

**GAS FORM C****Main particulars****2.1 PREAMBLE**

Ship's name	BW AUSTRIA
Owners	BW Austria Limited
Flag – Registry	Norway (NIS)
Builder	Daewoo Shipbuilding & Marine Engineering Co. Ltd., Okpo, South Korea
Delivery	12. March 2009
Class	Det norske Veritas (DnV)
Class notation	+1A1 'Tanker for Liquefied Gas', Ship type 2G, (-50 deg C, 610 kg/m ³ , 0.250 bar), E0, Nauticus (Newbuilding), Plus-1, Clean, Coat-2, TMON, BIS
IMO No.	9370537

GRT / NRT	
International	48,502 / 17,512
Suez	50,856.44 / 44,387.29
Panama	N/A

2.2 HULL

	Metres
LOA	226.00 mtrs
LBP	215.00 mtrs
Breadth	36.60 mtrs
Depth	22.20 mtrs
Keel to highest point	54.965 mtrs

Max summer draft	11.822 mtrs	Corresponding deadweight	54,706.5 mt
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TPC fully loaded	70.87 mt
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Mean draft with 95% full bunkers and full cargo		
Specific Gravity	Mean draft	Corresponding DW
0.581	11.43 m	52,239
0.596	11.59 m	53,350
0.680	N/A	N/A
0.703	N/A	N/A



Communication equipment	
International call sign	LAFY7
Radio station	GMDSS
Satcom F-77	
- Telephone (Bridge/Capt Office/Dayroom)	764 876 233
(CCR)	764 876 234
- Telefax	764 876 235
Satcom F-33 (Capt Office/Dayroom)	764 876 236
(Conference room)	764 876 237
Satcom C	425 978 610 / 611
Cell phone	+47 905 33 299
MMSI	259 786 000
E-mail	bw.austria@bwgas.com

2.3 MACHINERY

Main Engine	
MAN B&W 6S60MC-C(Mk 8) Doosan Engine	
Max Cont.	14,280 kW (19,380 PS) x 105.0 RPM
Grade fuel used	IFO 380 cst

Auxiliaries	
Diesel	3 units
Make	STX 6L28/32H
kW/RPM	1260 kW / 720 rpm
Grade fuel used	IFO 380 cst

Speed/Consumption*	
Guaranteed average loaded/ballast speed over 12 months	
Average consumption on Main Engine guaranteed speed	
Average consumption on auxiliaries	

*) Above based on 50/50 propane/butane and max force 5 Beaufort

Slow speed/consumption figures as guidance only	
Average loaded/ballast	Consumption
13 Knots	
14 Knots	
15 Knots	

Average consumption in port	
Inert gas plant when operating	
Boiler consumption	

Permanent bunkers capacity (95% full) (Excl. daily service and settling tanks)		
HFO	2,599.3 m ³	2,547.3 mt
LSFO	528.1 m ³	517.5 mt
GAS OIL	128.9 m ³	109.6 mt
MDO	103.0 m ³	87.5 mt



2.4 CARGO INSTALLATION

Transportable products and respective quantities								
Tank No.	100 % m ³	98 % m ³	Butane 0.596 -2°C mt	Propane 0.581 -41.5°C mt	NH ₃ 0.680 -32°C MT	Butadiene 0.651 -5°C MT	Naphtha 0.703 30°C MT	Naphtha 0.676 30°C MT
1	18,407.59	18,039.43	10,751	10,480	N/A	N/A	N/A	N/A
2	22,351.51	21,904.48	13,055	12,726	N/A	N/A	N/A	N/A
3	22,358.99	21,911.81	13,059	12,730	N/A	N/A	N/A	N/A
4	21,485.36	21,055.66	12,549	12,233	N/A	N/A	N/A	N/A
Total	84,603.45	82,911.38	49,414	48,169	N/A	N/A	N/A	N/A
Deck tank capacity					402.449 m ³ / 18 barg / -50 C / 690 kg/m ³			
Transportable products and respective quantities								
<i>Other transportable products: Pure Propane, Commercial Propane, Commercial Butane, Mixture of Propane and Butane in any proportion, DME (Dimethyl Ether), Propylene</i>								

Scantlings of the cargo tanks are based on a maximum density of cargo of 610kg/m³. Cargo with density up to 1,000 kg/m³ may be carried in the cargo tanks on the following conditions:	
For density of 1,000 kg/m ³	N/A
For densities between 610 and 1,000 kg/m ³	87% by volume for cargo density of 690 kg/m ³ 82% by volume for cargo density of 730 kg/m ³

Tank working pressure	
Maximum pressure	0.450 barg (harbour) / 0.250 barg (sea)
Minimum pressure	-0.050 bar
Minimum temperature acceptable in tanks	-50 °C

Loading rate - tons/hour	2,500 mt on two manifolds
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2.5 CARGO PUMPS

