

OCIMF

SIGTTO

Ship Information Questionnaire for Gas Carriers

2nd Edition 1998

**Oil Companies International Marine Forum
Society of International Gas Tanker & Terminal Operators Ltd**

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SECTION A
GENERAL INFORMATION

A1 PRINCIPAL SHIP PARTICULARS

- 1.1 Date Questionnaire Completed 14 SEP 2017
- 1.2 Name of vessel BW TYR
- 1.3 LR/IMO Number 9346122
- 1.4 Last Previous Name AURORA LEO
- 1.4.1 Date of Name change 09 MAY 2017
- 1.5 Second Last Name Change MILL REEF
- 1.5.1 Date of Name change 05 JUN 2014
- 1.6 Third Last Name Change
- 1.6.1 Date of Name change
- 1.7 Fourth Last Name Change
- 1.7.1 Date of Name change
- 1.8 Flag MARSHALL ISLANDS
- 1.9 Port Of Registry MAJURO
- 1.10 Official Number 5715
- 1.11 Call Sign V7GI7
- Inmarsat A or B Number
- 1.13 Vessel's Telephone Number FBB -870 7732 07012 / 870 7732 10321//
+6531589092// +4723962422
- 1.14 Vessel's Fax Number 765115837
- 1.15 Vessel's Telex Number +583 453839838
- 1.16 Vessel's e-mail Address master.bwtyr@globeemail.com
- 1.17 Inmarsat C Number 453839838
- 1.18 Vessel's MMSI Number 538005715
- 1.19 Type of Vessel

- (1) Pressurized
- (2) Semi-Pressurized
- (3) Refrigerated

Max Tank Pressure	Min Tank Temperature
.....
.....
0.25/0.40 barg	-50 deg C

OWNERSHIP AND OPERATION

- 1.20 Registered Owner Aurora Shipping II AS.
- Full Address Dronningen 1, N-0287 Oslo, Norway
- Office Telephone Number +65 6705 5588
- Office Fax Number
- Office Telex Number
- Office e-mail Address fleets2@bwlpg.com
- Contact Person Mr. Prodyut Banerjee
- Contact Person and telephone Mr. Prodyut Banerjee, + 65 64345503
- Number after Hours +65 9011 4717

	Number of Years Vessel Owned	Taken Over on 14th Sep 2017
1.21	Name of Operator (If different from above) Full Address	Synergy Maritime Private Limited, 4th Floor, AKDR Tower, 3/381, Rajiv Gandhi Salai (OMR), Mettukuppam, Chennai – 600 097, India.
	Office Telephone Number	+91-44-6621 5555
	Office Fax Number	+91-44-6621 5500
	Office Telex Number	NA
	Office e-mail Address	tankers@synergyship.com
	Contact Person and telephone Number after Hours	Capt. Anish Mepurath/ +91 44 6602 4038 +91 73 580 12519
1.22	Number of Years as vessel Operator	0 Years
1.23	Total Number of vessels Operated by this Operator	131

BUILDER

1.24	Builder	HYUNDAI HEAVY INDUSTRIES
1.25	Name of Yard Vessel Built At	HYUNDAI HEAVY INDUSTRIES
1.26	Hull Number	1805
1.27	Date Keel Laid	2007.09.10
1.28	Date Launched	2007.11.23
1.29	Date Delivered	2008.02.19
1.30	Date of Completion of Major Hull Changes (If Any)	.....
1.31	If Changes were made, what changes were made and at which yard were they carried out	...............

CLASSIFICATION

1.32	Classification Society	Lloyds Register		
1.33	Class Notation	+100A1 Liquefied Gas Carrier, Ship type 2G, Propane, 1,3-Butadiene, Butane, Butylene, Anhydrous Ammonia and Propylene in independent tanks type A, maximum specific gravity 0.69, Maximum vapour pressure 0.25 bar (0.40 bar in harbor), Minimum temperature minus 50°C, ShipRight (SDA),LI, *IWS. +LMC, UMS, IGS, NAV1, +Lloyd's RMC(LG). With descriptive notes: ShipRight (FDA, CM, BWMP(S), SCM, SERS), ETA, Part higher Tensile Steel.		
1.34	If Class Society Changed, Name of Previous society	.....	
1.35	If Class Society Changed, Date of Change	.....	
1.36	Was Ship Built in accordance with the Following Regulation		Approval received	
	IMO	<input type="checkbox"/> YES		
	USCG	<input type="checkbox"/> YES		
	RINA		<input type="checkbox"/> NO	
	Other		<input type="checkbox"/> NO	
1.37	IMO Certification Certificate of Fitness			
	- IGC	<input type="checkbox"/> YES		
	-A328			<input type="checkbox"/> NO
	-A329			<input type="checkbox"/> NO
	Letter of compliance Issued By LR	<input type="checkbox"/> YES		
1.38	Unattended Machinery Space certificate		<input type="checkbox"/> YES	

TONNAGES

1.39	Nett Registered Tonnage	17309
1.40	Gross Tonnage	47197
1.41	Suez Canal Tonnage	NT 45669.40, GT 50293.96
1.42	Panama Canal Tonnage	NA

A2 HULL DIMENSIONS

2.1	Length Overall	225.459m
2.2	Length Between Perpendiculars	215 m
2.3	Distance Bow to Bridge	187.33 m
2.4	Distance Bridge Front to Mid-Point Manifold	77.82 m
2.5	Distance Bow to Mid-Point Manifold	109.51m
2.6	Extreme Breadth	36.63m
2.7	Extreme Depth	22.039m
2.8	Summer Draught	12.574 m
2.9	Corresponding Deadweight	58,564 tonnes
2.10	Light Displacement	18,959 tonnes
2.11	Loaded Displacement (Summer)	77,523 tonnes
2.12	Cargo Tank Cubic Capacity (100% full)	82,303 m ³
2.13	Distance from Keel to Highest Point	48.140 m
2.14	Air Draught (with normal ballast)	39.998 m

A3 IMMERSION

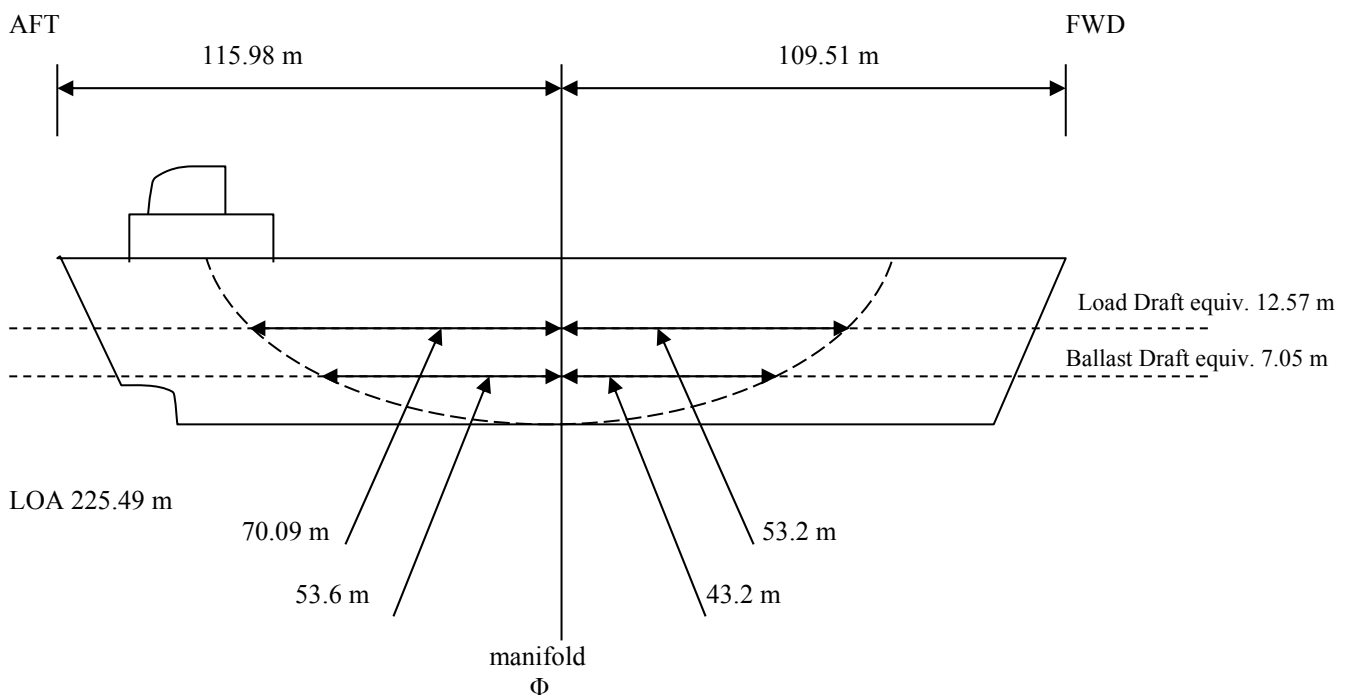
3.1	TPC	
	– at Normal Ballast Draught	63.68 tonnes @ 7.05 m draught
	– at Loaded Draught	71.19 tonnes @ 12.57 m draught

