

GAS FORM-C
based on the
OCIMF / SIGTTO
SHIP INFORMATION QUESTIONNAIRE
for
GAS CARRIERS
2nd Edition 1998

GTS

Specifications of the vessel and the gas installations are believed
to be correct, but not guaranteed.

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**SECTION A
GENERAL INFORMATION**

A1 PRINCIPAL SHIP PARTICULARS

1,1	Date questionnaire completed		1-Apr-2017
1,2	Name of vessel	JS INEOS INVENTION	
1,3	LR/IMO number	9771511	
1,4	Last previous name		
1.4.1	Date of name change		
1,5	Second last previous name		
1.5.1	Date of name change		
1,6	Third last previous name		
1.6.1	Date of name change		
1,7	Fourth last previous name		
1.7.1	Date of name change		
1,8	Flag	Malta	
1,9	Port of Registry	Valletta	
1.10	Official number	9771511	
1,11	Call sign	9HA4281	
1,12	INMARSAT A or B number	FBB	870 773 936 918
1,13	Vessel's telephone number	VSAT	47 2240 7580 / Norway
		VSAT	47 2240 7581 / Norway
1.13.1	Vessel's mobile number		
1,14	Vessel's fax number	870 773 936 918	
1,15	Vessel's telex number	424 955 114	424 955 115
1,16	Vessel's E-mail address	js.invention@skyfile.com	
1,17	INMARSAT C number	424 955 114	424 955 115
1,18	Vessel's MMSI number	249 551 000	
1,19	Type of vessel	Liquefied Gas Carrier	

OWNERSHIP AND OPERATION

1.20	Registered Owner	SNC Jaspe 3	
	Full address	18 Quai de la Rapee, 75012	
		Paris	
		France	
	Office telephone number	+86 21 5355 9858	
	Office telex number	N/A	
	Office fax number	+86 21 6278 3326	
	Office Email address	fleet@greenshipgas.com	
	Contact person	Mihir Navakar	
	Contact person after hours telephone number	+33 158 470 346	
1.21	Name of technical operator (If different from above)	Evergas Ship Management Pte Ltd	
	Full Address	16 Raffles Quay, #43-01	
		Hong Leong Building	
		Singapore 048581	
	Office telephone number	+65 6220 7291	
	Office telex number	N/A	
	Office fax number	N/A	
	Office Email address	fleet@evergas.net	
	Contact person (Designated Person Ashore)	Rajneesh Rana	
	Contact person after hours telephone number	+65 911 33759	
	Emergency callout number	+65 818 88482	
	Emergency callout pager number	N/A	
	Contact details for person responsible for oil spill response	Rajneesh Rana	
	Number of years controlled by technical operator	0	

1.22	Total number of ships operated by this Operator	15
1.23	Number of years ship owned	0
1.23.1	Name of commercial operator (If different from above)	Evergas Management A/S
	Full Address	Kalvebod Brygge 39-41 1560 Copenhagen Denmark
	Office telephone number	+45 3997 0350
	Office telex number	N/A
	Office fax number	N/A
	Office Email address	operations@evergas.net
	Contact person	Nete Egebjerg
	Contact person after hours telephone number	+45 3038 1156
	Emergency callout number	+ 45 3997 0101
	Emergency callout pager number	N/A
	Number of years controlled by commercial operator	0

BUILDER

1.24	Builder	Jiangsu New Yangzi Shipbuilding Co Ltd, Jingjiang
1.25	Name of yard vessel built at	YZJ
1.26	Hull number (Class ID No.)	YZJ 2015-1182
1.27	Date keel laid	16-Dec-2015
1.28	Date launched	27-Sep-2016
1.29	Date delivered	31-Mar-2017
1.30	Date of completion of major hull changes, - if any.	N/A
1.31	If changes were made, what changes were made and at which yard were they carried out	

CLASSIFICATION

1.32	Classification society	Bureau Veritas
1.33	Class Notation	BV I, +HULL, +MACH, Liquefied Gas Carrier, Type 2G - Dualfuel, Unrestricted Navigation, CPS (WBT), +VeriSTAR - HULL DFL 25 Years, +AUT-UMS, +SYS-NEQ, MON-SHAFT, GREEN PASSPORT, CLEANSHIP, INWATERSURVEY
1.34	If Classification society changed, name of previous society	N/A
1.35	If Classification society changed, date of change	
1.36	Was ship built in accordance with the following regulations:	
	IMO	Yes
	US COAST GUARD	Yes
	IACS Class	Yes
	Other: _____	
1.37	IMO certification	
	Certificate of fitness - IGC	Yes
	Certificate - A328	
	Certificate - A329	
	Letter of Compliance	
	Issued by	
1.38	Unattended Machinery Space Certificate	
1.39	Net Registered Tonnage	6.866
1.40	Gross Registered Tonnage	22.887
1.41	Suez Net Tonnage - Canal Tonnage	24966,94
	Suez Gross Tonnage	21589,49
1.42	Panama Net Tonnage - Canal Tonnage	19070
	Panama Gross Tonnage	N/A

A2 HULL DIMENSIONS

2.1	Length overall (LOA)	180,3
2.2	Length between perpendiculars (LBP)	170,8
2.3	Distance bow to bridge	142,40
2.4	Distance bridge front - mid point manifold	46,40
2.5	Distance bow to mid-point manifold	92,0
2.6	Extreme breadth	26,60
2.7	Extreme depth	14,80
2.8	Summer draught (design / Scantling)	9,40
2.9	Corresponding Summer deadweight	20737,9
2.10	Light displacement	11350,0
2.11	Loaded displacement (Summer deadweight)	32087,9
2.12	Cargo tanks cubic capacity - 100%	27.554,0
2.12.1	Deck tank(s) cubic capacity - 100%	2000,68
2.12.2	Cargo tanks cubic capacity - 98%	27.002,9
2.12.3	Deck tank(s) cubic capacity - 98%	1960,7
2.13	Distance from keel to highest point	46,50
2.14	Air draught (normal ballast condition)	38,36

A3 IMMERSION

- 3.1 TPC - in normal ballast condition
 TPC - in loaded condition (summer deadweight)

Tonnes / cm @ metres draught

37,00	6,50
41,90	9,40

A4 LOADED PARTICULARS

4.1	Cargo grade	Methane	Butadiene
4.2	Density	0,42	0,65
4.3	Cargo loadable	11341	17552
4.4	Bunkers - FO / Metane or Ethane	1316.8 / 823	1316.8 / 1068
4.5	Bunkers - DO	232	232
4.6	Fresh water	304	304
4.7	Stores & spares	60	60
4.8	Lub oil	109,4	109,4
4.9	Ballast	1377	205,6
4.10	Deadweight	15563	20848
4.11	Draught - forward	7,50	9,23
	Draught - aft	8,67	9,56
	Draught - mean	8,08	9,39

Cargo grade	Ethylene	Ethane
Density	0,568	0,545
Cargo loadable	15346	14717
Bunkers - FO / Ethane	1316.8 / 1068	1316.8 / 1068
Bunkers - DO	232	232
Fresh water	304	304
Stores & spares	60	60
Lub oil	109,4	109,4
Ballast	701,4	701,4
Deadweight	19130	18509
Draught - forward	8,87	8,39
Draught - aft	9,13	9,24
Draught - mean	9,00	8,81

