd) m	48.322
Heel deg	0.0	KB m	4.059
Draft at FP m	6.700	KG fluid m	7.471
Draft at AP m	7.733	BMt m	4.334
Draft at LCF m	7.278	BML m	144.530
Trim (+ve by stern) m	1.032	GMt corrected m	0.923
WL Length m	116.910	GML m	141.119
Beam max extents on WL m	19.113	KMt m	8.393
Wetted Area m^2	2757.445	KML m	148.583
Waterpl. Area m^2	1735.459	Immersion (TPc) tonne/cm	17.788
Prismatic coeff. (Cp)	0.646	MTc tonne.m	126.900
Block coeff. (Cb)	0.563	RM at 1deg = GMt.Disp.sin(1) tonne.m	159.011
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5386
Waterpl. area coeff. (Cwp)	0.777	Trim angle (+ve by stern) deg	0.5386

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.90 DEG.

ULL LOAD350KG 90FOODER 60 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.426	3.8477	6.700	7.422	116.902	2792.612	1841.937	0.660	0.473	52.654	50.483	1.748	0.3768	1469.764
-10	-0.179	0.8695	6.718	7.648	116.892	2767.395	1768.919	0.649	0.548	52.651	49.040	1.182	0.4849	1469.764
0	-0.004	-0.0069	6.702	7.731	116.909	2757.456	1735.397	0.646	0.563	52.646	48.323	0.922	0.5373	1469.764
10	0.171	0.8017	6.718	7.648	116.892	2767.392	1768.933	0.649	0.548	52.650	49.039	1.184	0.4854	1469.764
20	0.419	3.6672	6.701	7.421	116.901	2792.652	1841.928	0.660	0.473	52.657	50.485	1.751	0.3754	1469.764
30	0.800	9.6288	6.585	7.085	116.985	2827.585	1963.491	0.678	0.414	52.665	51.896	2.720	0.2610	1469.764
40	1.335	20.2132	6.269	6.559	117.161	2876.912	2082.360	0.700	0.398	52.671	53.148	3.350	0.1511	1469.764
50	1.969	36.5975	5.532	5.562	117.356	2930.153	2220.607	0.713	0.399	52.676	53.813	4.121	0.0156	1469.764
60	2.771	60.2705	3.984	3.603	117.128	2995.668	2308.159	0.720	0.394	52.687	54.155	4.483	-0.1989	1469.764
70	3.397	91.3747	0.922	-0.177	115.351	2987.346	2185.724	0.708	0.472	52.695	54.474	2.618	-0.5736	1469.764
80	3.660	126.9605	-8.171	-11.122	115.785	2934.024	2013.012	0.690	0.571	52.703	54.460	0.495	-1.5393	1469.764
90	3.612	163.5341	n/a	n/a	116.575	2905.485	1908.466	0.678	0.627	52.708	54.209	-0.930	n/a	1469.764
100	3.369	198.5543	-28.954	-31.631	117.475	2896.458	1868.618	0.670	0.496	52.707	53.950	-1.770	-1.3965	1469.764
110	3.020	230.5644	-19.790	-20.709	117.990	2933.897	1878.527	0.670	0.406	52.700	53.612	-2.185	-0.4791	1469.764
120	2.604	258.7118	-16.855	-17.006	118.048	2966.738	1896.801	0.677	0.356	52.684	53.135	-2.590	-0.0792	1469.764

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Type	Key point
Downflooding point	Downflooding point			Immersion angle deg	Immersion angle deg
Not immersed in positive range	37.9	0	6.560	2.5	n/a
				Emergence angle deg	Freeboard at 0.0 deg m
				Freeboard at 10.0 deg m	Freeboard at 20.0 deg m
				Freeboard at 30.0 deg m	Freeboard at 40.0 deg m
				Freeboard at 50.0 deg m	Freeboard at 60.0 deg m
				Freeboard at 70.0 deg m	Freeboard at 80.0 deg m
				Freeboard at 90.0 deg m	Freeboard at 100.0 deg m
				Freeboard at 110.0 deg m	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 9875) = 0.154 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9875 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.154 = 0.123 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9875) = 0.0133 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0133 = 0.0107 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1469.764 \times 10.7 / 9875 = 0.080 \text{ m}$

P = 0.05 TONS / m²

A = 1469.764 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.080 = 0.064 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.6288	Pass	6.4775
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.5633	Pass	12.4066
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.9344	Pass	6.2155
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.673	Pass	3.473
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.922	Pass	0.772
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.9	Pass	5.1
	Area1 / Area2 shall not be less than (>=)	100.00	%	321.27	Pass	221.27
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.5427	m.deg	17.5632	Pass	13.0205

Load Case NO.21 – FULL LOAD350KG 60FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10100.356	52.730	0.001	7.460	399.597	
FS correction						0.040		
VCG fluid						7.499		

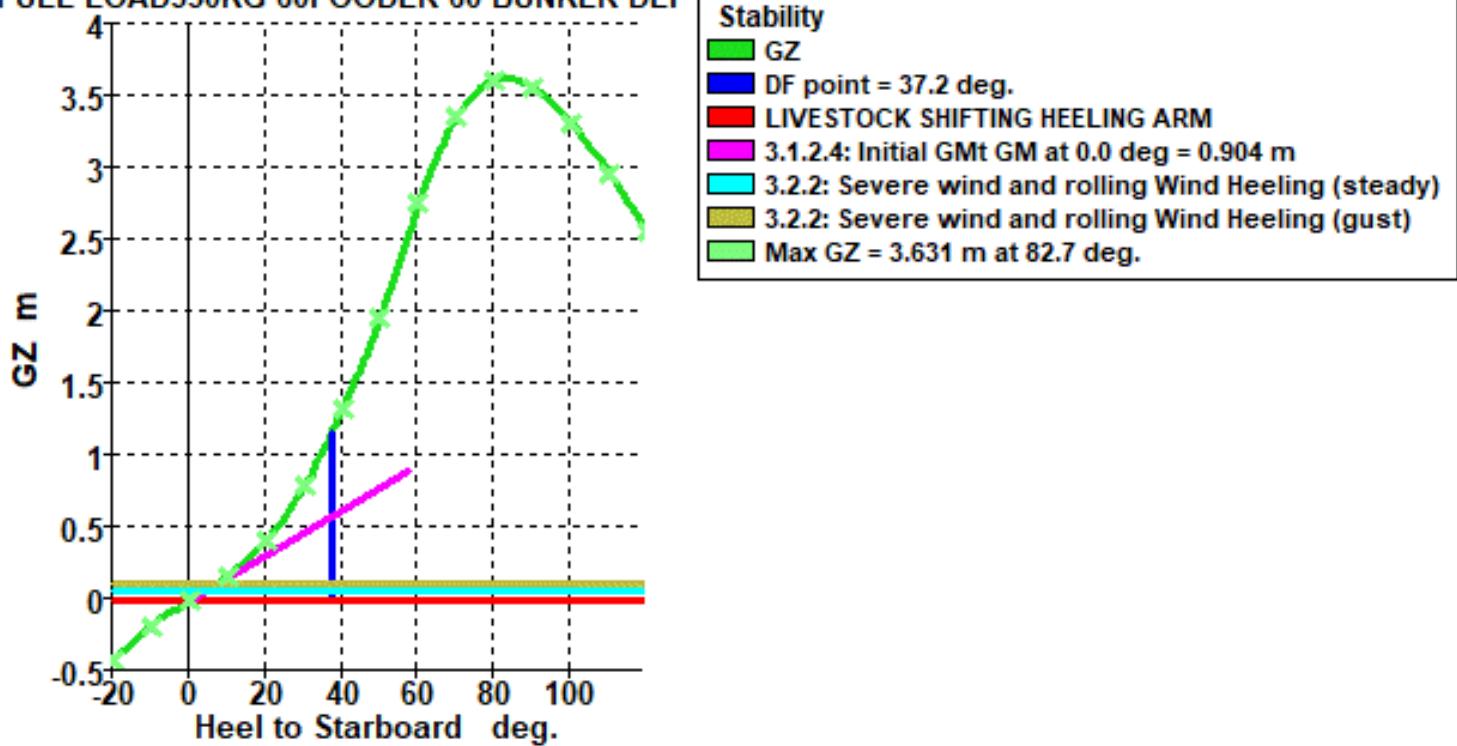
EQUILIBRIUM DATA

Draft Amidships m	7.350	LCB from zero pt. (+ve fwd) m	52.700
Displacement t	10100	LCF from zero pt. (+ve fwd) m	48.193
Heel deg	0.0	KB m	4.131
Draft at FP m	6.894	KG fluid m	7.499
Draft at AP m	7.806	BMt m	4.272
Draft at LCF m	7.406	BML m	141.669
Trim (+ve by stern) m	0.912	GMt corrected m	0.904
WL Length m	116.718	GML m	138.300
Beam max extents on WL m	19.130	KMt m	8.403
Wetted Area m^2	2790.988	KML m	145.795
Waterpl. Area m^2	1740.138	Immersion (TPc) tonne/cm	17.836
Prismatic coeff. (Cp)	0.650	MTc tonne.m	127.204
Block coeff. (Cb)	0.570	RM at 1deg = GMt.Disp.sin(1) tonne.m	159.352
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.4759
Waterpl. area coeff. (Cwp)	0.779	Trim angle (+ve by stern) deg	0.4759

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.2 DEG.

-FULL LOAD 350KG 60FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.422	3.7845	6.870	7.511	116.748	2827.696	1851.532	0.663	0.478	52.711	50.509	1.725	0.3345	1454.148
-10.0	-0.176	0.8415	6.901	7.727	116.712	2804.065	1780.230	0.653	0.553	52.705	49.038	1.183	0.4312	1454.148
0.0	-0.001	-0.0015	6.895	7.806	116.717	2790.995	1740.103	0.650	0.570	52.702	48.194	0.904	0.4751	1454.148
10.0	0.174	0.8318	6.901	7.727	116.712	2804.074	1780.230	0.653	0.553	52.705	49.038	1.184	0.4311	1454.148
20.0	0.420	3.7209	6.870	7.512	116.748	2827.689	1851.535	0.663	0.478	52.710	50.509	1.726	0.3350	1454.148
30.0	0.796	9.6698	6.742	7.188	116.870	2861.319	1973.623	0.681	0.418	52.718	51.925	2.686	0.2328	1454.148
40.0	1.332	20.2139	6.423	6.680	117.085	2910.658	2097.919	0.703	0.399	52.724	53.172	3.376	0.1341	1454.148
50.0	1.973	36.6038	5.697	5.705	117.338	2964.253	2238.695	0.716	0.401	52.728	53.832	4.158	0.0042	1454.148
60.0	2.765	60.2870	4.184	3.784	117.185	3026.728	2312.630	0.721	0.395	52.739	54.208	4.356	-0.2084	1454.148
70.0	3.366	91.2076	1.224	0.108	115.627	3018.332	2191.582	0.709	0.476	52.747	54.541	2.509	-0.5822	1454.148
80.0	3.619	126.4184	-7.527	-10.516	115.939	2966.159	2022.407	0.691	0.574	52.755	54.560	0.460	-1.5589	1454.148
90.0	3.566	162.5556	n/a	n/a	116.684	2936.632	1916.783	0.679	0.629	52.760	54.292	-0.947	n/a	1454.148
100.0	3.321	197.1089	-28.233	-30.998	117.536	2927.103	1876.823	0.672	0.499	52.759	54.019	-1.775	-1.4421	1454.148
110.0	2.973	228.6434	-19.419	-20.396	118.013	2967.620	1888.237	0.671	0.409	52.752	53.687	-2.168	-0.5099	1454.148
120.0	2.564	256.3563	-16.597	-16.801	118.048	2998.846	1911.555	0.678	0.358	52.737	53.202	-2.506	-0.1065	1454.148

DF point	DF point	Deck Edge)		Margin Line	Key point	Type													
Downflooding point	Downflooding point				Immersion angle deg														
Not immersed in positive	37.2	0	n/a	1.7	n/a	Emergence angle deg													
						Freeboard at 0.0 deg m													
						Freeboard at 10.0 deg m													
						Freeboard at 20.0 deg m													
						Freeboard at 30.0 deg m													
						Freeboard at 40.0 deg m													
						Freeboard at 50.0 deg m													
						Freeboard at 60.0 deg m													
						Freeboard at 70.0 deg m													
						Freeboard at 80.0 deg m													
						Freeboard at 90.0 deg m													
						Freeboard at 100.0 deg m													
						Freeboard at 110.0 deg m													
						Freeboard at 120.0 deg m													

1.28 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 10100) = 0.151 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 10100 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.151 = 0.120 \text{ m}$

1.29 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10100) = 0.0130 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0130 = 0.0104 \text{ m}$

1.30 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1454 \times 10.7) / 10100 = 0.077 \text{ m}$

P = 0.05 TONS / m²

A = 1454m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.077 = 0.062 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30		m.deg	9.6698	Pass	+206.85
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	16.7349	Pass	+224.53
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.0651	Pass	+311.02
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.631	Pass	+1715.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.904	Pass	+502.67
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.6	Pass	+71.39
	Area1 / Area2 shall not be less than (>=)	100.00	%	306.86	Pass	+206.86
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.3770	m.deg	16.7344	Pass	+282.33

Load Case NO.22 – FULL LOAD350KG 60FOODER 60 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	184.850	184.850	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	200.430	200.430	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	201.450	201.450	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	342.390	342.390	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	346.980	346.980	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	384.400	384.400	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	391.040	391.040	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.997	64.115	0.000	5.211	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9712.660	52.481	0.004	7.385	399.597	
FS correction						0.041		
VCG fluid						7.427		

