

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 10 Feb 2018
- 1.2 Name of vessel BW Thor
- 1.3 LR/IMO Number 9346134

- 1.4 Last Previous Name Aurora Taurus
- 1.4.1 Date of Name change 20th April 2017
- 1.5 Second Last Name Change Mill House
- 1.5.1 Date of Name change 14th April 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 5546
- 1.11 Call Sign V7EX3
- Inmarsat A or B Number
- 1.13 Vessel's Telephone Number +870773909860
+4723961170,+6531589040
- 1.14 Vessel's Fax Number +870783203092,
- 1.15 Vessel's Telex Number Sat-C 453838837
- 1.16 Vessel's E-mail Address bwthor@synergyship.com
- 1.17 Inmarst C Number 453838837
- 1.18 Vessel's MMSI Number 538005546
- 1.19 Type of Vessel

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

Max Tank Pressure	Min Tank Temperature
0.4 Barg	-50 °C

OWNERSHIP AND OPERATION

- 1.20 Registered Owner BW VLGC LIMITED
- Full Address Charendon House 2 , Church Street
Hamilton HM 11 , Bermuda

- Office Telephone Number +65 6705 5588
- Office Fax Number
- Office Telex Number
- Office e-mail Address fleetops2@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 0 Year

- | | | |
|------|---|---|
| 1.21 | Name of Operator (If different from above) | Synergy Maritime Private Limited. |
| | Full Address | 4th Floor AKDR Tower\| 3/381 Rajiv Gandhi Salai (OMR), Mettukuppam, Chennai – 600097 \| India |
| | Office Telephone Number | +91 44 43215555 |
| | Office Fax Number | +91 44 43215500 |
| | Office Telex Number | NA |
| | Office e-mail Address | tankers@synergyship.com |
| | Contact Person and telephone Number after Hours | Captain R. P. Singh / +91 9840784420
+91 9840784420 |
| 1.22 | Number of Years as vessel Operator | 10 Years |
| 1.23 | Total Number of vessels Operated by this Operator | 80 |

BUILDER

- | | | |
|------|--|-----------------------------|
| 1.24 | Builder | Hyundai Heavy Industries |
| 1.25 | Name of Yard Vessel Built At | Hyundai Heavy Industries |
| 1.26 | Hull Number | 1806 |
| 1.27 | Date Keel Laid | 26 th Nov 2007 |
| 1.28 | Date Launched | 21 st March 2008 |
| 1.29 | Date Delivered | 2 nd June 2008 |
| 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	+100 A1 Liquefied gas carrier,ship type- 2G, Propane, 1,3Butadiene, Butane, Butylenes, Butane- Propane mixture, Anhydrous Ammonia, Propylene in Independent Tank type A, Max specific Gravity 0.69, Max Vap pressure 0.25 Bar (0.4 in Harbour), Minimum Temp minus 50 deg C, ShipRight (SDA), LI, *IWS, +LMC, UMS, IGS, NAV1, +Lloyd's RMC(LG), Shipright (FDA, CM, BWMP(S),SCM,MPMS, SERS), ETA, Part Higher Tensile Steel
1.34	If Class Society Changed, Name of Previous society	...N/A
1.35	If Class Society Changed, Date of Change	... N/A.....
1.36	Was Ship Built in accordance with the Following Regulation	
	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	<input type="checkbox"/> YES
	Issued By	.....LR.....
1.38	Unattended Machinery Space certificate	.....YES.....

TONNAGES

1.39	Nett Registered Tonnage	17309.00 Tonnes
1.40	Gross Tonnage	47197.00 Tonnes
1.41	Suez Canal Tonnage	NT 45669.40, GT 50293.96
1.42	Panama Canal Tonnage	NA

A2 HULL DIMENSIONS

2.1	Length Overall	225.49m
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	58,610 tonnes
2.10	Light Displacement	18,913 tonnes
2.11	Loaded Displacement (Summer)	77,523 tonnes
2.12	Cargo Tank Cubic Capacity (100% full)	82,323 m ³
2.13	Distance from Keel to Highest Point	48.140 m
2.14	Air Draught (with normal ballast)	41.09 m

