

## 2. MAIN PARTICULARS OF VESSEL/GAS FORM C

### 2.1 PREAMBLE

<b>Ship's name</b>	BW NICE
<b>Owners/Managing Owners</b>	BW Cyan Limited
<b>Flag - Registry</b>	HAMILTON,BERMUDA
<b>Builder</b>	Kawasaki Shipbuilding Corporation, Japan
<b>Delivery</b>	30.09.03
<b>Class</b>	+1A1, DNV Tanker for Liquefied Gas, (-50 degC 685 kg/m3, 0,275 bar), Ship type 2 G, E0, Nauticus, Plus - 1, TMON
<b>IMO no.</b>	9247819

GRT/NRT	
<b>International</b>	35346 / 11116 UMS
<b>Suez</b>	Complying – 37101 / 32554
<b>Panama</b>	Complying – no value/29269 UMS

Is vessel approved?	
<b>USCG</b>	YES
<b>IMO</b>	YES

### 2.2 HULL

	Metres	Feet
<b>LOA</b>	204,915	672,29
<b>LBP</b>	200,45	657,64
<b>Breadth</b>	32,20	105,64
<b>Depth</b>	20,20	66,27
<b>Keel to highest point</b>	47,7	156,49

<b>Max summer draft</b>	12,023	<b>Corresponding deadweight</b>	44639
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<b>TPC fully loaded</b>	56.6 mt @ 11,00 mtr draft
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Mean draft with full bunkers and full cargo		
Specific Gravity	Mean draft	Corresponding DW
Propane S.G. 0,58	10,70	37.200
Ammonia S.G. 0,685	12,023	44.639

Communication equipment	
<b>International call sign</b>	ZCEH7
<b>Radio station</b>	NERA SATURN
<b>Satcom B</b>	
- Telephone/telex	363 501 411 / 363 501 410
- Telefax	363 501 415
<b>Inmarsat C</b>	422 633 110/111

## 2.3 MACHINERY

<b>Main Engine</b>	
Type and make: MAN B&W 5 S 60 MC-C	
Max Cont.	11,275 Kw
Grade fuel used	HFO - 380 Cst - RMG 35 – ISO 8217:1996 MGO - DMA - ISO 8217:1996

<b>Auxiliaries</b>	<b>Diesel</b>	<b>Turbogenerator</b>
Type	MAN 7L28 / 32 H	
Make	B & W license	
Kw/RPM	2 x 1470 kW + 1 x 1050 kW	

<b>Speed/Consumption</b>		
<b>Guaranteed average loaded/ballast speed over 12 Months</b>		
<b>Average consumption on guaranteed speed</b>	<b>Main Engine</b>	
	<b>Auxiliaries</b>	

<b>Slow speed/consumption figures as guidance only</b>	
<b>Average loaded/ballast</b>	<b>Consumption</b>
14 Knots	
15 Knots	
16 Knots	

<b>HFO consumption alongside in port</b>	
<b>Inert gas plant when operating</b>	
<b>Boiler consumption</b>	

<b>Permanent bunkers capacity (Excl. daily service tanks)</b>		
<b>HFO</b>	Abt 3250 m3	
<b>DIESEL OIL</b>	Abt 180 m3	<b>GAS OIL: Abt 80 m3</b>

## 2.4 CARGO INSTALLATION

Transportable products and respective quantities								
Tank No.	100 % M <sup>3</sup>	98 % M <sup>3</sup>	Butane 0.596 -2°C MT	Propane 0,596 -41,5C MT	NH <sub>3</sub> 0.680 -32°C MT	Butadiene 0.651 -5°C MT	Propylene 0.6095 -47,7°C MT	
1	14444,2	14155,3	8437	8224	9626	9215	8627,6	
2	14850,9	14553,8	8674	8456	9997	9475	8870,5	
3	14848,2	14551,2	8673	8454	9995	9473	8627,6	
4	15231,1	14926,5	8996	8672	10150	9717	9097,7	
<b>Total</b>	<b>58374,4</b>	<b>58186,8</b>	<b>34680</b>	<b>33807</b>	<b>39567</b>	<b>37880</b>	<b>35223,4</b>	

Tank working pressure	
Maximum pressure	0,275 Bar
Minimum pressure	- 0,250 Bar
Harbour condition	0,400 Bar
Minimum temperature acceptable in tanks	- 50° C.

Loading rate - tons/hour	Loading time to be abt. 20 hrs. without vapour return to shore when tanks are fully pre-cooled and the cargo is fully refrigerated.
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## 2.5 CARGO PUMPS

Number and type	8 off deepwell a 500 m3/hr - 130 m.l.c.
Location	Two in each cargo tank
Max permissible specific gravity	0,685
Time for discharging full cargo using all pumps against no backpressure	About 15 hours
Cargo remaining onboard in cargo tanks after completion pumping	LPG Liquid abt 8 MT Vapour abt 149 MT NH <sub>3</sub> Liquid abt 12 MT Vapour abt 153 MT
Total head when working in series with booster pump	Abt 260 m.l.c
Booster pumps	2 centrifugal, 500 cu.m/h at S.G. 0,685

## 2.6 CARGO COMPRESSORS

Number and type	4 x Sulzer 3K - 140 - 3A
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	Propane	Ammonia
Refrigeration Capacity	5% Ethane 4 x 190.000 kcal/h	4 x 320.000 kcal/h
Suction pressure	1,02 Bar ata	1,02 bar ata
Suction temperature	- 20 °C.	- 20 °C.