A4 LOADED PARTICULARS

Complete the Following Table:

4.1	Cargo:		Butane	Propane	Ammonia	VCM	Ballast Only
4.2	Density:		0.6	0.58	0.68		
4.3	Cargo	tonnes	48,394	46,786	54,299		
4.4	Bunkers-FO	tonnes	2704	2704	2704		2704
	LSMGO	tonnes	721	721	721		721
4.5	Fresh Water	tonnes	425	425	425		425
4.6	Stores/Spares	tonnes					
4.7	Lub Oil	tonnes	152	152	152		152
4.8	Ballast	tonnes					20701
4.9	Const.	tonnes	141	141	141		141
	Deadweight	tonnes	52,622	51,014	58,527		24,929
4.10	Draught – Forward		10.44 m	10.08 m	11.56 m	m	6.11 m
4.11	- Aft		12.90 m	12.80 m	13.46 m	m	9.17 m
	- Mean		11.67 m	11.44 m	12.51 m	m	7.60 m
	-						

A5 PARALLEL MID-BODY DIMENSIONS



A6 BUNKER CAPACITIES

6.1	M.E. Fuel Oil – Grade	380 RMG
	-Capacity @ 100%	2787.70 m ³
6.2	Diesel Oil – Grade	LSMGO
	- Capacity @ 100%	866.30 m ³

A7 FUEL CONSUMPTION DETAILS

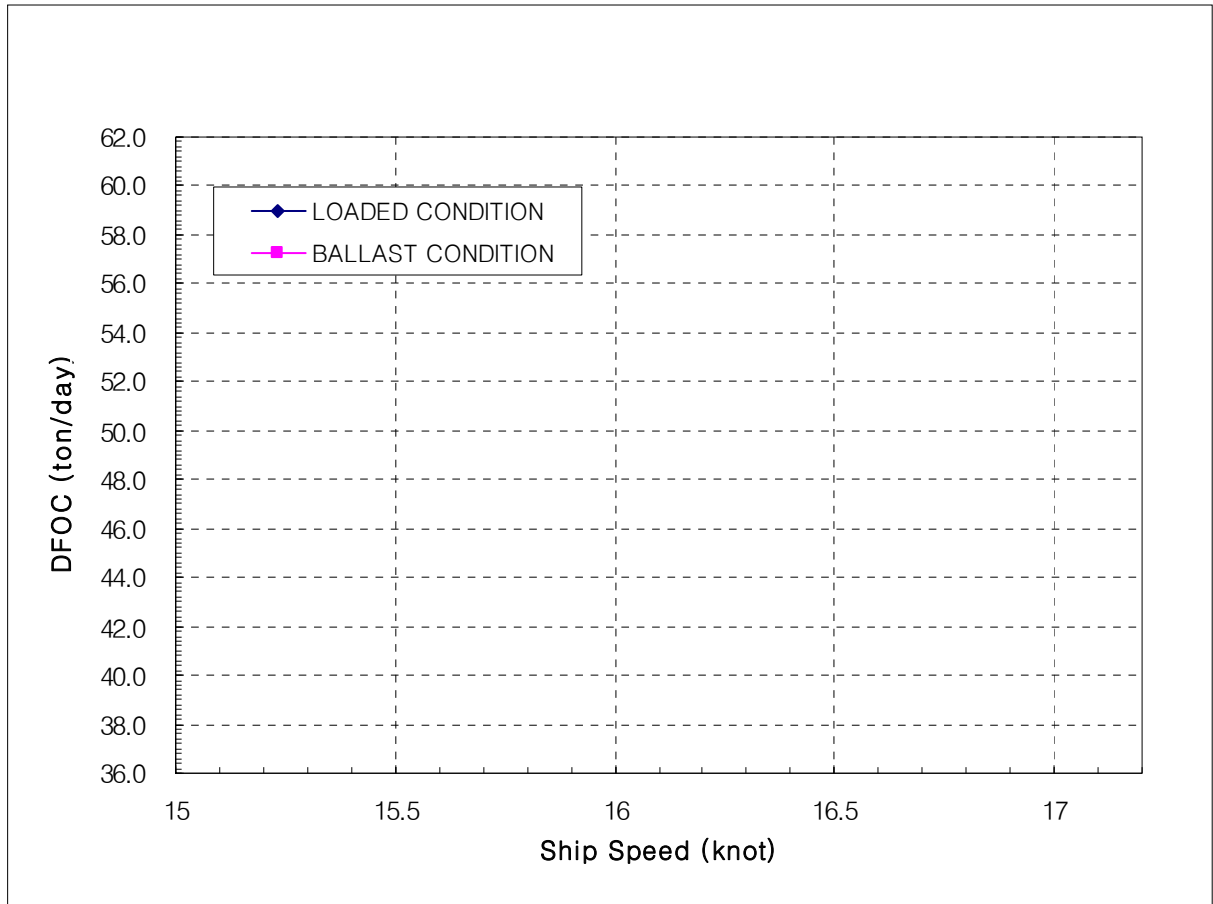
Excluding +5% tolerance

7.1	At Sea (Normal Service Speed)		
	w/o cargo handling	– FO	tones/day
		– DO	tones/day
7.2	At Sea (Normal Service Speed)		
	while conditioning cargo	–	tones/day
	FO		
		– DO	tones/day
7.3	In Port, Loading	– FO	tones/day
		– DO	tones/day
7.4	In Port, Discharging	– FO	tones/day
		– DO	tones/day
7.5	In Port, Idle	– FO	tones/day
		– DO	tones/day

(See also Consumption Graph on the following page)

A7 SPEED/CONSUMPTION GRAPH

SEA MARGIN: 15%



In the graph above, enter curves for both Loaded and Ballast conditions.
(If necessary, amend consumption and speed scales to suit.)