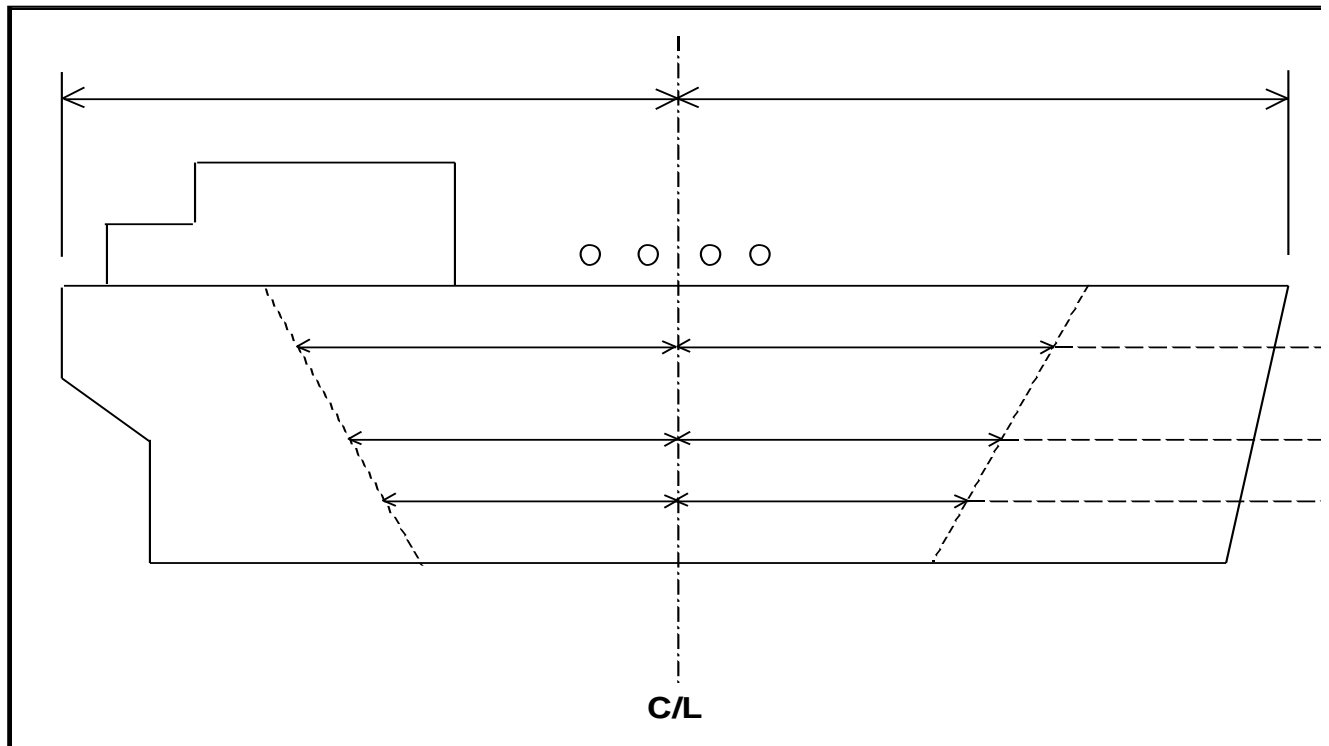
Cargo grade
 Density
 Cargo loadable
 Bunkers - FO / Ethane
 Bunkers - DO
 Fresh water
 Stores & spares
 Lub oil
 Ballast
 Deadweight
 Draught - forward
 Draught - aft
 Draught - mean

Propane	Butane
0,583	0,602
15743	16265
1316.8 / 1068	1316.8 / 1068
232	232
304	304
60	60
109,4	109,4
701,4	701,4
19535	20048
8,78	8,98
9,36	9,42
9,07	9,2

Cargo grade
 Density
 Cargo loadable
 Bunkers - FO / Ethane or Methane
 Bunkers - DO
 Fresh water
 Stores & spares
 Lub oil
 Ballast
 Deadweight
 Draught - forward
 Draught - aft
 Draught - mean

Propylene	Ballast
0,609	
16445	
1316.8 / 1068	1316.8 / 823
232	239,4
304	304
60	60
109,4	109,4
701,4	6726,4
20237	9579
9,05	4,88
9,44	8,14
9,25	6,51

A5 PARALLEL MID-BODY DIMENSIONS



- 5.1 Light ship
- 5.2 Forward to mid-point manifold - light ship
- 5.3 Aft to mid-point manifold - light ship
- 5.4 Normal ballast
- 5.5 Forward to mid-point manifold - normal ballast
- 5.6 Aft to mid-point manifold - normal ballast
- 5.7 Loaded SDWT
- 5.8 Forward to mid-point manifold - loaded SDWT
- 5.9 Aft to mid-point manifold - loaded SDWT

47,9
24,0
23,9
60,9
30,7
30,3
83,2
40,0
43,2

A6 BUNKER CAPACITIES

- Main engine
- Auxiliary engine
- Other:

Grade	Capacity @ 98%
HFO	1237
MDO	400,7
LNG / Ethane	1983,4

A7 FUEL CONSUMPTION DETAILS

- 7.1 At sea - normal service speed
SG engaged
- 7.2 At sea - normal service speed - while conditioning cargo
full cooling
- 7.3 In port - loading
- 7.4 In port - discharging
- 7.5 In port - idle

Grade	
HFO	
Diesel oil	
Gas oil	
HFO	
Diesel oil	
Gas oil	
LNG	
Diesel oil	
Gas oil	
LNG	
Diesel oil	
Gas oil	
LNG	
Diesel oil	
Gas oil	

A7 SPEED/CONSUMPTION

Copies of the vessel's Speed and Consumption Graph for both Laden and Ballast conditions are enclosed?

NO

A8 MAIN ENGINE PARTICULARS

8.1	Main engine make and type	Wartsila	
		Type 6L50DF Tire II - 2 Sets	
8.2	Number of units	2	
8.3	Maximum continuous rating (MRC) per engine	5850	
8.4	Total available power - Kwe	7.000	
8.5	Normal service power - Kwe at 75% SMCR	5.250	

A9 AUXILIARY PLANTS

9.1	Make and type of auxiliary generators / engines	Wartsila	
		6L20 DF	
9.2	Number of units	2	
9.3	Maximum generator output per unit	RPM	Kilowatts
	Unit no. 1	1200	1056
	Unit no. 2	1200	1056
	Unit no. 3		
9.4	Shaft generator		2 x 1875
9.5	Total available power		3750
9.6	Emergency generator	1800	150
9.7	Emergency fire pump - type	Motor driven Vertical Centrifugal	
	Delivery pressure		8
	Motive power		Electrical
	If electrical, - indicate power required		43
9.8	Steering gear - type	Rolls-Royce RV850-R	
	Indicate power required to steer the vessel with one pump unit		34

A10 POWER/SPEED INFORMATION

10.1	Trial data	BHP	5412
		MRC	5250
		Speed	15,94
		Draught	9,4
10.2	Normal service speed (LOADED / BALLAST)	BHP	
		MRC	
		Speed	16
		Draught	9,4

A11 THRUSTERS

11.1	Make and type	N/A	
11.2	Bow thruster	(output)	N/A
11.3	Stern thruster	(output)	N/A

A12 FRESH WATER

12.1	Capacity of distilled tanks	49,7	
12.2	Capacity of domestic tanks	254,5	
12.3	Daily consumption	Distilled	
		Domestic	
12.4	Daily evaporator capacity		

A13 BALLAST CAPACITIES AND PUMPS

Tank	Capacity (m3)	Number
13.1 Fore peak	286,1	FPT
13.2 Wing and or side tanks	1928,6	1-4 P+S
13.3 Double bottom tanks	5469	1-6 P+S
13.4 Aft peak	821,4	APT
13.5 Deep tank	N/A	N/A
13.6 Total	8505	

- 13.7 Ballast pump make and type
- 13.8 Number of pumps
- 13.9 Total capacity
- 13.10 Location
- 13.11 Control location
- 13.13 Ballast Water Treatment Plant

Allweiler / Centrifugal Pump	
	2
	700
Engine Room	
ECR, CCR, Bridge	
GloEn - P700 - 1 Set	