A3 IMMERSION

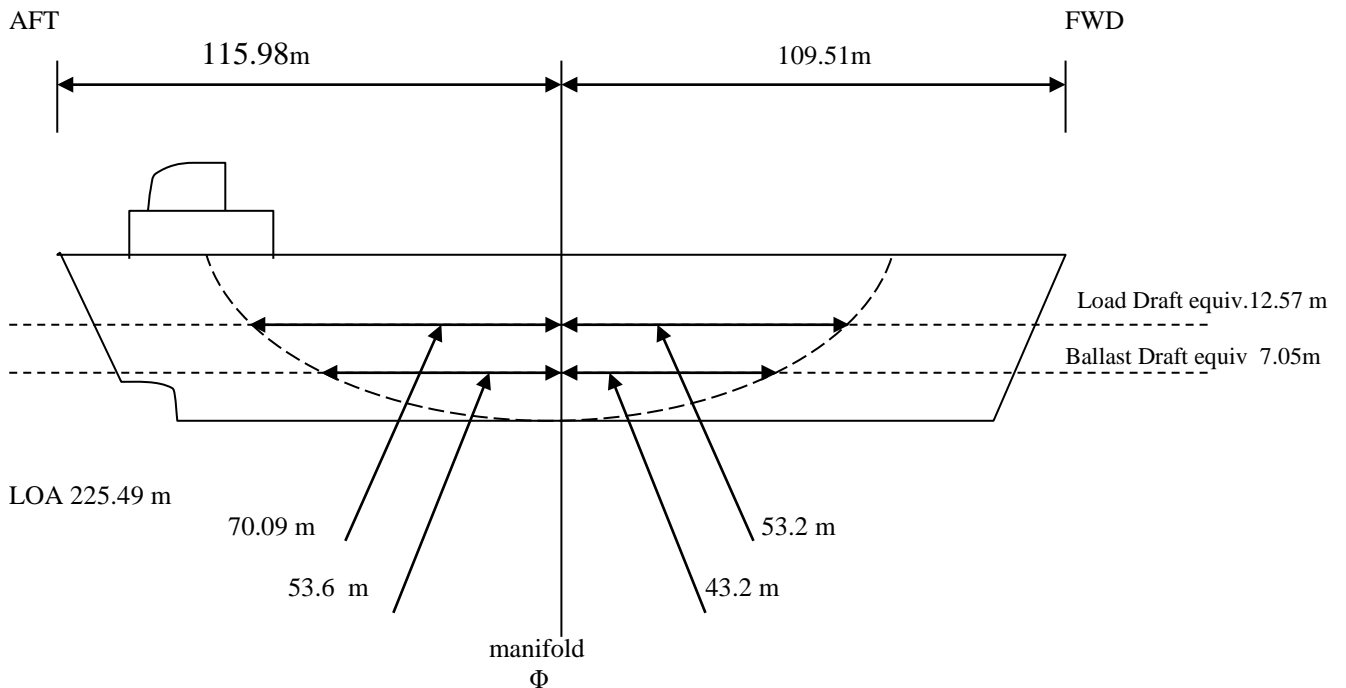
3.1	TPC	
	– at Normal Ballast Draught	63.68 tonnes @ 7.05 m draught
	– at Loaded Draught	71.19 tonnes @ 12.57 m draught

A4 LOADED PARTICULARS

Complete the Following Table:

4.1	Cargo:		Butane	Propane	Ammonia	Propylene	Ballast Only
4.2	Density:		0.6	0.58	0.683	0.613	
4.3	Cargo	tonnes	48,332	46,962	55018	49379	
4.4	Bunkers-FO	tonnes	2384	2384	2384	2384	2384
4.5	DO	tonnes	589	589	589	589	589
4.6	Fresh Water	tonnes	425	425	200	425	425
4.7	Stores/Spares	tonnes	172	172	172	172	172
4.8	Lub Oil	tonnes	76	76	76	76	76
4.9	Ballast	tonnes	85	85	85	85	19900
4.10	Deadweight Const.	tonnes	52,063	50693	58524	53110	23546
4.11	Draught – Forward		10.51 m	10.20 m	12.06 m	10.74M	6.10 m
	- Aft		12.67 m	12.58 m	13.01 m	12.74M	8.84 m
	- Mean		11.59 m	11.39 m	12.53 m	11.74m	7.47 m

A5 PARALLEL MID-BODY DIMENSIONS



A6 BUNKER CAPACITIES

6.1	M.E. Fuel Oil – Grade	380RMG...
	-Capacity @ 100%	2787.7 m ³
6.2	Diesel Oil – Grade	DMA
	- Capacity @ 100%	866.3 m ³

A7 FUEL CONSUMPTION DETAILS

Excluding +5% tolerance

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

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	HYUNDAI- B&W 6L28/32H
9.2	No of Units	... 3 SETS
9.3	Maximum Generator Output per Unit	...1260.. kilowatts kilowatts 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	
	Indicate Power Required in kW to Steer the Vessel with One Pump Unit	TWO RAM-FOUR CYLINDER.....45 kW

A10 POWER/SPEED INFORMATION

10.1	Trial Data		
	BHP		13800
	MCR 75%		99 rpm
	Speed	16.80 knots (with 15% sea margin)	
	Draught		7.2 m
10.2	Normal Service Speed		
	BHP		16380
	MCR		101 rpm
	Speed		16.5 knots
	Draught		11.8 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	8.4 tonnes
	Domestic	tonnes
12.4	Daily Evaporator Output	30 tonnes

A13 BALLAST CAPACITIES AND PUMPS

Complete the Following Table:

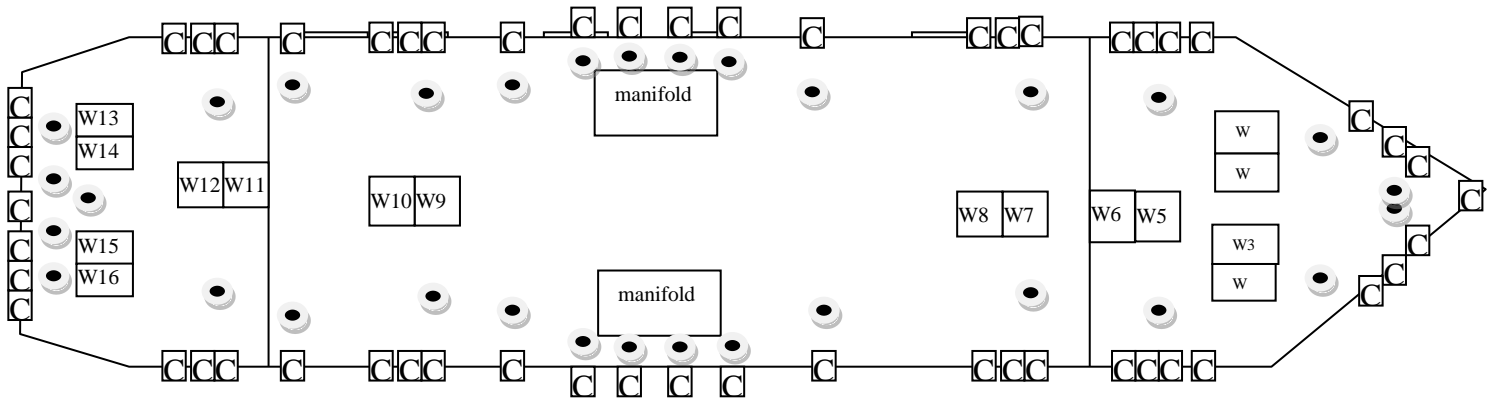
	Tank	Capacity (m ³)	Number
13.1	Forepeak	1,681.3	1
13.2	Wing tanks	8,524.4	8
13.3	DB Tanks	12,111.4	8
13.4	Aft Pk	1,323.6	1
13.5	Other (.....)		
13.6	Total	23,640.7	18