A8 MAIN ENGINE PARTICULARS

8.1	Main Engine Make and Type	HYUNDAI-B&W 6S60MC-C
8.2	No of Units	1 set
8.3	Maximum Continuous Rating (MCR) per Engine	18,420 BHP @ 105 RPM
8.4	Total Available Power	18,420 BHP
8.5	Normal service Power	16,380 BHP

A9 AUXILIARY PLANT

9.1	Make and Type of Auxiliary Generators	HHI-EES, HFC7 568-14K
9.2	No of Units	3 SETS
9.3	Maximum Generator Output per Unit	1200 kilowatts.....RPM.....kilowatts.....RPM.....kilowatts
9.4	Shaft Generator	.....N/A.....kilowatts
9.5	Total Available Power	.AC 450.Volts.....60.Hz. 3600 kilowatts
9.6	Emergency Generator	1800.RPM, AC450.Volts, 60.Hz 130.kilowatts
9.7	Emergency Fire Pump Type	Electric Motor Driven, Self Priming, Vertical Centrifugal.
	Delivery Pressure	9 barg
	Motive Power	55 kW
	If Electrical, Indicate Power Required in kW	55 kW
9.8	Steering Gear Type	TWO RAM-FOUR CYLINDER
	Indicate Power Required in kW to Steer the Vessel with One Pump Unit	45kW

A10 POWER/SPEED INFORMATION

10.1	Trial Data	
	BHP	12,055 kW
	MCR	13,560 kW
	Speed	(with 15% sea margin) 7.2 m
	Draught	
10.2	Normal Service Speed	
	BHP	16,055 kW
	MCR	13,560 kW
	Speed	knots
	Draught	11.4 m

A11 THRUSTERS

11.1	Make and Type	.....
11.2	No. Installed	..... Nil
11.3	Location and Rated Bollard Pull or kW output	.....

A12 FRESH WATER

12.1	Capacity of Distilled Tanks	.....tonnes
12.2	Capacity of F/D.W. Ts	425 tonnes
12.3	Daily Consumption	
	—Distilled	10.0 tonnes
	—Domestic	.....tonnes
12.4	Daily Evaporator Output	30 tonnes

A13 BALLAST CAPACITIES AND PUMPS

Complete the Following Table:

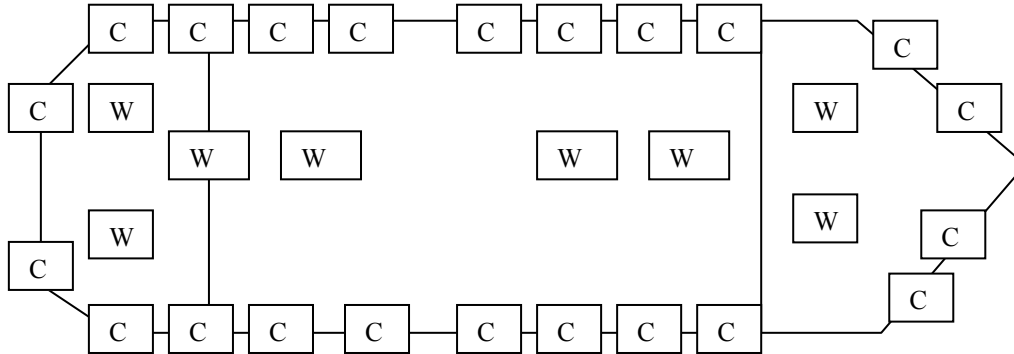
	Tank	Capacity (m ³)	Number
13.1	Forepeak	1,681.3	1
13.2	Wing or Side tanks	8,524.4	8
13.3	Double Bottoms	12,111.4	8
13.4	Aft Peak	1,323.6	1
13.5	Other (.....)		
13.6	Total	23,640.7	18

13.7	Ballast Pump Make and Type	SHINKO Type : Electric Motor Driven, Vertical Centrifugal
13.8	No of Pumps	2
13.9	Total Capacity	2 x 800 m ³ /hr
13.10	Location	Engine Room
13.11	Control Location	Cargo Control Room (A-Deck)

A14 MOORING EQUIPMENT

14.1 ROPES AND WIRES

On the diagram below indicate the position of Winch Mounted Wires (W) and Ropes (R) together with Open (O) and Closed (C) Fairleads. Indicate also the position of mooring Bitts (B)



	Mooring Wires (On Drums)				Mooring Wire Tails				
	No	Dia	Length	MBL	No	Type	Dia	Length	MBL
Forward	4	35	220	81	4	Nylon	80	11	121
Fwd Main Deck	4	35	220	81	4	Nylon	80	11	121
Aft Main Deck	2	35	220	81	2	Nylon	80	11	121
Poop	6	35	220	81	6	Nylon	80	11	121

Mooring Ropes (On Drums)					
	No	Type	Dia	Length	MBL
Forecastle					
Fwd Main Deck					
Aft Main Deck					
Poop					

Other Mooring Lines					
	No	Type	Dia	Length	MBL
Mooring Wires not on Drums	1	IWRC GSWR	36	220	90
Mooring ropes not on Drums	23	Polypropylene	64	220	81.6
Emergency Towing Wires (Fire Wires)	2	Steel wire	32	130	59.2

14.2 MOORING WINCHES

	No	Serving Singles or Double Drums	Split Drums (Y/N)	Motive Power (e.g. Steam, Hydraulic)	Heaving Power (Tonnes)	Brake capacity (tonnes)	Hauling Speed (m/sec)
Forward	2	Double	Y	El-Hyd.	20	64.8	0.25
Fwd Main Deck	2	Double	Y	El-Hyd.	20	64.8	0.25
Aft Main Deck	1	Double	Y	El-Hyd.	20	64.8	0.25
Poop	3	Double	Y	El-Hyd.	20	64.8	0.25

14.3 ANCHORS AND WINDLASSES

Windlass Motive Power (e.g. Steam, Hydraulic)	Electro-hydraulic high pressure
Hauling Power	31.5tonnes
Brake Holding Power	222tonnes
Anchor Type	High Holding Power
Weight	8.35tonnes
Is Spare Carried	<input type="checkbox"/> NO
Cable Diameter	81mm
No of Shackles Port	12
No of Shackles Starboard	13

14.4 TOWING EQUIPMENT

Is Ship fitted with a Towing Bracket AFT	<input type="checkbox"/> YES
If Yes, state SWL	.....200tonnes
Is Towing Chain provided	<input type="checkbox"/> YES
Dimensions of Towing Wire – Diameter	.....80 mm
Length	.....80 mtr

14.5 WINDAGE

Windage on Ballast Draught – End-on	976m ²
- Lateral	3,610m ²

A15 NAVIGATIONAL EQUIPMENT

Is the following equipment fitted :-

15.1	Magnetic Compass	<input type="checkbox"/>	
15.2	Off Course Alarm – Magnetic	<input type="checkbox"/>	
15.3	Gyro Compass	<input type="checkbox"/>	
	Specify number	...2...	
15.4	Off Course Alarm – Gyro	<input type="checkbox"/>	
15.5	Bridge Repeaters	<input type="checkbox"/>	
	Specify Number	...2...	
15.6	Radar 3 cm	<input type="checkbox"/>	
15.7	Radar 10 cm	<input type="checkbox"/>	
15.8	Are Radars Gyro Stabilised	<input type="checkbox"/>	
15.9	Radar Plotting Equipment		<input type="checkbox"/>
15.10	ARPA	<input type="checkbox"/>	
15.11	ECDIS (Electric Display and Information System)	<input type="checkbox"/>	
15.12	Depth Echo Sounder with Recorder	<input type="checkbox"/>	
15.13	Depth Echo Sounder without Recorder		<input type="checkbox"/>
15.14	Speed/Distance Indicator	<input type="checkbox"/>	
15.15	Doppler Log	<input type="checkbox"/>	
15.16	Speed of Approach Doppler		<input type="checkbox"/>
15.17	Rudder Angle Indicator	<input type="checkbox"/>	
15.18	Rudder Angle Indicator on Each Bridge Wing	<input type="checkbox"/>	
15.19	R.P.M Indicator	<input type="checkbox"/>	
15.20	R.P.M Indicator on Each Bridge Wing	<input type="checkbox"/>	
15.21	Controllable Propeller Pitch Indicator		<input type="checkbox"/>
15.22	Thruster (s) indicator		<input type="checkbox"/>
15.23	Rate of turn Indicator	<input type="checkbox"/>	
15.24	Radio Direction Finder		<input type="checkbox"/>
15.25	NAVTEX Receiver	<input type="checkbox"/>	
15.26	GPS	<input type="checkbox"/>	
15.27	Transit SATNAV		<input type="checkbox"/>
15.28	DECCA navigator		<input type="checkbox"/>
15.29	Omega		<input type="checkbox"/>
15.30	Loran C		<input type="checkbox"/>
15.31	Weather Fax	<input type="checkbox"/>	
15.32	Sextant(s)	<input type="checkbox"/>	
15.33	Signal Lamp ALDIS	<input type="checkbox"/>	
15.34	Anemometer	<input type="checkbox"/>	
15.35	Engine Order Recorder	<input type="checkbox"/>	
15.36	Course Recorder	<input type="checkbox"/>	
15.37	Are steering motor controls and engine controls fitted on bridge wings		<input type="checkbox"/>
15.38	Is bridge Equipped with a “Dead Man” Alarm	<input type="checkbox"/>	