A14 MOORING EQUIPMENT

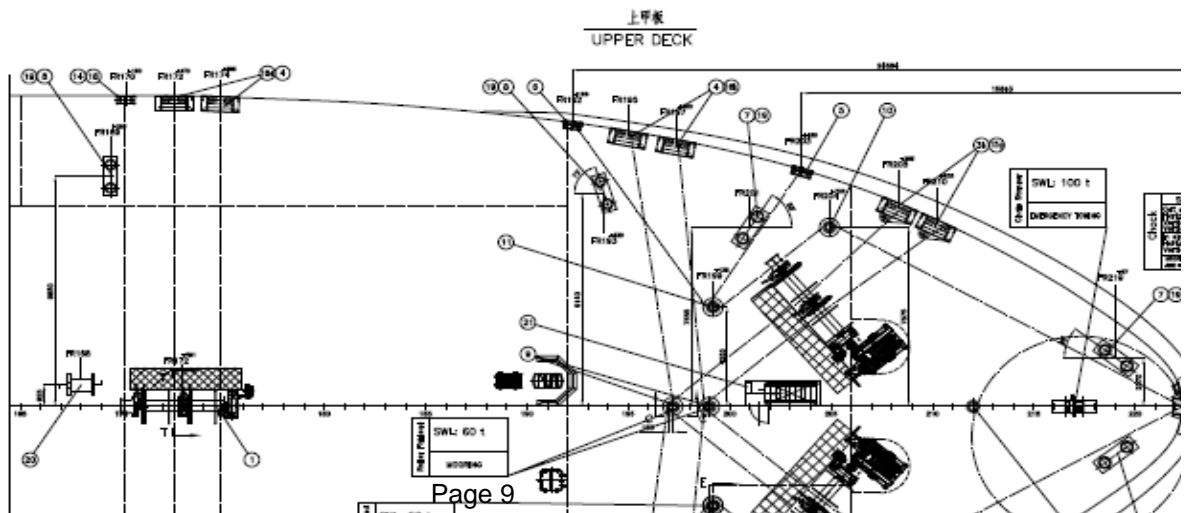
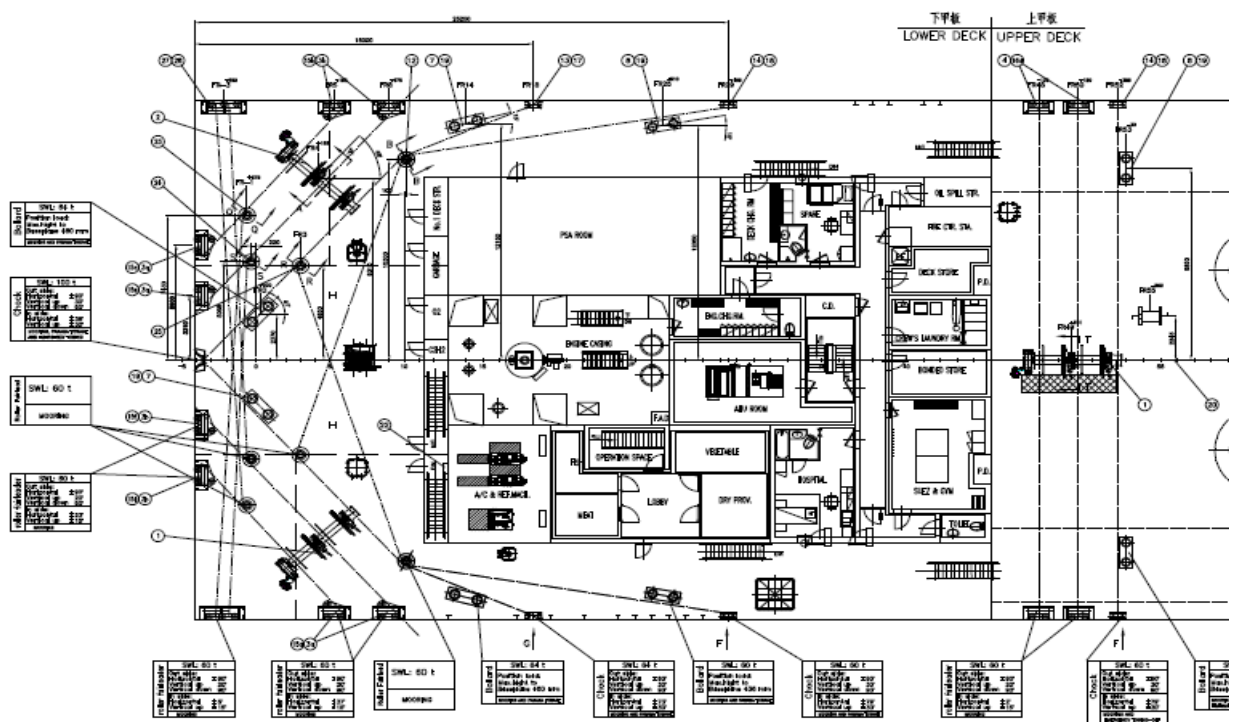
14.1 ROPES

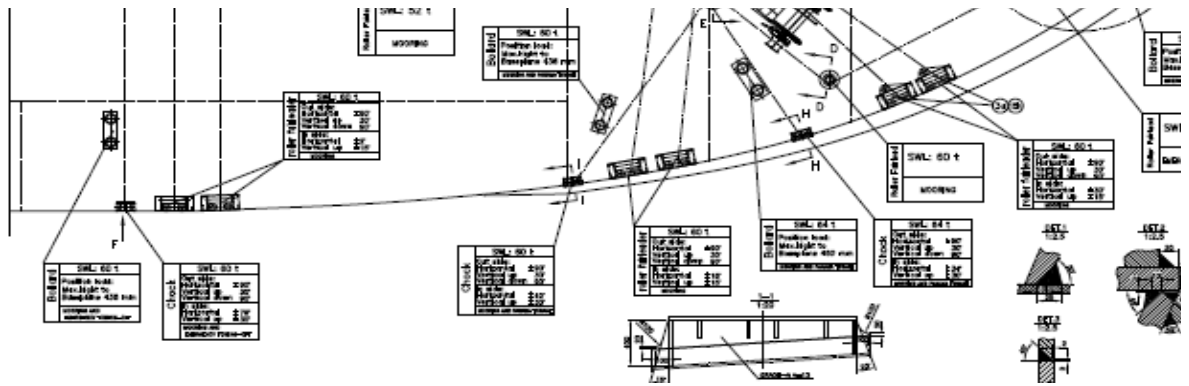
Indicate on the diagram below the position of:

- Winch Mounted Ropes (R)
- Open Fairleads (O)
- Closed Fairleads (C)

Alternatively enclosed copy of vessel's Mooring arrangements in A4 format.

NO





MOORING ROPES (ON DRUMS)

Mooring Ropes (On Drums) Forecastle - Number

Diameter

Material

Length

Breaking Strength

Mooring Ropes (On Drums) Forward Main Deck -

Number

Diameter

Material

Length

Breaking Strength

	4
	64
	Polyester & Propylene Mix
	220
	58,7
	2
	64
	Polyester & Propylene Mix
	220
	58,7

Mooring Ropes (On Drums) Aft Main Deck - Number	2
Diameter	64
Material	Polyester & Propylene Mix
Length	220
Breaking Strength	58,7
Mooring Ropes (On Drums) Poop - Number	4
Diameter	64
Material	Polyester & Propylene Mix
Length	220
Breaking Strength	58,7

OTHER MOORING LINES

Mooring Ropes not on Drums - Number	2
Diameter	64
Material	Polyester & Propylene Mix
Length	220
Breaking Strength	58,7
Emergency Towing Wires / Fire Wires - Number	2
Diameter	32
Material	Steel Wire
Length	45
Breaking Strength	

14,2

MOORING WINCHES

Forecastle - Number	2
Single Drum or Double Drums	Double
Split Drums Y/N	Y
Motive Power	Hydraulic
Heaving Power	150
Brake Capacity	461
Hauling Speed	15
	45
Forward Main Deck - Number	1
Single Drum or Double Drums	Double
Split Drums Y/N	Y
Motive Power	Hydraulic
Heaving Power	150
Brake Capacity	461
Hauling Speed	15
	45
Aft Main Deck - Number	1
Single Drum or Double Drums	Double
Split Drums Y/N	Y
Motive Power	Hydraulic
Heaving Power	150
Brake Capacity	461
Hauling Speed	15
	45
Poop - Number	2
Single Drum or Double Drums	Double
Split Drums Y/N	Y
Motive Power	Hydraulic
Heaving Power	150
Brake Capacity	461
Hauling Speed	15
	45

