

GAS FORM-C

CLIPPER HARALD



«Industry leading provider of LPG and petrochemical tonnage»

BASED ON:
OCIMF/SIGTTO
Ship Information Questionnaire for Gas Carriers
2nd Edition 1998

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Solvang ASA dates back to 1936. From very modest beginnings, the shipping company has now developed into one of the world's leading transporters of LPG and petrochemical gases. Solvang ASA has its headquarters in Stavanger, with offices in Oslo and the Philippines.

Solvang has a fleet of modern and efficient vessels - all built in the accordance with the most up to date specifications and fitted with new and efficient technology. Perhaps of greater importance than the modern technology is the way in which the vessels are operated – the people onboard. Good seamanship represents the very core of our business, and we place a firm focus on this area in the form of education, working on attitudes and training.

On every single sailing, we are required to demonstrate the full range of our experience and expertise. Our strength lies in reliable, high-quality deliveries. It is our goal to maintain a steady course towards the future, at the same time as making good use of the experience we have gained.

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1. SECTION A – GENERAL INFORMATION

1.1 PRINCIPAL SHIP PARTICULARS

A1	PRINCIPAL SHIP PARTICULARS		CLIPPER HARALD
1.0	Date Questionnaire Completed		11.11.2019
1.1	Name of vessel		Clipper Harald
1.2	LR/IMO Number		IMO 9173068
1.3	Last Previous Name		N/A
1.3.1	Date of Name change		N/A
1.4	Second Last Name Change		N/A
1.4.1	Date of Name change		N/A
1.5	Third Last Name Change		N/A
1.5.1	Date of Name change		N/A
1.6	Fourth Last Name Change		N/A
1.6.1	Date of Name change		N/A
1.7	Flag		NIS
1.8	Port Of Registry		Stavanger
1.9	Official Number		9173068
1.10	Call Sign		LALM 5
1.11	VSAT		
1.12	Fleet 77		+870 764 915 744 /745
1.13	Fax		+870 325 735 315
1.14	Mini – M		+870 762 561 845
1.15	E-mail		clipper.harald@solvangship.no
1.16	GSM Mobile		+47 958 11 674
1.17	SAT C		581 425 735 310 / 312
1.18	Vessel's MMSI Number		257353000
1.19	Max tank pressure	UNIT	
1.19.1	(1) Pressurized	[bar g]	
1.19.2	(2) Semi- Refrigerated	[bar g]	4.5
1.19.3	(3) Refrigerated	[bar g]	
1.20	Minimum tank temperature	UNIT	
1.20.1	(1) Pressurized	[°C]	
1.20.2	(2) Semi- Refrigerated	[°C]	-104
1.20.3	(3) Refrigerated	[°C]	
A1	OWNERSHIP AND OPERATION		
1.21	REGISTERED OWNER		P/R CLIPPER HARALD DA
1.22	Visitor's address		Strandkaien 36
1.22.1	City		N-4005 Stavanger
1.22.2	Country		Norway
1.23	Postal address		P.O. Box 90
1.23.1	City		N-4001 Stavanger
1.23.2	Country		Norway
1.24	Office Telephone Number		+47 51 84 84 00
1.25	Office Fax Number		+47 51 84 84 11
1.26	Office Telex Number		
1.27	Office e-mail Address		solvang-ethylene@solvangship.no
1.28	Number of Years Vessel Owned		20.4
1.29	NAME OF TECHNICAL OPERATOR		Solvang ASA
1.30	Visitor's address		Strandkaien 36
1.30.1	City		N-4005 Stavanger
1.30.2	Country		Norway
1.31	Postal address		P.O. Box 90
1.31.1	City		N-4001 Stavanger
1.31.2	Country		Norway
1.32	Office Telephone Number		(+47) 51 84 84 00

1.33	Office Fax Number		(+47) 51 84 84 11
1.34	Office Telex Number		
1.35	Office e-mail Address		solvang-ethylene@solvangship.no
1.36	Number of Years as vessel Operator		20.4
1.37	Total number of vessels, Operator		25
1.38	COMMERCIAL OPERATOR		Solvang ASA
1.39	Visitor's address		Haakon VII's gt 6
1.39.1	City		N-0121 Oslo
1.39.2	Country		Norway
1.40	Postal address		P.O.Box 1737 Vika
1.40.1	City		N-0121 Oslo
1.40.2	Country		Norway
1.41	Office Telephone Number		(+47) 22 47 19 50
1.42	Office e-mail Address		chartering@solvangship.no
1.42.1	Office e-mail Address 2		operation@solvangship.no
1.43	Number of Years as vessel Operator		20.4
1.44	Builder		Meyer Werft
1.45	Name of Yard Vessel Built At		Jos. Meier, Papenburg/Rostock
1.46	Hull Number		652
1.47	Date Keel Laid		09.09.1998
1.48	Date Launched		15.01.1999
1.49	Date Delivered		01.07.1999
1.50	Date of Completion of Major Hull Changes (If Any)		N/A
1.51	If Changes were made, specify changes and yard		N/A
A1	CLASSIFICATION	UNIT	CLIPPER HARALD
1.52	Classification Society	[Text]	DNV GL
1.53	Class Notation	[Text]	+1A1ICE-1C TANKER FOR LIQUIFIED GAS
1.53.1	Cont.	[Text]	E0 LCS-SI TMON
1.53.2	Cont.	[Text]	
1.54	If Class Society Changed, Name of Previous society	[Text]	N/A
1.55	If Class Society Changed, Date of Change	[Date]	N/A
1.56	Built in accordance with Regulations:		Approval recieved
1.56.1	IMO	[Yes/No]	YES
1.56.2	USCG	[Yes/No]	YES
1.56.3	RINA	[Yes/No]	NO
1.56.4	Other	[Yes/No]	NO
1.57	IMO Certification Certificate of Fitness		Approval recieved
1.57.1	IGC	[Yes/No]	YES
1.57.2	A328	[Yes/No]	NO
1.57.3	A329	[Yes/No]	NO
1.57.4	Letter of compliance	[Yes/No]	YES
1.57.5	Issued By	[Text]	DNV GL
1.58	Unattended Machinery Space certificate	[Yes/No]	Yes (24h)
A1	TONNAGES	UNIT	CLIPPER HARALD
1.59	Nett Registered Tonnage	[NT]	3208
1.60	Gross Tonnage	[GT]	10692
1.61	Suez Canal Tonnage		
1.61.1	Net Tonnage	[NT]	8860.21
1.61.2	Gross Tonnage	[GT]	11608.52
1.62	Panama Canal Tonnage		
1.62.1	Net Tonnage	[NT]	
1.62.2	Gross Tonnage	[GT]	

1.2 HULL DIMENSIONS

A2	HULL DIMENSIONS	UNIT	CLIPPER HARALD
2.1	Length Overall	[m]	146.4
2.2	Length Between Perpendiculars	[m]	135.4
2.3	Distance Bow to Bridge	[m]	111.7
2.4	Distance Bridge Front to Mid-Point Manifold	[m]	42.3
2.5	Distance Bow to Mid-Point Manifold	[m]	69.4
2.6	Extreme Breadth	[m]	20.5
2.7	Extreme Depth	[m]	13.8
2.8	Summer Draught	[m]	9.7
2.9	Corresponding Deadweight	[ton]	13712.0
2.10	Light Displacement/weight	[ton]	6134.0
2.11	Loaded Displacement (Summer)	[ton]	19846.0
2.12	Cargo Tank Cubic Capacity (100% full)	[m3]	12406.0
2.13	Distance from Keel to Highest Point (With mast down)	[m]	38.7
2.14	Air Draught normal ballast (With mast down)	[m]	33.5