2.7 *INERT GAS SYSTEM*

Does the vessel use inert gas?	Yes
Utilization	For Cargo system and hold spaces

Does the vessel produce inert gas?	Yes
Type	Hamworthy KSE
Daily production	5500 m <sup>3</sup> /h

Composition of inert gas	
Carbon dioxide	About 15%
Oxygen max.	0,5%
Carbon monoxide max.	100 ppm
Hydrogen max.	100 ppm
Nitrogen	Balance
Soot	Bacharach 0
Sulphur oxides max.	Depends on Fuel
Dewpoint	- 40 ° C.

State if any shore supply of liquid nitrogen may be required	
Yes if tanks require to be inerted to lower Oxygen content	
What quantity?	About 84,000 m <sup>3</sup>

2.8 *GAS FREEING*

Can this operation be carried out at sea?	Yes
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State method incl. All details - See page 10	
After LPG	Boil-off - Warm-up - Inert – Ventilate
After Ammonia	Boil-off - Warm-up – Ventilate

Advise time required and consumption of inert gas if any	
From LPG about	Abt 30 hrs. - approx. 80,000 m <sup>3</sup> inert gas
From NH <sub>3</sub> about	Abt 16 hrs. - No inert gas

Is the vessel equipped with inert gas blower?	Yes
Capacity	5500 m <sup>3</sup> /h

Ventilation fan	2 x 20.000 m <sup>3</sup> /h
Air heater	1 x 20.000 m <sup>3</sup> /h (20°C to 80°C)

## 2.9 CHANGING GRADE

Can this operation be carried out at sea?	Yes
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State method used and time required for changing from NH<sub>3</sub> 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) - See page 11

<b>From NH<sub>3</sub> to LPG</b>	
Boil-off - Warm-up tanks - Ventilate - Inert - Gas-up (pre-cooled)	
<b>Time required</b>	43 hrs.

<b>From LPG to NH<sub>3</sub></b>	
Boil-off - Warm-up tanks - Inert - Ventilate - Gas-up (pre-cooled)	
<b>Time required</b>	40 hours

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

How can it be checked that no liquid gas remain onboard
Tank bottom temperature sensors

## 2.10 CARGO HEATER

State discharging rate for propane with 2.0 mol % ethane to be brought from -42°C to -5°C at sea temperature of 15°C	500 m <sup>3</sup> /h
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## 2.11 CARGO VAPOURIZER

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

General refrigeration principle Is it independent of cargo?	Direct condensation against sea water Direct
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**2.13 MEASURING APPARATUS**

<b>What gauges onboard</b>	Radar System
<b>Location and type</b>	Remote

**2.14 SAMPLES**

<b>Where can samples be taken?</b>	At manifold and pump discharge line
<b>Are sample bottles available onboard?</b>	Yes

**2.15 CARGO LINES**

<b>Is vessel fitted with midship manifolds</b>	Yes
<b>Distance from cargo manifold to stem (FP)</b>	100,15 m
<b>Distance from manifold to stern (AP)</b>	100,3 m
<b>Height cargo manifold above deck</b>	1,246 m
<b>Height manifold above working platform</b>	0,900 m
<b>Height cargo manifold above waterline when light</b>	15,40 m
<b>Height cargo manifold above waterline when loaded</b>	9,9 m
<b>Distance manifold from ship's rail</b>	3,35 m
<b>Distance between loading and vapour return connections</b>	2,50 m
<b>Is vessel fitted with stern discharge</b>	NO
<b>Is vessel fitted with fore discharge</b>	NO

<b>Dimension of lines</b>		
	<b>Diameter</b>	<b>Flange size</b>
<b>Liquid</b>	2 x 350 mm	350mm x 300ASA
<b>Gas Line</b>	2 x 250 mm	250mm x 150 ASA

What reducers onboard		
Number	Diameter	Pressure rating
2	14" - 16"	300 ASA
2	14" - 12"	300 ASA
2	14" - 10"	300 ASA
2	14" - 8"	300 ASA
2	14" - 16"	300 ASA to 150 ASA
2	14" - 14"	300 ASA to 150 ASA
2	14" - 12"	300 ASA to 150 ASA
2	14" - 10"	300 ASA to 150 ASA
2	14" - 8"	300 ASA to 150 ASA
2	10" - 12"	150 ASA
2	10" - 8"	150 ASA
2	10" - 6"	150 ASA
1	8" - 6"	300 ASA

### 2.16 LIFTING DEVICE

Where situated	Aft	Amidship
	Cranes, one each side	Hose crane.
<b>Number and lifting capacity</b>	2 x 4 tonnes SWL	1 x 7,5 tonnes SWL
<b>Max. distance from ship's side of lifting hook</b>		5 m

### 2.17 HOSES

For what products are hoses suitable	Remain ashore
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Number	Length	Diameter	Working pressure	Flange

### 2.18 SPECIAL FACILITIES

How many grades can vessel segregate?	Two
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Indicate systems	1,3 +2,4 2+1,3,4
Is vessel able to load/discharge two or more grades simultaneously?	Any, two grades
Can vessel sail with slack tanks?	Yes
Is vessel fitted with purge tank?	Yes - 1 x 180 m <sup>3</sup> + 1 x 300 m <sup>3</sup>