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				
	Winch No	Dia	Length	MBL	Winch No	Type	Dia(mm)	Length	MBL
Forward	W1	35	220	81	W1	NYLON	80	11	123
	W2	35	220	81	W2	NYLON	80	11	123
	W3	35	220	81	W3	NYLON	80	11	123
	W4	35	220	81	W4	NYLON	80	11	123
Fwd Main Deck	W5	35	220	81	W5	NYLON	80	11	124
	W6	35	220	81	W6	NYLON	80	11	124
	W7	35	220	81	W7	NYLON	80	11	124.9
Aft Main Deck	W8	35	220	81	W8	NYLON	80	11	124.9
	W9	35	220	81	W9	NYLON	80	11	124.9
	W10	35	220	81	W10	NYLON	80	11	123
Poop Deck	W11	35	220	81	W11	NYLON	80	11	123
	W12	35	220	81	W12	NYLON	80	11	123
	W13	35	220	81	W13	NYLON	80	11	124
	W14	35	220	81	W14	NYLON	80	11	124
	W15	35	220	81	W15	NYLON	80	11	124
	W16	35	220	81	W16	NYLON	80	11	124

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 Drums	Y	El-Hyd.	20	48.60 Metric Tonnes	0.25
Fwd Main Deck	2	Double Drums	Y	El-Hyd.	20	48.60 Metric Tonnes	0.25
Aft Main Deck	1	Double Drums	Y	El-Hyd.	20	48.60 Metric Tonnes	0.25
Poop	3	Double Drums	Y	El-Hyd.	20	48.60 Metric Tonnes	0.25

14.3 ANCHORS AND WINDLASSES

Windlass Motive Power (e.g. Steam, Hydraulic)

Hauling Power

Brake Holding Power

Anchor Type

Weight

Is Spare Carried

Cable Diameter

No of Shackles Port

No of Shackles Starboard

Hydraulic

31.5 T

222 T

High Holding Power

8.54 Tonnes

NO

81mm

12

13

14.4 TOWING EQUIPMENT

Is Ship fitted with a Towing Bracket

YES

AFT(drum)

If Yes, state SWL

.....200...tonnes

Is Towing Chain provided

YES

Dimensions of Towing Wire – Diameter

.....80.... mm

Length

.....80..... mtr

14.5 WINDAGE

Windage on Ballast Draught – End-on

.....976.....m²

- Lateral

.....3,610..... m²

A15 NAVIGATIONAL EQUIPMENT

Is the following equipment fitted :-

15.1	Magnetic Compass	<input type="checkbox"/> YES	
15.2	Off Course Alarm – Magnetic	<input type="checkbox"/> YES	
15.3	Gyro Compass	<input type="checkbox"/> YES	
	Specify number	...2...	
15.4	Off Course Alarm – Gyro	<input type="checkbox"/> YES	
15.5	Bridge Repeaters	<input type="checkbox"/> YES	
	Specify Number	...3...	
15.6	Radar 3 cm	<input type="checkbox"/> YES	
15.7	Radar 10 cm	<input type="checkbox"/> YES	
15.8	Are Radars Gyro Stabilised	<input type="checkbox"/> YES	
15.9	Radar Plotting Equipment	<input type="checkbox"/> YES	
15.10	ARPA	<input type="checkbox"/> YES	
15.11	ECDIS (Electric Display and Information System)	<input type="checkbox"/> YES	
15.12	Depth Echo Sounder with Recorder	<input type="checkbox"/> YES	
15.13	Depth Echo Sounder without Recorder		
15.14	Speed/Distance Indicator	<input type="checkbox"/> YES	
15.15	Doppler Log	<input type="checkbox"/> YES	
15.16	Speed of Approach Doppler		<input type="checkbox"/> NO
15.17	Rudder Angle Indicator	<input type="checkbox"/> YES	
15.18	Rudder Angle Indicator on Each Bridge Wing	<input type="checkbox"/> YES	
15.19	R.P.M Indicator	<input type="checkbox"/> YES	
15.20	R.P.M Indicator on Each Bridge Wing	<input type="checkbox"/> YES	
15.21	Controllable Propeller Pitch Indicator		<input type="checkbox"/> NO
15.22	Thruster (s) indicator	<input type="checkbox"/> NO	
15.23	Rate of turn Indicator	<input type="checkbox"/> YES	
15.24	Radio Direction Finder		<input type="checkbox"/> NO
15.25	NAVTEX Receiver	<input type="checkbox"/> YES	
15.26	GPS	<input type="checkbox"/> YES	
15.27	Transit SATNAV		<input type="checkbox"/> NO
15.28	DECCA navigator		<input type="checkbox"/> NO
15.29	Omega		<input type="checkbox"/> NO
15.30	Loran C		<input type="checkbox"/> NO
15.31	Weather Fax	<input type="checkbox"/> YES	
15.32	Sextant(s)	<input type="checkbox"/> YES	
15.33	Signal Lamp ALDIS	<input type="checkbox"/> YES	
15.34	Anemometer	<input type="checkbox"/> YES	
15.35	Engine Order Recorder	<input type="checkbox"/> YES	
15.36	Course Recorder	<input type="checkbox"/> YES	
15.37	Are steering motor controls and engine controls fitted on bridge wings		<input type="checkbox"/> NO
15.38	Is bridge Equipped with a “Dead Man” Alarm Equipment. “BWNAS’ fitted	<input type="checkbox"/> YES	

- 15.39 What chart outfit coverage is provided
- Worldwide NA
 - Limited
 - If Limited Please Indicate Area Covered ENC

.....