- Equipment
- 15.39 What chart outfit coverage is provided
 - Worldwide NA
 - Limited ENC
 - If Limited Please Indicate Area Covered
- 15.40 Formal Chart Correction System in use NA
- 15.41 Electronic Chart System in use YES

A16 COMMUNICATIONS EQUIPMENT

Is the following equipment fitted: -

- 16.1 Main Transmitted Including Radio Telephone Distress Frequency YES
- 16.2 Main Receiver Including Radio Telephone Distress Frequency YES
- 16.3 Radio Telephone Distress Frequency Watch Receiver YES
- 16.4 Main Radio Antenna YES
- 16.5 Reserve Radio Antenna NO
- 16.6 Are the Main and Reserve Installations Electrically Separate and Electrically Independent of each other NO
- 16.7 2182 kHz Bridge auto Alarm NO
- 16.8 Alarm Signal Generating Device YES
- 16.9 VHF Radio (s) YES
 Specify Number 3
- 16.10 Portable VHF/UHF Radios YES
 Specify Type and Number 3/8 JHS7/GP328
 Are Sets Intrinsicly Safe YES
- 16.11 Inmarsat Satellite System YES
 Specify System Type A, B or CC.....
- 16.12 Is the ship equipped as per GMDSS Requirements YES
 If Yes, which area of operation is vessel certified to operate inA3.....
- 16.13 EPIRB YES
- 16.14 SARTS YES
- 16.15 Emergency Lifeboat Transceiver NO
- 16.16 At least Three Survival craft Two-way Radio Telephone Apparatus YES
- 16.17 Full Set of Publications YES

SECTION B
CARGO SYSTEMS

B1 CARGO – GENERAL INFORMATION

- | | | |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | List Products Which the Ship is Certified to Carry | Anhydrous Ammonia, Butadiene, Butane (iso and normal), Butylene, Propane, Commercial Propane (maximum 5.0 mole % ethane in liquid phase) & propylene. |
| Transport and Carriage Condition | | |
| 1.2 | Minimum Allowable Tank Temperature | -50°C |
| 1.3 | Maximum Allowable Tank Pressure | Seagoing setting: 0.25 barg
Harbour setting : 0.40 barg |
| 1.4 | List Grades which can be Loaded or Discharged Simultaneously | Any 2 grades. |
| 1.5 | List Grades which can be Transported Simultaneously | Any 2 grades |
| 1.6 | Number of Products that can be Conditioned by Reliquefaction Simultaneously | 2 |
| 1.7 | State Natural Tank Segregations (NB Separation must be by the removal of spools or the insertion of blanks) | System 1: Cargo tanks 1 & 3 or 1,3 & 4
System 2: Cargo tanks 2 & 4 or 2 |

B2 CARGO TANKS

- | | | |
|-----|--------------------------------------------------------------------|-----------------------------------------------------------------|
| 2.1 | Type and Materials of Cargo Tanks | Fine grain, fully killed low temperature carbon manganese steel |
| 2.2 | Maximum Allowable Relief Valve setting | 0.40 Barg |
| 2.3 | Safety Valve Set Pressure – If Variable Give Range of Pilot Valves | Seagoing setting: 0.25 barg
Harbour setting :0.40 barg |
| 2.4 | Maximum Vacuum | -0.05 Barg |
| 2.5 | Maximum Cargo Density | 690 kg/m ³ |
| 2.6 | Maximum Rate of Cool-Down | 10°C/hr |
| 2.7 | State any Limitations regarding Partially Filled Tanks |
None. |
| 2.8 | State Allowable Combinations of Filled and Empty Tanks |
Any |

B3 CARGO TANK CAPACITIES

Complete the Following Table:-

Tank	Capacity m ³ (100%)	Butane (0.600)		Propane (0.583)		Ammonia (0.683)		Propylene (0.613)		Butadiene (0.653)	
		Tonnes	°C	Tonnes	°C	Tonnes	°C	Tonnes	°C	Tonnes	°C
1	17876	10491	-.05	10190	-42	11943	-33	10716	-47.7	11419	-5
2	21827	12809	-.05	12443	-42	14583	-33	13084	-47.7	13944	-5
3	21828	12811	-.05	12444	-42	14583	-33	13084	-47.7	13944	-5
4	20666	12128	-.05	11781	-42	13807	-33	12388	-47.7	13202	-5
Total	82302.908	48239		46858		54916		49272		52509	

B4 LOADING RATES

4.1 From Refrigerated Storage:

Product	Rate (tonnes/hr)	
	With Vapor Return	Without Vapor Return
4.2 Propylene	2942	1090
4.3 Propane	2798	1092
4.4 Butane	2880	2680
4.5 Ammonia	3278	2165
4.6 Butylene	2995	2500
4.7 Butadiene	3134	2500

4.8 From Pressure Storage:

Product	Rate (tonnes/hr)	
	With Vapor Return	Without Vapor Return
4.9 Butane 0 °C	Not applicable	206
4.10 Propane 0 °C	Not applicable	26
4.11 10 °C	Not applicable	21
4.12 20 °C	Not applicable	17
4.13 30 °C	Not applicable	14