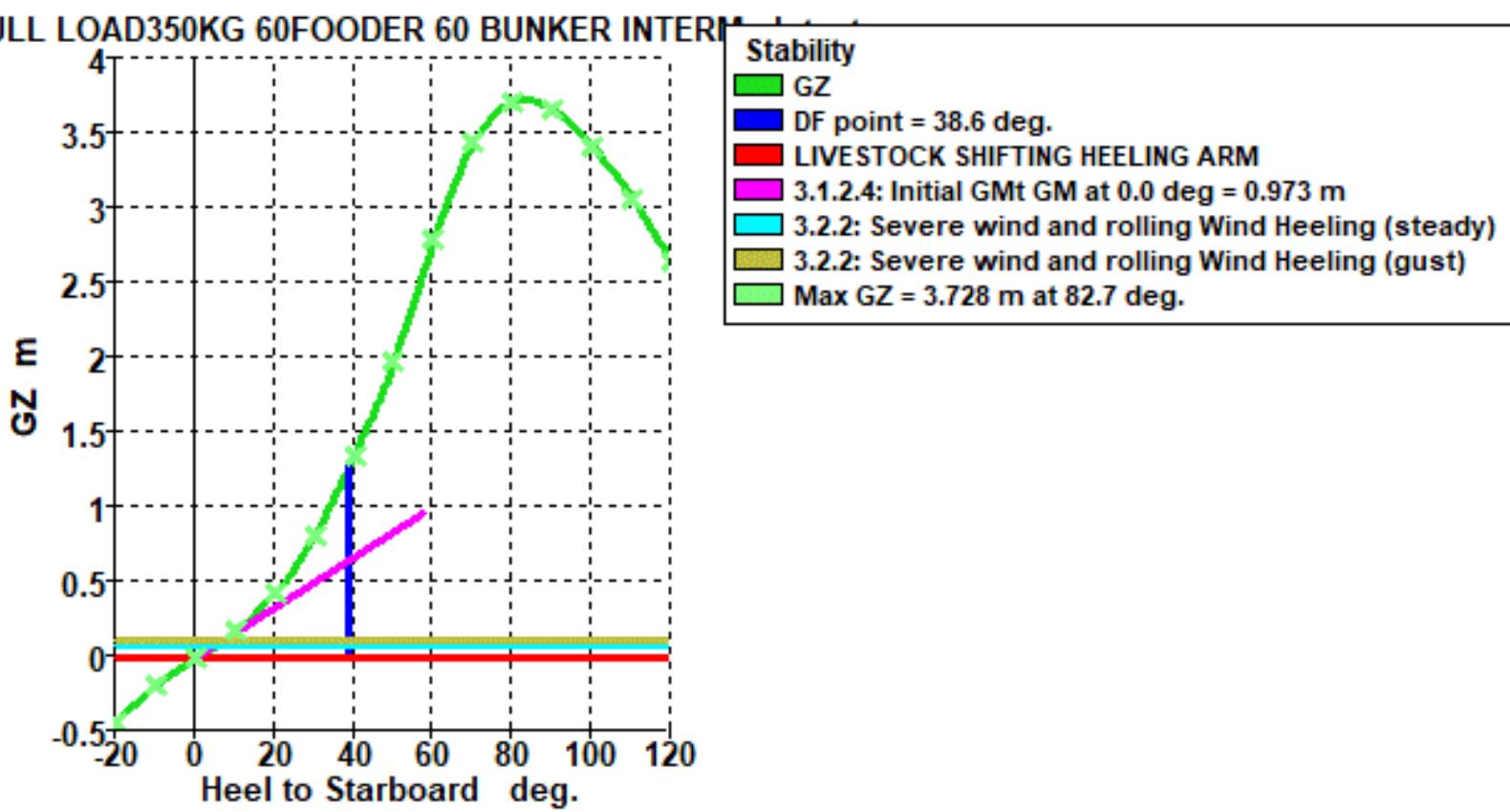
EQUILIBRIUM DATA

Draft Amidships m	7.113	LCB from zero pt. (+ve fwd) m	52.438
Displacement t	9713	LCF from zero pt. (+ve fwd) m	48.362
Heel deg	0.0	KB m	4.009
Draft at FP m	6.493	KG fluid m	7.427
Draft at AP m	7.732	BMt m	4.391
Draft at LCF m	7.187	BML m	147.323
Trim (+ve by stern) m	1.239	GMt corrected m	0.973
WL Length m	117.064	GML m	143.906
Beam max extents on WL m	19.102	KMt m	8.399
Wetted Area m^2	2732.462	KML m	151.323
Waterpl. Area m^2	1734.676	Immersion (TPc) tonne/cm	17.780
Prismatic coeff. (Cp)	0.643	MTc tonne.m	127.279
Block coeff. (Cb)	0.554	RM at 1deg = GMt.Disp.sin(1) tonne.m	164.912
Max Sect. area coeff. (Cm)	0.915	Max deck inclination deg	0.6465
Waterpl. area coeff. (Cwp)	0.776	Trim angle (+ve by stern) deg	0.6465

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.60 DEG.

ULL LOAD350KG 60FOODER 60 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.438	3.9722	6.511	7.412	117.041	2765.561	1835.440	0.657	0.470	52.451	50.398	1.790	0.4699	1481.882
-10	-0.185	0.9021	6.518	7.644	117.044	2739.654	1762.588	0.646	0.545	52.447	48.965	1.213	0.5878	1481.882
0	-0.004	-0.0070	6.495	7.731	117.062	2732.477	1734.595	0.643	0.554	52.442	48.363	0.973	0.6447	1481.882
10	0.177	0.8332	6.517	7.645	117.045	2739.657	1762.599	0.646	0.545	52.446	48.965	1.215	0.5881	1481.882
20	0.431	3.7883	6.513	7.411	117.040	2765.595	1835.433	0.657	0.470	52.455	50.399	1.793	0.4687	1481.882
30	0.819	9.9033	6.406	7.068	117.097	2801.371	1955.687	0.676	0.411	52.463	51.803	2.763	0.3452	1481.882
40	1.355	20.6892	6.094	6.530	117.239	2850.696	2070.555	0.697	0.396	52.470	53.057	3.348	0.2277	1481.882
50	1.988	37.2672	5.346	5.523	117.363	2904.506	2207.505	0.710	0.398	52.475	53.737	4.112	0.0921	1481.882
60	2.797	61.1493	3.762	3.547	117.055	2972.583	2304.013	0.719	0.393	52.486	54.090	4.585	-0.1122	1481.882
70	3.443	92.6149	0.587	-0.268	114.999	2963.343	2179.662	0.708	0.470	52.494	54.347	2.698	-0.4459	1481.882
80	3.714	128.7081	-8.903	-11.303	115.601	2909.205	2004.585	0.689	0.569	52.501	54.306	0.519	-1.2523	1481.882
90	3.668	165.8300	n/a	n/a	116.443	2881.587	1900.991	0.677	0.628	52.504	54.074	-0.921	n/a	1481.882
100	3.425	201.4138	-29.774	-31.801	117.401	2873.621	1861.866	0.670	0.494	52.502	53.840	-1.775	-1.0575	1481.882
110	3.073	233.9796	-20.212	-20.790	117.960	2909.960	1870.139	0.670	0.404	52.494	53.486	-2.212	-0.3012	1481.882
120	2.649	262.6270	-17.145	-17.059	118.048	2942.550	1885.085	0.677	0.355	52.478	53.024	-2.672	0.0445	1481.882

DF point	DF point	Deck Edge (immersion pos.)	Margin Line (immersion pos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	38.6	0	6.738	5.065	3.280	1.479	-0.233	-1.733	-2.961	-4.035	-4.934	-4.687	-2.891	-2.470	-2.381	-2.917	-4.700	-6.245	-7.860	-9.234	-10.273
	0	6.738	8.191	9.436	10.479	11.337	12.056	12.627	12.879	12.792	12.419	11.754	12.419	12.792	12.879	12.627	11.337	10.479	9.436	8.191	6.738

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.350 \times 5646.666) / (1.3 \times 9713) = 0.157 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 350 kg

Floor area per head of livestock = 1.3 m²

Displacement = 9713 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.157 = 0.125 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9713) = 0.0135 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0135 = 0.0108 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1481.882 \times 10.7 / 9713 = 0.082 \text{ m}$

P = 0.05 TONS / m²

A = 1481.882 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.082 = 0.065 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.9033	Pass	6.7520
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.8963	Pass	13.7397
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	8.9930	Pass	7.2741
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.728	Pass	3.528
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.973	Pass	0.823
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.8	Pass	5.2
	Area1 / Area2 shall not be less than (>=)	100.00	%	336.48	Pass	236.48
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.8094	m.deg	18.8962	Pass	14.0868

Load Case NO.23 – FULL LOAD400KG 90FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.735	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	90%	74.026	66.623	57.405	-8.550	4.487	3.382	Maximum
F.O.T 1 SB	80%	74.026	59.221	57.394	8.538	4.220	3.329	Maximum
F.O.T 2 PS	90%	75.375	67.837	47.533	-8.600	4.444	3.549	Maximum
F.O.T 2 SB	80%	75.375	60.300	47.536	8.589	4.174	3.549	Maximum
D.O. 3 PS	90%	66.996	60.296	37.227	-8.535	4.666	3.428	Maximum
D.O. 3 SB	80%	63.888	51.110	37.510	8.520	4.402	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	80%	42.187	33.750	28.084	7.257	3.898	13.986	Maximum
MDF 2 PS	90%	40.549	36.495	28.186	-7.500	4.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

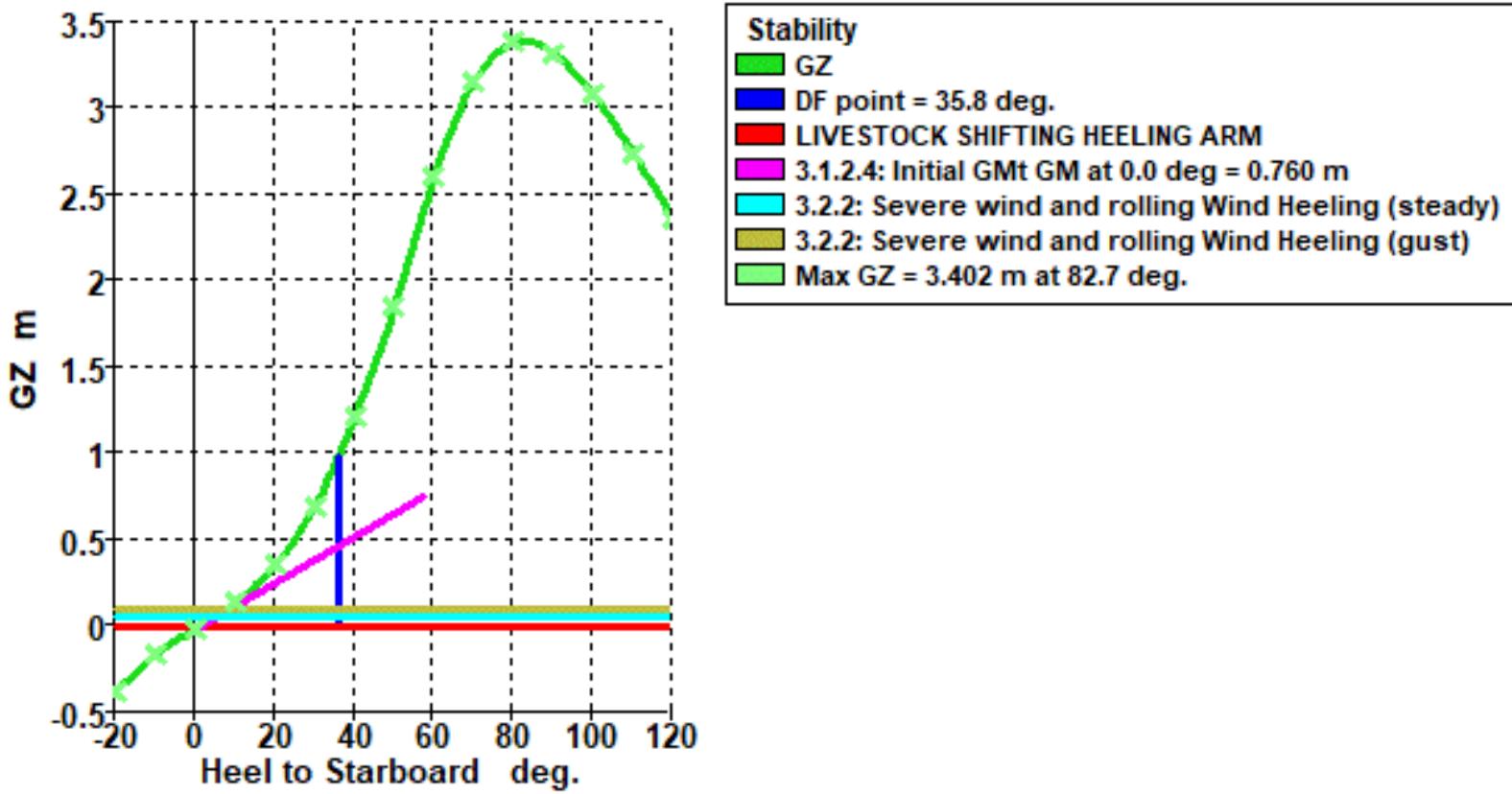
Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10543.675	52.844	0.006	7.665	368.462	
FS correction						0.035		
VCG fluid						7.700		

EQUILIBRIUM DATA

Draft Amidships m	7.614	LCB from zero pt. (+ve fwd) m	52.823
Displacement t	10544	LCF from zero pt. (+ve fwd) m	48.144
Heel deg	0.0	KB m	4.272
Draft at FP m	7.285	KG fluid m	7.700
Draft at AP m	7.943	BMt m	4.188
Draft at LCF m	7.654	BML m	137.600
Trim (+ve by stern) m	0.658	GMt corrected m	0.760
WL Length m	113.433	GML m	134.172
Beam max extents on WL m	19.161	KMt m	8.459
Wetted Area m^2	2858.320	KML m	141.869
Waterpl. Area m^2	1756.279	Immersion (TPc) tonne/cm	18.002
Prismatic coeff. (Cp)	0.674	MTc tonne.m	128.824
Block coeff. (Cb)	0.599	RM at 1deg = GMt.Disp.sin(1) tonne.m	139.819
Max Sect. area coeff. (Cm)	0.918	Max deck inclination deg	0.3432
Waterpl. area coeff. (Cwp)	0.808	Trim angle (+ve by stern) deg	0.3432

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 35.80 DEG.



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.376	3.4053	7.208	7.681	113.439	2889.116	1869.920	0.688	0.500	52.834	50.587	1.547	0.2467	1424.052
-10	-0.158	0.7796	7.265	7.876	113.435	2874.276	1803.036	0.677	0.575	52.825	49.113	1.041	0.3189	1424.052
0	-0.006	-0.0109	7.285	7.942	113.433	2858.333	1756.289	0.674	0.599	52.824	48.145	0.760	0.3428	1424.052
10	0.146	0.6673	7.265	7.876	113.435	2874.280	1803.038	0.677	0.575	52.825	49.113	1.043	0.3190	1424.052
20	0.365	3.1421	7.207	7.683	113.439	2889.084	1869.920	0.688	0.500	52.830	50.585	1.551	0.2484	1424.052
30	0.710	8.3789	7.056	7.384	116.443	2927.039	1992.412	0.688	0.427	52.835	51.981	2.499	0.1709	1424.052
40	1.226	17.9424	6.731	6.910	116.890	2975.413	2125.750	0.708	0.403	52.839	53.182	3.315	0.0936	1424.052
50	1.862	33.2509	6.025	5.975	117.257	3029.870	2272.670	0.722	0.404	52.844	53.854	4.144	-0.0262	1424.052
60	2.621	55.6939	4.584	4.132	117.282	3086.140	2315.709	0.725	0.403	52.854	54.283	3.980	-0.2355	1424.052
70	3.163	84.8741	1.827	0.655	116.218	3078.527	2201.831	0.710	0.482	52.862	54.671	2.267	-0.6112	1424.052
80	3.393	117.9136	-6.242	-9.346	116.214	3030.143	2041.516	0.695	0.579	52.869	54.766	0.391	-1.6191	1424.052
90	3.333	151.7446	n/a	n/a	116.885	2998.573	1934.285	0.682	0.632	52.875	54.487	-0.959	n/a	1424.052
100	3.090	183.9685	-26.795	-29.785	117.646	2987.462	1893.086	0.675	0.505	52.875	54.161	-1.740	-1.5600	1424.052
110	2.752	213.2320	-18.680	-19.799	118.047	3033.230	1906.541	0.674	0.416	52.868	53.834	-2.074	-0.5840	1424.052
120	2.370	238.8599	-16.085	-16.410	118.048	3060.625	1938.772	0.680	0.362	52.855	53.336	-2.275	-0.1697	1424.052