- 15.40 Formal Chart Correction System in use YES
- 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 NO
- 16.9 VHF Radio (s) YES
Specify Number 2
- 16.10 Portable VHF/UHF Radios YES
Specify Type and Number 8
- Are Sets Intrinsicly Safe Yes
- 16.11 Inmarsat Satellite System C... ..
Specify System Type A, B or C
- 16.12 Is the ship equipped as per GMDSS Requirements YES
If Yes, which area of operation is vessel certified to operate in A3...
- 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, Butane-propane mixture & 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	-0.05	10190	-42	11943	-33	10716	-47.7	11419	-5
2	21827	12809	-0.05	12443	-42	14583	-33	13084	-47.7	13944	-5
3	21828	12811	-0.05	12444	-42	14583	-33	13084	-47.7	13944	-5
4	20666	12128	-0.05	11781	-42	13807	-33	12388	-47.7	13202	-5
Total	82197	48239		46858		54916		49272		52509	

B4 LOADING RATES

4.1 From Refrigerated Storage:

Product	Rate (tonnes/hr)	
	With Vapour Return	Without Vapour 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

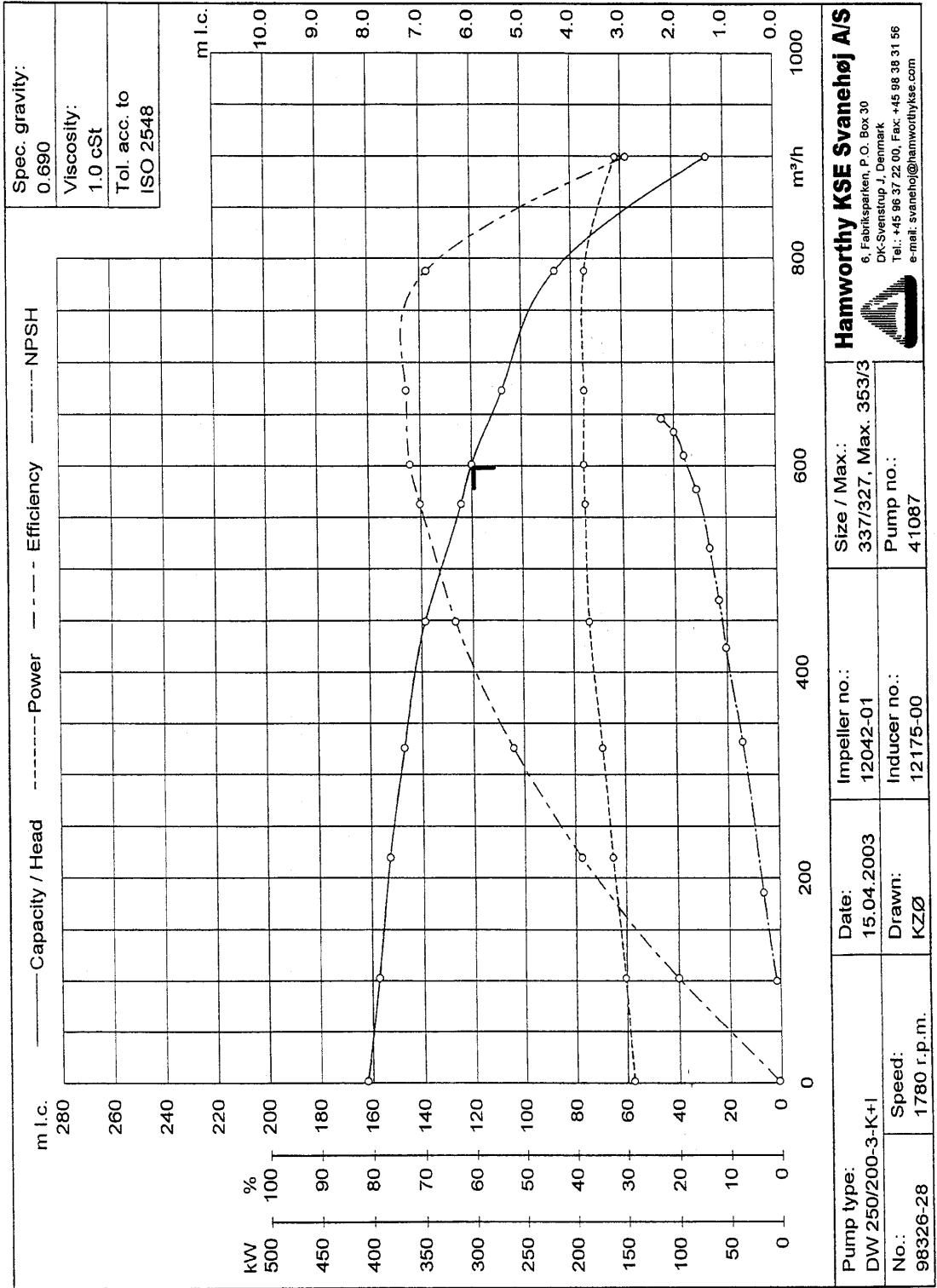
Cargo Pumps

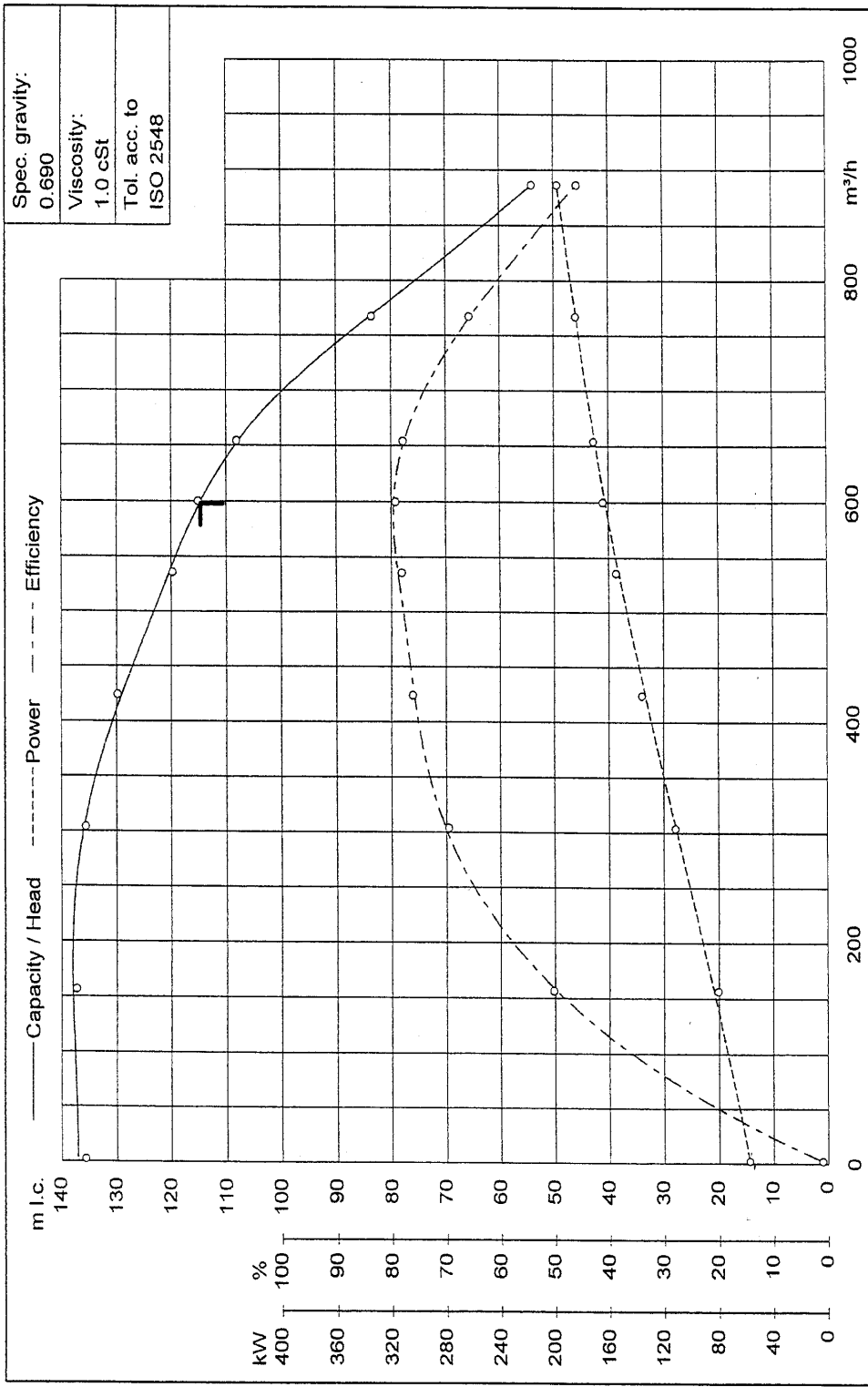
5.1	Type of Pumps	Deepwell
5.2	Number per Tank	2
5.3	Rate (per pump)	600m ³ /hr
5.4	Delivery Head	120 mlc
5.5	Maximum Density	690kg/m ³

Booster Pumps

5.6	Type of Pumps	Booster
1	Number	2
S5.7		
5.8	Rate (per pump)	600m ³ /hr
5.9	Delivery Head	115.00 mlc
5.10	Maximum Density	690kg/m ³

Pumping Curves for Cargo Pumps and Booster Pumps:






Spec. gravity:
0.690

Viscosity:
1.0 cSt