4.14 Special remarks:

B5 Discharging - General

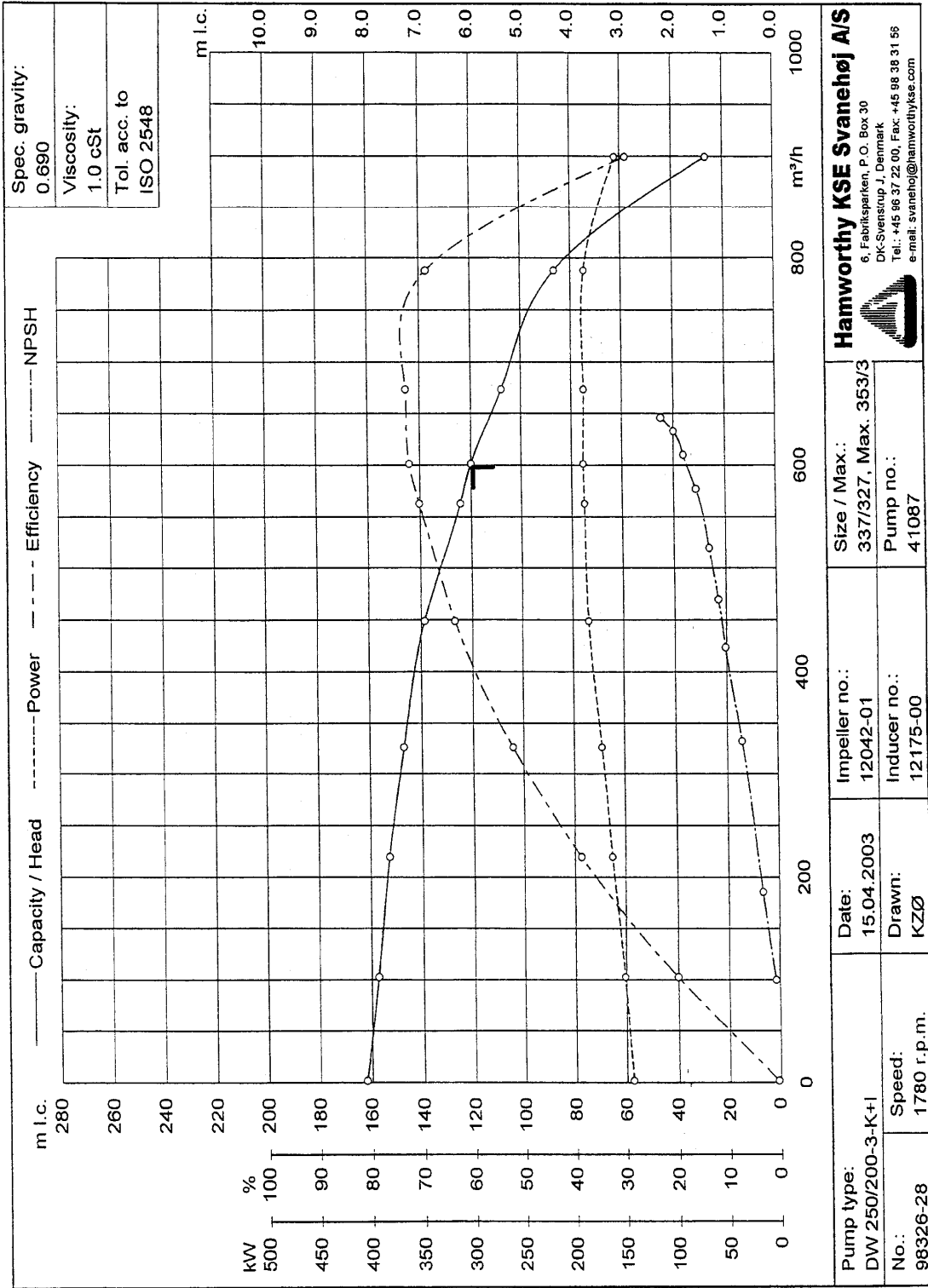
Cargo Pumps

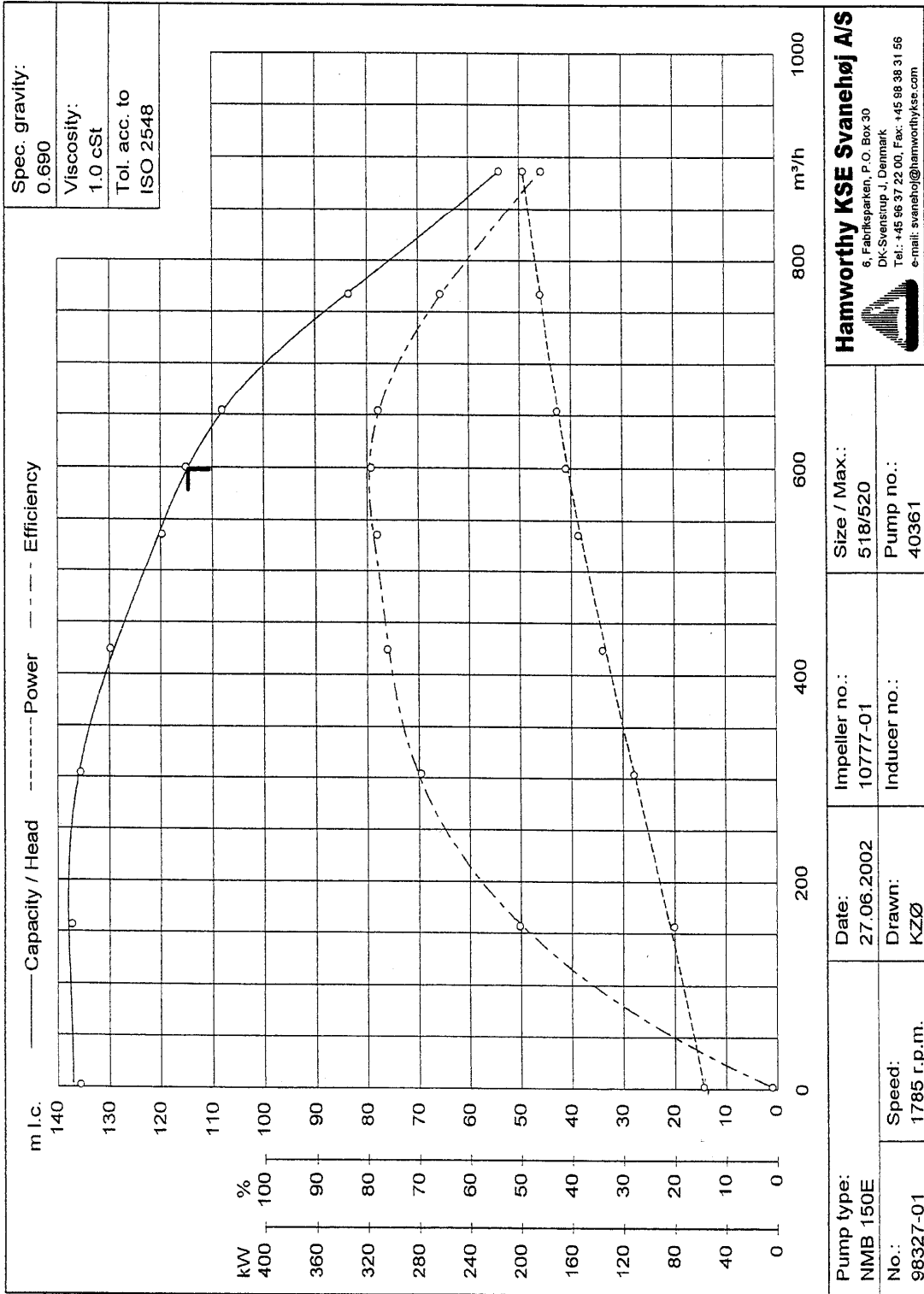
5.1	Type of Pumps	Vertical Deepwell pumps
5.2	Number per Tank	2
5.3	Rate (per pump)	600m ³ /hr
5.4	Delivery Head	120 mlc
5.5	Maximum Density	690kg/m ³

Booster Pumps

5.6	Type of Pumps	Horizontal
5.7	Number	2
5.8	Rate (per pump)	600m ³ /hr
5.9	Delivery Head	115.mlc
5.10	Maximum Density	690kg/m ³

Pumping Curves for Cargo Pumps and Booster Pumps:





Hamworthy KSE Svanehøj A/S
 6, Fabrikparken, P.O. Box 30
 DK-Svendsrup J, Denmark
 Tel.: +45 66 37 22 00, Fax: +45 98 31 56
 e-mail: svanehoj@hamworthykse.com

Pump type:	NMB 150E	Date:	27.06.2002	Impeller no.:	10777-01	Size / Max.:	518/520
No.:	98327-01	Speed:	1785 r.p.m.	Inducer no.:	KZØ	Pump no.:	40361

B6 DISCHARGE PERFORMANCE

Full Cargo Discharge Times (using all main pumps):

6.1 Fully Refrigerated:

	Manifold Back Pressure	Hours*	
		With Vapor Return	Without Vapor Return
6.2	1 kP/cm ²	18	
6.3	5 kP/cm ²	24	
6.4	10 kP/cm ²	68	

* Indicate difference when manifold strainers are installed

6.5 Pressurized

	Manifold Back Pressure	Hours	
		With Vapor Return	Without Vapor Return
6.6	1 kP/cm ²	134	
6.7	5 kP/cm ²	134	
6.8	10 kP/cm ²	134	

B7 UNPUMPABLES

7.1	Tank No	1	2	3	4	5	6	7	8	Total mt
	Liquid	13	19	19	17					68

B8 VAPORISING UNPUMPABLES

8.1	Process Used	Hot Gas / Puddle heating
Time to Vaporize Liquid Unpumpables remaining After Full Cargo Discharge:		
8.2	- Propane	24 hrs
8.3	- Butane	36 hrs
8.4	- Ammonia	36 hrs
8.5	-.....	.....hrs
8.6	-.....	.....hrs
8.7	-.....	.....hrs

B9 RELIQUEFCATION PLANT

9.1	Plant Design Conditions		
	Air Temperature	50°C	
	Sea Temperature	36°C	
	Plant Type		
9.2	Single Stage/Direct	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> √ <input type="checkbox"/> NO
9.3	Two Stage / Direct	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> √ <input type="checkbox"/> NO
9.4	Three Stage / Direct	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> √ <input type="checkbox"/> NO
9.5	Coolant Type	Sea Water	
	Compressors		
9.6	Type and Makers Name	Burckhardt 3K 140-3A	
9.7	Number	4	
9.8	Capacity (per unit)	Varies with gas handled `m ³ /hr	
9.9	Are they oil free	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> √ <input type="checkbox"/> NO