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Type	Key point
Downflooding point	Downflooding point			Immersion angle deg	Immersion angle deg
Not immersed in positive range	35.8	0	n/a	0.011	Emergence angle deg
	0	6.026	0.087	0.1	Freeboard at 0.0 deg m
	0	6.026	7.523	-0.844	Freeboard at 10.0 deg m
	0	6.026	8.838	-1.556	Freeboard at 20.0 deg m
	0	6.026	9.955	-2.152	Freeboard at 30.0 deg m
	0	6.026	10.876	-2.601	Freeboard at 40.0 deg m
	0	6.026	11.639	-2.780	Freeboard at 50.0 deg m
	0	6.026	12.233	-2.669	Freeboard at 60.0 deg m
	0	6.026	12.470	-3.319	Freeboard at 70.0 deg m
	0	6.026	12.347	-5.137	Freeboard at 80.0 deg m
	0	6.026	11.941	-6.712	Freeboard at 90.0 deg m
	0	6.026	11.259	-8.317	Freeboard at 100.0 deg m
	0	6.026	10.315	-9.692	Freeboard at 110.0 deg m
	0	6.026	9.159	-10.687	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.400 \times 5646.666) / (1.45 \times 10599) = 0.147 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 10599 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.147 = 0.118 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 10599) = 0.0124 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0124 = 0.0099 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1420.527 \times 10.7 / 10599 = 0.072 \text{ m}$

P = 0.05 TONS / m²

A = 1420.527 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.072 = 0.057 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.3789	Pass	5.2276
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	13.2801	Pass	8.1235
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	4.9011	Pass	3.1822
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.402	Pass	3.202
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.760	Pass	0.610
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	5.3	Pass	4.7
	Area1 / Area2 shall not be less than (>=)	100.00	%	269.12	Pass	169.12
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.6863	m.deg	13.2809	Pass	9.5946

Load Case NO.24 – FULL LOAD400KG 90FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.053	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.524	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10037.636	52.595	0.005	7.416	399.597	
FS correction						0.040		
VCG fluid						7.456		

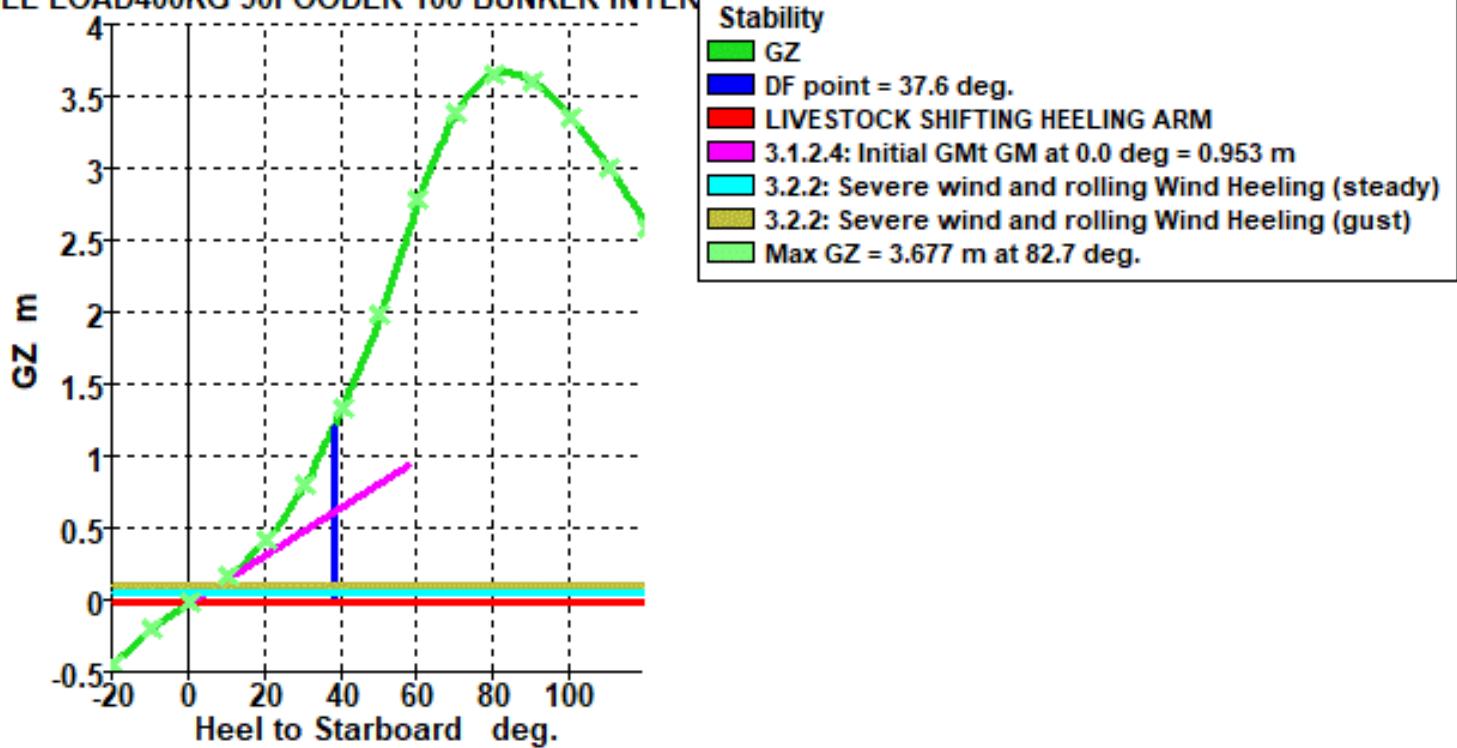
EQUILIBRIUM DATA

Draft Amidships m	7.307	LCB from zero pt. (+ve fwd) m	52.561
Displacement t	10038	LCF from zero pt. (+ve fwd) m	48.190
Heel deg	0.0	KB m	4.112
Draft at FP m	6.787	KG fluid m	7.456
Draft at AP m	7.828	BMt m	4.297
Draft at LCF m	7.371	BML m	142.945
Trim (+ve by stern) m	1.041	GMt corrected m	0.953
WL Length m	116.836	GML m	139.601
Beam max extents on WL m	19.127	KMt m	8.409
Wetted Area m^2	2781.187	KML m	147.051
Waterpl. Area m^2	1740.907	Immersion (TPc) tonne/cm	17.844
Prismatic coeff. (Cp)	0.648	MTc tonne.m	127.603
Block coeff. (Cb)	0.565	RM at 1deg = GMt.Disp.sin(1) tonne.m	166.966
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5431
Waterpl. area coeff. (Cwp)	0.779	Trim angle (+ve by stern) deg	0.5431

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.6 DEG.

JLL LOAD400KG 90FOODER 100 BUNKER INTERMEDIATE



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.439	4.0010	6.773	7.529	116.844	2816.824	1849.073	0.662	0.476	52.574	50.445	1.764	0.3945	1459.156
-10.0	-0.187	0.9158	6.798	7.747	116.823	2792.837	1777.981	0.652	0.551	52.566	48.961	1.223	0.4952	1459.156
0.0	-0.005	-0.0085	6.788	7.827	116.834	2781.198	1740.859	0.648	0.565	52.564	48.191	0.953	0.5419	1459.156
10.0	0.177	0.8302	6.798	7.747	116.822	2792.847	1777.980	0.652	0.551	52.567	48.961	1.224	0.4950	1459.156
20.0	0.431	3.7877	6.772	7.530	116.845	2816.805	1849.079	0.662	0.476	52.572	50.444	1.767	0.3954	1459.156
30.0	0.814	9.8745	6.649	7.204	116.941	2850.325	1970.834	0.680	0.417	52.580	51.864	2.728	0.2898	1459.156
40.0	1.354	20.6184	6.331	6.693	117.134	2899.863	2093.423	0.701	0.398	52.586	53.112	3.400	0.1886	1459.156
50.0	1.998	37.2458	5.600	5.715	117.352	2953.443	2233.208	0.715	0.400	52.591	53.767	4.174	0.0602	1459.156
60.0	2.797	61.2093	4.068	3.792	117.153	3017.104	2310.497	0.721	0.395	52.601	54.166	4.409	-0.1437	1459.156
70.0	3.407	92.4985	1.050	0.118	115.469	3008.920	2189.256	0.709	0.475	52.609	54.481	2.553	-0.4866	1459.156
80.0	3.665	128.1526	-7.905	-10.483	115.850	2956.140	2018.540	0.691	0.573	52.616	54.468	0.473	-1.3448	1459.156
90.0	3.614	164.7588	n/a	n/a	116.620	2927.265	1913.719	0.679	0.630	52.621	54.221	-0.943	n/a	1459.156
100.0	3.369	199.7893	-28.663	-30.952	117.501	2918.003	1873.880	0.672	0.499	52.619	53.951	-1.779	-1.1940	1459.156
110.0	3.018	231.7927	-19.639	-20.371	117.999	2958.831	1884.882	0.672	0.409	52.612	53.621	-2.185	-0.3817	1459.156
120.0	2.605	259.9407	-16.747	-16.784	118.048	2989.391	1906.924	0.679	0.358	52.597	53.136	-2.547	-0.0189	1459.156

DF point	DF point	Deck Edge)		Margin Line	Key point	Type													
Downflooding point	Downflooding point				Immersion angle deg														
Not immersed in positive	37.6	0	n/a	1.4	n/a	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
						0.114	-0.727	-1.420	-2.002	-2.439	-2.617	-2.502	-3.070	-4.867	-6.423	-8.036	-9.411	-10.407	
						0.190	-0.678	-1.399	-2.010	-2.476	-2.680	-2.592	-3.044	-4.854	-6.423	-8.050	-9.437	-10.445	
						6.472	4.812	3.054	1.282	-0.407	-1.890	-3.110	-4.190	-5.103	-5.762	-6.159	-6.289	-6.118	
						6.472	7.938	9.210	10.282	11.163	11.898	12.479	12.724	12.623	12.238	11.567	10.625	9.470	

1.31 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.40 \times 5646.666) / (1.45 \times 10038) = 0.155$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 40 kg

Floor area per head of livestock = 1.45 m²

Displacement = 10038 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.155 = 0.124$ m

1.32 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10038) = 0.0131$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0131 = 0.0105$ m

1.33 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1459 \times 10.7) / 10038 = 0.078$ m

P = 0.05 TONS / m²

A = 1459 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.078 = 0.062$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.8745	Pass	+213.35
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.5211	Pass	+239.78
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.6466	Pass	+344.86
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.677	Pass	+1738.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.953	Pass	+535.33
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.6	Pass	+70.99
	Area1 / Area2 shall not be less than (>=)	100.00	%	313.01	Pass	+213.01
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.5344	m.deg	17.5213	Pass	+286.41

Load Case NO.25 – FULL LOAD400KG 90FOODER 100 BUNKER ARR
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	5.000	5.000	76.400	0.000	19.000	0.000	User Specified
SILO	10%	786.659	78.666	64.115	0.000	3.370	268.734	Maximum
SO1	10%	9.719	0.972	15.766	0.000	0.079	3.006	Maximum
SO2	10%	18.375	1.837	19.260	-6.243	4.609	10.507	Maximum
SO4	10%	12.617	1.262	14.134	-4.488	4.674	10.362	Maximum
SO5	10%	6.570	0.657	9.840	-3.092	4.925	7.259	Maximum
F.O.T 1 PS	20%	74.026	14.805	57.288	-8.436	2.466	3.382	Maximum
F.O.T 1 SB	0%	74.026	0.000	57.221	8.342	1.750	0.000	Maximum
F.O.T 2 PS	20%	75.375	15.075	47.568	-8.497	2.429	3.549	Maximum
F.O.T 2 SB	0%	75.375	0.000	47.585	8.420	1.750	0.000	Maximum
D.O. 3 PS	20%	66.996	13.399	37.649	-8.348	2.653	3.428	Maximum
D.O. 3 SB	0%	63.888	0.000	38.769	8.209	1.750	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	0%	42.187	0.000	27.537	6.116	1.750	0.000	Maximum
MDF 2 PS	20%	40.549	8.110	27.755	-6.654	2.478	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	100%	37.047	37.047	26.925	0.000	3.250	0.000	Maximum
AO	100%	8.870	8.870	17.258	2.286	1.167	0.000	Maximum
SK	100%	3.754	3.754	24.471	2.253	0.996	0.000	Maximum
SK PS	100%	2.651	2.651	24.496	-4.275	1.264	0.000	Maximum
SW	100%	4.068	4.068	19.899	2.554	1.103	0.000	Maximum
SLT	100%	9.576	9.576	21.904	2.803	1.108	0.000	Maximum
LO	100%	6.657	6.657	16.885	-2.248	1.178	0.000	Maximum
KW	100%	1.607	1.607	18.904	-2.453	1.120	0.000	Maximum
BILGE PS	100%	8.354	8.354	27.497	-3.961	1.437	0.000	Maximum
BILGE SB	100%	8.354	8.354	27.497	3.961	1.437	0.000	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9524.396	52.275	0.011	7.437	322.079	
FS correction						0.034		
VCG fluid						7.471		

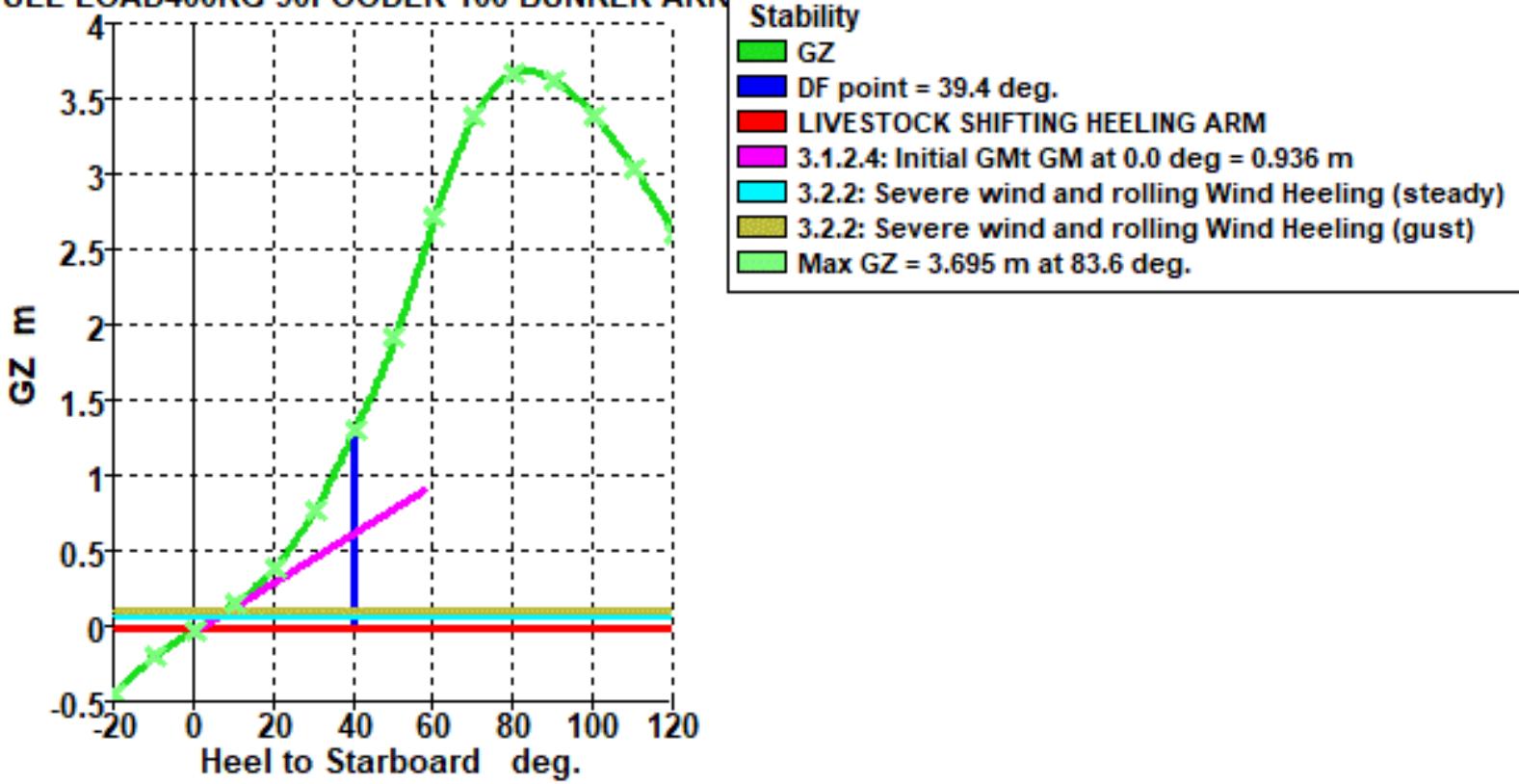
EQUILIBRIUM DATA

Draft Amidships m	6.994	LCB from zero pt. (+ve fwd) m	52.221
Displacement t	9524	LCF from zero pt. (+ve fwd) m	48.413
Heel deg	0.9	KB m	3.951
Draft at FP m	6.266	KG fluid m	7.471
Draft at AP m	7.721	BMt m	4.458
Draft at LCF m	7.080	BML m	150.456
Trim (+ve by stern) m	1.455	GMt corrected m	0.937
WL Length m	117.191	GML m	146.936
Beam max extents on WL m	19.089	KMt m	8.408
Wetted Area m^2	2703.613	KML m	154.377
Waterpl. Area m^2	1733.077	Immersion (TPc) tonne/cm	17.764
Prismatic coeff. (Cp)	0.640	MTc tonne.m	127.440
Block coeff. (Cb)	0.545	RM at 1deg = GMt.Disp.sin(1) tonne.m	155.812
Max Sect. area coeff. (Cm)	0.913	Max deck inclination deg	1.1459
Waterpl. area coeff. (Cwp)	0.775	Trim angle (+ve by stern) deg	0.7590

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 39.40 DEG.