14.3

ANCHORS AND WINDLASS

Windlass motive power(e.g. steam, hydraulic)	Hydraulic
Hauling power, nominal	220
Hauling power, max	329
Brake holding power	1575
Anchor type	HY-14 SB HPP

	Is spare anchor carried		No
	Cable diameter		68
	Number of shackles port cable		11
	Number of shackles starboard cable		11
14.4	TOWING ARRANGEMENTS		
	Is the vessel fitted with a Towing Bracket Aft?		Yes
		If Yes, state SWL	100
	Is Towing chain provided		Yes
	Dimensions of Towing wire	Diameter	65
		Length	100
14.5	WINDAGE		
	Windage on ballast draught	Front	
		End-on	
		Lateral	2205
A15 NAVIGATIONAL EQUIPMENT			
15.1	Magnetic compass		Yes
15.2	Off Course Alarm - Magnetic compass		Yes
15.3	Gyro compass		Yes
		Number of Units	1
15.4	Off Course Alarm - Gyro compass		Yes
15.5	Gyro (Bridge) Repeaters		Yes
		Number of Units	4
15.6	Radar 3cm		Yes
15.7	Radar 10cm		Yes
15.8	Are radars gyro stabilised?		Yes
15.9	Radar plotting equipment		Yes
15.10	ARPA		Yes
15.11	ECDIS		Yes
15.12	Depth sounder with recorder		No
15.13	Depth sounder without recorder		Yes
15.14	Speed/distance indicator		Yes
15.15	Doppler log		Yes
15.16	Docking approach Doppler		No
15.17	Rudder angle indicator		Yes
15.18	Rudder angle indicator on Each Bridge Wing		Yes
15.19	RPM indicator		Yes
15.20	RPM indicator on Each Bridge Wing		No
15.21	Controllable pitch propeller indicator		Yes
15.22	Thruster(s) indicator		N/A
15.23	Rate of turn indicator		No
15.24	Radio direction finder		No
15.25	Navtex receiver		Yes
15.26	GPS		Yes
15.26.1	DGPS		Yes
15.27	Transit SATNAV		No
15.28	Decca navigator		No
15.29	Omega		No
15.30	Loran C		No
15.31	Weather fax		Yes
15.32	Sextant(s)		Yes
15.33	Signal lamp ALDIS		Yes
15.34	Anemometer		Yes
15.35	Engine order recorder		Yes
15.35.1	VDR (Voyage Data Recorder)		Yes
15.36	Course recorder		Yes
15.37	Are steering motor controls and engine controls fitted on bridge wings?		Yes

15.38	Is bridge equipped with a 'Dead-Man' alarm?		Yes
15.39	What chart outfit coverage is provided	World-wide	Yes
		Limited	No
	If limited, - please indicate area(s) covered		
15.40	Formal chart correction system in use		Yes
15.41	Electronic Chart system in use		AVCS

A16 COMMUNICATIONS AND ELECTRONICS

16.2	What GMDSS areas is the vessel classed for? A1 A2 A3 A4		A1+A2+A3
16.3	Transponder (SART)		2
16.4	EPIRB		2
16.5	How many VHF radios are fitted on the bridge?		2
16.6	Is vessel fitted with VHF in the cargo control room (CCR)?		Yes
16.7	Is the CCR connected to the vessel's internal communication system?		Yes
16.8	How many intrinsically safe walkie talkies are provided for cargo handling?		10
16.9	Is vessel fitted with an INMARSAT satellite communications system?		Yes
16.10	Does vessel carry at least three survival craft two-way radio telephones?		Yes
16.11	Inmarsat satellite system		Yes
		Specify system type A, B or C	C
16.12	2182kHz bridge auto alarm		Yes
16.13	Radio telephone distress frequency watch receiver		Yes
16.14	Emergency lifeboat transceiver		Yes
16.15	Can vessel transmit the helicopter homing signal on 410 kHz?		No
16.16	Full set of Radio List publications		Yes

**SECTION B
CARGO SYSTEMS**

B1 CARGO - GENERAL INFORMATION

1.1 List products which the ship is Certified to carry

Cargo	Temp at atm. Press (Celcius)	Density at atm. Press (kg/m3)
Methane	-163	545
Ethylene	-104	568
C-Ethane (0,5 mol% Methane in Liq. Phase)	-89	545
Propylene	-48	609
C-Propane (2,5 mol% Ethane in Liq. Phase)	-45	583
VCM	-14	969
Iso-Butane	-12	594
Butylenes	-7	625
Butadiene	-5	650
N-Butane	0	602
Methyl Chloride		
DME	-25	734
Other Cargoes		
Acetaldehyde	20	778
Dimethyl Amine	7	666
Ethyl Chloride	13	903
Diethyl Ether	35	700
Isoprene (Monomer)	34	666
Isopropyl Amine	32	676
Monoethyl Amine	17	687
Pentanes/Pentenes	36 / 30	605 / 608
Vinyl Ethyl Ether	36	750

Transport and Carriage Conditions

1.2	Minimum allowable tank temperature	-163
1.3	Maximum Permissible tank pressure	4,5
1.4	List Number of grades that can be loaded/discharged simultaneously and completely segregated without risk of contamination?	2
1.5	List the Number of grades that can be carried simultaneously and completely segregated without risk of contamination?	2
1.6	What is the Number of Products that can be conditioned by reliquefaction simultaneously?	2
1.7	State the number of natural segregation's (NB: Separation must be by the removal of spools or the insertion of blanks)	Removal of spools

B2 CARGO TANKS

2.1	Type and materials of cargo tanks	Type C, Bilobe / X7Ni9 Steel
2.2	Maximum allowable relief valve setting	4,5
2.2.1	IMO Setting	4,5
2.2.2	USCG Setting	4,5
2.3	Safety valve set pressure, - if variable stipulate range of pilot valves	4,5
2.4	Maximum allowable vacuum	-0,25
2.5	Maximum cargo density at 15 deg Celsius	992
2.6	Maximum rate of cool-down	10
2.7	State any limitations regarding partially filled tanks	

2.8 State allowable combinations of filled and empty tanks

B3 CARGO TANK CAPACITIES

Tank number / location

Capacity m3 (100%)
 Capacity 98%
 N-Butane capacity
 N-Butane temperature
 C-Propane capacity
 C-Propane temperature
 Butadiene capacity
 Butadiene temperature
 Propylene capacity
 Propylene temperature
 Vinyl Chloride Monomer capacity
 Vinyl Chloride Monomer temperature
 Ethylene capacity
 Ethylene temperature
 Propylene Oxide capacity
 Propylene Oxide temperature
 Ammonia capacity
 Ammonia temperature

CT 1	
	8181,62
	8017,99
	4834
	-0,5
	4681
	-45
	5219
	-4,5
	4890
	-48
	7781
	-13,8
	4561
	-104
	N/A
	N/A
	N/A
	N/A

Tank number / location

Capacity m3 (100%)
 Capacity 98%
 N-Butane capacity
 N-Butane temperature
 C-Propane capacity
 C-Propane temperature
 Butadiene capacity
 Butadiene temperature
 Propylene capacity
 Propylene temperature
 Vinyl Chloride Monomer capacity
 Vinyl Chloride Monomer temperature
 Ethylene capacity
 Ethylene temperature
 Propylene Oxide capacity
 Propylene Oxide temperature
 Ammonia capacity
 Ammonia temperature

CT 2	
	9687,69
	9493,94
	5708
	-0,5
	5528
	-45
	6163
	-4,5
	5774
	-48
	9187
	-13,8
	5385
	-104
	N/A
	N/A
	N/A
	N/A

Tank number / location

Capacity m3 (100%)
 Capacity 98%
 N-Butane capacity
 N-Butane temperature
 C-Propane capacity
 C-Propane temperature
 Butadiene capacity
 Butadiene temperature
 Propylene capacity
 Propylene temperature
 Vinyl Chloride Monomer capacity
 Vinyl Chloride Monomer temperature
 Ethylene capacity
 Ethylene temperature
 Propylene Oxide capacity
 Propylene Oxide temperature
 Ammonia capacity
 Ammonia temperature