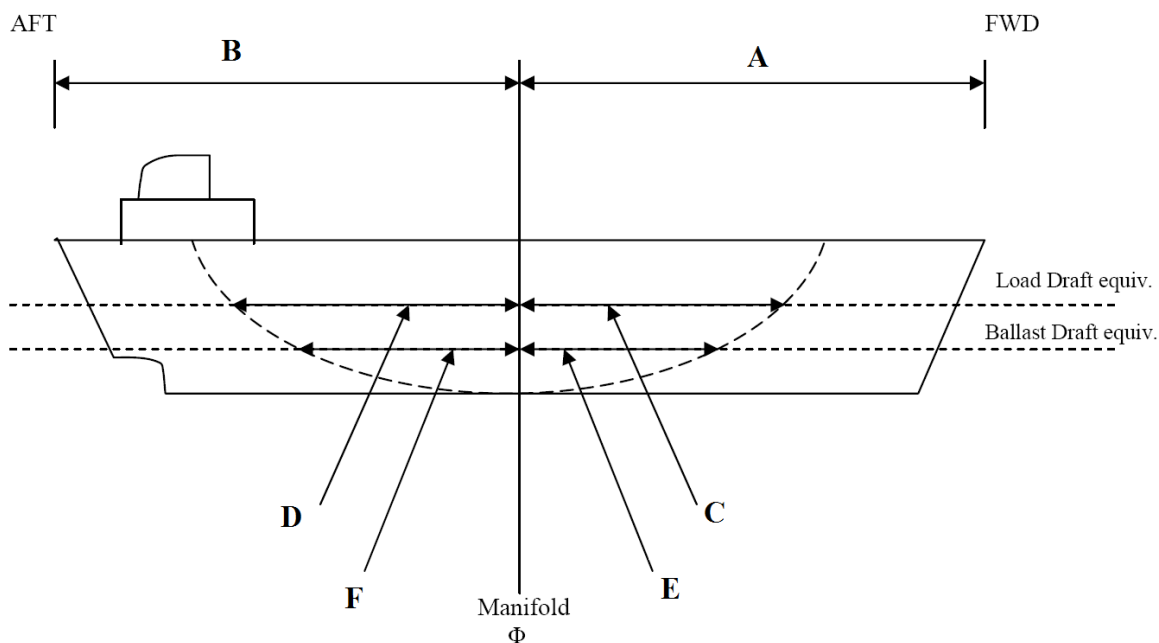
1.3 IMMERSION

A3	IMMERSION	UNIT	CLIPPER HARALD
3.1	Normal Ballast Draught	[TPC]	20.50
3.1.1	Draught	[m]	5.24
3.2	Loaded Draught	[TPC]	25.3
3.2.1	Draught	[m]	9.7

1.4 LOADED PARTICULARS

A4	LOADED PARTICULARS	UNIT	CLIPPER HARALD
4.1	Cargo:		Propane VCM Ammonia
4.2	Density:	[ton/m3]	0.58 0.97 0.682
4.3	Cargo	[ton]	7207.00 11962 8404
4.4	Bunkers	[ton]	1301.48 1301.47919 1301.47919
4.5	D0	[ton]	
4.6	Fresh Water	[ton]	212.00 212 212
4.7	Stores/Spares	[ton]	230 230 230
4.8	Lube Oil	[ton]	48 48 48
4.9	Ballast	[ton]	
4.10	Deadweight Const.	[ton]	86 86.00 86.00
4.11	Draught - Forward	[m]	7.2 9.4 7.95
4.11.1	Aft	[m]	8.2 10.02 8.52
4.11.2	Equiv.	[m]	7.7 9.67 8.21

1.5 PARALLEL MID-BODY DIMENSIONS



A5	PARALLEL MID-BODY DIMENSIONS	UNIT	CLIPPER HARALD
5.1	A Manifold to FWD	[m]	69.40
5.2	B Manifold to AFT	[m]	77
5.3	Loaded draft equiv-		
5.3.1	C Manifold to FWD side tangent line	[m]	37
5.3.2	D Manifold to AFT side tangent line	[m]	28
5.4	Ballast draft equiv.		
5.4.1	E Manifold to FWD	[m]	28
5.4.2	F Manifold to AFT	[m]	16

1.6 BUNKER CAPACITIES

A6	BUNKER CAPACITIES	UNIT	CLIPPER HARALD
6.1	HFO	[Grade]	IFO 380 (Standard)
6.1.1	Capacity @ 100 %	[m3]	1099.8
6.2	LSHFO	[Grade]	N/A
6.2.1	Capacity @ 100 %	[m3]	N/A
6.3	Diesel Oil	[Grade]	D0
6.3.1	Capacity @ 100 %	[m3]	236.5

1.7 FUEL CONSUMPTION DETAILS

Average speed and consumption, based on max force 4 Beaufort and 15% Sea Margin.

Vessel use mainly HFO for all consumers. DO/GO for INCN and when Rules & Regulations demands it for other consumers

A7	FUEL CONSUMPTION DETAILS	UNIT	CLIPPER HARALD
7.1	LOADED CONDITION		*About
7.2	Average speed over 12 months	[kn]	17.0
7.3	Average consumption, Main engine	[ton/day]	26.5
7.4	Consumption, AUX		
7.4.1	LPG	[ton/day]	4-6
7.4.2	Ethylene	[ton/day]	6-10
7.5	Average consumption, AUX		
7.5.1	LPG	[ton/day]	5
7.5.2	Ethylene	[ton/day]	7.5
7.6	BALLAST CONDITION		
7.7	Average speed over 12 months	[kn]	17.0
7.8	Average consumption, Main engine	[ton/day]	25.5
7.9	Average consumption, AUX	[ton/day]	3
7.10	PORT/IDLE		
7.11	Average consumption, AUX, Loading	[ton/day]	8
7.12	Average consumption, AUX, Discharging	[ton/day]	5.5
7.13	Average consumption, AUX, Idle	[ton/day]	4
7.14	Average consumption, Boiler (depending on weather)	[ton/day]	0-1,0
7.15	OTHER		
7.16	INCN (When operating) - MDO/MGO	[ton/day]	0.2
7.17	IGG-plant (When operating)	[ton/day]	0.1
7.18	ME CONSUMPTION GRAPH/KNOTS		LOADED BALLAST
7.18.1	18	[ton/day]	32.0 30.0
7.18.2	17	[ton/day]	26.5 25.5
7.18.3	16.5	[ton/day]	24.5 23.5
7.18.4	14.5	[ton/day]	18.8 17.8
7.18.5	12	[ton/day]	17.3 16.3

**Consumption of AUX will increase with 0,2-1,0 MT/24h when systems for exhaust gas cleaning is running, depending on sulfur content in fuel oil, load of engines, alkalinity, degree of cleaning, etc

1.8 MAIN ENGINE PARTICULARS

A8	MAIN ENGINE PARTICULARS	UNIT	CLIPPER HARALD
8.1	Main Engine Make and Type	[Text]	MAN B&W 6L 50 MC
8.2	No of Units	Pcs	1
8.3	Maximum Continuous Rating (MCR)	[kW]	7980
8.3.1	RPM	[RPM]	148
8.4	Total Available Power	kW	7 980
8.5	Normal service Power	kW	7 182

1.9 AUXILIARY PLANT

A9	AUXILIARY PLANT	UNIT	CLIPPER HARALD
9.1	Make and Type of Auxiliary Generators	[Text]	MAN-Holeby 8L23/30H
9.2	Main Generators	[Pcs]	
9.2.1	No of Units	[Pcs]	3
9.2.2	Maximum Generator Output per Unit	[kW]	1 040

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9.3	Generators, other	[Yes/No]	NO
9.3.1	No of Units	[Pcs]	N/A
9.3.2	Maximum Generator Output per Unit	[kW]	N/A
9.4	Shaft Generator	[kW]	N/A
9.5	Total Available Power	[kW]	3120
9.6	Emergency Generator	[kW]	188
9.7	Emergency Fire Pump	[Text]	
9.7.1	Type	[Text]	Vertical Centrifugal
9.7.2	Delivery Pressure	[Bar]	10
9.7.3	Motive Power	[Text]	Electric
9.7.4	If Electrical, Indicate Power Required in kW	[kW]	52
9.8	Steering Gear Type		Rotary vane
9.8.1	kW to Steer the Vessel with One Pump Unit	[kW]	30

1.10 POWER/SPEED INFORMATION

A10	POWER/SPEED INFORMATION	UNIT	CLIPPER HARALD
10.1	Trial Data		
10.1.1	NCR	[kW]	7 980
10.1.2	MCR	[kW]	8 778
10.1.3	Speed	[kn]	18.86
10.1.4	Draught	[m]	5.15
10.2	Normal Service Speed		
10.2.1	NCR	[kW]	6800
10.2.2	MCR	[kW]	7980
10.2.3	Speed	[kn]	17
10.2.4	Draught	[m]	8

1.11 THRUSTERS

A11	THRUSTERS	UNIT	CLIPPER HARALD
11.1	Make and Type	[Text]	LIPS CT 175-H
11.2	No. Installed	[Pcs]	1.00
11.3	Location and Rated Bollard Pull or kW output	[kW]	750