FULL LOAD 400KG 90FOODER 100 BUNKER ARR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.427	3.9452	6.302	7.392	117.162	2734.405	1827.641	0.654	0.466	52.235	50.306	1.749	0.5689	1495.805
-10	-0.184	0.9351	6.296	7.631	117.173	2708.095	1755.342	0.643	0.542	52.232	48.908	1.155	0.6965	1495.805
0	-0.011	-0.0209	6.269	7.720	117.190	2703.643	1732.876	0.640	0.545	52.228	48.413	0.936	0.7569	1495.805
10	0.161	0.7148	6.296	7.631	117.173	2708.103	1755.348	0.643	0.542	52.232	48.908	1.159	0.6966	1495.805
20	0.406	3.4606	6.305	7.390	117.161	2734.470	1827.626	0.654	0.466	52.242	50.309	1.757	0.5664	1495.805
30	0.787	9.2900	6.209	7.038	117.200	2771.532	1946.358	0.672	0.408	52.251	51.706	2.731	0.4323	1495.805
40	1.312	19.7067	5.900	6.486	117.306	2820.704	2056.771	0.694	0.394	52.259	52.966	3.275	0.3058	1495.805
50	1.931	35.7842	5.141	5.465	117.356	2874.241	2191.491	0.707	0.396	52.265	53.643	4.044	0.1692	1495.805
60	2.740	59.0812	3.519	3.469	116.962	2945.331	2298.363	0.716	0.393	52.276	53.999	4.666	-0.0257	1495.805
70	3.404	90.0632	0.216	-0.394	114.468	2935.211	2172.099	0.710	0.467	52.284	54.220	2.763	-0.3183	1495.805
80	3.680	125.7999	-9.713	-11.557	115.394	2880.383	1994.760	0.689	0.567	52.289	54.131	0.539	-0.9622	1495.805
90	3.638	162.6015	n/a	n/a	116.285	2854.009	1892.525	0.677	0.629	52.285	53.927	-0.901	n/a	1495.805
100	3.398	197.9011	-30.676	-32.050	117.315	2848.163	1855.136	0.669	0.493	52.289	53.754	-1.748	-0.7168	1495.805
110	3.050	230.2191	-20.678	-20.909	117.921	2881.958	1860.453	0.670	0.402	52.280	53.350	-2.202	-0.1207	1495.805
120	2.623	258.6255	-17.465	-17.139	118.048	2914.208	1871.162	0.677	0.355	52.263	52.904	-2.716	0.1704	1495.805

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Type	Key point
Downflooding point	Downflooding point			Immersion angle deg	Immersion angle deg
Not immersed in positive range	39.4	0	6.936	0.208	n/a
	0	6.936	8.381	-0.626	2.5
	3.3	n/a	0.284	-0.626	2.5
	0	6.936	5.255	-0.576	n/a
	0	6.936	9.608	-0.576	3.3
	0	6.936	8.381	-1.299	n/a
	0	6.936	9.608	-1.299	3.3
	0	6.936	10.630	-1.866	n/a
	0	6.936	11.470	-2.287	3.3
	0	6.936	12.175	-2.460	n/a
	0	6.936	12.738	-2.434	3.3
	0	6.936	12.994	-2.850	n/a
	0	6.936	12.920	-3.920	3.3
	0	6.936	12.557	-4.807	n/a
	0	6.936	11.895	-4.566	3.3
	0	6.936	10.957	-5.443	n/a
	0	6.936	9.805	-5.831	3.3
	0	6.936	9.805	-6.114	n/a
	0	6.936	9.805	-7.744	3.3
	0	6.936	9.805	-9.117	n/a
	0	6.936	9.805	-10.132	3.3

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.400 \times 5646.666) / (1.45 \times 9524) = 0.164 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 9524 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.164 = 0.131 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9524) = 0.0138 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0138 = 0.0110 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1495.805 \times 10.7 / 9524 = 0.084 \text{ m}$

P = 0.05 TONS / m²

A = 1495.805 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.084 = 0.067 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.2900	Pass	6.1387
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.9543	Pass	13.7977
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	9.6643	Pass	7.9454
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.695	Pass	3.495
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	83.6	Pass	58.6
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.936	Pass	0.786
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	5.6	Pass	4.4
	Area1 / Area2 shall not be less than (>=)	100.00	%	348.26	Pass	248.26
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.8217	m.deg	18.9579	Pass	14.1362

Load Case NO.26 – FULL LOAD400KG 60FOODER 100 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	100%	9.719	9.719	15.049	0.000	0.477	0.000	Maximum
SO2	100%	18.375	18.375	19.238	-6.724	5.626	0.000	Maximum
SO4	100%	12.617	12.617	14.016	-5.163	5.687	0.000	Maximum
SO5	100%	6.570	6.570	9.582	-3.822	5.813	0.000	Maximum
F.O.T 1 PS	100%	74.026	74.026	57.415	-8.562	4.750	0.000	Maximum
F.O.T 1 SB	85%	74.026	62.922	57.400	8.544	4.354	3.329	Maximum
F.O.T 2 PS	100%	75.375	75.375	47.530	-8.610	4.710	0.000	Maximum
F.O.T 2 SB	85%	75.375	64.069	47.534	8.595	4.309	3.549	Maximum
D.O. 3 PS	100%	66.996	66.996	37.211	-8.550	4.912	0.000	Maximum
D.O. 3 SB	85%	63.888	54.305	37.501	8.529	4.529	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	100%	42.187	42.187	28.198	7.524	4.467	0.000	Maximum
MDF 2 PS	100%	40.549	40.549	28.230	-7.612	4.516	0.000	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10342.474	52.552	0.001	7.454	332.266	
FS correction						0.032		
VCG fluid						7.486		

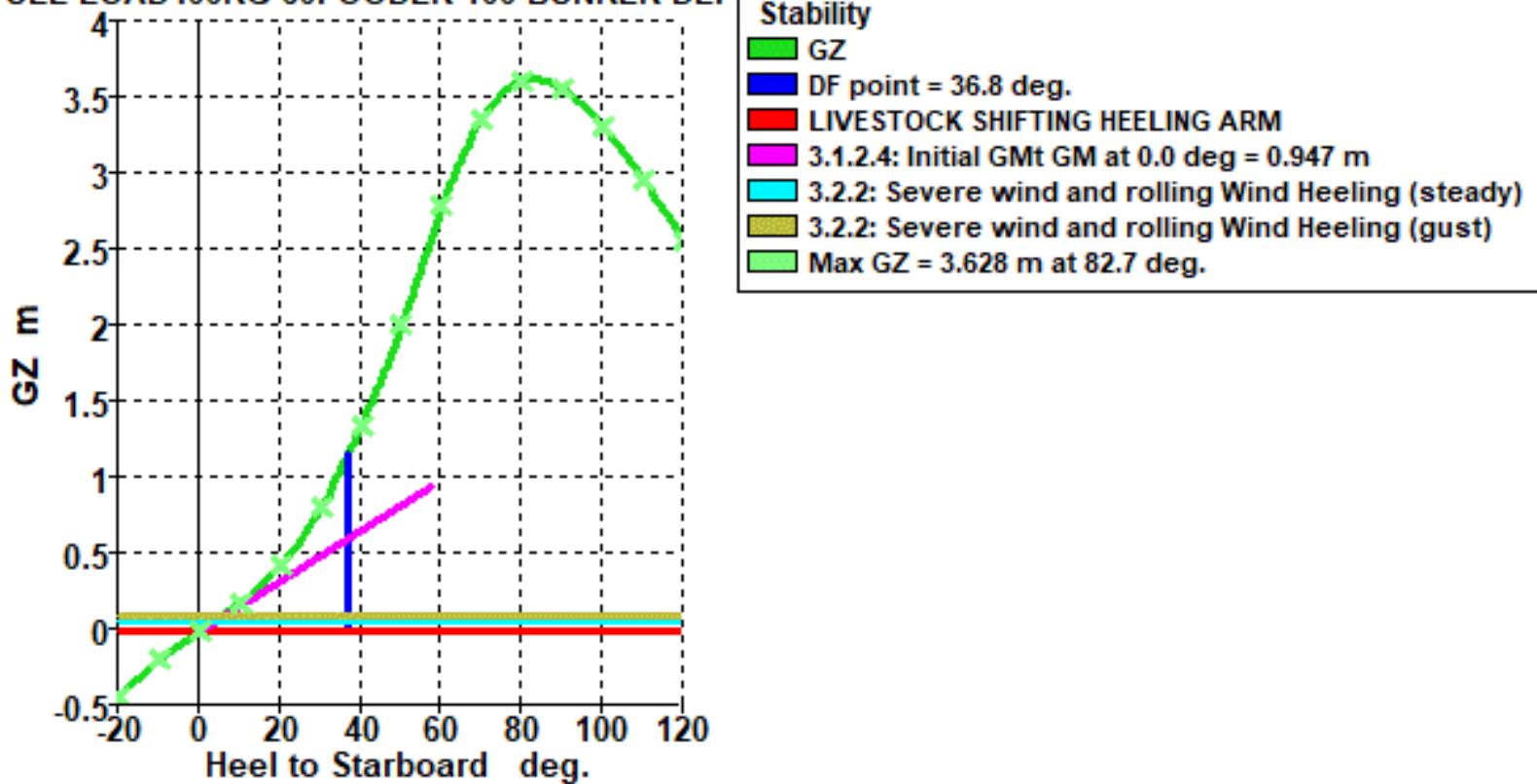
EQUILIBRIUM DATA

Draft Amidships m	7.482	LCB from zero pt. (+ve fwd) m	52.522
Displacement t	10342	LCF from zero pt. (+ve fwd) m	47.990
Heel deg	0.0	KB m	4.210
Draft at FP m	6.998	KG fluid m	7.486
Draft at AP m	7.966	BMt m	4.223
Draft at LCF m	7.543	BML m	139.562
Trim (+ve by stern) m	0.968	GMt corrected m	0.947
WL Length m	116.573	GML m	136.285
Beam max extents on WL m	19.150	KMt m	8.433
Wetted Area m^2	2825.518	KML m	143.767
Waterpl. Area m^2	1748.739	Immersion (TPc) tonne/cm	17.925
Prismatic coeff. (Cp)	0.653	MTc tonne.m	128.356
Block coeff. (Cb)	0.572	RM at 1deg = GMt.Disp.sin(1) tonne.m	170.903
Max Sect. area coeff. (Cm)	0.917	Max deck inclination deg	0.5049
Waterpl. area coeff. (Cwp)	0.783	Trim angle (+ve by stern) deg	0.5049

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 36.80 DEG.

FULL LOAD 400KG 60FOODER 100 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.438	3.9659	6.954	7.691	116.650	2856.478	1861.939	0.666	0.482	52.537	50.441	1.745	0.3848	1438.744
-10	-0.186	0.8917	6.996	7.893	116.573	2840.828	1793.969	0.656	0.557	52.526	48.914	1.237	0.4683	1438.744
0	-0.001	-0.0009	6.999	7.965	116.572	2825.525	1748.713	0.653	0.572	52.523	47.990	0.947	0.5043	1438.744
10	0.185	0.8887	6.996	7.893	116.573	2840.834	1793.971	0.656	0.557	52.526	48.914	1.237	0.4683	1438.744
20	0.437	3.9177	6.951	7.693	116.654	2856.416	1861.949	0.666	0.482	52.531	50.438	1.745	0.3870	1438.744
30	0.815	10.0425	6.813	7.386	116.814	2894.153	1984.026	0.683	0.422	52.537	51.848	2.689	0.2987	1438.744
40	1.357	20.7969	6.491	6.900	117.051	2943.506	2113.577	0.705	0.400	52.542	53.088	3.440	0.2133	1438.744
50	2.010	37.5045	5.772	5.953	117.328	2998.594	2257.610	0.718	0.402	52.547	53.753	4.232	0.0948	1438.744
60	2.797	61.5567	4.279	4.095	117.210	3058.088	2313.946	0.724	0.399	52.557	54.215	4.213	-0.0963	1438.744
70	3.373	92.6733	1.371	0.589	115.748	3049.918	2196.073	0.711	0.480	52.564	54.537	2.411	-0.4081	1438.744
80	3.618	127.9027	-7.231	-9.473	116.006	2998.720	2030.287	0.694	0.577	52.570	54.543	0.428	-1.1693	1438.744
90	3.561	164.0028	n/a	n/a	116.732	2969.003	1924.595	0.682	0.634	52.574	54.295	-0.965	n/a	1438.744
100	3.313	198.4881	-27.914	-29.884	117.563	2958.787	1884.288	0.674	0.504	52.572	53.996	-1.786	-1.0277	1438.744
110	2.963	229.9326	-19.253	-19.841	118.020	3004.697	1896.926	0.674	0.414	52.565	53.676	-2.168	-0.3071	1438.744
120	2.559	257.5661	-16.477	-16.435	118.048	3031.662	1925.468	0.680	0.361	52.551	53.183	-2.448	0.0219	1438.744

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Type	Key point
Downflooding point	Downflooding point				
Not immersed in positive range	36.8	0	n/a	Immersion angle deg	Immersion angle deg
	0	6.271	4.625	Emergence angle deg	Emergence angle deg
	0	6.271	7.750	Freeboard at 0.0 deg m	Freeboard at 0.0 deg m
	0	6.271	9.044	Freeboard at 10.0 deg m	Freeboard at 10.0 deg m
	0	6.271	10.137	Freeboard at 20.0 deg m	Freeboard at 20.0 deg m
	0	6.271	11.035	Freeboard at 30.0 deg m	Freeboard at 30.0 deg m
	0	6.271	11.782	Freeboard at 40.0 deg m	Freeboard at 40.0 deg m
	0	6.271	12.367	Freeboard at 50.0 deg m	Freeboard at 50.0 deg m
	0	6.271	12.607	Freeboard at 60.0 deg m	Freeboard at 60.0 deg m
	0	6.271	12.498	Freeboard at 70.0 deg m	Freeboard at 70.0 deg m
	0	6.271	12.105	Freeboard at 80.0 deg m	Freeboard at 80.0 deg m
	0	6.271	11.430	Freeboard at 90.0 deg m	Freeboard at 90.0 deg m
	0	6.271	10.486	Freeboard at 100.0 deg m	Freeboard at 100.0 deg m
	0	6.271	9.330	Freeboard at 110.0 deg m	Freeboard at 110.0 deg m
	0	6.271		Freeboard at 120.0 deg m	Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.400 \times 5646.666) / (1.45 \times 10342) = 0.151 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 10342 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.151 = 0.120 \text{ m}$