B10 COOLING CAPACITY

State Cooling Capacity (in kJ/hr) for --

10.1	Propane @ -42°C	202641 kcal/hr
10.2	Propane @ -20°C	Not applicable
10.3	Propane @ -5°C	Not applicable
10.4	Butane @ -5°C	308927 kcal/hr
10.5	.....@ ..... °C	.....kcal/hr
10.6	.....@ ..... °C	.....kcal/hr

**B11 CARGO TEMPERATURE LOWERING CAPIBILITY
(AT SEA WITH SEA TEMPERATURE +15°C)**

Time taken to lower the temp of :

11.1	Propane from ....°C to -42 °C	Not applicable
11.2	-5 °C to -42 °C	Not applicable
11.3	-38 °C to -42 °C	135 hrs
11.4	+20 °C to -42 °C	Not applicable
11.5	+10 °C to -42 °C	Not applicable
11.6	Butane from +20 °C to -0.5°C	..... Not applicable
11.7	+10 °C to -0.5°C	Not applicable
11.8	+10 °C to -5°C	..... Not applicable
11.9	from-5°C to-10°C	155 hrs
11.10	Ammonia from -30°C to -33°C	152hrs
11.11	.....from.....to.....	..... Not applicable
11.12	.....from.....to.....	... Not applicable

B12 INERT GAS

Main I.G. Plant

12.1	Type of System	Aalborg
12.2	Capacity	5300 m ³ /hr
12.3	Type of Fuel Used	Gas oil
12.4	Composition of I.G. (O ₂ – CO ₂ – NO _x – N ₂)	O ₂ : 0.5 vol%, CO ₂ :14 vol%, CO: 100ppm, SO _x :1ppm, Nitrogen and Air: balance
12.5	Lowest Dewpoint Achievable	-40 °C
12.6	Used for	Inerting and purging of cargo tanks and hold space

Auxiliary I.G. or Nitrogen Plant

		Not applicable
12.7	Type of System	.....
12.8	Capacity	.....m ³ /hr
12.9	Composition of I.G. (O ₂ – CO ₂ – NO _x – N ₂)	.....
12.10	Lowest Dewpoint Achievable	.....°C
12.11	Used for	.....

Nitrogen

		Not applicable
12.12	Liquid storage Capacity	.....m ³
12.13	Daily Boil-Off Loss	.....m ³
12.14	Maximum Supply Pressure	.....kP/cm ²
12.15	Supply Capacity	.....m ³ /hr
12.16	Used For	.....
12.17	HP Nitrogen	.....Nm ³

B13 CARGO TANK INERTING/DE-INERTING

13.1	Time Taken From Fresh Air to Under 5% O ₂ at –25°C Dewpoint	32 hrs
13.2	Time taken from cargo Vapor to Fully Inert at –25°C Dewpoint when:	
	- I.G. Density less than product	24 hrs
	- I.G. Density Greater than product	50 hrs

B14 GAS FREEING TO FRESH AIR

14.1	Plant Used	2 gas free fans at 10000 Nm ³ /hr
14.2	Time taken from Fully Inert Condition to Fully Breathable Air	24 hrs

B15 CHANGING CARGO GRADES

In the table below, show the number of hours needed to change grades from the removal of un-pumpables to tanks fit to load. Also indicate quantity of inert gas consumed during the operation:

→ To	Propane		Iso-Butane		Ammonia	
From ↓	Time (hours)	I.G. Used (m ³)	Time (hours)	I.G. Used (m ³)	Time (hours)	I.G. Used (m ³)
Propane	XX	XX	136	XX	120	95400
Butane	168	XX	XX	XX	120	95400
Ammonia	288	246000	264	246000	XX	XX

Note any operation that cannot be carried out at sea.....

*Restrictions may apply.

B16 DECK TANK CAPACITIES

- 16.1 Propane capacityN/A.....m³
- 16.2 Butane capacity N/Am³
- 16.3 Ammonia capacity N/Am³
- 16.4 Maximum Allowable Relief Valve Setting N/AkP/cm²
- 16.5 Lowest Permissible Temperature N/A°C
- 16.6 Materials N/A

B17 PRE-LOADING CONDITIONS

In the table below, show time and quantity of coolant required to cool down cargo tanks from ambient temperature and fully gassed up state sufficient to allow loading to commence.

	Product	Quantity of Coolant Required (tonnes)	Time (hours)	
			With Vapor Return Line	Without Vapor Return Line
17.1	Propane	400	24	48
17.2	Butane	350	12	24
17.3	Ammonia	350	12	48

B18 VAPORISER

18.1	Type of Vaporizer	Shell and tube	
18.2	Number Fitted	1	
18.3	Capacity (per unit) – Propane		4800.Nm ³ /hr vapor
18.4	Liquid Supply rate		19.0.m ³ /hr liquid
18.5	Delivery temperature	.....	°C
18.6	Capacity (per unit) – Ammonia		4800 Nm ³ /hr vapor
18.7	Liquid Supply rate		5.5 m ³ /hr liquid
18.8	Delivery temperature		0 °C
18.9	Capacity (per unit) – Nitrogen	.....N/A.....	m ³ /hr vapour
18.10	Liquid Supply rate	.....	m ³ /hr liquid
18.11	Delivery temperature		0 °C

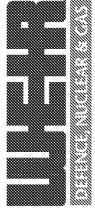
B19 BLOWER

19.1	Type of Blower	Flame proof motor driven fixed type centrifugal
19.2	Rated Capacity	10000 Nm ³ /hr
19.3	Delivery Pressure	1200 mm H ₂ O

B20 CARGO RE-HEATER

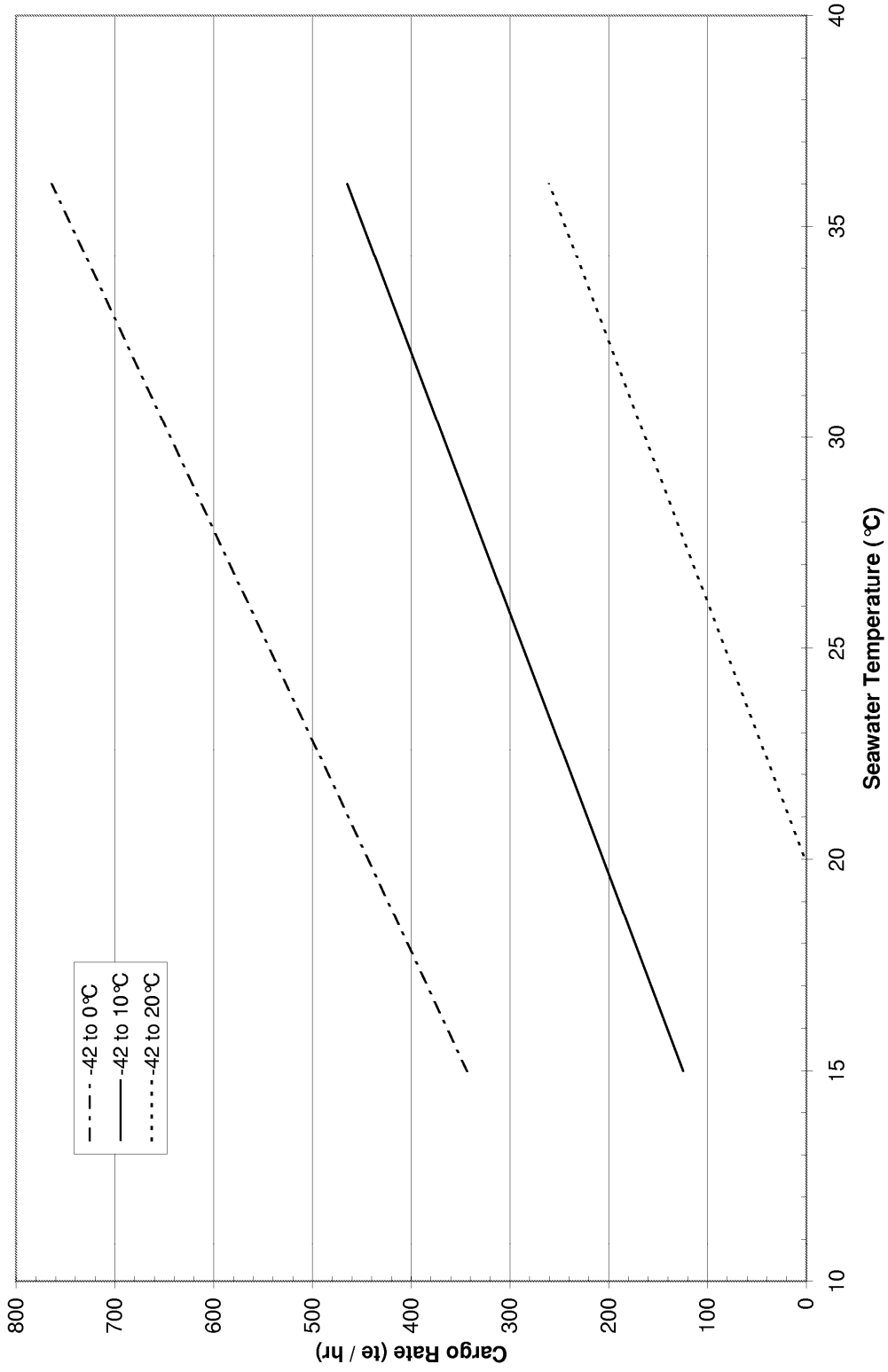
20.1	Type of re-heater	Shell and tube
20.2	Number Fitted	1
20.3	Heating Medium	Sea Water
	Discharge rates with sea water at 15°C to raise product temperature:	
20.4	- for Propane from -42°C to 0°C	600 m ³ /hr
20.5	- for Ammonia from -33°C to 0°C	365 m ³ /hr
20.6	Cargo Heater Curve:	