1.12 FRESH WATER

A12	FRESH WATER	UNIT	CLIPPER HARALD
12.1	Capacity of Distilled Tanks	[ton]	N/A
12.2	Capacity of F/D.W. Ts	[ton]	216.00
12.3	Daily Consumption	[ton/day]	8.00
12.4	Daily Evaporator Output	[ton/day]	24.00

1.13 BALLAST CAPACITIES AND PUMPS

A13	BALLAST CAPACITIES AND PUMPS	UNIT	CLIPPER HARALD	
13.1	Tank Capacities		Capacity [m3]	Tanks [Pcs]
13.1.1	Forepeak	[Col]	354.00	1
13.1.2	Wing or Side tanks	[Col]	1520	10
13.1.3	Double bottom tanks	[Col]	1186	11
13.1.4	Other	[Col]		
13.1.5	Other	[Col]		
13.1.6	Total	[Col]	3 060.00	22
13.2	Ballast Pumps			
13.2.1	Capacity per pump	[m3/h]	250	
13.2.2	Model	[Text]		
13.2.3	Type	[Text]	Electric	
13.2.4	Setting	[Text]	Vertical Centrifugal	
13.3	No of Pumps	[Pcs]	2	
13.4	Total Capacity	[m3/h]	500	
13.5	Location	[Text]	Engine Room	
13.6	Control Location	[Text]	Cargo Control Room, Bridge	

1.14 MOORING

A14	MOORING EQUIPMENT	UNIT	CLIPPER HARALD			
14.1	Mooring wires (On drums)		FWD	FWD DECK	AFT DECK	POOP
14.1.1	Number	[Pcs]				
14.1.2	Diameter	[mm]				
14.1.3	Length	[m]				
14.1.4	Maximum Breaking Load	[ton]				
14.2	Mooring wire tails		FWD	FWD DECK	AFT DECK	POOP
14.2.1	Number	[Pcs]				
14.2.2	Type	[Text]				
14.2.3	Diameter	[mm]				
14.2.4	Length	[m]				
14.2.5	Maximum Breaking Load	[ton]				
14.3	Mooring ropes (On drums)		FWD	FWD DECK	AFT DECK	POOP
14.3.1	Number	[Pcs]	2			2
14.3.2	Type	[Text]	Signal Master			Signal Master
14.3.3	Diameter	[mm]	48			48
14.3.4	Length	[m]	220			220
14.3.5	Maximum Breaking Load	[ton]	50			50
14.4	Mooring winches		FWD	FWD DECK	AFT DECK	POOP
14.4.1	Number	[Pcs]	2			2
14.4.2	[S]ingle/[D]ouble drums	[S/D]	Single			Single
14.4.3	Split drums	[Yes/No]	YES			YES
14.4.4	Motive power	[Text]	Hydraulic			Hydraulic
14.4.5	Heaving power	[ton]	10			10
14.4.6	Brake capacity	[ton]	30			30
14.4.7	Hauling speed	[m/s]	0.4			0.4
14.5	Wires/ropes not on drums		WIRES	ROPES	EM'GENCY	
14.5.1	Number	[Pcs]		6/6		
14.5.2	Type	[Text]		Signal Master		
14.5.3	Diameter	[mm]		48		
14.5.4	Length	[m]		220		
14.5.5	Maximum Breaking Load	[ton]		50		

A14	ANCHORS AND WINDLASSES	UNIT	CLIPPER HARALD
14.5.1	Windlass Motive Power (e.g. Steam, Hydraulic)	[Text]	Hydraulic
14.5.2	Hauling Power	[ton]	10
14.5.3	Brake Holding Power	[ton]	30
14.5.4	Anchor Type	[Text]	Pool Anchor TW
14.5.5	Weight	[kg]	3 670
14.5.6	Is Spare Carried	[Yes/No]	NO
14.5.7	Cable Diameter	[mm]	54
14.5.8	No of Shackles Port	[Pcs]	10
14.5.9	No of Shackles Starboard	[Pcs]	10
14.6	TOWING EQUIPMENT		
14.6.1	Is Ship fitted with a Towing Bracket AFT(drum)	[Yes/No]	NO
14.6.2	If Yes, state SWL	[ton]	N/A
14.6.3	Is Towing Chain provided	[Yes/No]	NO
14.6.4	Dimensions of Towing Wire – Diameter	[mm]	
14.6.5	Length	[m]	
14.7	Windage on Ballast Draught		
14.7.1	End-on	[m2]	460
14.7.2	Lateral	[m2]	1865

Mooring diagram is provided in the appendix.

1.15 NAVIGATIONAL EQUIPMENT

A15	NAVIGATIONAL EQUIPMENT	UNIT	CLIPPER HARALD
15.1	Magnetic Compass	[Yes/No]	YES
15.2	Off Course Alarm – Magnetic	[Yes/No]	YES
15.3	Gyro Compass	[Yes/No]	YES
15.3.1	Specify number	[Pcs]	1
15.4	Off Course Alarm – Gyro	[Yes/No]	YES
15.5	Bridge Repeaters	[Yes/No]	YES
15.5.1	Specify Number	[Pcs]	3
15.6	Radar 3 GHz	[Yes/No]	YES
15.7	Radar 9 GHz	[Yes/No]	YES
15.8	Are Radars Gyro Stabilized	[Yes/No]	YES
15.9	Radar Plotting Equipment	[Yes/No]	YES
15.10	ARPA	[Yes/No]	YES
15.11	ECDIS (Electric Display and Information System)	[Yes/No]	YES
15.11.1	Make/Type	[Text]	Transas 4000
15.12	Depth Echo Sounder with Recorder	[Yes/No]	YES
15.13	Depth Echo Sounder without Recorder	[Yes/No]	NO
15.14	Speed/Distance Indicator	[Yes/No]	YES
15.15	Doppler Log	[Yes/No]	YES
15.16	Speed of Approach Doppler	[Yes/No]	NO
15.17	Rudder Angle Indicator	[Yes/No]	YES
15.18	Rudder Angle Indicator on Each Bridge Wing	[Yes/No]	YES
15.19	R.P.M Indicator	[Yes/No]	YES
15.20	R.P.M Indicator on Each Bridge Wing	[Yes/No]	YES
15.21	Controllable Propeller Pitch Indicator	[Yes/No]	YES
15.22	Thruster (s) indicator	[Yes/No]	YES
15.23	Rate of turn Indicator	[Yes/No]	NO
15.24	Radio Direction Finder	[Yes/No]	NO
15.25	NAVTEX Receiver	[Yes/No]	YES
15.26	GPS	[Yes/No]	YES
15.27	Transit SATNAV	[Yes/No]	NO
15.28	DECCA navigator	[Yes/No]	NO
15.29	Omega	[Yes/No]	NO
15.30	Loran C	[Yes/No]	NO
15.31	Weather Route System	[Yes/No]	YES
15.32	Sextant(s)	[Yes/No]	YES
15.33	Signal Lamp ALDIS	[Yes/No]	YES
15.34	Anemometer	[Yes/No]	YES
15.35	Engine Order Recorder	[Yes/No]	YES
15.36	Course Recorder	[Yes/No]	NO
15.37	Steering motor controls controls fitted on bridge wings	[Yes/No]	YES
15.38	Is bridge Equipped with a “Dead Man” Alarm Equipment	[Yes/No]	YES
15.39	What chart outfit coverage is provided	[Yes/No]	
15.39.1	Worldwide	[Yes/No]	NO
15.39.2	Limited	[Yes/No]	YES
15.39.3	If Limited Please Indicate	[Text]	
15.40	Formal Chart Correction System in use	[Yes/No]	YES
15.41	Electronic Chart System in use	[Yes/No]	YES