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 10342) = 0.0127 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0127 = 0.0102 \text{ m}$

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1438.744 \times 10.7 / 10342 = 0.074 \text{ m}$

P = 0.05 TONS / m²

A = 1438.744 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.074 = 0.060 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.0425	Pass	6.8912
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	16.7557	Pass	11.5991
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	6.7132	Pass	4.9943
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.628	Pass	3.428
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.947	Pass	0.797
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.1	Pass	5.9
	Area1 / Area2 shall not be less than (>=)	100.00	%	296.88	Pass	196.88
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.3811	m.deg	16.7552	Pass	12.3741

Load Case NO.27 – FULL LOAD400KG 60FOODER 100 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.998	64.115	0.000	5.212	268.734	Maximum
SO1	50%	9.719	4.860	15.147	0.000	0.264	3.006	Maximum
SO2	50%	18.375	9.187	19.257	-6.521	5.172	10.507	Maximum
SO4	50%	12.617	6.308	14.051	-4.856	5.256	10.362	Maximum
SO5	50%	6.570	3.285	9.640	-3.480	5.459	7.259	Maximum
F.O.T 1 PS	60%	74.026	44.415	57.369	-8.512	3.667	3.382	Maximum
F.O.T 1 SB	40%	74.026	29.610	57.336	8.481	3.087	3.329	Maximum
F.O.T 2 PS	60%	75.375	45.225	47.545	-8.566	3.619	3.549	Maximum
F.O.T 2 SB	40%	75.375	30.150	47.557	8.537	3.041	3.549	Maximum
D.O. 3 PS	60%	66.996	40.198	37.306	-8.478	3.884	3.428	Maximum
D.O. 3 SB	40%	63.888	25.555	37.659	8.427	3.296	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	50%	42.187	21.094	27.851	6.831	3.190	13.986	Maximum
MDF 2 PS	50%	40.549	20.275	27.888	-6.946	3.233	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.524	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9875.304	52.400	0.005	7.372	399.597	
FS correction						0.040		
VCG fluid						7.413		

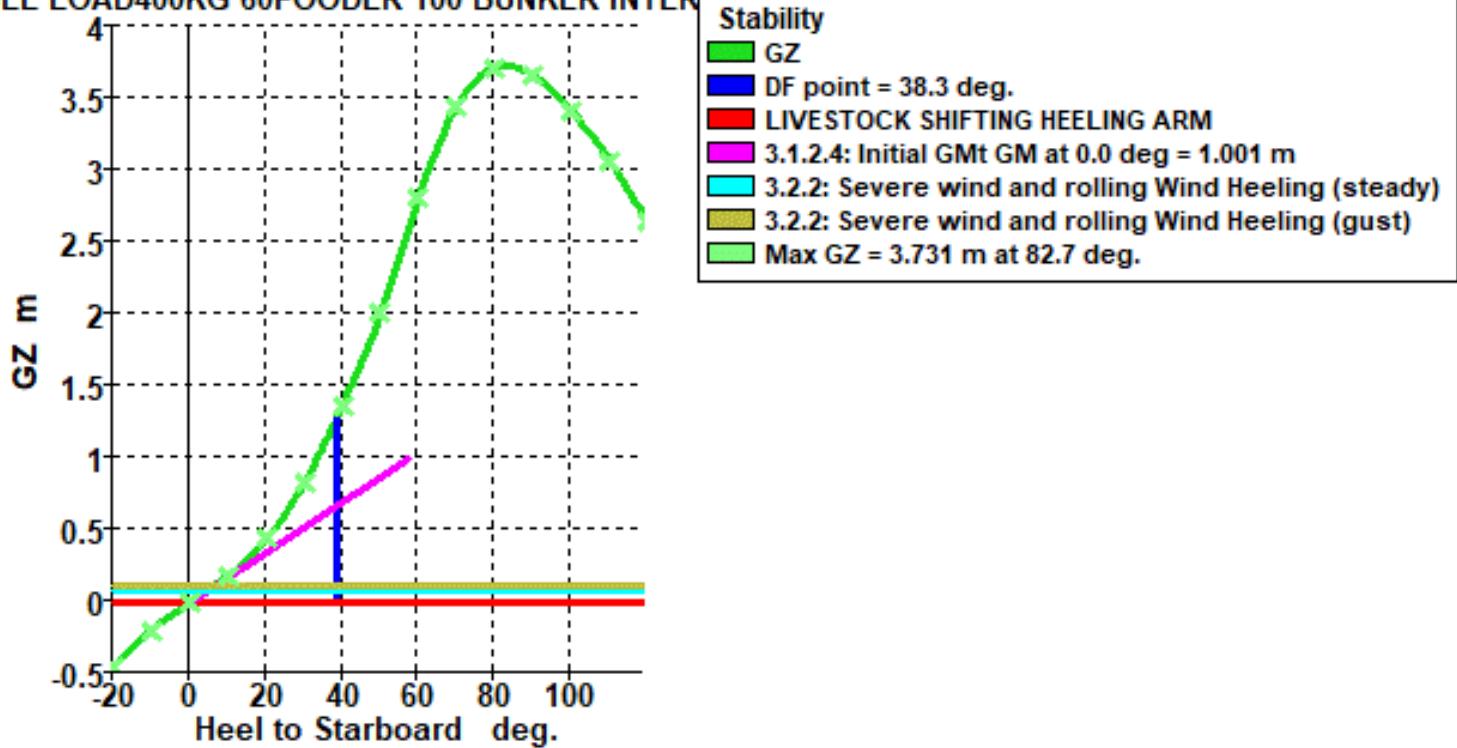
EQUILIBRIUM DATA

Draft Amidships m	7.204	LCB from zero pt. (+ve fwd) m	52.357
Displacement t	9875	LCF from zero pt. (+ve fwd) m	48.233
Heel deg	0.0	KB m	4.062
Draft at FP m	6.579	KG fluid m	7.413
Draft at AP m	7.828	BMt m	4.352
Draft at LCF m	7.279	BML m	145.710
Trim (+ve by stern) m	1.249	GMt corrected m	1.002
WL Length m	117.007	GML m	142.360
Beam max extents on WL m	19.116	KMt m	8.414
Wetted Area m^2	2756.190	KML m	149.763
Waterpl. Area m^2	1740.261	Immersion (TPc) tonne/cm	17.838
Prismatic coeff. (Cp)	0.645	MTc tonne.m	128.020
Block coeff. (Cb)	0.557	RM at 1deg = GMt.Disp.sin(1) tonne.m	172.652
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.6515
Waterpl. area coeff. (Cwp)	0.778	Trim angle (+ve by stern) deg	0.6515

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.3 DEG.

JLL LOAD400KG 60FOODER 100 BUNKER INTER



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.451	4.1182	6.584	7.520	116.992	2789.776	1842.690	0.659	0.473	52.371	50.360	1.805	0.4881	1471.262
-10.0	-0.193	0.9461	6.599	7.744	116.989	2765.050	1771.562	0.648	0.548	52.364	48.881	1.253	0.5976	1471.262
0.0	-0.005	-0.0086	6.581	7.826	117.006	2756.213	1740.186	0.645	0.557	52.362	48.234	1.001	0.6496	1471.262
10.0	0.183	0.8592	6.599	7.744	116.989	2765.065	1771.558	0.648	0.548	52.365	48.882	1.254	0.5973	1471.262
20.0	0.442	3.9008	6.584	7.520	116.992	2789.777	1842.693	0.659	0.473	52.371	50.360	1.808	0.4883	1471.262
30.0	0.832	10.1346	6.471	7.187	117.062	2824.253	1963.501	0.677	0.414	52.380	51.776	2.772	0.3736	1471.262
40.0	1.374	21.0749	6.157	6.664	117.216	2874.330	2082.371	0.699	0.397	52.387	53.037	3.399	0.2649	1471.262
50.0	2.016	37.8922	5.414	5.676	117.364	2928.353	2220.663	0.712	0.399	52.392	53.702	4.165	0.1364	1471.262
60.0	2.823	62.0638	3.847	3.737	117.084	2994.177	2306.829	0.721	0.394	52.403	54.104	4.508	-0.0574	1471.262
70.0	3.453	93.7147	0.716	0.027	115.139	2984.943	2183.415	0.710	0.472	52.410	54.360	2.633	-0.3597	1471.262
80.0	3.718	129.8739	-8.634	-10.665	115.669	2931.393	2010.165	0.691	0.571	52.416	54.315	0.495	-1.0598	1471.262
90.0	3.669	167.0237	n/a	n/a	116.492	2903.298	1906.142	0.679	0.631	52.419	54.083	-0.936	n/a	1471.262
100.0	3.424	202.6103	-29.480	-31.122	117.429	2895.182	1867.133	0.671	0.498	52.417	53.841	-1.785	-0.8569	1471.262
110.0	3.071	235.1598	-20.059	-20.452	117.970	2935.019	1876.667	0.671	0.407	52.409	53.497	-2.212	-0.2049	1471.262
120.0	2.650	263.7993	-17.036	-16.836	118.048	2965.437	1895.475	0.678	0.357	52.393	53.026	-2.625	0.1042	1471.262

DF point	DF point	Deck Edge)		Margin Line	Key point	Type
					Immersion angle deg	Emergence angle deg
Downflooding point	Downflooding point				Freeboard at 0.0 deg m	Freeboard at 10.0 deg m
Not immersed in positive	38.3	0	1.3	n/a	0.108	-0.730
	0	6.651	0.184	-0.681	-1.417	-1.992
	6.651	4.983	-0.681	-1.396	-2.000	-2.421
	8.108	3.208	-1.396	-2.000	-2.458	-2.594
	9.364	1.417	-2.000	-2.458	-2.658	-2.477
	10.417	-0.289	-2.458	-2.658	-2.566	-2.973
	11.281	-1.784	-2.658	-2.566	-2.947	-4.746
	12.005	-3.010	-2.566	-2.947	-4.087	-4.989
	12.578	-12.827	-2.947	-4.087	-4.746	-5.640
	12.827	12.737	-4.087	-4.746	-4.989	-6.308
	12.360	12.360	-4.746	-4.989	-5.640	-6.033
	11.694	11.694	-4.989	-5.640	-6.033	-6.162
	10.753	10.753	-5.640	-6.033	-6.162	-5.990
	9.599	9.599	-6.033	-6.162	-5.990	

1.34 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.40 \times 5646.666) / (1.45 \times 9875) = 0.158$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 9875 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.158 = 0.126$ m

1.35 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 9875) = 0.0133$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0133 = 0.0107$ m

1.36 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1471 \times 10.7) / 9875 = 0.080$ m

P = 0.05 TONS / m²

A = 1471m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.080 = 0.064$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	10.1346	Pass	+221.60
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.8312	Pass	+265.19
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	8.6966	Pass	+405.94
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.731	Pass	+1765.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	1.001	Pass	+567.33
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	4.6	Pass	+71.30
	Area1 / Area2 shall not be less than (>=)	100.00	%	328.47	Pass	+228.47
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.7964	m.deg	18.8313	Pass	+292.62

Load Case NO.28 – FULL LOAD400KG 90FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	50.000	50.000	76.400	0.000	19.000	0.000	User Specified
SILO	90%	786.659	707.993	64.115	0.000	10.734	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10396.894	53.044	0.001	7.691	399.597	
FS correction						0.038		
VCG fluid						7.730		

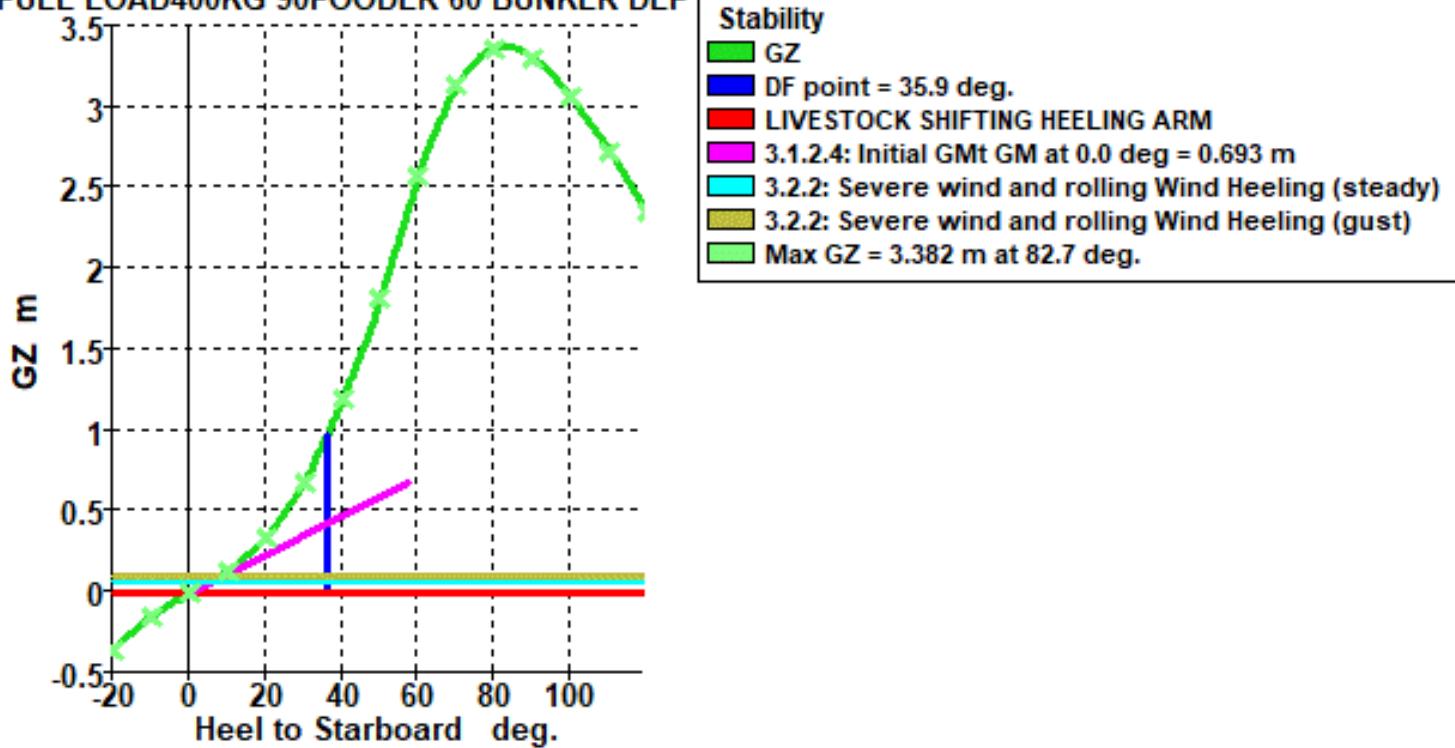
EQUILIBRIUM DATA

Draft Amidships m	7.539	LCB from zero pt. (+ve fwd) m	53.026
Displacement t	10397	LCF from zero pt. (+ve fwd) m	48.225
Heel deg	0.0	KB m	4.224
Draft at FP m	7.264	KG fluid m	7.730
Draft at AP m	7.813	BMt m	4.198
Draft at LCF m	7.572	BML m	137.899
Trim (+ve by stern) m	0.548	GMt corrected m	0.693
WL Length m	113.434	GML m	134.393
Beam max extents on WL m	19.149	KMt m	8.422
Wetted Area m^2	2836.746	KML m	142.121
Waterpl. Area m^2	1746.528	Immersion (TPc) tonne/cm	17.902
Prismatic coeff. (Cp)	0.672	MTc tonne.m	127.240
Block coeff. (Cb)	0.601	RM at 1deg = GMt.Disp.sin(1) tonne.m	125.672
Max Sect. area coeff. (Cm)	0.917	Max deck inclination deg	0.2861
Waterpl. area coeff. (Cwp)	0.804	Trim angle (+ve by stern) deg	0.2861

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 35.9 DEG.