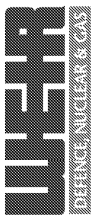
Seawater Density: 1.015t/m³



Cargo Heater Capacity for Propane

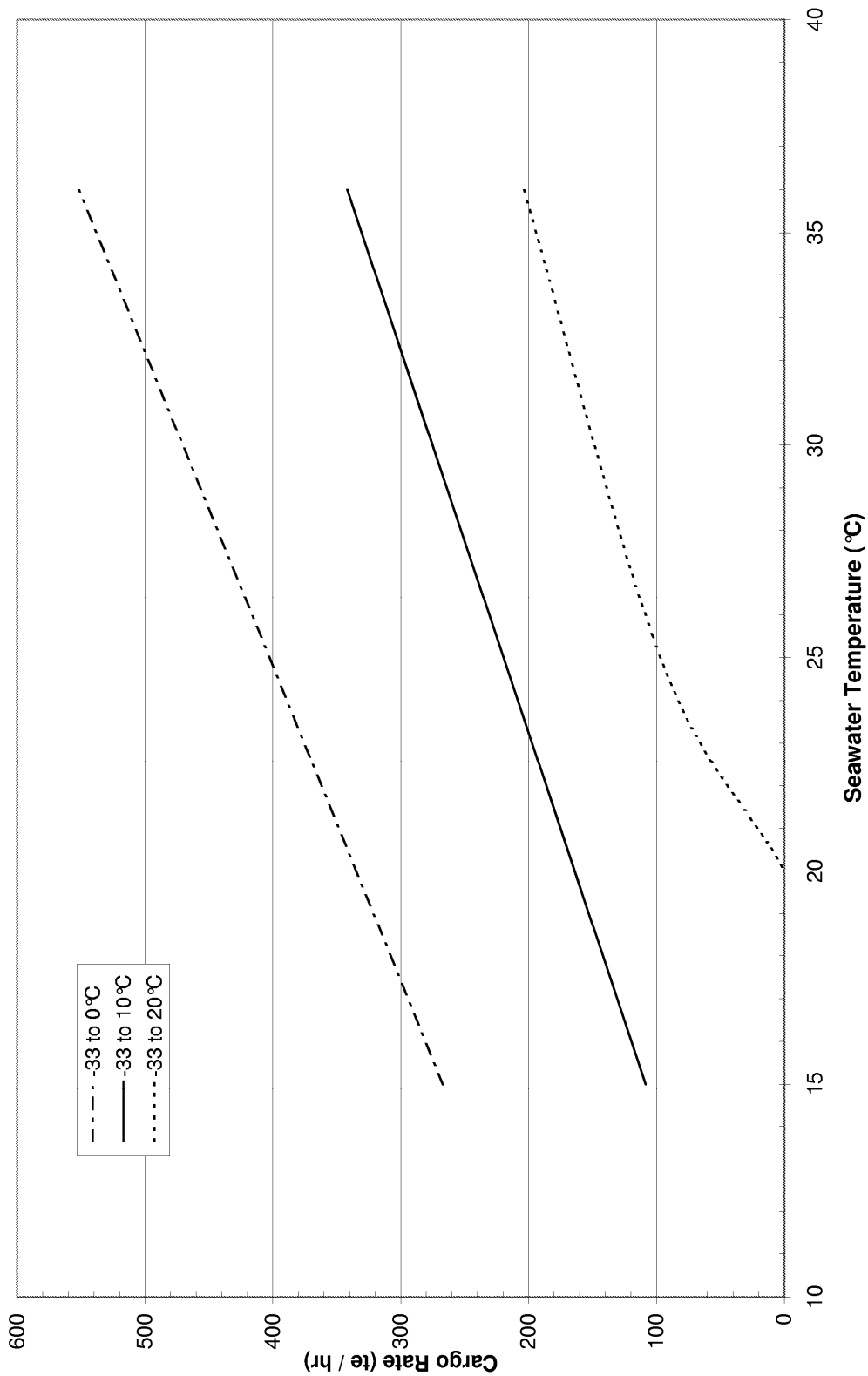
Contract : 05025 / 05026
Client : HHI
Hull No. : Hull No. 1805 / 1806





Cargo Heater Capacity for Ammonia

Contract : 05025 / 05026
Client : HHI
Hull No. : Hull No. 1805 / 1806



B21 HYDRATE CONTROL

21.1	Type of Depressant with Freezing Point Temperature	Ethanol -114 °C
21.2	Quantity of Depressant carried	2000 liters
21.3	Means of Injection	At pump discharge
	Any other system used	Hot gas

B22 CARGO MEASUREMENT

Level Gauges

22.1	Are level gauges Local or Remote	<input type="checkbox"/> LOCAL <input checked="" type="checkbox"/> √	<input type="checkbox"/> REMOTE <input checked="" type="checkbox"/> √
22.2	Manufacturer	HENRI	
22.3	Type	Float	
22.4	Rated Accuracy	2 Millimeters	
22.5	Certifying Authority	NKKK	

Temperature Transmitter

22.6	Manufacturer	BEKA
22.7	Type	Electronic
22.8	Rated Accuracy	±0.1°C
22.9	Certifying Authority	NKKK

Pressure Transmitter

22.10	Manufacturer	BEKA
22.11	Type	Electronic
22.12	Rated Accuracy	± 0.01 barg
22.13	Certifying Authority	NKKK

Oxygen Analyzer

22.14	Manufacturer	Not fixed on system.
22.15	Type	N/A
	Lowest Level Measurable	

Fixed Gas Analyzer

22.16	Manufacturer	Consilium	
22.17	Type	Infrared & Electrochemical	
22.18	Are Cargo Tank Calibration tanks available	<input type="checkbox"/> YES <input checked="" type="checkbox"/> √	<input type="checkbox"/> NO
22.19	Measuring Company	SGS	
22.20	Certifying Authority	NKKK	
22.21	Calibration calculated to .....cm ½ cm.....		
22.22	Tables established to .....cm .....cm.....mm		
22.23	Trim and List corrections Available	<input type="checkbox"/> YES <input checked="" type="checkbox"/> √	<input type="checkbox"/> NO
22.24	Temperature Corrections available	<input type="checkbox"/> YES <input checked="" type="checkbox"/> √	<input type="checkbox"/> NO
22.25	Float Gauge Tape Corrections Available	<input type="checkbox"/> YES <input checked="" type="checkbox"/> √	<input type="checkbox"/> NO