1.16 COMMUNICATIONS EQUIPMENT

A16	COMMUNICATIONS EQUIPMENT	UNIT	CLIPPER HARALD
16.1	Main Transmitted Including Radio Telephone Distress Frequency	[Yes/No]	YES
16.2	Main Receiver Including Radio Telephone Distress Frequency	[Yes/No]	YES
16.3	Radio Telephone Distress Frequency Watch Receiver	[Yes/No]	YES
16.4	Main Radio Antenna	[Yes/No]	YES
16.5	Reserve Radio Antenna	[Yes/No]	NO
16.6	Main and Reserve Installations Electrically Separate and Independent	[Yes/No]	YES
16.7	2182 kHz Bridge auto Alarm	[Yes/No]	YES
16.8	Alarm Signal Generating Device	[Yes/No]	YES
16.9	VHF Radio (s)	[Yes/No]	YES
16.9.1	Specify Number	[Pcs]	3
16.10	Portable VHF/UHF Radios	[Yes/No]	YES
16.10.1	Specify Type and Number	[Pcs]	UHF 9
16.11	Are Sets Intrinsically Safe	[Yes/No]	YES
16.12	Inmarsat Satellite System	[Yes/No]	YES
16.13	Specify System Type A, B, C, F or VSAT	[Text]	B,C
16.14	Is the ship equipped as per GMDSS Requirements	[Yes/No]	YES
16.15	If Yes, which area of operation is vessel certified to operate in	[Text]	A3
16.15.1	EPIRB	[Yes/No]	YES
16.15.2	SARTS	[Yes/No]	YES
16.16	Emergency Lifeboat Transceiver	[Yes/No]	NO
16.17	At least Three Survival craft Two-way Radio Telephone Apparatus	[Yes/No]	YES
16.18	Full Set of Publications	[Yes/No]	YES

2. SECTION B – CARGO SYSTEMS

2.1 GENERAL INFORMATION

B1	CARGO - GENERAL INFORMATION		CLIPPER HARALD	
1.1	List Products Which the Ship is Certified to Carry			
1.1.1	1.	Ethylene		
1.1.2	2.	Ethane		
1.1.3	3.	Ammonia		
1.1.4	4.	Butadiene		
1.1.5	5.	i-Butane		
1.1.6	6.	Butane-propane		
1.1.7	7.	Butylene		
1.1.8	8.	Propane		
1.1.9	9.	Propylene		
1.1.10	10.	Methyl Chloride		
1.1.11	11.	Acetaldehyde		
1.1.12	12.	Dimethylamine		
1.1.13	13.	Diethyl Ether		
1.1.14	14.	Ethylene/Propylene Oxide		
1.1.15	15.	Isopropylamine		
1.1.16	16.	Ethyl Chloride		
1.1.17	17.	Propylene Oxide		
1.1.18	18.	Vinyl Ethyl Ether		
1.1.19	19.	Monoethylamine		
1.1.20	20.	n-Butane		
1.1.21	21.	Isoprene		
1.1.22	22.	VCM		
1.1.23	23.	Mixed C4		
1.1.24	24.			
1.2	Transport and Carriage Condition		UNIT	
1.3	Minimum Allowable Tank Temperature		[Celsius]	-104
1.3.1	Maximum Allowable Tank Pressure (Seagoing setting)		[bar g]	4.5
1.3.2	Maximum Allowable Tank Pressure (Harbour setting)		[bar g]	4.5
1.4	Grades which can be Loaded or Discharged Simultaneously		[Pcs]	2
1.5	Grades which can be Transported Simultaneously		[Pcs]	2
1.6	Number of Products Re-liquefied Simultaneously		[Pcs]	2
1.7	State Natural Tank Segregations (Possible combinations)		UNIT	
1.7.1	1.		[Tank]	1+3 & 2
1.7.2	2.		[Tank]	1+2+3
1.7.3	3.		[Tank]	

2.2 CARGO TANKS

B2	CARGO TANKS	UNIT	CLIPPER HARALD
2.1	Cargo Tanks		
2.1.1	Type	[Text]	Independent Type C
2.1.2	Material	[Text]	NV 5 Ni
2.2	Maximum Allowable Relief Valve setting	[bar g]	4.5
2.3	Safety Valve Set Pressure – If Variable Give Range of Pilot Valves		
2.3.1	Seagoing setting	[bar g]	4.5
2.3.2	Harbour setting	[bar g]	4.5
2.4	Maximum Vacuum	[bar g]	0.3
2.5	Maximum Cargo Density (98% full)	[kg/m3]	970
2.6	Maximum Rate of Cool-Down	[C/h]	10

2.7	State any Limitations regarding Partially Filled Tanks	[Text]	NO
2.7.1	Cont.	[Text]	NO
2.8	State Allowable Combinations of Filled and Empty Tanks	[Text]	Trim (Tank 1&3 empty)
2.8.1	Cont.	[Text]	

2.3 CARGO TANK CAPACITIES

B3	CARGO TANK CAPACITIES	UNIT	CLIPPER HARALD				
3.1	Capacity	Tank	1	2	3	4	Total
3.1.1	100 %	[m3]	4157	4331	4189		12677
3.1.2	98 %	[m3]	4074	4244	4105		12423
3.2	Cargo						
3.2.1	iso-butane	[ton]	2420	2521	2439		7379
3.2.2	Propane	[ton]	2363	2462	2381		7205
3.2.3	Butadiene	[ton]	2652	2763	2673		8087
3.2.4	Propylene	[ton]	2485	2589	2504		7578
3.2.5	Ammonia	[ton]	2770	2886	2792		8448
3.2.6	Butylene/Butenes	[ton]	2420	2521	2439		7379
3.2.7	n-butane	[ton]	2448	2551	2467		7466
3.2.8	Ethylene	[ton]	2318	2415	2336		7069

- Cargoes may not be applicable for vessel. Check which cargoes the vessel is certified to carry.

2.4 LOADING RATES

VR = Vapour Return, W/O VPR = Without Vapour Return

B4	LOADING RATES	UNIT	CLIPPER HARALD			
			REFRIGERATED		PRESSURE	
4.1	Cargo	[m3/h]	VR	W/O VR	VR	W/O VR
4.1.1	1 Butane	[m3/h]	720	720		
4.1.2	2 Propane	[m3/h]	700	700		
4.1.3	3 Ammonia	[m3/h]	820	820		
4.1.4	4 Butane (0-30°C)	[m3/h]			500	400
4.1.5	5 Propane (0°C)	[m3/h]			450	200
4.1.6	6 Propane (10°C)	[m3/h]			220	100
4.1.7	7 Propane (20°C)	[m3/h]			120	50
4.1.8	8 Propane (30°C)	[m3/h]			70	25
4.1.9	9 Propylene	[m3/h]	730	730		
4.1.10	10 Ethane	[m3/h]	652	652		
4.1.11	11 Ethylene	[m3/h]	683	683		
4.1.12	12 Propane (-30°C)	[m3/h]				681
4.1.13	13 Propane (-20°C)	[m3/h]				667
4.1.14	14 Ethylene (-95°C)	[m3/h]			210	210
4.1.15	15	[m3/h]				
4.1.16	16	[m3/h]				
4.1.17	17	[m3/h]				
4.1.18	18	[m3/h]				
4.1.19	19	[m3/h]				
4.1.20	20	[m3/h]				

2.5 DISCHARGING – GENERAL

Pumping curves for cargo main pumps and booster pumps are given in the appendix.

B5	DISCHARGING – GENERAL	UNIT	CLIPPER HARALD
5.1	Cargo Pumps	[Text]	Deepwell
5.1.1	Type of Pumps	[Text]	Centrifugal
5.1.2	Number per Tank	[Pcs]	2
5.1.3	Rate (per pump)	[m3/h]	200
5.1.4	Delivery Head	[mlc]	120
5.1.5	Maximum Density	[kg/m3]	972
5.2	Booster Pumps		
5.2.1	Type of Pumps	[Text]	Centrifugal
5.2.2	Number	[Pcs]	2
5.2.3	Rate (per pump)	[m3/h]	300
5.2.4	Delivery Head	[mlc]	120
5.2.5	Maximum Density	[kg/m3]	682

2.6 DISCHARGE PRESSURE

B6	DISCHARGE PERFORMANCE	UNIT	CLIPPER HARALD
6.1	Fully Refrigerated, Full Cargo Discharge Times (all pumps):		VR W/O VR
6.1.1	Manifold Back Pressure (1 kg/cm2) x	[h]	10 10
6.1.2	Manifold Back Pressure (5 kg/cm2) x	[h]	14 14
6.1.3	Manifold Back Pressure (10 kg/cm2) ^	[h]	21 21
6.2	Pressurized, Full Cargo Discharge Times (all pumps):		VR W/O VR
6.2.1	Manifold Back Pressure (1 kg/cm2) ^	[h]	
6.2.2	Manifold Back Pressure (5 kg/cm2) ^	[h]	14 14
6.2.3	Manifold Back Pressure (10 kg/cm2) ^	[h]	21 21

x = Based on largest single tank volume

^ = Based on discharging tanks one at a time

2.7 UNPUMPABLES

B7	UNPUMPABLES	UNIT	CLIPPER HARALD
7.1	Unpumpables, liquid		
7.1.1	Tank 1	[m3]	1
7.1.2	Tank 2	[m3]	1
7.1.3	Tank 3	[m3]	1
7.1.4	Tank 4	[m3]	
7.1.5	Total	[m3]	3