Tol. acc. to
ISO 2548

Pump type: NMB 150E		Date: 27.06.2002	Impeller no.:	Size / Max.:	 Hamworthy KSE Svanehøj A/S 6, Fabriksparken, P.O. Box 30 DK-Svenstrup J, Denmark Tel.: +45 98 37 22 00, Fax: +45 98 38 31 56 e-mail: svanehoj@hamworthykse.com
No.:	Speed:	Drawn:	Inducer no.:	Pump no.:	
98327-01	1785 r.p.m.	KZØ	10777-01	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	

x Based on largest single tank volume

^ Based on discharging tanks one at a time

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	36Hrs
8.5	-Butadiene	36 Hrs
8.6	-Butylene	36 Hrs
8.7	-Propylene	24 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 ✓	
9.3	Two Stage / Direct	<input type="checkbox"/> YES ✓	
9.4	Three Stage / Direct	<input type="checkbox"/> YES ✓	
9.5	Coolant Type		Sea Water
	Compressors		
9.6	Type and Makers Name	Sulzer 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 type="checkbox"/> NO

B10 COOLING CAPACITY

State Cooling Capacity (in kJ/hr) for (per compressor with 32 °C SW) --

10.1	Propane @ -42°C	202641 kcal/hr
10.2	Propane @ -20°C	Not applicable
10.3	Propane @ -5°C	Not applicable
10.4	Iso-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 0.°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	Iso-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	..... 152 hrs
11.11		
11.12		

B12 INERT GAS

Main I.G. Plant

12.1	Type of System	Smit Gas Systems
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, NO _x 0.2%, Nitrogen 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