CT 3	
	9684,69
	9491,00
	5714
	-0,5
	5534
	-45
	6170
	-4,5
	5781
	-48
	9198
	-13,8
	5391
	-104
	N/A
	N/A
	N/A
	N/A

Deck tank number 1 - capacity (100%)

Capacity 98%
 Propane Capacity
 Butane Capacity
 Propylene capacity
 Ethylene capacity
 Ammonia Capacity

1000,14
980,14
N/A
N/A
N/A
N/A
N/A

Deck tank number 2 - capacity (100%)

Capacity 98%
 Propane Capacity
 Butane Capacity
 Propylene capacity
 Ethylene capacity
 Ammonia Capacity

1000,53
980,52
N/A
N/A
N/A
N/A
N/A

B4 LOADING RATES**4.1 From Refrigerated Storage (Fully Refrigerated at Vessel's Manifold)**

N-Butane - with vapour return
 N-Butane - without vapour return
 C-Propane - with vapour return
 C-Propane - without vapour return
 Butadiene - with vapour return
 Butadiene - without vapour return
 Propylene - with vapour return
 Propylene - without vapour return
 Ethylene - with vapour return
 Ethylene - without vapour return
 Ammonia - with vapour return
 Ammonia - without vapour return
 Vinyl Chloride Monomer - with vapour return
 Vinyl Chloride Monomer - without vapour return
 Propylene Oxide - with vapour return
 Propylene Oxide - without vapour return

1268
1268
1231
1231
1366
1366
1277
1277
1197
1197
N/A
N/A
2027
2027
N/A
N/A

4.8 From Pressure Storage

N-Butane 0 deg C - with vapour return
 0 deg C - without vapour return
 10 deg C - with vapour return
 10 deg C - without vapour return
 20 deg C - with vapour return
 20 deg C - without vapour return

1267
1267
1243
1243
1220
1220

C-Propane minus 30 deg C - with vapour return
 Minus 30 deg C - without vapour return
 Minus 20 deg C - with vapour return
 Minus 20 deg C - without vapour return
 Minus 10 deg C - with vapour return
 Minus 10 deg C - without vapour return
 0 deg C - with vapour return
 0 deg C - without vapour return
 10 deg C - with vapour return
 10 deg C - without vapour return
 20 deg C - with vapour return
 20 deg C - without vapour return

1192
1192
1166
1166
1140
1140
1112
1112
1083
1083
1053
1053

Butadiene 0 deg C - with vapour return	1340
0 deg C - without vapour return	1340
10 deg C - with vapour return	1315
10 deg C - without vapour return	1315
20 deg C - with vapour return	1290
20 deg C - without vapour return	1290

Propylene minus 30 deg C - with vapour return	1231
Minus 30 deg C - without vapour return	1231
Minus 20 deg C - with vapour return	1203
Minus 20 deg C - without vapour return	1203
Minus 10 deg C - with vapour return	1176
Minus 10 deg C - without vapour return	1176
0 deg C - with vapour return	1147
0 deg C - without vapour return	1147
10 deg C - with vapour return	1116
10 deg C - without vapour return	1116
20 deg C - with vapour return	1084
20 deg C - without vapour return	1084

Ethylene minus 100 deg C - with vapour return	1195
Minus 100 deg C - without vapour return	1195
Minus 95 deg C - with vapour return	1180
Minus 95 deg C - without vapour return	1180
Minus 90 deg C - with vapour return	1166
Minus 90 deg C - without vapour return	1166
Minus 85 deg C - with vapour return	1151
Minus 85 deg C - without vapour return	1151

Ammonia minus 20 deg C - with vapour return	N/A
Minus 20 deg C - without vapour return	N/A
Minus 10 deg C - with vapour return	N/A
Minus 10 deg C - without vapour return	N/A
0 deg C - with vapour return	N/A
0 deg C - without vapour return	N/A

VCM minus 10 deg C - with vapour return	2017
Minus 10 deg C - without vapour return	2017
0 deg C - with vapour return	1983
0 deg C - without vapour return	1983
10 deg C - with vapour return	1949
10 deg C - without vapour return	1949
20 deg C - with vapour return	1913
20 deg C - without vapour return	1913

4.14

Special remarks:

B5 DISCHARGING - GENERAL

Cargo Pumps	
5.1 Type of Pumps	Wärtsilä Svanehøj AS DW 200/200-3K+1
5.2 Number of pumps per tank	2
5.3 Rate per Pump	350
5.4 At Delivery Head m/c	120
5.5 Maximum density	992

- Booster Pump**
- 5.6 Type of Booster Pumps
- 5.7 Number of pumps
- 5.8 Rate per Pump
- 5.9 At Delivery Head m/c
- 5.10 Maximum density

Wärtsilä Svanehöj AS NMB 150c	
	2
	500
	120
	690

Copies of pumping curves for cargo and booster pumps are enclosed?

Yes

B6 DISCHARGE PERFORMANCE

Full Cargo Discharge Times per tank (using 2 cargo pumps and 1 booster pump)

18

Fully Refrigerated

- Manifold Back Press 1 kP/cm², with vapour return
- Manifold Back Press 1 kP/cm², without vapour return
- Manifold Back Press 5 kP/cm², with vapour return
- Manifold Back Press 5 kP/cm², without vapour return
- Manifold Back Press 10 kP/cm², with vapour return
- Manifold Back Press 10 kP/cm², without vapour return

14
14
14
14

Pressurised

- Manifold Back Press 1 kP/cm², with vapour return
- Manifold Back Press 1 kP/cm², without vapour return
- Manifold Back Press 5 kP/cm², with vapour return
- Manifold Back Press 5 kP/cm², without vapour return
- Manifold Back Press 10 kP/cm², with vapour return
- Manifold Back Press 10 kP/cm², without vapour return

14
14
14
14

B7 UNPUMPABLES

- 7.1 Tank number / location
- Tank number / location
- Tank number / location
- Tank number / location
- Tank number / location
- Tank number / location
- Tank number / location
- Tank number / location
- Total

1	0,5
2	0,5
3	0,5
	1,5

B8 VAPORISING UNPUMPABLES

- 8.1 Process used
- Time to vaporise liquid unpumpables remaining after full cargo discharge of:

Vaporizing / Hot Gas

- 8.2 Butane
- 8.3 Propane
- 8.4 Butadiene
- 8.5 Propylene
- 8.6 Ethylene
- 8.7 Ammonia
- 8.8 Vinyl Chloride Monomer
- 8.9 Propylene Oxide

4
4
4
4
4
N/A
4
N/A

B9 RELIQUEFACTION PLANT

- 9.1 Plant Design Conditions - air temperature
- 9.3 Plant Design Conditions - sea temperature

45
32

	Plant Type	Wartsila - Hamworthy
9.4	Is the plant two stage/direct? (for warm cargoes)	Yes
9.5	Is the plant three stage/direct? (for propane and propylene)	Yes
9.6	Is the plant simple cascade?	Yes
9.7	Coolant type	R-1270 (propylene)
	Compressors	
9.8	Compressor type	Reciprocating
9.8.1	Compressor makers name	Burckhardt Compression 3K140-3D_1
9.9	Number of compressors	2
9.10	Capacity per unit, 1st / 2nd / 3rd stage (swept volume)	1913 / 1089 / 348
9.11	Are they Oil Free?	Yes

B11 CARGO TEMPERATURE LOWERING CAPABILITY (AT SEA WITH SEA TEMPERATURE +20C)

	Time taken to lower the temperature of:	
11.1	C-Propane from -40 deg C to - 42 deg C*	39
11.2	C-Propane from -30 deg C to - 42 deg C*	190
11.3	C-Propane from -38 deg C to - 42deg C	74
11.4	C-Propane from +20 deg C to -0.50 deg C	N/A
11.5	C-Propane from -5 deg C to -20 deg C*	98
11.6	N-Butane from +5 deg C to-0.5 deg C*	77
11.7	N-Butane from +10 deg C to-0.5 deg C	135
11.8	N-Butane from +10 deg C to -5 deg C	N/A
11.9	Butadiene From +18 deg C to -5 deg C*	224
11.10	Propylene From -40 deg C to -47 deg C*	129
11.11	Ethylene From -99 deg C to -103 deg C	113
11.12	Ammonia From -16 deg C to -33 deg C	N/A
11.13	Vinyl Chloride Monomer From -5 deg C to -13 deg C*	95

*Temperature is changed to make suitable tank and suction pressures.