-FULL LOAD 400KG 90FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.353	3.0964	7.198	7.539	113.439	2875.149	1863.615	0.687	0.497	53.034	50.670	1.514	0.1779	1432.769
-10.0	-0.141	0.6708	7.249	7.743	113.435	2853.223	1794.225	0.676	0.573	53.029	49.247	0.983	0.2578	1432.769
0.0	-0.001	-0.0015	7.265	7.813	113.434	2836.754	1746.531	0.672	0.601	53.027	48.226	0.693	0.2858	1432.769
10.0	0.140	0.6614	7.249	7.743	113.435	2853.228	1794.227	0.676	0.573	53.029	49.247	0.983	0.2578	1432.769
20.0	0.351	3.0345	7.197	7.539	113.439	2875.147	1863.616	0.687	0.497	53.033	50.670	1.514	0.1783	1432.769
30.0	0.691	8.1076	7.053	7.230	116.442	2908.307	1986.217	0.687	0.425	53.040	52.067	2.476	0.0924	1432.769
40.0	1.200	17.4507	6.728	6.741	116.888	2956.550	2116.323	0.707	0.402	53.044	53.267	3.256	0.0069	1432.769
50.0	1.825	32.4399	6.020	5.786	117.255	3010.076	2261.491	0.720	0.403	53.049	53.943	4.079	-0.1222	1432.769
60.0	2.586	54.5047	4.573	3.898	117.280	3068.034	2315.618	0.723	0.401	53.059	54.305	4.052	-0.3523	1432.769
70.0	3.139	83.3856	1.808	0.294	116.208	3060.639	2200.382	0.708	0.480	53.068	54.698	2.313	-0.7898	1432.769
80.0	3.373	116.2085	-6.263	-10.132	116.210	3011.136	2037.512	0.692	0.577	53.077	54.823	0.403	-2.0178	1432.769
90.0	3.314	149.8433	n/a	n/a	116.882	2980.012	1930.632	0.680	0.627	53.083	54.535	-0.953	n/a	1432.769
100.0	3.072	181.8813	-26.808	-30.633	117.644	2968.743	1889.100	0.673	0.502	53.084	54.214	-1.734	-1.9952	1432.769
110.0	2.735	210.9711	-18.688	-20.222	118.048	3010.405	1901.976	0.672	0.413	53.079	53.877	-2.068	-0.8006	1432.769
120.0	2.352	236.4283	-16.095	-16.689	118.048	3041.430	1931.147	0.679	0.360	53.065	53.385	-2.298	-0.3103	1432.769

DF point	DF point	Deck Edge)		Margin Line	Key point	Type	
					Immersion angle deg	Emergence angle deg	
Downflooding point	Downflooding point			1.7	n/a	Freeboard at 0.0 deg m	
Not immersed in positive	35.9	0	6.061	4.429	-0.709	-1.417	Freeboard at 10.0 deg m
0	6.061	7.555	8.863	9.976	0.144	-2.014	Freeboard at 20.0 deg m
							Freeboard at 30.0 deg m
							Freeboard at 40.0 deg m
							Freeboard at 50.0 deg m
							Freeboard at 60.0 deg m
							Freeboard at 70.0 deg m
							Freeboard at 80.0 deg m
							Freeboard at 90.0 deg m
							Freeboard at 100.0 deg m
							Freeboard at 110.0 deg m
							Freeboard at 120.0 deg m

1.37 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.40 \times 5646.666) / (1.45 \times 10397) = 0.150$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 10397 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.150 = 0.120$ m

1.38 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10397) = 0.0126$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0126 = 0.0101$ m

1.39 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1433 \times 10.7) / 10397 = 0.074$ m

P = 0.05 TONS / m²

A = 1433 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.074 = 0.059$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	8.1076	Pass	+157.28
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	13.0070	Pass	+152.24
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	4.8994	Pass	+185.03
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.382	Pass	+1591.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.693	Pass	+362.00
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	16.0	deg	5.5	Pass	+65.72
	Area1 / Area2 shall not be less than (>=)	100.00	%	275.26	Pass	+175.26
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	3.6314	m.deg	13.0065	Pass	+258.17

Load Case NO.29 – FULL LOAD400KG 90FOODER 60 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	25.000	25.000	76.400	0.000	19.000	0.000	User Specified
SILO	50%	786.659	393.329	64.115	0.000	7.053	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9925.531	52.714	0.004	7.452	399.597	
FS correction						0.040		
VCG fluid						7.492		

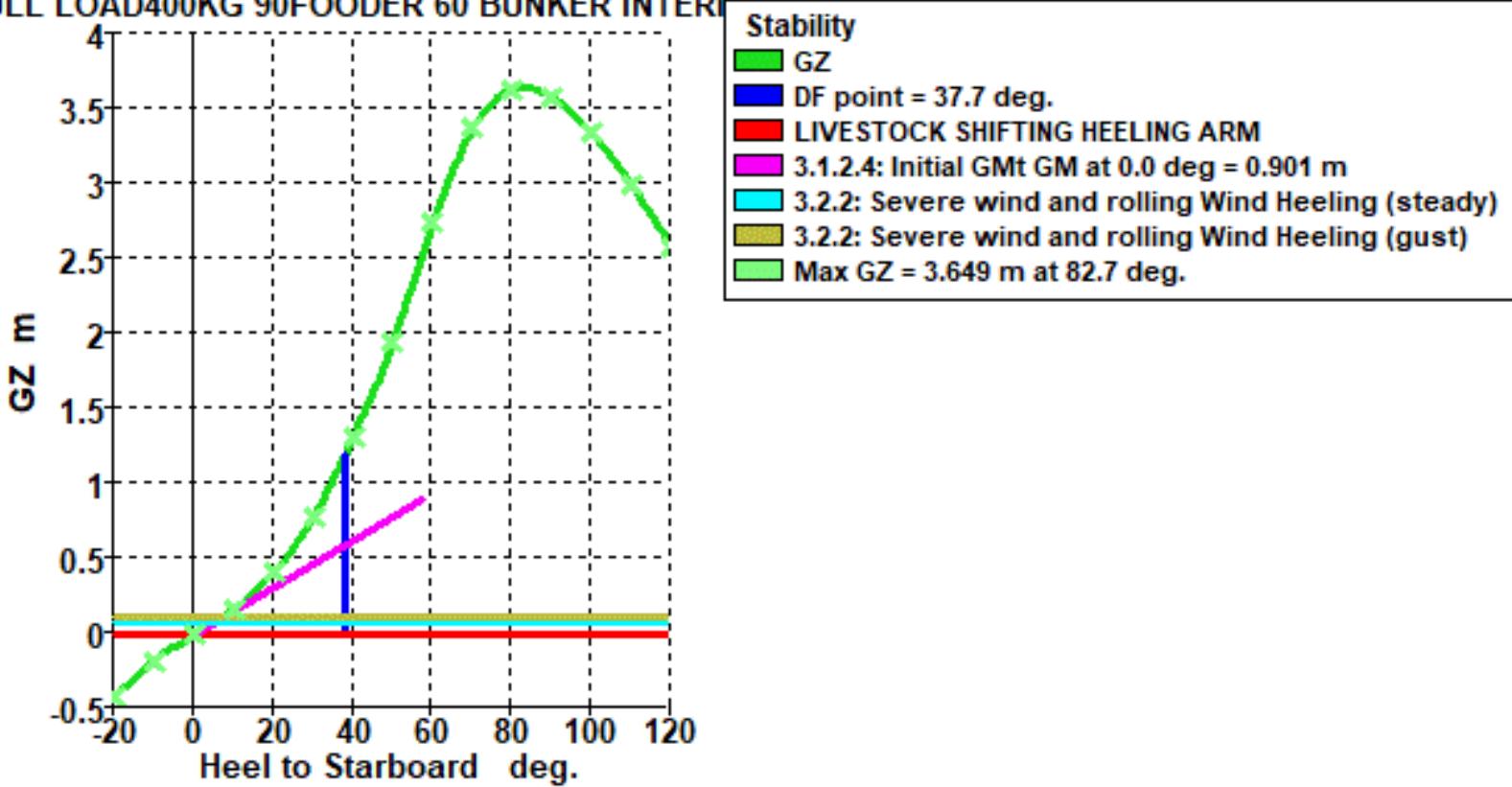
EQUILIBRIUM DATA

Draft Amidships m	7.248	LCB from zero pt. (+ve fwd) m	52.679
Displacement t	9926	LCF from zero pt. (+ve fwd) m	48.298
Heel deg	0.0	KB m	4.075
Draft at FP m	6.754	KG fluid m	7.492
Draft at AP m	7.741	BMt m	4.319
Draft at LCF m	7.307	BML m	143.758
Trim (+ve by stern) m	0.988	GMt corrected m	0.901
WL Length m	116.864	GML m	140.340
Beam max extents on WL m	19.117	KMt m	8.393
Wetted Area m^2	2765.178	KML m	147.827
Waterpl. Area m^2	1736.070	Immersion (TPc) tonne/cm	17.795
Prismatic coeff. (Cp)	0.647	MTc tonne.m	126.846
Block coeff. (Cb)	0.565	RM at 1deg = GMt.Disp.sin(1) tonne.m	156.134
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.5153
Waterpl. area coeff. (Cwp)	0.777	Trim angle (+ve by stern) deg	0.5153

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37.70 DEG.

ULL LOAD400KG 90FOODER 60 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.420	3.7884	6.748	7.434	116.863	2800.818	1843.985	0.661	0.474	52.690	50.497	1.728	0.3581	1466.133
-10	-0.176	0.8546	6.769	7.657	116.846	2775.897	1771.175	0.650	0.549	52.688	49.050	1.166	0.4633	1466.133
0	-0.004	-0.0069	6.755	7.740	116.862	2765.187	1736.014	0.647	0.565	52.683	48.299	0.901	0.5140	1466.133
10	0.168	0.7871	6.769	7.658	116.847	2775.893	1771.190	0.650	0.549	52.686	49.049	1.168	0.4639	1466.133
20	0.413	3.6090	6.749	7.433	116.862	2800.875	1843.963	0.661	0.474	52.693	50.498	1.731	0.3568	1466.133
30	0.791	9.4941	6.630	7.100	116.952	2835.425	1965.800	0.679	0.415	52.701	51.913	2.700	0.2453	1466.133
40	1.324	19.9740	6.313	6.577	117.139	2884.456	2085.621	0.701	0.398	52.707	53.156	3.345	0.1378	1466.133
50	1.958	36.2449	5.579	5.585	117.352	2937.749	2224.461	0.713	0.400	52.712	53.821	4.119	0.0030	1466.133
60	2.756	59.7899	4.040	3.632	117.145	3002.609	2309.185	0.720	0.394	52.722	54.167	4.448	-0.2129	1466.133
70	3.375	90.7110	1.008	-0.130	115.432	2994.459	2187.221	0.708	0.473	52.731	54.500	2.589	-0.5936	1466.133
80	3.636	126.0629	-7.987	-11.023	115.830	2941.441	2015.310	0.690	0.572	52.739	54.492	0.485	-1.5838	1466.133
90	3.587	162.3863	n/a	n/a	116.607	2912.723	1910.590	0.678	0.627	52.744	54.240	-0.932	n/a	1466.133
100	3.343	197.1512	-28.748	-31.531	117.492	2903.454	1870.595	0.671	0.496	52.743	53.975	-1.768	-1.4520	1466.133
110	2.995	228.9102	-19.684	-20.660	117.997	2941.412	1880.917	0.670	0.407	52.736	53.640	-2.175	-0.5090	1466.133
120	2.582	256.8273	-16.781	-16.974	118.048	2974.093	1900.273	0.678	0.357	52.721	53.160	-2.562	-0.1007	1466.133

DF point	DF point	Deck Edge (immersion pos.)	Margin Line (immersion pos.)	Key point
				Type
Downflooding point	Downflooding point			Immersion angle deg
Not immersed in positive range	37.7	0	6.512	Emergence angle deg
				Freeboard at 0.0 deg m
				Freeboard at 10.0 deg m
				Freeboard at 20.0 deg m
				Freeboard at 30.0 deg m
				Freeboard at 40.0 deg m
				Freeboard at 50.0 deg m
				Freeboard at 60.0 deg m
				Freeboard at 70.0 deg m
				Freeboard at 80.0 deg m
				Freeboard at 90.0 deg m
				Freeboard at 100.0 deg m
				Freeboard at 110.0 deg m
				Freeboard at 120.0 deg m

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.400 \times 5646.666) / (1.45 \times 9926) = 0.157$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 9926 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.157 = 0.126$ m

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9926) = 0.0132$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0132 = 0.0106$ m

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1466.133 \times 10.7 / 9926 = 0.079$ m

P = 0.05 TONS / m²

A = 1466.133 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.079 = 0.063$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.4941	Pass	6.3428
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	17.1202	Pass	11.9636
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	7.6261	Pass	5.9072
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.649	Pass	3.449
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.901	Pass	0.751
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.9	Pass	5.1
	Area1 / Area2 shall not be less than (>=)	100.00	%	317.05	Pass	217.05
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.4541	m.deg	17.1201	Pass	12.6660

Load Case NO.30 – FULL LOAD400KG 60FOODER 60 BUNKER DEP
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	40.000	40.000	76.400	0.000	19.000	0.000	User Specified
SILO	60%	786.659	471.995	64.115	0.000	7.973	268.734	Maximum
SO1	60%	9.719	5.832	15.114	0.000	0.307	3.006	Maximum
SO2	60%	18.375	11.025	19.253	-6.570	5.275	10.507	Maximum
SO4	60%	12.617	7.570	14.041	-4.927	5.356	10.362	Maximum
SO5	60%	6.570	3.942	9.623	-3.558	5.543	7.259	Maximum
F.O.T 1 PS	70%	74.026	51.818	57.382	-8.526	3.946	3.382	Maximum
F.O.T 1 SB	50%	74.026	37.013	57.354	8.498	3.381	3.329	Maximum
F.O.T 2 PS	70%	75.375	52.762	47.540	-8.578	3.899	3.549	Maximum
F.O.T 2 SB	50%	75.375	37.687	47.551	8.552	3.333	3.549	Maximum
D.O. 3 PS	70%	66.996	46.897	37.272	-8.499	4.153	3.428	Maximum
D.O. 3 SB	50%	63.888	31.944	37.604	8.456	3.591	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	60%	42.187	25.312	27.875	6.897	3.406	13.986	Maximum
MDF 2 PS	60%	40.549	24.330	27.910	-7.010	3.451	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	10%	37.047	3.705	26.925	0.000	1.900	28.907	Maximum
AO	10%	8.870	0.887	17.670	1.852	0.441	3.808	Maximum
SK	10%	3.754	0.375	24.480	1.972	0.297	0.791	Maximum
SK PS	10%	2.651	0.265	24.523	-3.689	0.659	1.912	Maximum
SW	10%	4.068	0.407	19.917	1.953	0.322	2.559	Maximum
SLT	10%	9.576	0.958	21.864	2.071	0.345	9.042	Maximum
LO	10%	6.657	0.666	17.218	-1.827	0.465	2.601	Maximum
KW	10%	1.607	0.161	18.908	-1.898	0.356	0.855	Maximum
BILGE PS	10%	8.354	0.835	27.546	-3.637	0.535	1.453	Maximum
BILGE SB	10%	8.354	0.835	27.546	3.637	0.535	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			10150.897	52.764	0.001	7.481	399.597	
FS correction						0.039		
VCG fluid						7.520		