12.7	Type of System	Not applicable
12.8	Capacity	Not applicable
12.9	Composition of I.G. (O ₂ – CO ₂ – NO _x – N ₂)	Not applicable
12.10	Lowest Dewpoint Achievable	Not applicable
12.11	Used for	Not applicable
	Nitrogen	Not applicable
12.12	Liquid storage Capacity	Not applicable
12.13	Daily Boil-Off Loss	Not applicable
12.14	Maximum Supply Pressure	Not applicable
12.15	Supply Capacity	Not applicable
12.16	Used For	Not applicable
12.17	HP Nitrogen	Not applicable

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	48	XX	120	95400
Iso-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 quality 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 Vapour Return Line	Without Vapour Return Line
17.1	Propane	400	24	48
17.2	Iso-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

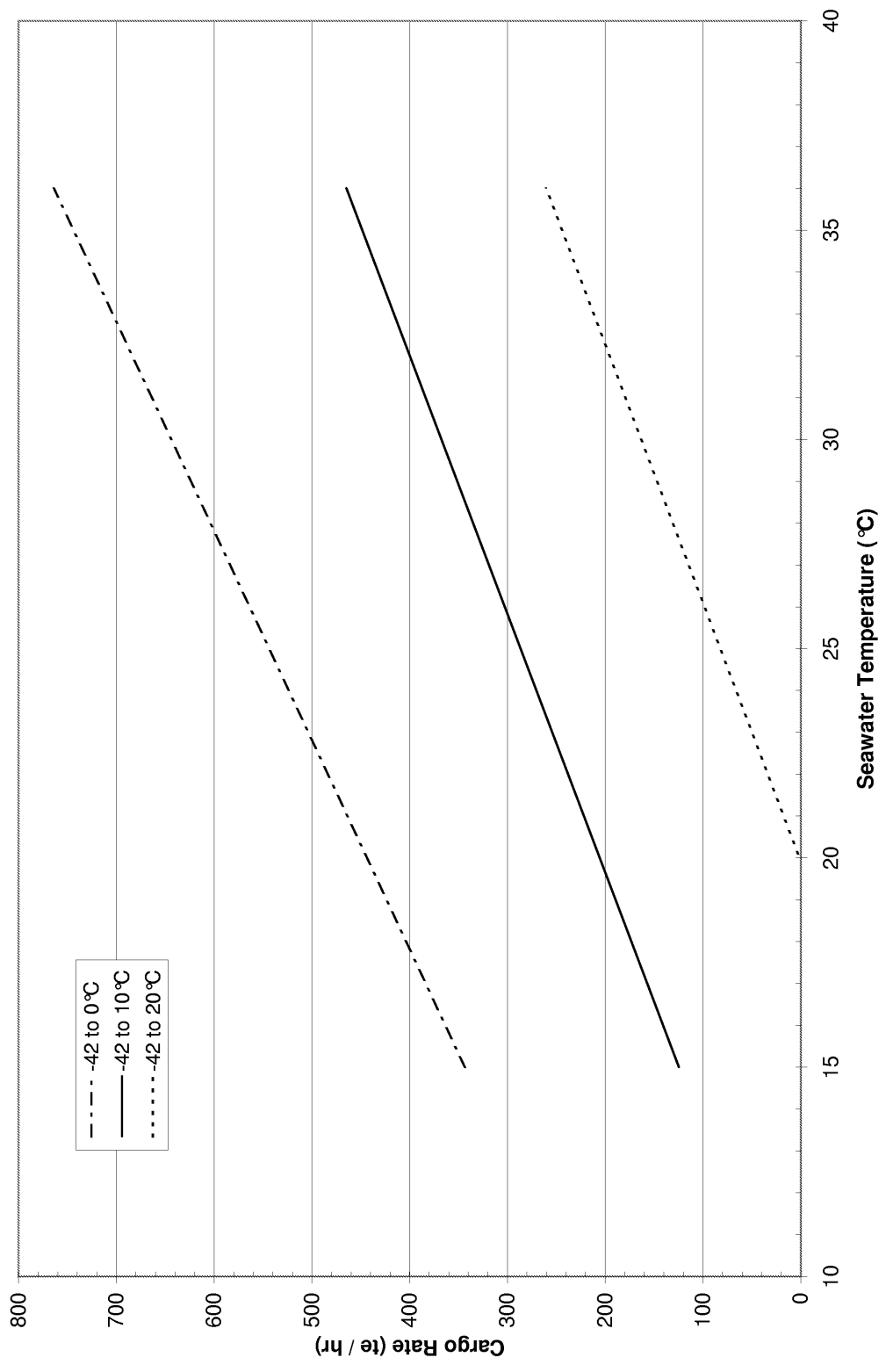
20.1	Type of re-heater	Shell
20.2	Number Fitted	1
20.3	Heating Medium	Seawater
	Discharge rates with sea water at 15°C to raise product temperature:	
20.4	- for Propane from -42°C to 0°C	600.00 Cu Meters/Hours
20.5	- for Ammonia from -33°C to 0°C	365.00 Cu Meters/Hours
20.6	Cargo Heater Curve:	