Number and type	8 x 600 m ³ /hr Hamworthy Svanehoj deepwell pumps
Location	2 x pumps in each cargo tank
Max permissible specific gravity	120 mLC, 730 kg/m ³
Time for discharging full cargo using all pumps against no backpressure	20 hrs
Cargo remaining onboard in cargo tanks after completion pumping	Total appr 60 m ³ unpumpable liquid (all cargo tanks)
Total head when working in series with booster pump	210 mLC
Booster pumps	2 x 600 m ³ /h Hamworthy Svanehoj, 115 mLC, 730 kg/m ³



2.6 CARGO COMPRESSORS

Number and type	4 x Burckhardt Compression 3k 140-3A	
	Propane	Ammonia
Refrigeration Capacity	4 x 194,000 kcal/h (2,5 % Ethane)	N/A
Suction pressure	0.200 bar	N/A

2.7 INERT GAS SYSTEM

Does the vessel use inert gas?	Yes
Utilization	Inerting of Void spaces and Cargo tanks

Does the vessel produce inert gas?	Yes
Type	Hamworthy Moss Inert Gas Generator
Daily production	120,000 m ³

Composition of inert gas	
Carbon dioxide	14.0 %
Oxygen max.	1.0 %
Carbon monoxide max.	100 ppm by volume
Hydrogen max.	Nil
Nitrogen	Balance (84.9) %
Soot	Bacharach 0
Sulphur oxides max.	1 ppm by volume
Dew point	-45 °C at 760 mmHG

State if any shore supply of liquid nitrogen may be required	No
What quantity?	N/A

2.8 GAS FREEING

Can this operation be carried out at sea?	Yes
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State method incl. all details	
For LPG	
Boil Off	18/24 hrs C3/C4
Inerting	30 hrs
Ventilating for Entry	30 hrs (IG blower) / 15 hrs (Deck fan)
For NH₃	N/A

Advise time required and consumption of inert gas if any	
From LPG approximately	30 hrs / 150,000 m ³
From NH₃ approximately	N/A

Is the vessel equipped with inert gas blower?	Yes
Capacity	5,000 m ³ /hr

Ventilation fan	1 x 10,000 m ³ /hr at 1,600 mmWC
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**2.9 CHANGING GRADE**

Can this operation be carried out at sea?	NH3 - N/A
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State method used and time required for changing from NH ₃ to LPG and vice versa, to reach 50 ppm of previous cargo in tanks atmosphere, the tanks being dry and free of moisture (dewpoint plus 10 degrees C)

From NH ₃ to LPG	N/A
Time required	N/A

From LPG to NH ₃	N/A
Time required	N/A

Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?	Yes
Method used, time required and extra shore supply if any	Boil off / heating / inerting / venting
How can it be checked that no liquid gas remain onboard	Level Gauge / Temperature sensors

2.10 CARGO HEATER

State discharging rate for propane with 2.5 mol % ethane to be brought from -42 °C to 0 °C at sea temperature of 15 °C	600 m ³ /hr
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2.11 CARGO VAPORIZER

In case of need of vapour gas during discharge, can vessel produce its own if no shore gas available?	Yes
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2.12 REFRIGERATING APPARATUS

Is it independent of cargo?	Yes
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2.13 MEASURING APPARATUS

What gauges onboard	Kongsberg Radar
Location and type	2 for each cargo tank Kongsberg Maritime GL 100/05
Number of temperature sensors/gauges pr tank	7 – (3 each side of tank and 1 in vapour dome)
Number of pressure sensors/gauges pr tank	1 in each tank



2.14 SAMPLES

Where can samples be taken?	Vapour on dome / Liquid on dome using cargo pump and manifold
Are sample bottles available onboard?	Yes

2.15 CARGO LINES

(See also last page of this gas form C)

Is vessel fitted with midship manifolds	Yes
Distance from cargo manifold to bow	114.5 mtrs
Distance from manifold to stern	111.5 mtrs
Height cargo manifold above main deck	1.56 mtrs
Height cargo manifold above waterline when in ballast	17.00 mtrs
Height cargo manifold above waterline when loaded	11.96 mtrs
Distance from shipside to manifold flange	3.50 mtrs
Distance between loading and vapour return connections	2.50 mtrs
Windage area in normal ballast condition	4,080.6 m2
Is vessel fitted with SPM chainstopper suitable for 76 mm chain.	Yes
Is vessel fitted with cruziform bollards/fairleads/eye-pads in manifold area	Yes

Dimension of lines		
	Diameter	Flange size
Liquid	350 mm / 14 inch	ANSI 300
Gas Line	250 mm / 10 inch	ANSI 150
Booster Line	350 mm / 14 inch	ANSI 300

What reducers onboard			
Number	Diameter	Length	Pressure rating
2	14" - 16"	50 cm	ANSI 300 - ANSI 300
2	14" - 12"	50 cm	ANSI 300 - ANSI 300
2	14" - 10"	50 cm	ANSI 300 - ANSI 300
2	14" - 8"	50 cm	ANSI 300 - ANSI 300
2	14" - 16"	50 cm	ANSI 300 - ANSI 150
2	14" - 14"	50 cm	ANSI 300 - ANSI 150
2	14" - 12"	50 cm	ANSI 300 - ANSI 150
2	14" - 10"	50 cm	ANSI 300 - ANSI 150
2	14" - 8"	50 cm	ANSI 300 - ANSI 150
2	10" - 10"	50 cm	ANSI 150 - ANSI 150
2	10" - 8"	50 cm	ANSI 150 - ANSI 150
2	10" - 6"	50 cm	ANSI 150 - ANSI 150
2	10" - 12"	50 cm	ANSI 150 - ANSI 150

