GAS FORM C

Main particulars

2.1 PREAMBLE

Ship's name	BERGE SUMMIT
Owners	BW SUMMIT LIMITED, CLARENDON HOUSE, 2 CHURCH STREET, HAMILTON HM11, BERMUDA
Flag - Registry	BAHAMAS
Builder	MITSUBISHI HEAVY INDUSTRIES LTD, NAGASAKI
Delivery	JUNE 1990
Class	DNV
IMO No.	8902371

GRT /NRT	
International	44690/13407
Suez	47237,97/42911,18
Panama	NA

Is vessel approved?	
USCG	Yes
IMO	Yes

2.2 HULL

	Metres	**Feet**
LOA	230,00	754,59’
LBP	219,00	718,50’
Breadth	36,60	118,11’
Depth	20,4	65,62’
Keel to highest point	49,183	160,70’

Max summer draft	10,825m	**Corresponding deadweight**	50.748 mt

TPC fully loaded	69,4 mt/cm

Mean draft with full bunkers and full cargo		
Specific Gravity	**Mean draft**	**Corresponding DW**
FULL CARGO PROPANE 0.581(@-46*)	10,25 M	46780
FULL CARGO BUTANE 0.610(@-5*)	10,56 M	48912
HEAVY BALLAST 1.025	7,16 M	26230
NORMAL BALLAST 1.025	6,76 M	23656

Communication equipment	
International call sign	C6TR5
Radio station	GMDSS
Satcom F	YES
- Telephone	773 233 455
- Telefax	764 341 778
- Telex	
Satcom C Telex	431175410 SMIT X
MMSI no.	311754000
E - mail	summit@bwfleet.com
Vessels GMS phone	+47 414 24 783

2.3 MACHINERY

Main Engine	
MITSUBISHI-UE marine diesel engine, MODEL: 6UEC60LS – 1SET	
Max Cont.	13.100 PS X 93 rpm
Grade fuel used	Viscosity:Not more than 380 CST @50^{0}C Specific Gravity: Not more than 0,9744 @ 15^{0}C

Auxiliaries	Diesel	Turbogenerator
	GENERATOR	
Make	MAN STX 6L23/30H	
kW/RPM	1125KVA x 900 rpm x 3 Sets 1125 KVA(960KW)x 450V,60Hz	

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**
14 Knots	
15 Knots	
16 Knots	

MGO consumption alongside in port	
Inert gas plant when operating	
Boiler consumption	

Permanent bunkers capacity (Excl. daily service tanks)		
HFO	1964,5 m^3	
GAS OIL	327,0 m^3	

2.4 CARGO INSTALLATION

Transportable products and respective quantities								
Tank No.	**100 % M^3**	**98 % M^3**	**Butane 0.578(15*C)/ -1*C/100mb MT**	**Propane 0.506(15*C)/ -41*C/100mb 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	17484,16	17134,476	10183,716	9876,380				
2	20385,14	19977,438	11871,634	11513,342				
3	20382,116	19974,474	11869,856	11511,620				
4	20237,104	19832,362	11787,608	11431,916				
Total	78488,52	76918,75	45712,814	44333,258				
Other transportable products:								

Scantlings of the cargo tanks are based on a maximum density of cargo of: 0.61 *kg/m^3*.
Scantling draft is based on a full cargo with a density of ----kg/*m^3*.

Tank working pressure	
Maximum pressure	0,280 Kg/cm2
Minimum pressure	-0,07 Kg/cm2
Harbour condition	NA
Minimum temperature acceptable in tanks	- 46°C

Loading rate - tons/hour	Loading time to be abt. 20 hours without vapour return to shore when tanks are fully pre-cooled and the cargo is fully refrigerated. Loading rate 2600 mt/h through 2 loading arms.