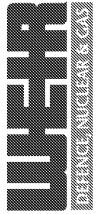
Seawater Density: 1.015t/m3



Cargo Heater Capacity for Propane

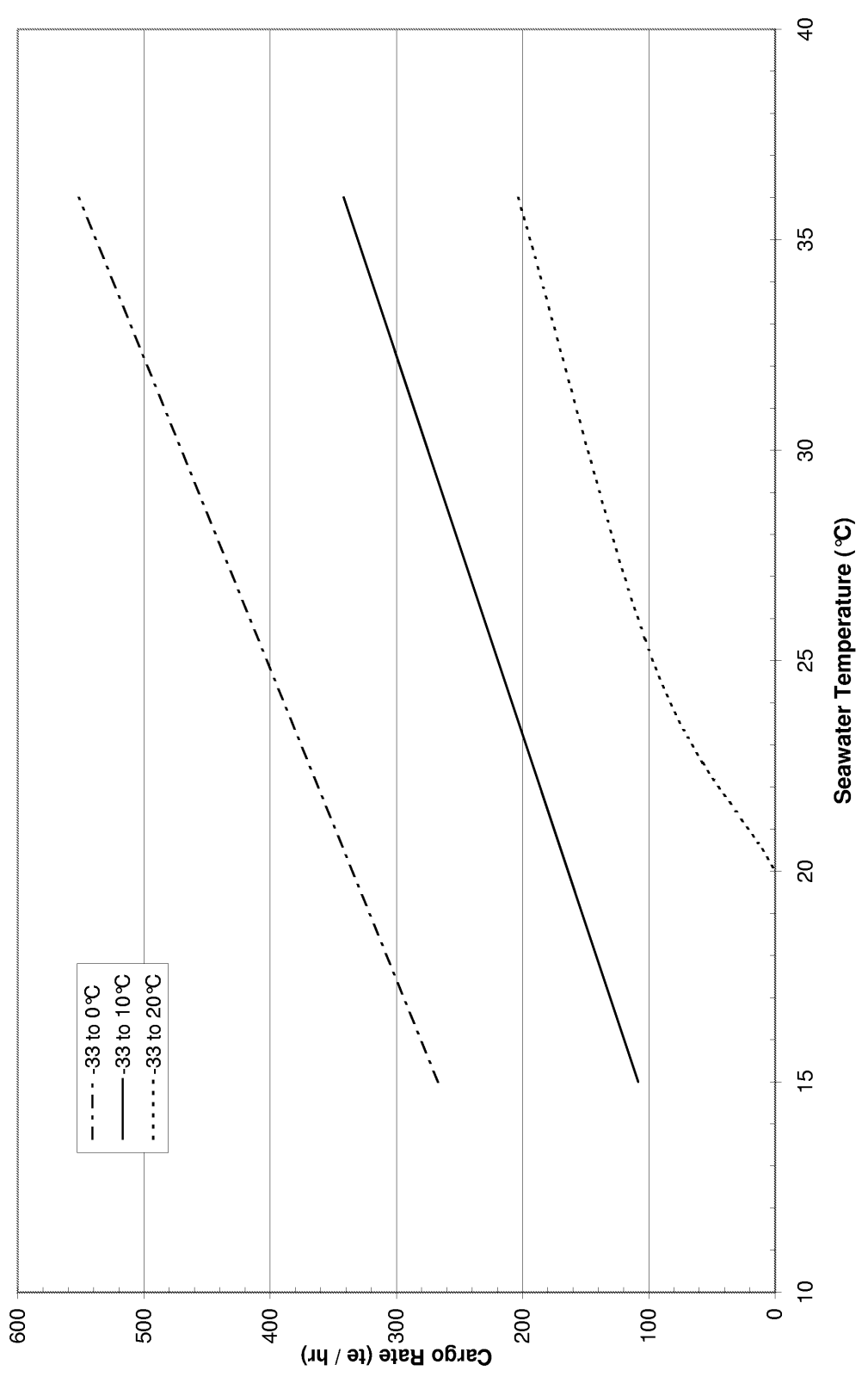
Contract : 05025 / 05026
Client : HHI
Hull No. : 1805 / 1806





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"/> REMOTE
22.2	Manufacturer	Henri
22.3	Type	Float
22.4	Rated Accuracy	5mm
22.5	Certifying Authority	SGS

Temperature Transmitter

22.6	Manufacturer	ABB
22.7	Type	Electronic
22.8	Rated Accuracy	1%
22.9	Certifying Authority	SGS

Pressure Transmitter

22.10	Manufacturer	ABB
22.11	Type	Electronic
22.12	Rated Accuracy	1%
22.13	Certifying Authority	SGS

Oxygen Analyzer

22.14	Manufacturer	Draeger
22.15	Type	
	Lowest Level Measurable	0

Fixed Gas Analyzer

22.16	Manufacturer	Consilium
22.17	Type	Infrared and Electrochemical

22.18	Are Cargo Tank Calibration tables available	<input checked="" type="checkbox"/> YES
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22.19	Measuring Company	SGS
22.20	Certifying Authority	NKKK

22.21 Calibration calculated tocm ½ cm.....

22.22 Tables established tocmmm

22.23	Trim and List corrections Available	<input checked="" type="checkbox"/> YES
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22.24	Temperature Corrections available	<input checked="" type="checkbox"/> YES
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22.25	Float Gauge Tape Corrections Available	<input checked="" type="checkbox"/> YES
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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	Yes	Yes	Yes	Yes				
	Middle	Yes	Yes	Yes	Yes				
	Bottom	Yes	Yes	Yes	Yes				