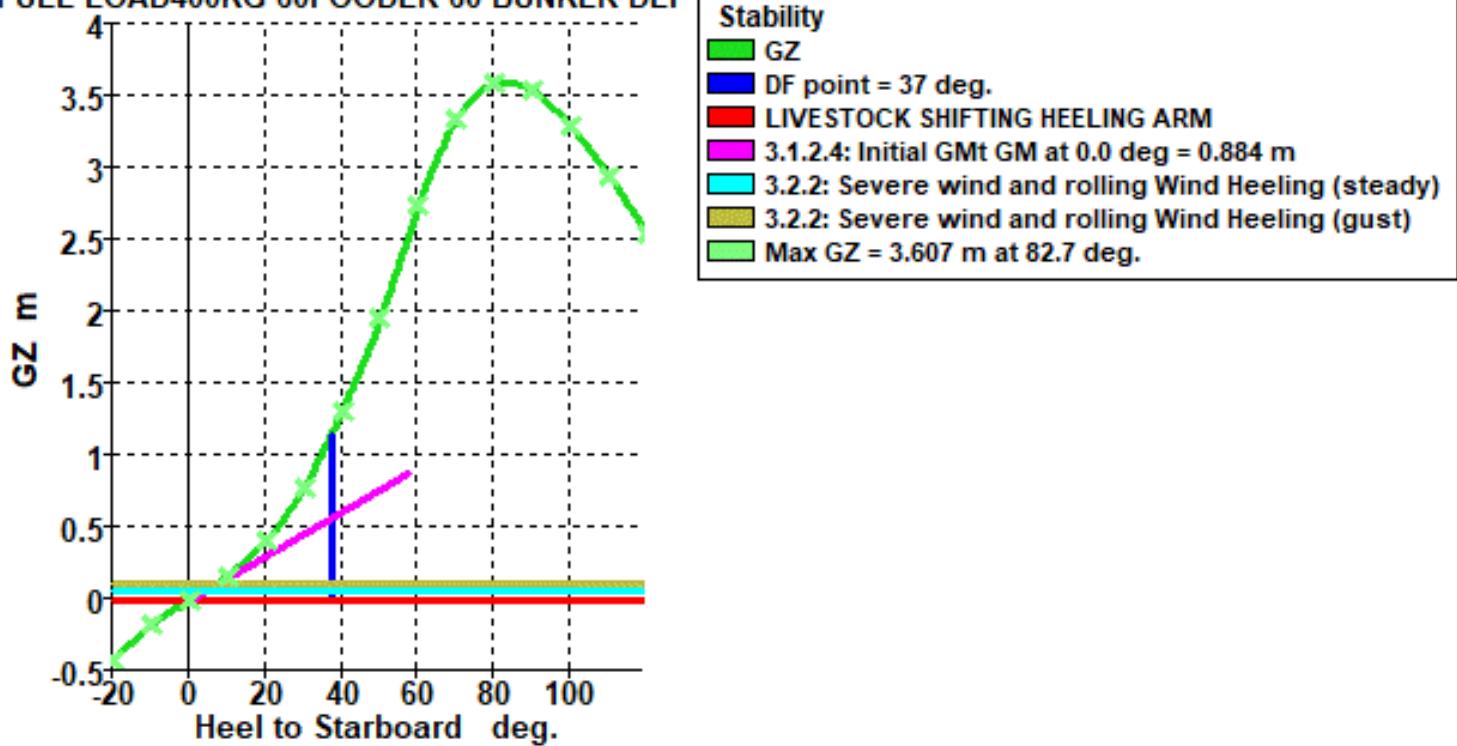
EQUILIBRIUM DATA

Draft Amidships m	7.381	LCB from zero pt. (+ve fwd) m	52.736
Displacement t	10151	LCF from zero pt. (+ve fwd) m	48.172
Heel deg	0.0	KB m	4.147
Draft at FP m	6.948	KG fluid m	7.520
Draft at AP m	7.815	BMt m	4.257
Draft at LCF m	7.434	BML m	140.941
Trim (+ve by stern) m	0.867	GMt corrected m	0.884
WL Length m	116.649	GML m	137.568
Beam max extents on WL m	19.134	KMt m	8.404
Wetted Area m^2	2798.562	KML m	145.084
Waterpl. Area m^2	1740.749	Immersion (TPc) tonne/cm	17.843
Prismatic coeff. (Cp)	0.651	MTc tonne.m	127.164
Block coeff. (Cb)	0.572	RM at 1deg = GMt.Disp.sin(1) tonne.m	156.569
Max Sect. area coeff. (Cm)	0.916	Max deck inclination deg	0.4523
Waterpl. area coeff. (Cwp)	0.780	Trim angle (+ve by stern) deg	0.4523

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 37 DEG.

-FULL LOAD 400KG 60FOODER 60 BUNKER DEP



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20.0	-0.416	3.7308	6.918	7.523	116.693	2835.718	1853.647	0.664	0.479	52.746	50.527	1.706	0.3160	1450.527
-10.0	-0.173	0.8284	6.952	7.737	116.646	2812.455	1782.666	0.654	0.554	52.740	49.056	1.168	0.4098	1450.527
0.0	-0.001	-0.0015	6.949	7.814	116.648	2798.569	1740.719	0.651	0.572	52.737	48.173	0.884	0.4516	1450.527
10.0	0.171	0.8188	6.952	7.737	116.646	2812.464	1782.666	0.654	0.554	52.740	49.056	1.168	0.4097	1450.527
20.0	0.415	3.6676	6.917	7.524	116.694	2835.708	1853.651	0.664	0.479	52.745	50.526	1.707	0.3166	1450.527
30.0	0.788	9.5446	6.787	7.203	116.832	2869.081	1975.740	0.682	0.419	52.753	51.938	2.666	0.2172	1450.527
40.0	1.321	19.9892	6.467	6.699	117.061	2918.217	2101.125	0.703	0.400	52.758	53.181	3.370	0.1210	1450.527
50.0	1.962	36.2706	5.743	5.727	117.330	2971.952	2242.634	0.716	0.401	52.763	53.844	4.156	-0.0084	1450.527
60.0	2.751	59.8297	4.240	3.814	117.200	3034.050	2313.481	0.722	0.395	52.773	54.229	4.320	-0.2222	1450.527
70.0	3.344	90.5709	1.309	0.156	115.701	3025.537	2193.098	0.709	0.476	52.782	54.566	2.482	-0.6017	1450.527
80.0	3.595	125.5527	-7.344	-10.416	115.980	2973.577	2024.720	0.692	0.575	52.789	54.593	0.452	-1.6024	1450.527
90.0	3.542	161.4456	n/a	n/a	116.714	2944.153	1919.201	0.679	0.629	52.795	54.330	-0.949	n/a	1450.527
100.0	3.297	195.7509	-28.029	-30.898	117.552	2934.062	1878.769	0.672	0.500	52.794	54.043	-1.772	-1.4965	1450.527
110.0	2.949	227.0424	-19.314	-20.347	118.018	2975.040	1890.502	0.672	0.410	52.788	53.712	-2.158	-0.5392	1450.527
120.0	2.544	254.5324	-16.524	-16.769	118.048	3006.084	1914.892	0.679	0.359	52.773	53.226	-2.479	-0.1276	1450.527

DF point	DF point	Deck Edge)		Margin Line	Key point	Type
					Immersion angle deg	Emergence angle deg
Downflooding point	Downflooding point				Freeboard at 0.0 deg m	Freeboard at 10.0 deg m
Not immersed in positive	37	0	1.6	n/a	0.133	-0.713
	0	6.335	0.209	-0.663	-1.410	-1.998
	6.335	4.683	-0.713	-1.389	-2.006	-2.441
	7.809	2.937	1.179	-1.389	-2.006	-2.477
	9.093	10.179	11.072	11.817	12.403	12.646
	10.527	11.471	12.145	12.537	12.646	12.947
	9.373	10.527	11.471	12.145	12.537	12.947
					Freeboard at 20.0 deg m	Freeboard at 30.0 deg m
					Freeboard at 40.0 deg m	Freeboard at 50.0 deg m
					Freeboard at 60.0 deg m	Freeboard at 70.0 deg m
					Freeboard at 80.0 deg m	Freeboard at 90.0 deg m
					Freeboard at 100.0 deg m	Freeboard at 110.0 deg m
					Freeboard at 120.0 deg m	

1.40 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.40 \times 5646.666) / (1.45 \times 10151) = 0.153 \text{ m}$

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666 \text{ m}^3$

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m^2

Displacement = 10397 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.153 = 0.123 \text{ m}$

1.41 SHIFT OF FODDER CRITERIA @ 0 DEG = $226 / (1.66 \times 10151) = 0.0130 \text{ m}$

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.7^3 = 266 \text{ M}^4$

STOWAGE FACTOR OF FODDER = $1.66 \text{ m}^3 / \text{TON}$

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0130 = 0.0104 \text{ m}$

1.42 EFFECT OF WIND CRITERIA @ 0 DEG = $(0.05 \times 1451 \times 10.7) / 10151 = 0.076 \text{ m}$

P = 0.05 TONS / m^2

A = 1451 m^2

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.076 = 0.061 \text{ m}$

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.5446	Pass	+202.88
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	16.3188	Pass	+216.46
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	6.7742	Pass	+294.10
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.607	Pass	+1703.50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	+230.91
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.884	Pass	+489.33
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (\leq)	16.0	deg	4.6	Pass	+71.15
	Area1 / Area2 shall not be less than (\geq)	100.00	%	302.48	Pass	+202.48
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.2938	m.deg	16.3183	Pass	+280.05

Load Case NO.31 – FULL LOAD400KG 60FOODER 60 BUNKER INTERM
Damage Case -- Intact Free to Trim -- Specific gravity = 1.025 ton/m)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	5075.700	5075.700	47.720	0.000	7.790	0.000	User Specified
PROVISIONS	1	30.000	30.000	10.000	0.000	11.000	0.000	User Specified
CREW & THIER EFFECT	1	7.000	7.000	7.400	0.000	15.000	0.000	User Specified
DAILY SILO TK.	1	20.000	20.000	62.400	0.000	19.700	0.000	User Specified
CARGO A DECK	1	189.400	189.400	57.400	0.000	3.400	0.000	User Specified
CARGO B DECK	1	205.370	205.370	56.400	0.000	5.750	0.000	User Specified
CARGO C DECK	1	206.420	206.420	57.250	0.000	8.100	0.000	User Specified
CARGO D DECK	1	350.820	350.820	59.700	0.000	10.450	0.000	User Specified
CARGO E DECK	1	355.530	355.530	60.200	0.000	12.800	0.000	User Specified
CARGO F DECK	1	393.870	393.870	61.100	0.000	15.150	0.000	User Specified
CARGO G DECK	1	400.670	400.670	61.100	0.000	17.370	0.000	User Specified
HAY	1	20.000	20.000	76.400	0.000	19.000	0.000	User Specified
SILO	30%	786.659	235.998	64.115	0.000	5.212	268.734	Maximum
SO1	30%	9.719	2.916	15.279	0.000	0.177	3.006	Maximum
SO2	30%	18.375	5.512	19.264	-6.406	4.934	10.507	Maximum
SO4	30%	12.617	3.785	14.076	-4.694	5.018	10.362	Maximum
SO5	30%	6.570	1.971	9.691	-3.305	5.253	7.259	Maximum
F.O.T 1 PS	40%	74.026	29.610	57.336	-8.481	3.087	3.382	Maximum
F.O.T 1 SB	20%	74.026	14.805	57.288	8.436	2.466	3.329	Maximum
F.O.T 2 PS	40%	75.375	30.150	47.557	-8.537	3.041	3.549	Maximum
F.O.T 2 SB	20%	75.375	15.075	47.568	8.497	2.429	3.549	Maximum
D.O. 3 PS	40%	66.996	26.798	37.416	-8.425	3.311	3.428	Maximum
D.O. 3 SB	20%	63.888	12.778	37.860	8.351	2.639	3.272	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
HFO5	100%	27.568	27.568	21.500	5.585	7.790	0.000	Maximum
HFO6	100%	12.921	12.921	21.312	-2.730	1.107	0.000	Maximum
HFO7	100%	13.710	13.710	18.710	4.953	7.790	0.000	Maximum
HFO9	100%	23.092	23.092	15.635	4.875	7.790	0.000	Maximum
MDF1	100%	16.777	16.777	19.238	6.724	5.626	0.000	Maximum
MDF 2 SB	20%	42.187	8.437	27.719	6.536	2.446	13.986	Maximum
MDF 2 PS	40%	40.549	16.220	27.858	-6.869	3.002	11.851	Maximum
MDF S3	100%	11.519	11.519	14.016	5.163	5.687	0.000	Maximum
MDFT4	100%	13.826	13.826	24.750	-1.400	7.935	0.000	Maximum
FOREPEAK	100%	176.735	176.735	107.110	0.000	5.140	0.000	Maximum
AFTPEAK	100%	196.722	196.722	5.114	0.159	6.107	0.000	Maximum
TK. 02	100%	20.037	20.037	94.137	-2.284	1.461	0.000	Maximum
TK. 03	100%	44.356	44.356	94.488	1.480	1.311	0.000	Maximum
TK. 04	100%	58.968	58.968	85.735	-3.024	1.374	0.000	Maximum
TK. 05	100%	85.677	85.677	85.862	2.285	1.298	0.000	Maximum
TK. 08	100%	88.247	88.247	76.845	-3.771	1.331	0.000	Maximum
TK. 09	100%	114.660	114.660	76.896	3.052	1.284	0.000	Maximum
TK. 15 BS	100%	112.321	112.321	67.807	3.474	1.076	0.000	Maximum
TK. 15 PS	100%	88.978	88.978	67.797	-4.214	1.115	0.000	Maximum
TK. 16	100%	57.956	57.956	67.885	-8.185	4.983	0.000	Maximum
TK. 17	100%	57.956	57.956	67.885	8.185	4.983	0.000	Maximum
TK. 19 BS	100%	116.552	116.552	57.578	3.542	1.014	0.000	Maximum
TK. 19 PS	100%	93.156	93.156	57.572	-4.298	1.051	0.000	Maximum
TK. 23 SB	100%	110.869	110.869	47.523	3.564	1.012	0.000	Maximum
TK. 23 PS	100%	88.455	88.455	47.529	-4.302	1.046	0.000	Maximum