B12 INERT GAS AND NITROGEN

	Main IG Plant	
12.1	Type of system	N/A
12.2	Capacity	
12.3	Type of fuel used	
12.4	Composition of IG - oxygen	
	Composition of IG - CO2	
	Composition of IG - Nox	
	Composition of IG - N2	
12.5	Lowest dewpoint achievable	
12.6	Used for	
	Nitrogen plant	
12.7	Type of System	Nitrogen Generator, Oxymat Nitromat N X3000
12.8	Purity N2	95,0 %
12.9	Capacity	1650 M3/Hr
	Purity N2	99,5%
	Capacity	1000 M3/Hr
	Purity N2	99,8%

- 12.10 Capacity
12.11 Used for

	630 M3/Hr
Inerting and gas freeing	

Nitrogen

- 12.12 Liquid storage capacity
12.13 Daily boil-off loss
12.14 Maximum supply pressure
12.15 Supply capacity
12.16 Used for

	600
	N/A
	1,0
	N/A
Nitrogen padding	

B13 CARGO TANK INERTING/DE-INERTING

- 13.1 Time taken to inert from fresh air to under 5% O2 at minus 25 degree C?
13.2 Time taken to inert from cargo vapour to fully inert at minus 25 degrees dewpoint when IG density is **less** than product?
Time taken to inert from cargo vapour to fully inert at minus 25 degrees dewpoint when IG density is **greater** than product?

	36
	N/A
	N/A

B14 GAS FREEING TO FRESH AIR

- 14.1 Plant used
14.2 Time taken from fully inert condition to fully breathable fresh air?

Nitrogen Plant	
	28

B15 CHANGING CARGO GRADES

Indicate number of hours needed to change grades from the removal of pumpables to tanks fit to load the estimated quantity of Inert Gas and or Nitrogen consumed during the operation:

	Hours	Inert Gas (Air)
From Propane to Butane	160	83 000 Nm3
From Propane to Butadiene	160	83 000 Nm3
From Propane to Ethylene	160	83 000 Nm3
From Propane to Ammonia	N/A	N/A
From Propane to Vinyl Chloride Monomer	160	83 000 Nm3
From Propane to Propylene Oxide	N/A	N/A
From Butane to Propane	160	83 000 Nm3
From Butane to Butadiene	160	83 000 Nm3
From Butane to Ethylene	160	83 000 Nm3
From Butane to Ammonia	N/A	N/A
From Butane to Vinyl Chloride Monomer	160	83 000 Nm3
From Butane to Propylene Oxide	N/A	N/A
From Butadiene to Propane	160	83 000 Nm3
From Butadiene to Butane	160	83 000 Nm3
From Butadiene to Ethylene	160	83 000 Nm3
From Butadiene to Ammonia	N/A	N/A
From Butadiene to Vinyl Chloride Monomer	160	83 000 Nm3
From Butadiene to Propylene Oxide	N/A	N/A
From Ethylene to Propane	160	83 000 Nm3
From Ethylene to Butane	160	83 000 Nm3
From Ethylene to Butadiene	160	83 000 Nm3
From Ethylene to Ammonia	N/A	N/A
From Ethylene to Vinyl Chloride Monomer	160	83 000 Nm3
From Ethylene to Propylene Oxide	N/A	N/A
From Ammonia to Propane	N/A	N/A
From Ammonia to Butane	N/A	N/A
From Ammonia to Butadiene	N/A	N/A
From Ammonia to Ethylene	N/A	N/A
From Ammonia to Vinyl Chloride Monomer	N/A	N/A
From Ammonia to Propylene Oxide	N/A	N/A

From Vinyl Chloride Monomer to Propane
 From Vinyl Chloride Monomer to Butane
 From Vinyl Chloride Monomer to Butadiene
 From Vinyl Chloride Monomer to Ammonia
 From Vinyl Chloride Monomer to Ethylene
 From Vinyl Chloride Monomer to Propylene Oxide
 From Propylene Oxide to Propane
 From Propylene Oxide to Butane
 From Propylene Oxide to Butadiene
 From Propylene Oxide to Ethylene
 From Propylene Oxide to Vinyl Chloride Monomer
 From Propylene Oxide to Ammonia

160	83 000 Nm3
160	83 000 Nm3
160	83 000 Nm3
N/A	N/A
160	83 000 Nm3
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Cargo Grade Change Operations that cannot be carried out at sea:

All operation can be carried out at sea but have to load small parcel for gassing up/ coolong down purpose.

B17 PRE-LOADING COOLDOWN

The following questions ask the Time and Quantity of coolant required to cooldown cargo tanks from ambient temperature to fully gassed up state sufficient to allow loading to commence.

17.1	Propane - Quantity of Coolant Required	123
	Propane - Time required to cooldown cargo tanks from ambient temperature with vapour return line	6
	Propane - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A
17.2	Butane - Quantity of Coolant Required	N/A
	Butane - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A
	Butane - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A
17.3	Butadiene - Quantity of Coolant Required	45
	Butadiene - Time required to cooldown cargo tanks from ambient temperature with vapour return line	2
	Butadiene - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A
17.4	Propylene - Quantity of Coolant Required	128
	Propylene - Time required to cooldown cargo tanks from ambient temperature without vapour return line	6
	Propylene - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A
17.5	Ethylene - Quantity of Coolant Required	155
	Ethylene - Time required to cooldown cargo tanks from ambient temperature with vapour return line	8
	Ethylene - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A
17.6	Ammonia - Quantity of Coolant Required	N/A
	Ammonia - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A
	Ammonia - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A

17.7	VCM - Quantity of Coolant Required	73
	VCM - Time required to cooldown cargo tanks from ambient temperature without vapour return line	3
	VCM - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A

B18 LPG VAPORISER

18.1	Type of Vaporiser	U-tubes, welded in tube plate
18.2	Number of Vaporisers fitted	1
18.3	Capacity per unit - Propane	3000
18.4	Liquid Supply Rate	9,5
18.5	Delivery Temperature	-42
18.6	Capacity per unit - Ammonia	N/A
18.7	Liquid Supply Rate	N/A
18.8	Delivery Temperature	N/A
18.9	Capacity per unit - Nitrogen	N/A
18.10	Liquid Supply Rate	N/A
18.11	Delivery Temperature	N/A

B19 BLOWER

19.1	Type of Blower	
19.2	Rated Capacity	
19.3	Delivery Pressure	

B20 CARGO RE-HEATER

20.1	Type of Re-Heater	U-tubes, welded in tube plate
20.2	Number Fitted	1
20.3	Heating Medium	Seawater
20.4	Discharge rates with sea water at 15 degrees C to raise product temperature of Propane from -42 degrees C to -5 degrees C	500
20.5	Discharge rates with sea water at 15 degrees C to raise product temperature of Ammonia from -33 degrees C to 0 degrees C	N/A

B21 HYDRATE CONTROL

21.1	Type of Depressant?	Ethanol
21.1.1	Freezing point temperature?	-114
21.2	Quantity of Depressant Carried?	200
21.3	Means of injection?	Portable Pump
	Name any other system used	N/A