2.8 VAPORISING UNPUMPABLES

B8	VAPORISING UNPUMPABLES	UNIT	CLIPPER HARALD
8.1	Process Used	[Text]	Hot Gas / Puddle heating
8.2	Time to Vaporize Liquid Unpumpables After Discharge:		
8.2.1	Propane	[h]	1
8.2.2	Butane	[h]	6
8.2.3	Ammonia	[h]	2

«Industry leading provider of LPG and petrochemical tonnage»

8.2.4		[h]	
8.2.5		[h]	

2.9 RELIQUEFACTION PLANT

B9	RELIQUEFACTION PLANT	UNIT	CLIPPER HARALD
9.1	Plant Design Conditions		
9.1.1	Air Temperature	[°C]	45
9.1.2	Sea Temperature	[°C]	32
9.2	Plant Type		
9.2.1	Single Stage/Direct	[Yes/No]	
9.2.2	Two Stage / Direct	[Yes/No]	YES
9.2.3	Three Stage / Direct	[Yes/No]	
9.2.4	Coolant Type	[Text]	Propylene
9.3	Compressors		
9.3.1	Type	[Text]	Sulzer + Burckhardt
9.3.2	Model	[Text]	2K 140-2H
9.3.3	Number	[Psc]	4
9.3.4	Capacity (per unit)	[m3/h]	Varies
9.3.5	Are they oil free?	[Yes/No]	YES

2.10 COOLING CAPACITY

B10	COOLING CAPACITY	UNIT	CLIPPER HARALD
10.1	State Cooling Capacity (per compressor, 2-stage @ - 0.4 bar g)		SW 32 [°C] SW 15 [°C]
10.1.1	1 Propane @ -42 [°C]	[kcal/h]	75000
10.1.2	2 Propane @ -20 [°C]	[kcal/h]	189000
10.1.3	3 Propane @ -5 [°C]	[kcal/h]	295000
10.1.4	4 Butane @ -42 [°C]	[kcal/h]	
10.1.5	5 Butane @ -20 [°C]	[kcal/h]	
10.1.6	6 Butane @ -5 [°C]	[kcal/h]	70000
10.1.7	7	[kcal/h]	

2.11 CARGO TEMP. LOWERING CAPABILITY

B11	CARGO TEMPERATURE LOWERING CAPABILITY	UNIT	CLIPPER HARALD
11.0	Time taken to lower the temp of:		SW=32[°C]
11.1	Propane from ...0 [°C] to -42 [°C]	[h]	
11.2	-5[°C]to -42[°C]	[h]	225
11.3	-38[°C] to -42[°C]	[h]	40
11.4	+20[°C] to -0,5[°C]	[h]	28
11.5	+10[°C] to -0,5[°C]	[h]	14
11.6	Butane from +20[°C] to -0.5[°C]	[h]	
11.7	+10[°C] to -0.5[°C]	[h]	
11.8	+10[°C] to -5[°C]	[h]	
11.9	Ethylene from -100[°C] to -104[°C]	[h]	64
11.10	Propylene from -40[°C] to -48[°C]	[h]	80
11.11	Ammonia from -25[°C] to -33[°C]	[h]	108

2.12 INERT GAS

B12	INERT GAS	UNIT	CLIPPER HARALD
12.1	Main IG Plant		
12.1.1	Type of System	[Text]	N/A
12.1.2	Capacity	[m3/h]	N/A
12.1.3	Type of Fuel Used	[Text]	N/A
12.1.4	Composition of I.G.		
12.1.5	Max O2	[%]	N/A
12.1.6	Max CO2	[%]	N/A
12.1.7	Max Nox	[%]	N/A
12.1.8	Max N2	[%]	N/A
12.2	Lowest Dewpoint Achievable	[°C]	N/A
12.3	Used for	[Text]	N/A
12.4	Auxiliary IG or Nitrogen Plant		Nitrogen Plant
12.4.1	Type of System	[Text]	PSA
12.4.2	Capacity	[m3/h]	1250 (98%) - 630 (99,9%)
12.5	Lowest Dewpoint Achievable	[°C]	-50
12.6	Used for	[Text]	Change of grade
12.7	Nitrogen generator installed?	[Yes/No]	NO
12.7.1	Liquid storage Capacity	[m3]	N/A
12.7.2	Daily Boil-Off Loss	[m3]	N/A
12.7.3	Maximum Supply Pressure	[Bar]	N/A
12.7.4	Supply Capacity	[m3/h]	N/A
12.7.5	Used For	[Text]	N/A
12.7.6	HP Nitrogen	[Nm3]	N/A

2.13 CARGO TANK INTERTING/DE-INERTING

B13	CARGO TANK INTERTING/DE-INERTING	UNIT	CLIPPER HARALD
13.1	Time Taken From Fresh Air to Under 5% O2 at -25oC Dewpoint	[h]	16
13.2	Time taken from cargo Vapor to Fully Inert at - 25oC Dewpoint when:		
13.2.1	IG density less than product	[h]	20
13.2.2	IG density greater than product	[h]	20

2.14 GAS FREEING TO FRESH AIR

B14	GAS FREEING TO FRESH AIR	UNIT	CLIPPER HARALD
14.1	Plant Used	[Text]	Gas free fans
14.1.1	Number of fans	[Pcs]	1
14.1.2	Total capacity	[m3/h]	8000
14.2	Time taken from Fully Inert Condition to Fully Breathable Air	[h]	6

2.15 CHANGING CARGO GRADES

The table below show the number of hours needed to change grades from the removal of unumpables to tanks fit to load. The quantity of inert gas consumed during the operation is also indicated.

B15	CHANGING CARGO GRADES	UNIT	CLIPPER HARALD	
15.1	From propane to:		[h]	[m3]
15.1.1	Iso-butane	[COL]	100	15000
15.1.2	Ammonia	[COL]	110	25000
15.2	From Iso-butane to:		[h]	[m3]
15.2.1	Propane	[COL]	90	15000
15.2.2	Ammonia	[COL]	100	25000
15.3	From ammonia to:		[h]	[m3]
15.3.1	Propane	[COL]	96	20000
15.3.2	Iso-butane	[COL]	106	20000

2.16 DECK TANK CAPACITIES

B16	DECK TANK CAPACITIES	UNIT	CLIPPER HARALD
16.1	Deck tank	[Yes/No]	NO
16.2	Deck tank capacities		N/A
16.2.1	1 Propane	[ton]	N/A
16.2.2	2 Ammonia	[ton]	N/A
16.2.3	3 Ethylene	[ton]	N/A
16.3	Maximum Allowable Relief Valve Setting	[bar g]	N/A
16.4	Lowest Permissible Temperature	[°C]	N/A
16.5	Materials	[Text]	N/A

2.17 PRE-LOADING CONDITIONS

The table below indicates 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.

B17	PRE-LOADING CONDITIONS	UNIT	CLIPPER HARALD		
17.1	Product		Quantity [ton]	VPR [h]	W/O VPR [h]
17.1.1	Propane	[COL]	125	12	16
17.1.2	Butane	[COL]	125	8	12
17.1.3	Butadiene	[COL]	110	12	16
17.1.4	Propylene	[COL]	80	10	14
17.1.5	Ammonia	[COL]			
17.1.6	VCM	[COL]			

2.18 VAPORISER

B18	VAPORISER	UNIT	CLIPPER HARALD
18.1	Type of Vaporizer	[Text]	Shell and plate
18.2	Number Fitted	[Pcs]	1
18.3	Capacity (per unit) – Propane	[Nm3/h]	5191
18.3.1	Liquid Supply rate	[m3/h]	16.5
18.3.2	Delivery temperature	[°C]	20
18.4	Capacity (per unit) – Ammonia	[Nm3/h]	4776
18.4.1	Liquid Supply rate	[m3/h]	7
18.4.2	Delivery temperature	[°C]	20
18.5		[Nm3/h]	

18.5.1		[m3/h]	
18.5.2		[°C]	

2.19 BLOWER

B19	BLOWER	UNIT	CLIPPER HARALD
19.1	Type of Blower	[Text]	Centrifugal
19.2	Number fitted	[Pcs]	1
19.3	Rated Capacity (per unit)	[Nm3/h]	8000
19.4	Delivery Pressure	[Bar]	0.26

2.20 CARGO RE-HEATER

Cargo re-heater capacities are given in the appendix.