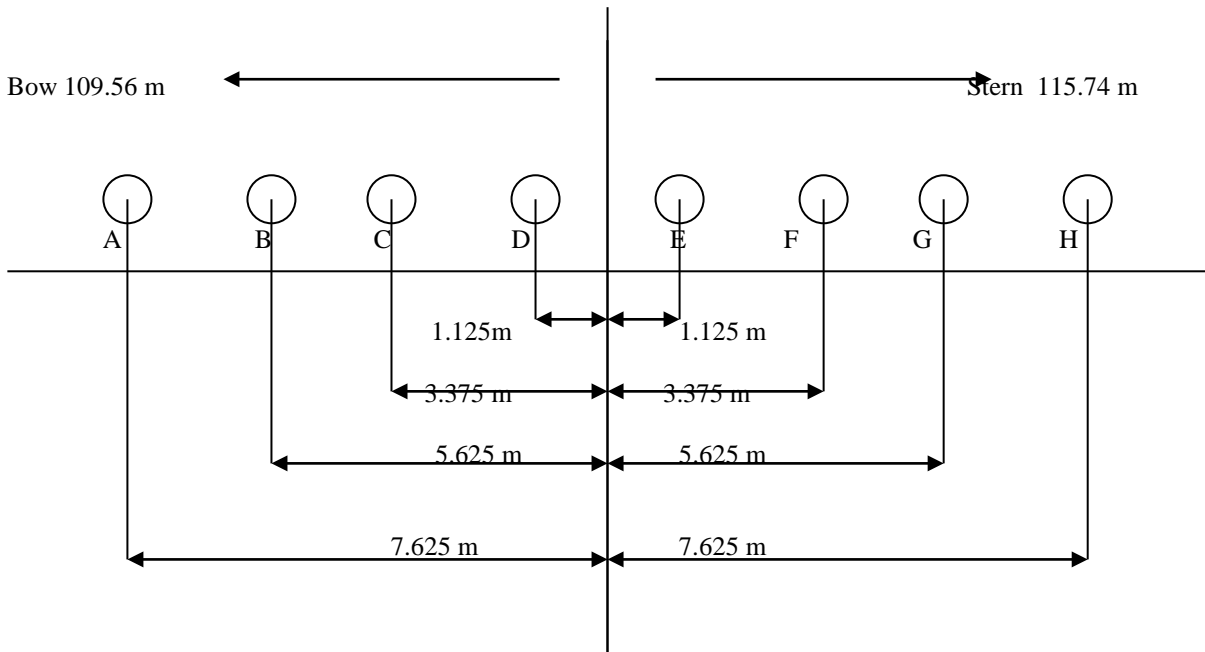
23.2 Can samples be drawn from

Tank Vapor Outlet		<input type="checkbox"/>	YES
Manifold Liquid Line		<input type="checkbox"/>	NO
Manifold Vapor Line		<input type="checkbox"/>	NO
Pump Discharge Line	<input type="checkbox"/>	YES	

23.3 State Connection Type and Size 1/2 "

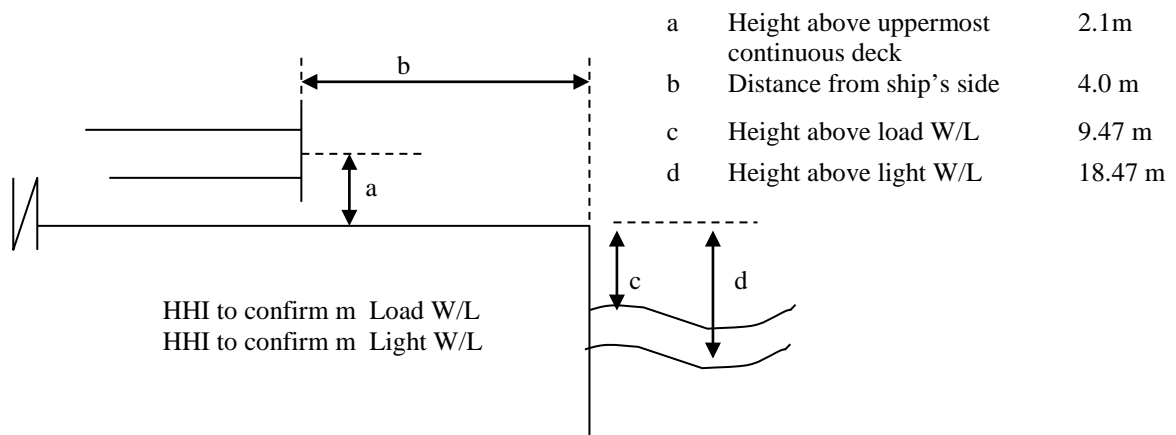
B24 CARGO MANIFOLD

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 centreline 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



B25 CARGO MANIFOLD REDUCERS

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

- 25.1 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 2 off 14"NB 300# × 16"NB 150#
 2 off 14"NB 300# × 12"NB 150#
 2 off 12"NB 300# × 10"NB 150#
 2 off 10"NB 300# × 10"NB 150#
 2 off 8"NB 300# × 10"NB 150#
 2 off 6"NB 300# × 10"NB 150#
 1 off 14"NB 300# × 10"NB 150#
 1 off 14"NB 300# × 8"NB 150#

- 25.3 2 off 12"NB 150# × 10"NB 150#
 2 off 6"NB 150# × 10"NB 150#
 1 off 12"NB 150# × 8"NB 150#
 1 off 8"NB 150# × 8"NB 150#
 1 off 10"NB 150# × 8"NB 150#
 1 off 8"NB 150# × 6"NB 150#

B26 CONNECTIONS TO SHORE FOR ESD AND COMMUNICATION SYSTEMS

- 26.1 Is ESD connection to Shore available YES✓
 If Yes which of the following systems are fitted: -
 Pneumatic
 Electrical✓.....
 Fiber Optic

 26.2 Type of Plug Used: -
 Pneumatic
 Electrical✓.....
 Fiber Optic

 26.3 Is Hose or cables Available on Board YES✓
 Specify Length30 m.....
 Pneumatic✓.....
 Electrical
 Fibre Optic

 26.4 Is connection available for telephone line YES✓

26.5 Are Connections Available on Both
Sides of Vessel

YES ✓

B27 MANIFOLD DERRICK/CRANE

- 27.1 Is Manifold Derrick Provided NO ✓
- 27.2 Is Manifold Crane Provided YES ✓
- 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