B22 CARGO MEASUREMENT

Level Gauges

22.1	Are level gauges local or remote?	Local
22.2	Name of manufacture	HSH BV Kongsberg AS
22.3	Type	Float Radar
22.4	Rated Accuracy	1
22.5	Certifying Authority	SGS

Temperature Gauges

22.6	Name of manufacture	Kongsberg Maritime AS
22.7	Type	PT-100
22.8	Rated Accuracy	0,1
22.9	Certifying Authority	SGS

Pressure Gauges

22.10	Name of manufacture	Kongsberg Maritime Ship Systems AS	
22.11	Type	GT402F3C6L00	
22.12	Rated Accuracy	0,45	
22.13	Certifying Authority	SGS	

Oxygen Analyser

22.14	Name of manufacture	Riken Keiki	
22.15	Type	GX-8000	
22.15.1	What is the lowest level measurable?	0%	

Fixed Gas Analyser

22.16	Name of manufacture	Omicron	
22.17	Type	OGS 3.11	

Cargo Tank Calibrations

22.18	Are Cargo tank calibration tables available?	Yes	
22.19	Name of Measuring Company	SGS	
22.20	Name of Certifying Authority		
22.21	Calibration calculated to cm?	No	
22.21.1	Calibration calculated to 1/2 cm?	Yes	
22.22	Tables established to cm?	No	
22.22.1	Tables established to mm?	No	
22.22.2	Tables established to "other" (state what other)	No	
22.23	Are trim and list corrections available?	Yes	
22.24	Are temperature corrections available?	Yes	
22.25	Are float gauge tape corrections available?	Yes	

B23 CARGO SAMPLING

23.1	May cargo samples be obtained from the levels; top, middle and bottom in all cargo tanks?	Yes	
------	---	-----	--

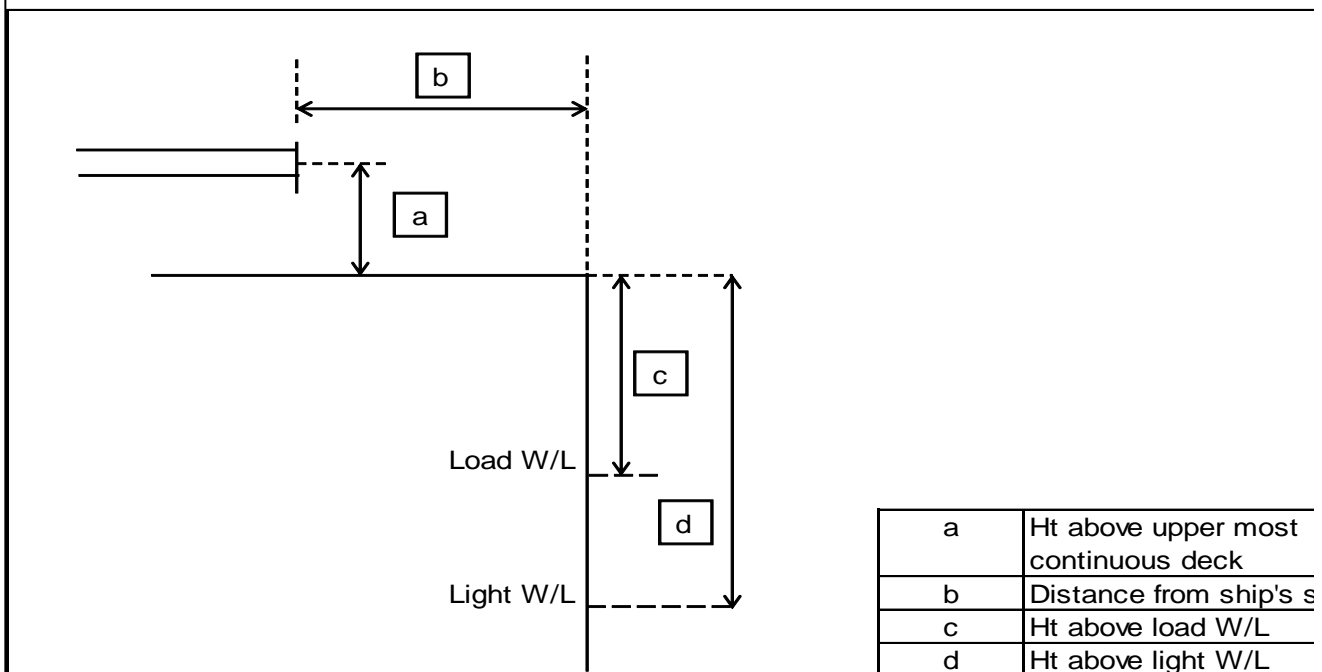
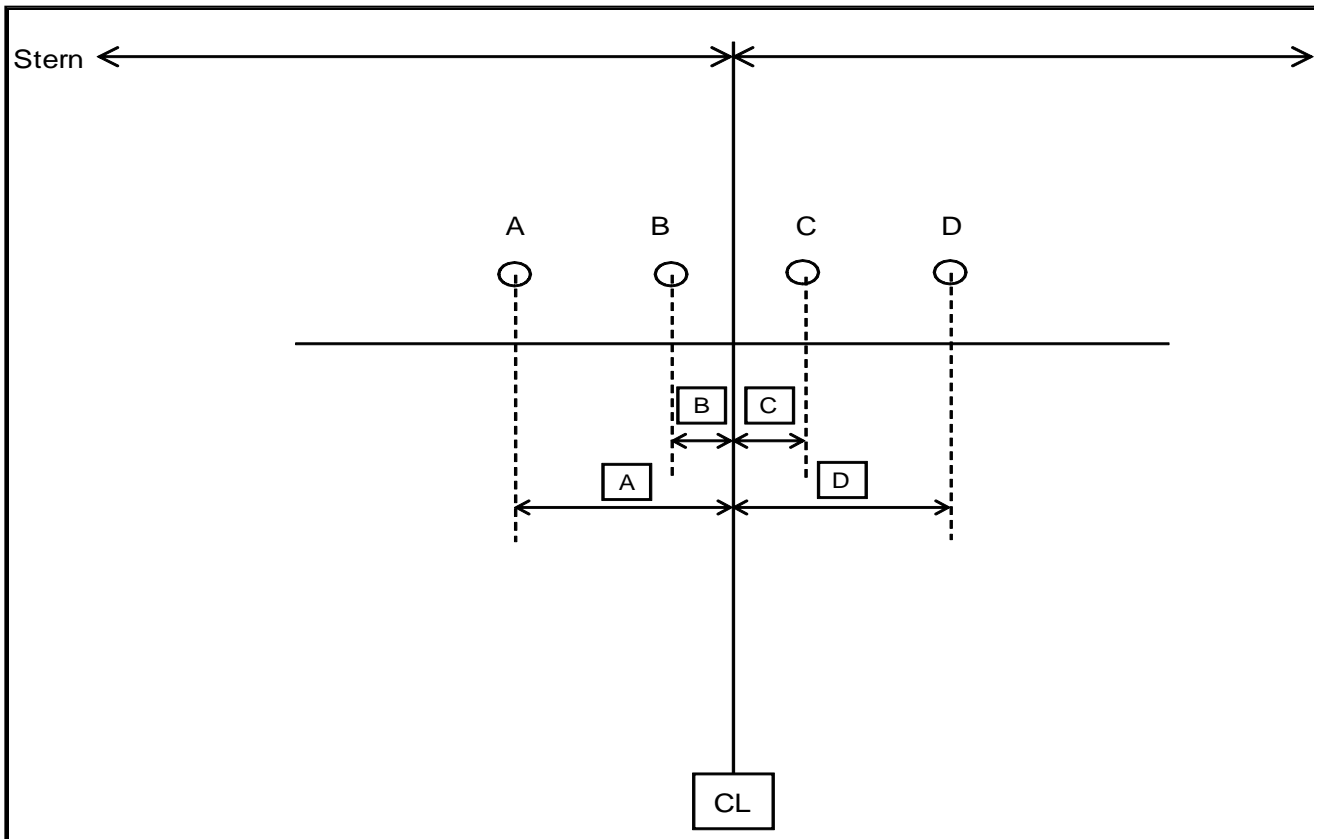
If no, - the arrangement for sampling is limited to:

		N/A	
--	--	-----	--

23.2	Can samples be drawn from tank vapour outlet?	No	
	Can samples be drawn from manifold liquid line?	No	
	Can samples be drawn from manifold vapour line?	No	
	Can samples be drawn from pump discharge line?	Yes	
23.3	State sample connection type	Thread, female connection	
	Size of sample connection	1/2"	

B24 CARGO MANIFOLD

Manifold arrangement diagram



Center of manifold to bow	96,40
Center of manifold to stern	83,90
Liquid line L1 (D)	
Distance from bow	92,65
Distance from stern	87,65
Distance from manifold centerline (D)	3750
Size and rating	DN300 / ANSI B16.5 Cl.300
Type	RF
Height above uppermost continuous deck	2150
Distance from ship's side	4125

Height above load waterline	10,56
Height above light waterline	13,44
Vapour line V1 (C)	
Distance from bow	95,15
Distance from stern	85,15
Distance from manifold centerline (C)	1250
Size and rating	DN200 / ANSI B16.5 Cl.300
Type	RF
Height above uppermost continuous deck	2150
Distance from ship's side	4125
Height above load waterline	10,56
Height above light waterline	13,44
Vapour line V2 (B)	
Distance from bow	97,65
Distance from stern	82,65
Distance from manifold centerline (B)	1250
Size and rating	DN200 / ANSI B16.5 Cl.300
Type	RF
Height above uppermost continuous deck	2150
Distance from ship's side	4125
Height above load waterline	10,56
Height above light waterline	13,44
Liquid line L2 (A)	
Distance from bow	100,15
Distance from stern	80,15
Distance from manifold centerline (A)	3750
Size and rating	DN300 / ANSI B16.5 Cl.300
Type	RF
Height above uppermost continuous deck	2150
Distance from ship's side	4125
Height above load waterline	10,56
Height above light waterline	13,44
Liquid line L3	
Distance from bow	N/A
Distance from stern	
Distance from manifold centerline	
Size and rating	
Type	
Height above uppermost continuous deck	
Distance from ship's side	
Height above load waterline	
Height above light waterline	
Vapour line V3	
Distance from bow	N/A
Distance from stern	
Distance from manifold centerline	
Size and rating	
Type	
Height above uppermost continuous deck	
Distance from ship's side	
Height above load waterline	
Height above light waterline	
Vapour line V4	
Distance from bow	N/A
Distance from stern	
Distance from manifold centerline	
Size and rating	
Type	
Height above uppermost continuous deck	
Distance from ship's side	
Height above load waterline	
Height above light waterline	

Distance from bow
 Distance from stern
 Distance from manifold centerline
 Size and rating
 Type
 Height above uppermost continuous deck
 Distance from ship's side
 Height above load waterline
 Height above light waterline

N/A

Nitrogen manifold

Distance from bow
 Distance from stern
 Distance from manifold centerline
 Size
 Height above uppermost continuous deck
 Distance from ship's side

N/A

Manifold Arrangement Located on Top of Compressor

Distance from rail of compressor room/platform to presentation flanges
 Distance from deck of compressor room/platform/try to centre of manifold

N/A
N/A

B25 CARGO MANIFOLD REDUCERS

25.1 Number of ANSI Class 300 reducers carried onboard
 Flange rating of ANSI Class 300 reducer
 Size of ANSI Class 300 reducer
 Length of ANSI Class 300 reducer
 25.2 Number of ANSI Class 300 to Class 150 reducers carried onboard
 Flange rating of ANSI Class 300 to Class 150 reducer
 Size of ANSI Class 300 to Class 150 reducer
 Length of ANSI Class 300 to Class 150 reducer
 25.3 Number of ANSI Class 150 reducers carried onboard
 Flange rating of Class 150 reducer
 Size of ANSI Class 150 reducer
 Length of ANSI Class 150 reducer

10
DN 150 / DN 300
650
10
DN 150 / DN 300
650
0

B26 CONNECTIONS TO SHORE FOR ESD AND COMMUNICATIONS SYSTEMS

26.1	Is ESD connection to shore available?	Yes
	If yes, is the system pneumatic?	No
	If yes, is the system electrical?	Yes
	If yes, is the system fiber optic?	Yes
26.2	What is the type of connection used?	5-pin Plug
26.3	Are ESD hoses or cables available on board?	Yes
	If yes, length of pneumatic	N/A
	If yes, length of electrical	30,00
	If yes, length of fiber optic	25,00
26.4	Is there a connection available for a telephone line?	Yes
26.5	Are ESD connections available on both sides of vessel?	Yes
	Are ESD Fusible plugs fitted at tank domes?	Yes
	Are ESD Fusible plugs fitted at manifolds?	Yes
	Is the link compatible with the SIGTTO guidelines?	Yes
	Type of manifold valve	Butterfly
	Closing time in seconds	26
	Is closing time adjustable?	Yes
	Is Independent high level shut down system fitted(overflow control)?	Yes
	If yes, does the independent high level shutdown system also switch off running cargo pumps?	Yes
	Shut down level %	99,70

B27 MANIFOLD DERRICK/CRANE

27.1	Is manifold derrick provided	No
27.2	Is manifold crane provided	Yes
27.3	Is lifting equipment same for port and starboard?	Yes
	If no, then stipulate details	N/A
27.4	State SWL at maximum outreach	6
27.4.1	Maximum outreach of lifting equipment	11,70

B28 STORES DERRICK/CRANE

28.1	State location	Aft P+S/Side
	SWL	2

B29 SISTER VESSEL(S)

29.1	Name of vessel	JS Ineos Insight
		JS Ineos Ingenuity
		JS Ineos Intrepid
		JS Ineos Ispiration
		JS Ineos Independence

|

Metres
Metres
Metres
Metres
Metres
Metres
Metres
Tonnes
Tonnes
Tonnes
Cubic metres
Cubic metres
Cubic metres
Cubic metres
Metres
Metres

Tonnes
Tonnes
Tonnes
Tonnes
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Tonnes
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Tonnes
Tonnes
Metres
Metres
Metres

Tonnes
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Tonnes
Tonnes
Tonnes
Tonnes
Tonnes
Metres
Metres
Metres

-- Load
Draft

-- Ballast
Draft
-- Light
Ship

Metres
Metres
Metres
Metres
Metres
Metres
Metres
Metres
Metres

m3
m3
m3

Tonnes/day
Tonnes/day
Tonnes/day
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Tonnes/day
Tonnes/day

kW
kW
kW

kW
kW

kW
kW
kW

Bar

kW

kW

kW
kW
kN
m

kN
m

Cubic metres
Cubic metres
Tonnes
Tonnes
Tonnes

m3/h



SCALE: 100%
DATE: 1/1/2008
TITLE: 100%
FILE: 100%
USER: 100%
VIEW: 100%



SCALE: 100%
DATE: 1/1/2008
TITLE: 100%
FILE: 100%
USER: 100%
VIEW: 100%





mm

m

mt

mm

m

mt

mm

m

mt

mm

m

mt

mm

m

mt

mm

kN

kN

M/Min

M/Min

kN

kN

M/Min

M/Min

kN

kN

M/Min

M/Min

kN

kN

M/Min

M/Min

kN

kN

kN

kg

mm

mt

mm

m

m2

Deg. C
Bar gauge

Bar gauge
Bar gauge
Bar gauge

Bar gauge
Bar gauge
Kg/m³
Deg Cel / Hour

m3
m3
Tonnes
Deg. C
Tonnes
Deg. C
Tonnes
Deg. C
Tonnes
Deg. C
Tonnes
Deg. C
Tonnes
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m³/hr
mlc
kg/m³

m³/hr
mlc
kg/m³

Hours

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Deg. C
Deg. C

m3/hr

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Bar gauge

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and

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Tons

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Tons

Hours

m³/h

m³/h

degC

m³/h

Deg. C

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