B20	CARGO RE-HEATER	UNIT	CLIPPER HARALD
20.1	Type of re-heater	[Text]	Shell/tube
20.2	Number Fitted	[Pcs]	1
20.3	Heating Medium	[Medium]	Seawater
20.4	Discharge rates, SW = 15[°C], to raise product temperature:		
20.4.1	Propane from -42[°C] to 0[°C]	[ton/h]	180
20.4.2	Ammonia from -33[°C] to 0[°C]	[ton/h]	125
20.5	Cargo Heater Curve:	[Yes/No]	

2.21 HYDRATE CONTROL

B21	HYDRATE CONTROL	UNIT	CLIPPER HARALD
21.1	Type of Depressant	[Medium]	Other
21.2	Depressant Freezing Point Temperature	[°C]	-114
21.3	Max capacity of depressant	[Liter]	400
21.4	Means of Injection	[Text]	Hand pump
21.5	Any other system used	[Text]	Hot gas

2.22 CARGO MEASUREMENT

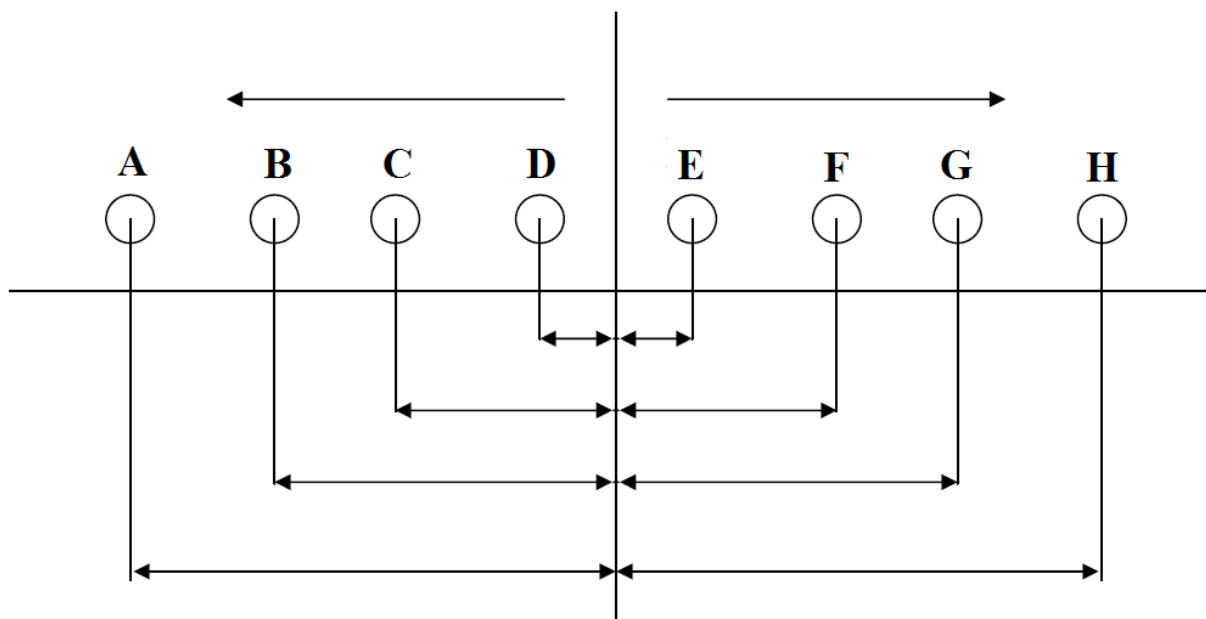
B22	CARGO MEASUREMENT	UNIT	CLIPPER HARALD
22.1	Level Gauges		
22.1.1	Are level gauges Local or Remote	[Text]	Local
22.1.2	Manufacturer	[Text]	Enraf B.V Delft
22.1.3	Type	[Text]	Float
22.1.4	Rated Accuracy	[-]	± 2 mm
22.1.5	Certifying Authority	[Text]	DNV
22.2	Temperature Transmitter		
22.2.1	Manufacturer	[Text]	Labom
22.2.2	Type	[Text]	Bimetal
22.2.3	Rated Accuracy	[-]	+/- 0,78 deg C
22.2.4	Certifying Authority	[Text]	DNV
22.3	Pressure Transmitter		
22.3.1	Manufacturer	[Text]	Labom
22.3.2	Type	[Text]	Bimetal
22.3.3	Rated Accuracy	[-]	+/- 0,01 bar

22.3.4	Certifying Authority	[Text]	DNV
22.4	Oxygen Analyzer		
22.4.1	Manufacturer	[Text]	Teledyne
22.4.2	Type	[Text]	311 PC
22.4.3	Lowest Level Measurable		0.001
22.5	Fixed Gas Analyzer		
22.5.1	Manufacturer	[Text]	Moss
22.5.2	Type	[Text]	LFG 7
22.6	Cargo Tank Calibration Tables		
22.6.1	Are Cargo Tank Calibration tables available	[Yes/No]	YES
22.6.2	Measuring Company	[Text]	BSH Germany
22.6.3	Certifying Authority	[Text]	NKKK
22.6.4	Calibration calculated tocm ½ cm.....	[Yes/No]	YES (mm)
22.6.5	Tables established tocmcm.....mm	[Yes/No]	YES (mm)
22.6.6	Trim and List corrections Available	[YES/NO]	YES
22.6.7	Temperature Corrections available	[YES/NO]	YES
22.6.8	Float Gauge Tape Corrections Available	[YES/NO]	YES

2.23 CARGO SAMPLING

B23	CARGO SAMPLING	UNIT	CLIPPER HARALD			
23.1	Cargo tank sample level	[Tank]	1	2	3	4
23.1.1	Top	[Yes/No]	Yes	Yes	Yes	
23.1.2	Middle	[Yes/No]	Yes	Yes	Yes	
23.1.3	Bottom	[Yes/No]	Yes	Yes	Yes	
23.2	Can sample be drawn from?					
23.2.1	Tank Vapor Outlet	[Yes/No]	YES			
23.2.2	Manifold Liquid Line	[Yes/No]	YES			
23.2.3	Manifold Vapor Line	[Yes/No]	YES			
23.2.4	Pump Discharge Line	[Yes/No]	YES			
23.3	State connection					
23.3.1	Type	[Text]	BSP			
23.3.2	Size	[Inch]	0.5			

2.24 CARGO MANIFOLD



B24	CARGO MANIFOLD	UNIT	CLIPPER HARALD			
24.1	Distance from center of manifold to:					
24.1.1	Stern	[m]	77			
24.1.2	Bow	[m]	69.4			
24.1.3	A	[mm]				
24.1.4	B	[mm]				
24.1.5	C	[mm]	2250			
24.1.6	D	[mm]	750			
24.1.7	E	[mm]	750			
24.1.8	F	[mm]	2250			
24.1.9	G	[mm]				
24.1.10	H	[mm]				
24.2	Flange		Duty [Bar]	ASA	Size ["]	[R]aised/[F]lat
24.2.1	A	[COL]	Fuel Oil	150	6	F
24.2.2	B	[COL]	Diesel Oil	150	3	F
24.2.3	C	[COL]	Cargo Liquid	300	10	R
24.2.4	D	[COL]	Cargo Vapour	300	6	R
24.2.5	E	[COL]	Cargo Vapour	300	4	R
24.2.6	F	[COL]	Cargo Liquid	300	6	R
24.2.7	G	[COL]				
24.2.8	H	[COL]				
24.3	Height above uppermost continuous deck	[mm]	2200			
24.4	Distance from ship side	[mm]	2850			
24.5	Height above load waterline	[mm]	6300			
24.6	Height above light waterline	[mm]				

2.25 CARGO REDUCERS

B25	CARGO REDUCERS	CLIPPER HARALD
25.0	ANSI 300	ANSI 300 -150
25.1	10" - 12"	10" - 12"
25.2	10" - 8"	10" - 10"
25.3	10" - 6"	10" - 8"
25.4	6" - 12"	10" - 6"
25.5	6" - 10"	6" - 12"
25.6	6" - 8"	6" - 10"
25.7	6" - 5"	6" - 8"
25.8		
25.9		
25.0	ANSI 150	FUEL
25.1	6" - 6"	
25.2	6" - 4"	
25.3	6" - 3"	
25.4	4" - 6"	
25.5	4" - 4"	
25.6	4" - 3"	
25.7		
25.8		
25.9		