2.16 LIFTING DEVICE

Where situated	Aft	Amidship
Number and type	2	1
Lifting capacity	4 tons	5 tons
Max. distance from ship's side of lifting hook	Port 4.0 mtrs Stb. 4.0 mtrs	6.6 mtrs

**2.17 HOSES**

For what products are hoses suitable	N/A
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Number	Length	Diameter	Working pressure	Flange
0	N/A	N/A	N/A	N/A

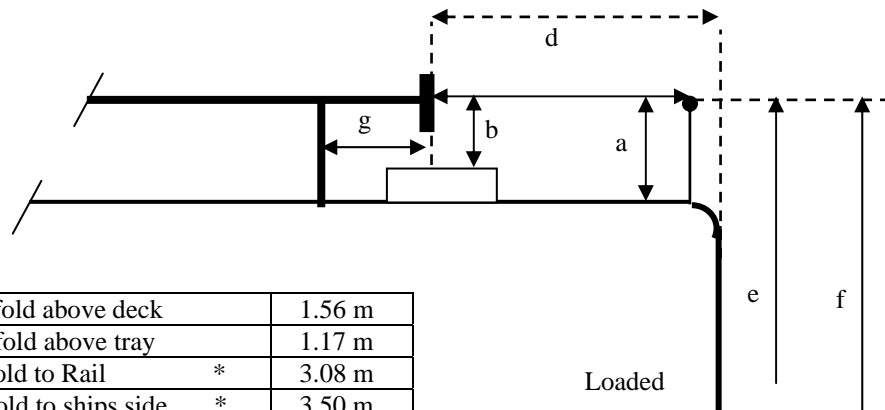
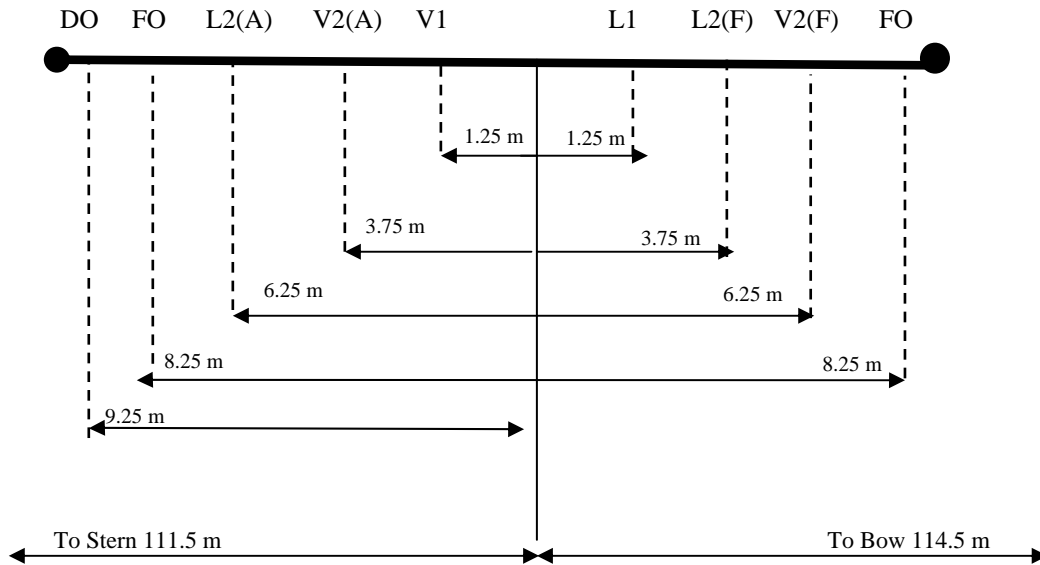
2.18 SPECIAL FACILITIES

How many grades can vessel segregate?	2
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Indicate systems	(Tks 1+3) and (Tks 2+4) or (Tks 1+3+4) and (Tk 2)
Is vessel able to load/discharge two or more grades simultaneously?	Yes
Can vessel sail with slack tanks?	Yes
Is vessel fitted with purge tank?	Yes



ARRANGEMENT OF CARGO MANIFOLD



a) Height of manifold above deck	1.56 m
b) Height of manifold above tray	1.17 m
c) Distance manifold to Rail *	3.08 m
d) Distance manifold to ships side *	3.50 m
e) Dist. waterline loaded to manifold	11.96 m
f) Dist. waterline ballast to manifold	17.00 m
g) Dist. 1 st stander to manifold	0.55 m

* without reducer

PARALLEL BODY LENGTH LOADED CONDITION