B23 CARGO SAMPLING

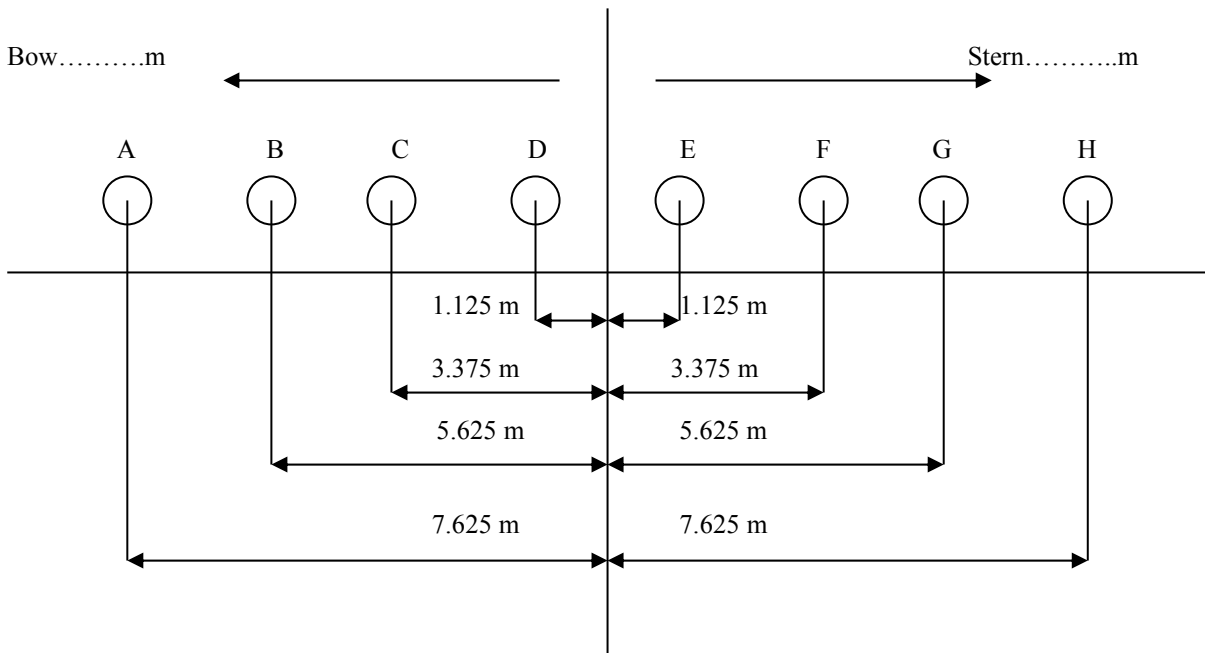
In the table below, indicated whether samples may be obtained from the levels specified.

23.1	Cargo Tank: - Sample Level	1	2	3	4	5	6	7	8
	Top	√	√	√	√				
	Middle	√	√	√	√				
	Bottom	√	√	√	√				

- 23.2 Can samples be drawn from
- Tank Vapor Outlet YES
 - Manifold Liquid Line NO
 - Manifold Vapor Line NO
 - Pump Discharge Line YES
- 23.3 State Connection Type and Size 1/2 “

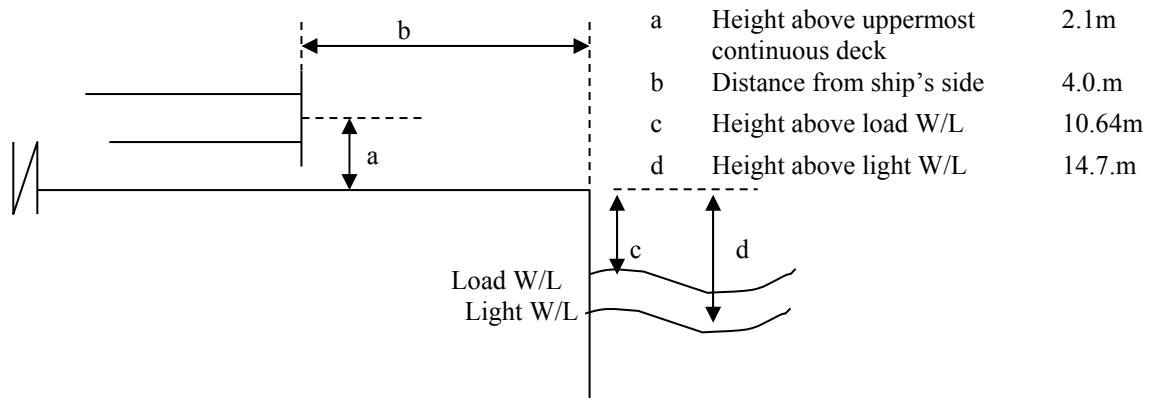
B24 CARGO MANIFOLD

Complete the following table:



- Notes
1. Indicate liquid, vapour and Nitrogen lines
 2. Indicate pipe groupings for separate systems
 3. Indicate fuel oil connections
 4. Indicate flange rating
 5. Show any cross manifolding arrangements
 6. Indicate distances from centerline of manifold
 7. Indicate if manifold strainers can be installed. If yes, specify type and mesh

Pipe Flange	Duty	Rating (#)	Size (A)	Raised (R) or Flat (F) face
A	Fuel Oil	150	200	Flat
B	Cargo Vapour	150	250	Raised
C	Cargo Liquid	300	350	Raised
D	Cargo Liquid	300	350	Raised
E	Cargo Vapour	150	250	Raised
F	Cargo Vapour	150	250	Raised
G	Cargo Liquid	300	350	Raised
H	Fuel Oil	150	200	Flat



B25 CARGO MANIFOLD REDUCERS

State number of reducers carried on board and their flange rating and size:

25.1	ANSI Class 300	2 off 16"NB 300# × 14"NB 300# 2 off 14"NB 300# × 12"NB 300# 2 off 14"NB 300# × 10"NB 300# 2 off 14"NB 300# × 8"NB 300#
25.2	ANSI Class 300 to Class 150	2 off 12"NB 300# × 10"NB 150#
25.3	ANSI Class 150	2 off 10"NB 150# × 10"NB 300# 2 off 10"NB 150# × 8"NB 300# 2 off 10"NB 150# × 6"NB 300#

B26 CONNECTIONS TO SHORE FOR ESD AND COMMUNICATION SYSTEMS

26.1	Is ESD connection to Shore available If Yes which of the following systems are fitted: -	<input checked="" type="checkbox"/> YES √	<input type="checkbox"/> NO
	Pneumatic	.....	.....
	Electrical	√	.....
	Fiber Optic	.....	.....
26.2	Type of Plug Used: -		
	Pneumatic	.....	.....
	Electrical	√	.....
	Fiber Optic	.....	.....
26.3	Is Hose or cables Available on Board	<input checked="" type="checkbox"/> YES √	<input type="checkbox"/> NO
	Specify Length	30 mtrs	.....
	Pneumatic	.....	.....
	Electrical	√	.....
	Fibre Optic	.....	.....
26.4	Is connection available for telephone line	<input checked="" type="checkbox"/> YES √	<input type="checkbox"/> NO
26.5	Are Connections Available on Both Sides of Vessel	<input checked="" type="checkbox"/> YES √	<input type="checkbox"/> NO

B27 MANIFOLD DERRICK/CRANE

- | | | | |
|------|----------------------------------------------|-----------------------------------------|----------------------------------------|
| 27.1 | Is Manifold Derrick Provided | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| 27.2 | Is Manifold Crane Provided | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO |
| 27.3 | Is Lifting equipment Same Port and Starboard | ..... |  |
| | If NO, give details | ..... |  |
| 27.4 | State SWL at Maximum Outreach | 7.5 tonnes | |

B28 STORES HANDLING

- | | | |
|------|---------------------------------------|--------------------------------|
| 28.1 | Stores crane/Derrick Location and SWL | 5 Tonnes Port
2 Tonnes Stbd |
|------|---------------------------------------|--------------------------------|