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
TK. 26	100%	91.008	91.008	37.180	-4.099	1.084	0.000	Maximum
TK. 27	100%	116.604	116.604	37.141	3.343	1.039	0.000	Maximum
TK. 30	100%	31.712	31.712	28.902	-3.565	1.101	0.000	Maximum
TK. 31	100%	44.549	44.549	28.810	2.725	1.038	0.000	Maximum
NEW SEWAGE	50%	37.047	18.523	26.925	0.000	2.500	28.907	Maximum
AO	50%	8.870	4.435	17.336	2.116	0.839	3.808	Maximum
SK	50%	3.754	1.877	24.472	2.222	0.617	0.791	Maximum
SK PS	50%	2.651	1.325	24.502	-4.052	0.990	1.912	Maximum
SW	50%	4.068	2.034	19.902	2.323	0.741	2.559	Maximum
SLT	50%	9.576	4.788	21.901	2.528	0.752	9.042	Maximum
LO	50%	6.657	3.328	16.948	-2.084	0.856	2.601	Maximum
KW	50%	1.607	0.804	18.905	-2.240	0.768	0.855	Maximum
BILGE PS	50%	8.354	4.177	27.504	-3.922	0.954	1.453	Maximum
BILGE SB	50%	8.354	4.177	27.504	3.922	0.954	1.453	Maximum
TUNNEL	100%	143.964	143.964	64.268	-0.650	1.201	0.000	Maximum
Total Loadcase			9763.200	52.518	0.004	7.408	399.597	
FS correction						0.041		
VCG fluid						7.449		

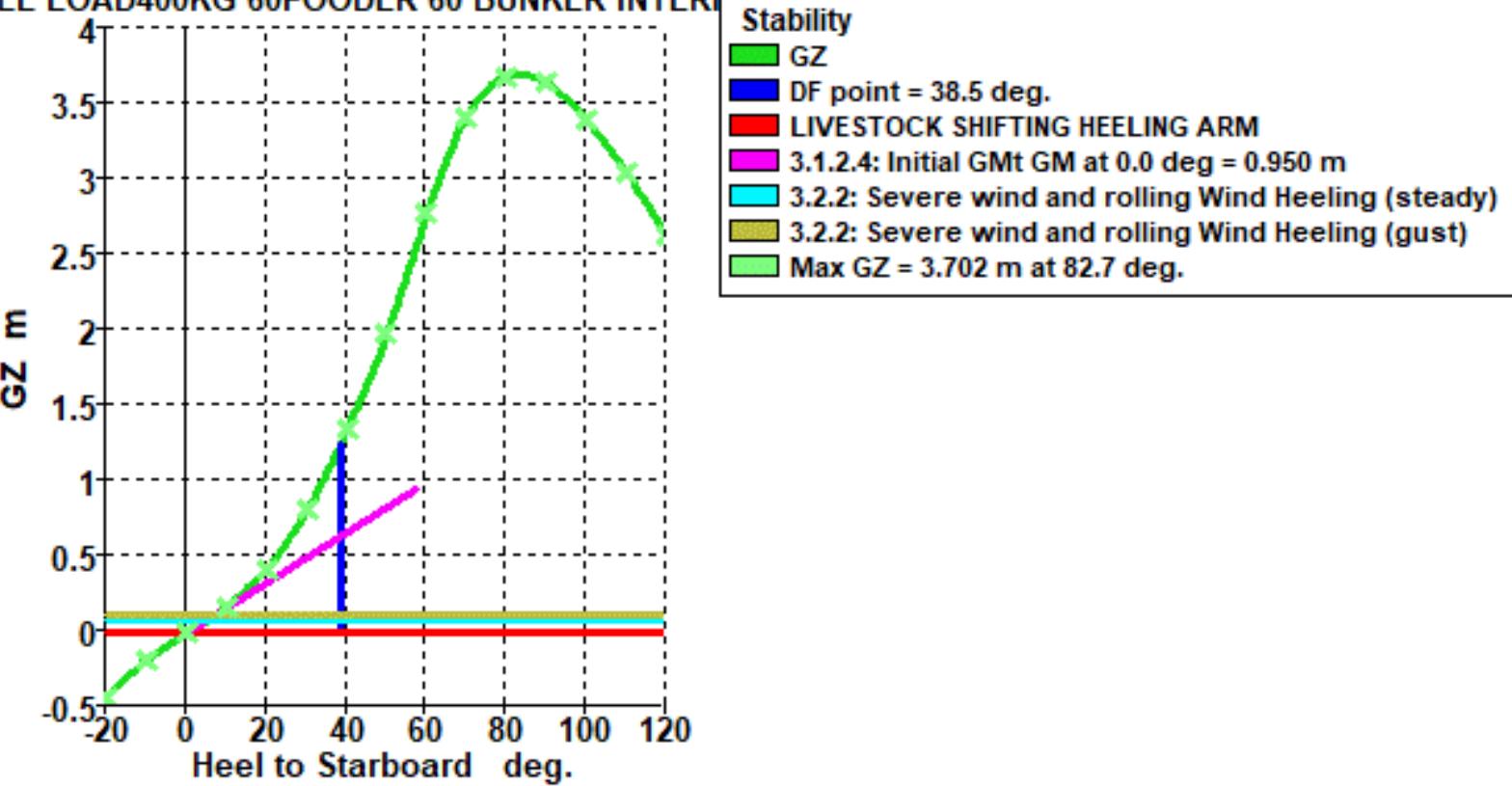
EQUILIBRIUM DATA

Draft Amidships m	7.144	LCB from zero pt. (+ve fwd) m	52.476
Displacement t	9763	LCF from zero pt. (+ve fwd) m	48.341
Heel deg	0.0	KB m	4.025
Draft at FP m	6.546	KG fluid m	7.449
Draft at AP m	7.741	BMt m	4.375
Draft at LCF m	7.215	BML m	146.567
Trim (+ve by stern) m	1.195	GMt corrected m	0.950
WL Length m	117.028	GML m	143.142
Beam max extents on WL m	19.105	KMt m	8.399
Wetted Area m^2	2740.135	KML m	150.583
Waterpl. Area m^2	1735.399	Immersion (TPc) tonne/cm	17.788
Prismatic coeff. (Cp)	0.644	MTc tonne.m	127.263
Block coeff. (Cb)	0.556	RM at 1deg = GMt.Disp.sin(1) tonne.m	161.950
Max Sect. area coeff. (Cm)	0.915	Max deck inclination deg	0.6233
Waterpl. area coeff. (Cwp)	0.776	Trim angle (+ve by stern) deg	0.6233

GZ- Curve:

NOTE: DOWN FLOODING ANGLE @ 38.50 DEG.

ULL LOAD400KG 60FOODER 60 BUNKER INTERIOR



Heel to Starboard deg	GZ m	Area under GZ curve m.deg	Draft at FP m	Draft at AP m	WL Length m	Wetted Area m^2	Waterpl. Area m^2	Prismatic coeff. (Cp)	Block coeff. (Cb)	LCB m	LCF m	GMt m	Trim angle deg	Windage area m^2
-20	-0.432	3.9075	6.560	7.424	117.008	2773.715	1837.529	0.658	0.471	52.489	50.413	1.769	0.4509	1478.246
-10	-0.182	0.8856	6.569	7.654	117.008	2748.057	1764.789	0.647	0.546	52.485	48.973	1.196	0.5660	1478.246
0	-0.004	-0.0070	6.548	7.740	117.027	2740.150	1735.324	0.644	0.556	52.480	48.343	0.950	0.6216	1478.246
10	0.174	0.8171	6.569	7.655	117.008	2748.058	1764.801	0.647	0.546	52.484	48.973	1.198	0.5663	1478.246
20	0.425	3.7247	6.561	7.423	117.007	2773.747	1837.523	0.658	0.471	52.492	50.414	1.772	0.4498	1478.246
30	0.809	9.7583	6.452	7.082	117.071	2809.272	1958.211	0.676	0.412	52.500	51.823	2.742	0.3292	1478.246
40	1.344	20.4348	6.138	6.549	117.221	2859.012	2074.635	0.698	0.396	52.507	53.085	3.343	0.2141	1478.246
50	1.976	36.8945	5.393	5.545	117.363	2912.309	2211.574	0.711	0.398	52.512	53.750	4.110	0.0792	1478.246
60	2.782	60.6443	3.819	3.577	117.075	2979.667	2305.262	0.719	0.394	52.523	54.107	4.549	-0.1264	1478.246
70	3.421	91.9230	0.673	-0.221	115.096	2970.512	2181.277	0.708	0.470	52.531	54.375	2.669	-0.4664	1478.246
80	3.689	127.7776	-8.716	-11.205	115.648	2916.591	2006.849	0.690	0.570	52.538	54.338	0.508	-1.2985	1478.246
90	3.642	164.6439	n/a	n/a	116.478	2888.762	1903.039	0.677	0.628	52.542	54.103	-0.925	n/a	1478.246
100	3.399	199.9659	-29.566	-31.702	117.421	2880.622	1863.843	0.670	0.495	52.540	53.864	-1.772	-1.1144	1478.246
110	3.048	232.2736	-20.105	-20.741	117.968	2917.522	1872.595	0.670	0.405	52.532	53.515	-2.201	-0.3319	1478.246
120	2.627	260.6842	-17.071	-17.027	118.048	2949.991	1888.649	0.678	0.356	52.516	53.049	-2.642	0.0225	1478.246

DF point	DF point	Deck Edge (Immersion pos.)	Margin Line (Immersion pos.)	Key point	Type	Immersion angle deg	Emergence angle deg	Freeboard at 0.0 deg m	Freeboard at 10.0 deg m	Freeboard at 20.0 deg m	Freeboard at 30.0 deg m	Freeboard at 40.0 deg m	Freeboard at 50.0 deg m	Freeboard at 60.0 deg m	Freeboard at 70.0 deg m	Freeboard at 80.0 deg m	Freeboard at 90.0 deg m	Freeboard at 100.0 deg m	Freeboard at 110.0 deg m	Freeboard at 120.0 deg m	
Downflooding point	Downflooding point																				
Not immersed in positive range	38.5	0	6.691	5.020	3.239	1.444	-0.265	-1.761	-2.987	-4.063	-4.964	-5.614	-6.006	-6.276	-6.276	-7.902	-9.290	-10.300			
	0	6.691	8.145	9.395	10.444	11.305	12.028	12.601	12.851	12.762	12.386	11.720	10.780	9.627							

1.1 SHIFT OF LIVESTOCK CRITERIA @ 0 DEG = $(0.400 \times 5646.666) / (1.45 \times 9763) = 0.160$ m

LIVESTOCK SHIFT CONSTANT = $(4.4/7700)/6 = 5646.666$ m³

Average mass of livestock carried = 400 kg

Floor area per head of livestock = 1.45 m²

Displacement = 9763 tons

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.160 = 0.128$ m

1.2 SHIFT OF FODDER CRITERIA @ 0 DEG = $218 / (1.66 \times 9763) = 0.0135$ m

TOTAL SHIFT MOMENT OF FODDER = $0.044 \times 7.8 \times 8.6^3 = 218$ M⁴

STOWAGE FACTOR OF FODDER = 1.66 m³ / TON

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.0135 = 0.0108$ m

1.3 EFFECT OF WIND CRITERIA @ 0 DEG = $0.05 \times 1478.246 \times 10.7 / 9763 = 0.081$ m

P = 0.05 TONS / m²

A = 1478.246 m²

H = 10.7 m

SHIFT OF LIVESTOCK CRITERIA @ 40 DEG = $0.8 \times 0.081 = 0.065$ m

IMO Criteria:

Code	Criteria	Value	Units	Actual	Status	Margin
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3.1513	m.deg	9.7583	Pass	6.6070
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5.1566	m.deg	18.4215	Pass	13.2649
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1.7189	m.deg	8.6632	Pass	6.9443
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0.200	m	3.702	Pass	3.502
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25.0	deg	82.7	Pass	57.7
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0.150	m	0.950	Pass	0.800
A.749(18) Ch3 - Design criteria applicable to all ships	3.2.2: Severe wind and rolling				Pass	
	Angle of steady heel shall not be greater than (<=)	10.0	deg	4.9	Pass	5.1
	Area1 / Area2 shall not be less than (>=)	100.00	%	332.47	Pass	232.47
LIVESTOCK CRITERIA	GZ area between limits type 2 - multiple heeling arms				Pass	
	LIVESTOCK SHIFTING heeling arm	4.7144	m.deg	18.4214	Pass	13.7070

LOAD CASES SUMMARY

LOADCASE		DISP.	GM	TRIM	M. DRAFT	SILO	F&D&L OIL	SEWAGE &WASTE
LIGHT WEIGHT	1. LAUNCHING	5076	1.34	4.55	4.19	-	-	-
BALLAST CONDITION	2. DEP.	7744	2.40	3.38	5.87	-	100%	10%
	3. INTERMED.	7548	2.36	3.24	5.76	-	50%	50%
	4. ARR.	7348	2.28	3.15	5.65	-	10%	100%
	CATTLES 300 KG							
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),100% BUNKER	5. DEP.	10443	0.81	0.79	7.55	90%	100%	10 %
	6. INTERMED.	9881	1.02	1.18	7.21	50%	50%	50%
	7. ARR.	9368	1.01	1.59	6.9	10%	10%	100%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),100% BUNKER	8. DEP.	10186	1.01	1.12	7.39	60%	100%	10%
	9. INTERMED.	9719	1.07	1.39	7.11	30%	50%	50%
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),60% BUNKER	10. DEP.	10240	0.73	0.68	7.44	90%	60%	10%
	11. INTERMED.	9769	0.97	1.13	7.15	50%	30%	50%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),60% BUNKER	12. DEP.	9994	0.95	1.01	7.29	60%	60%	10%
	13. INTERMED.	9607	1.02	1.33	7.05	30%	30%	50%
CATTLES 350 KG								
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),100% BUNKER	14. DEP.	10549	0.79	0.70	7.61	90%	100%	10%
	15. INTERMED.	9987	0.98	1.09	7.28	50%	50%	50%
	16. ARR.	9474	0.96	1.5	6.96	10%	10%	10%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),100% BUNKER	17. DEP.	10292	0.97	1.01	7.45	60%	100%	10%
	18. INTERMED.	9825	1.02	1.29	7.17	30%	50%	50%
	19. DEP.	10346	0.7	0.59	7.51	90%	60%	10%

LOADCASE		DISP.	GM	TRIM	M. DRAFT	SILO	F&D&L OIL	SEWAGE &WASTE
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),60% BUNKER	20. INTERMED.	9875	0.92	1.03	7.22	50%	30%	50%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),60% BUNKER	21. DEP.	10100	0.90	0.91	7.35	60%	60%	10%
	22. INTERMED.	9713	0.97	1.24	7.11	30%	30%	50%
CATTLES 400 KG								
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),100% BUNKER	23. DEP.	10544	0.76	0.66	7.61	90%	90%	10%
	24. INTERMED.	10038	0.95	1.04	7.31	50%	50%	50%
	25. ARR.	9524	0.94	1.46	6.99	10%	10%	100%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),100% BUNKER	26. DEP.	10342	0.95	0.97	7.48	60%	100%	10%
	27. INTERMED.	9875	1.00	1.25	7.20	30%	50%	50%
FULL LOAD CARGO, 90%FOODER (90%SILO+50MT HAY/RICE STRAW),60% BUNKER	28. DEP.	10397	0.69	0.55	7.54	90%	60%	10%
	29. INTERMED.	9926	0.90	0.99	7.25	50%	30%	50%
FULL LOAD CARGO, 60%FOODER (60%SILO+40MT HAY/RICE STRAW),60% BUNKER	30. DEP.	10151	0.88	0.87	7.38	60%	60%	10%
	31. INTERMED.	9763	0.95	1.20	7.14	30%	30%	50%



-END OF THE BOOKLET-