2.26 CONNECTION TO SHORE FOR ESD/COM SYSTEMS

B26	CONNECTIONS TO SHORE FOR ESD AND COM. SYSTEMS	UNIT	CLIPPER HARALD
26.1	Is ESD connection to Shore available?	[Yes/No]	YES
26.1.1	System	[Text]	Electric
26.1.2	Type of plug	[Text]	SIGGTO
26.3	Is Hose or cables Available on Board	[Yes/No]	YES
26.3.1	Specify Length	[m]	30
26.3.2	Specify type	[Text]	Cable

2.27 MANIFOLD DERRICK/CRANE

B27	MANIFOLD DERRICK/CRANE	UNIT	CLIPPER HARALD
27.1	Is Manifold Derrick Provided?	[Yes/No]	NO
27.2	Is Manifold Crane Provided?	[Yes/No]	YES
27.3	Is Lifting equipment Same P&SB?	[Yes/No]	YES
27.3.1	If NO, give details	[Text]	
27.3.2	Maximum outreach	[m]	6.75
27.3.3	Capacity at max. Outreach	[ton]	5

2.28 STORES HANDLING

B28	STORES HANDLING	UNIT	CLIPPER HARALD
28.1	Number of cranes	[Pcs]	1
28.1.1	Location(s)	[Text]	Aft STB

3. SECTION C – Machinery

3.1 NOX FACTOR TIER II

C1.1	NOx factor	UNIT	CLIPPER HARALD
1.1.1.0	Main engine		Tier II
1.1.1.1	Power	[kW]	7987
1.1.1.2	RPM	[RPM]	148
1.1.1.3	NOx limit	[g/kWh]	16.6
1.1.1.4	NOx factor	[g/kWh]	4
1.1.1.5	EIAPP	[Ref]	TBC
1.1.1.6	Issued	[Date]	TBC
1.1.2.0	Auxiliary engine 1		Tier II
1.1.2.1	Power	[kW]	1054
1.1.2.2	RPM	[RPM]	720
1.1.2.3	NOx limit	[g/kWh]	12.1
1.1.2.4	NOx factor	[g/kWh]	12.1
1.1.2.5	EIAPP	[Ref]	N/A
1.1.2.6	Issued	[Date]	N/A
1.1.3.0	Auxiliary engine 2		Tier II
1.1.3.1	Power	[kW]	1054
1.1.3.2	RPM	[RPM]	720
1.1.3.3	NOx limit	[g/kWh]	12.1
1.1.3.4	NOx factor	[g/kWh]	12.1
1.1.3.5	EIAPP	[Ref]	N/A
1.1.3.6	Issued	[Date]	N/A
1.1.4.0	Auxiliary engine 3		Tier II
1.1.4.1	Power	[kW]	1054
1.1.4.2	RPM	[RPM]	720
1.1.4.3	NOx limit	[g/kWh]	12.1
1.1.4.4	NOx factor	[g/kWh]	12.1
1.1.4.5	EIAPP	[Ref]	N/A
1.1.4.6	Issued	[Date]	N/A
1.1.5.0	Auxiliary engine 4		Tier II
1.1.5.1	Power	[kW]	
1.1.5.2	RPM	[RPM]	
1.1.5.3	NOx limit	[g/kWh]	
1.1.5.4	NOx factor	[g/kWh]	
1.1.5.5	EIAPP	[Ref]	
1.1.5.6	Issued	[Date]	

3.2 NOX FACTOR TIER III

C1.2	NOx factor	UNIT	CLIPPER HARALD
1.2.1.0	Main engine		Tier III
1.2.1.1	Power	[kW]	0
1.2.1.2	RPM	[RPM]	0
1.2.1.3	NOx limit	[g/kWh]	0
1.2.1.4	NOx factor	[g/kWh]	0
1.2.1.5	EIAPP	[Ref]	0
1.2.1.6	Issued	[Date]	00.01.1900
1.2.2.0	Auxiliary engine 1		Tier III
1.2.2.1	Power	[kW]	0
1.2.2.2	RPM	[RPM]	0
1.2.2.3	NOx limit	[g/kWh]	0
1.2.2.4	NOx factor	[g/kWh]	0
1.2.2.5	EIAPP	[Ref]	0
1.2.2.6	Issued	[Date]	00.01.1900
1.2.3.0	Auxiliary engine 2		Tier III
1.2.3.1	Power	[kW]	0
1.2.3.2	RPM	[RPM]	0
1.2.3.3	NOx limit	[g/kWh]	0
1.2.3.4	NOx factor	[g/kWh]	0
1.2.3.5	EIAPP	[Ref]	0
1.2.3.6	Issued	[Date]	00.01.1900
1.2.4.0	Auxiliary engine 3		Tier III
1.2.4.1	Power	[kW]	0
1.2.4.2	RPM	[RPM]	0
1.2.4.3	NOx limit	[g/kWh]	0
1.2.4.4	NOx factor	[g/kWh]	0
1.2.4.5	EIAPP	[Ref]	0
1.2.4.6	Issued	[Date]	00.01.1900
1.2.5.0	Auxiliary engine 4		Tier III
1.2.5.1	Power	[kW]	
1.2.5.2	RPM	[RPM]	
1.2.5.3	NOx limit	[g/kWh]	
1.2.5.4	NOx factor	[g/kWh]	
1.2.5.5	EIAPP	[Ref]	
1.2.5.6	Issued	[Date]	

3.3 EGCS/SCRUBBER

C2	EGCS/SCRUBBER	UNIT	CLIPPER HARALD
2.1.0	Main engine		
2.1.1	Scrubber installed	[Yes/No]	YES
2.1.2	Maker	[Text]	Wärtsila
2.1.3	Type	[Text]	Open-loop
2.1.4	VGP compliant	[Yes/No]	YES
2.2.0	Auxiliary engines		
2.2.1	Scrubber installed	[Yes/No]	YES
2.2.2	Maker	[Text]	Wärtsila
2.2.3	Type	[Text]	Open-loop
2.2.4	VGP compliant	[Yes/No]	YES
2.3.0	Tank capacity closed loop		
2.3.1	NaOH tank	[Days]	0
2.3.2	NaOH tank	[m³]	0
2.3.3	Sludge tank	[Days]	0
2.3.4	Sludge tank	[m³]	0
2.3.5	Scrubbing water holding tank	[Days]	0
2.3.6	Scrubbing water holding tank	[m³]	0

3.4 HEAT RECOVERY

C3	HEAT RECOVERY	UNIT	CLIPPER HARALD
3.1.0	Main engine		
3.1.1	Economizer installed	[Yes/No]	YES
3.1.2	Type	[Text]	PWT 500 V28
3.1.3	Capacity	[kW]	500
3.1.4	Auxiliary engines		
3.1.5	Economizer installed	[Yes/No]	YES (AE2&3)
3.1.6	Type	[Text]	PWT AWE 300 VH
3.1.7	Capacity	[kW]	300

3.5 OTHER RELEVANT TECHNICAL INFORMATION

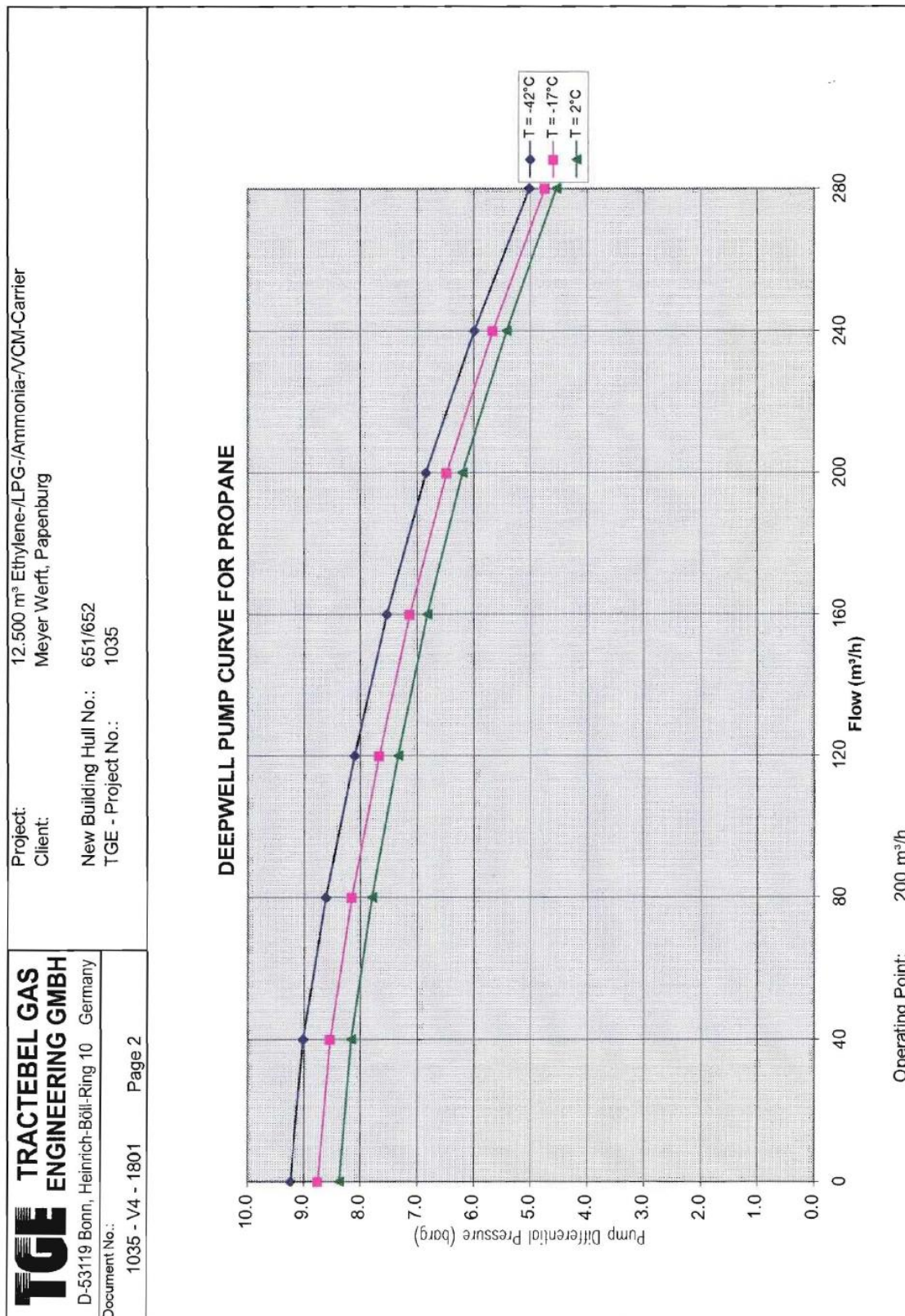
C4	OTHER RELEVANT TECHNICAL INFORMATION	UNIT	CLIPPER HARALD
4.0	Rudder type	[Text]	Becker rudder
4.0.1	Number of rudders	[Pcs]	1
4.1	Type of propeller	[Text]	CPP
4.1.1	Blades	[Pcs]	4
4.2	Mewis Duct	[Yes/No]	NO
4.3	Ballast Water Treatment System	[Yes/No]	0
4.3.1	Type	[Text]	0
4.4	Oily Water Separator	[Yes/No]	YES
4.4.1	Type	[Text]	DVZ 5000 VC "OilMaster"
4.4.2	Concentration	[ppm]	15

3.6 ENVIRONMENTAL/PERFORMANCE TECHNOLOGIES INSTALLED

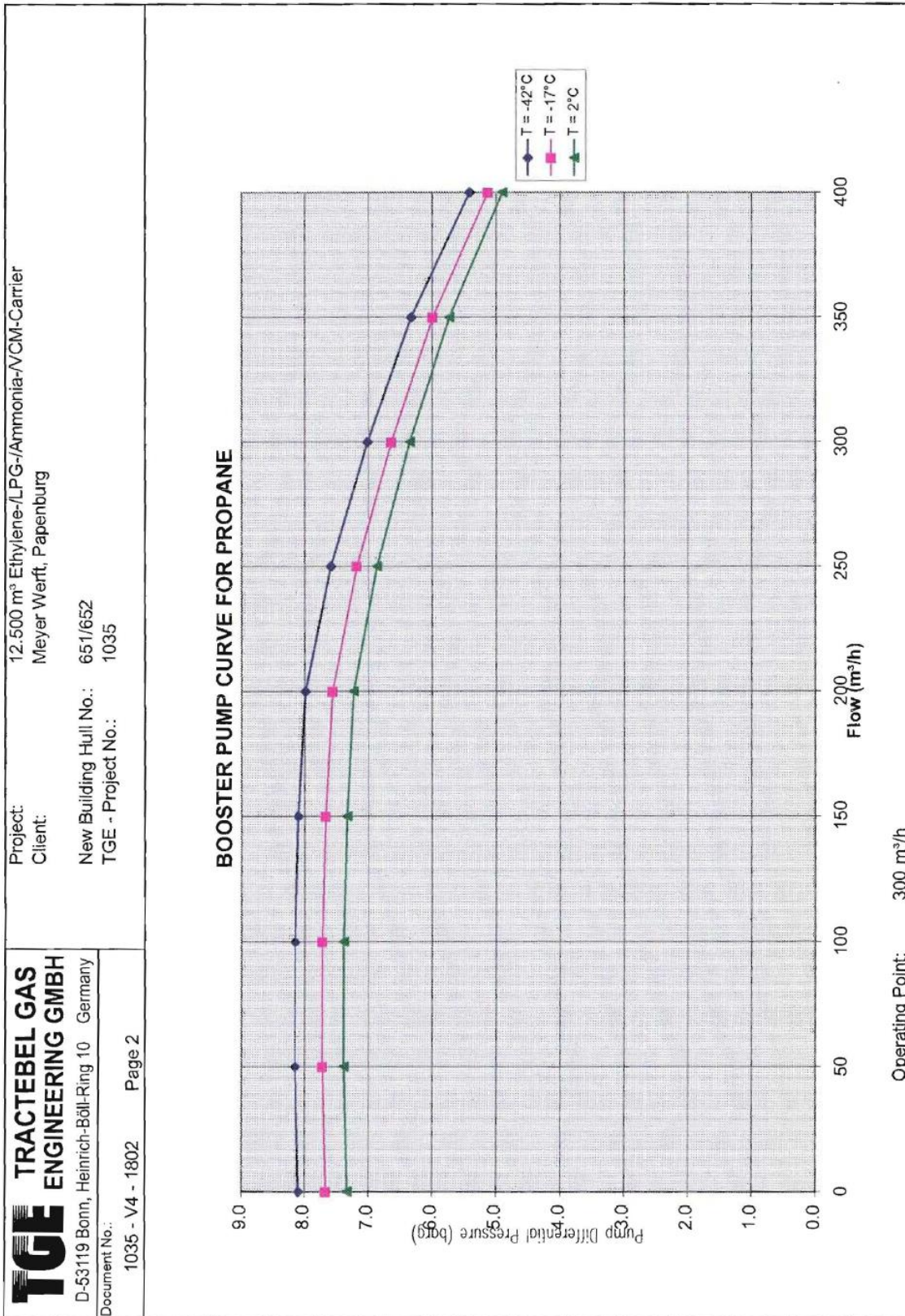
CODE	C5 ENVIRONMENTAL/PERFORMANCE TECHNOLOGIES INSTALLED	UNIT	CLIPPER HARALD
5.0	EEDI (Energy Efficiency Design Index)	[-]	15.19
5.1	ESI (Environmental Ship Index)	[-]	62.17
5.2	Electronic Vessel Performance Monitoring	[Yes/No]	0
5.3	Selective Catalytic Reduction	[Yes/No]	0
5.3.1	Urea Storage Tank Capacity	[Days]	0
5.3.2	Urea Storage Tank Capacity	[m ³]	0
5.4	Trim optimization tests	[Yes/No]	0
5.5	Antifouling	[Text]	HIGH-END

4. APPENDIX/DRAWINGS

4.1 CARGO PUMPS, PROPANE



4.2 BOOSTER PUMPS, PROPANE



4.3 RE-HEATER CAPACITY, AMMONIA

4.4 RE-HEATER CAPACITY, PROPANE

4.5 MOORING DIAGRAM

The diagram below illustrates 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)