2.5 CARGO PUMPS

Number and type	8 nos Submerged vertical electrical motor driven centrifugal type of 550 m^3/h, 100 mlc
Location	2 in aft part of each tank & close to centre line bulkhead
Max permissible specific gravity	0,61
Time for discharging full cargo using all pumps against no backpressure	Abt. 20 hours
Cargo remaining onboard in cargo tanks after completion pumping	Total abt. 300 mt for coolant as ordinary cargo operation (200 mt in vaporized phase and abt. 100 mt liquid Propane)
Total head when working in series with booster pump	140 mlc
Booster pumps	1 Pc: 300 m^3/h at 140 mlc 1 Pc: 400 m^3/h at 140 mlc

2.6 CARGO COMPRESSORS

Number and type	4 sets and Direct expansion type

	Propane	**Butane**
Refrigeration Capacity (about 1360 m3/h)	(5 % Ethane) 4 x 189.000 kcal/h	4 x 302.000 kcal/h
Suction pressure	0,2 kg/cm2	0,2 kg/cm2
Suction temperature	-18°C	+10°C

2.7 INERT GAS SYSTEM

Does the vessel use inert gas?	Yes
Utilization	Inerting and gasfreeing of cargo tanks and filling of holds if required

Does the vessel produce inert gas?	Yes
Type	SMIT/ GADELIUS IGG GIN 3000-0.3 BUFD
Daily production	72.000 Nm^3

Composition of inert gas	
Carbon dioxide	13 %
Oxygen max.	1 %
Carbon monoxide max.	1000 PPM
Hydrogen max.	
Nitrogen	
Soot	
Sulphur oxides max.	
Dewpoint	-10^0C

State if any shore supply of liquid nitrogen may be required	
NA	
What quantity? NA	
Storage of N_2 on board	10 BOT – 200 bar

2.8 GAS FREEING

Can this operation be carried out at sea?	Yes

State method incl. all details	
For LPG	Inerting with inert gas, venting with air
For NH_3	NA

Advise time required and consumption of inert gas if any	
From LPG about	4 days / 108.000 m3
From NH_3	NA

Is the vessel equipped with inert gas blower?	Yes
Capacity	3.000 Nm^3/h

Ventilation fan	6.000 Nm^3/h

2.9 CHANGING GRADE

Can this operation be carried out at sea?	Yes

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 - 10 ^{0}C)	
From NH_3 to LPG	NA
Time required	NA

From LPG to NH_3	NA
Time required	NA

Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?	NA
Method used, time required and extra shore supply if any	NA
How can it be checked that no liquid gas remain onboard	By temperature sensors at tank bottom

2.10 CARGO HEATER

State discharging rate for propane with 5.0 mol % ethane to be brought from -48°C to -5°C at sea temperature of 15°C	400 m^3/h

2.11 CARGO VAPORIZER

In case of need of vapour gas during discharge, can vessel produce its own if no shore gas available?	YES

2.12 REFRIGERATING APPARATUS

Is it independent of cargo?	Yes

2.13 MEASURING APPARATUS

What gauges onboard	Magnetic Float type liquid level gauges
Location and type	1 in each port & stbd compartment – Musasino Keiki
Number of temperature sensors/gauges pr tank	12
Number of pressure sensors/gauges pr tank	2

2.14 SAMPLES

Where can samples be taken?	By sample valve near cargo pump discharge valve and on liquid- line and at cargo crossover.
Are sample bottles available onboard?	On request

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	**113,10 m**
Distance from manifold to stern	**116,90 m**
Height cargo manifold above main deck	**1,50 m**
Height manifold above working platform	**0,90 m**
Height above Summer Draft mark	**12,016 m**
Height cargo manifold above waterline when normal ballast	**15,0 m**
Height cargo manifold above waterline when loaded	**11,6 m**
Distance manifold from ship's rail	**3,8m**
Distance manifold from ship's side	**4,0m**
Distance between loading and vapour return connections	**2,50 m**
Is vessel fitted with stern discharge	**No**
Is vessel fitted with fore discharge	**No**

Is vessel fitted with fore discharge		No
Dimension of lines		
	Diameter	**Flange size**
Liquid	400 mm	16" ASA 150
Gas Line	250 mm	10" ASA 150
Booster Line	150 mm	6" ASA 300

What reducers onboard			
Number	**Diameter**	**Length**	**Pressure rating**
4	16"-12"	490 mm	ASA 150
2	16"-10"	490 mm	ASA 150
4	12"-10"	490 mm	ASA 150
1	12"- 8"	290 mm	ASA 150
2	10"- 6"	490 mm	ASA 150
7	10"- 8"	490 /290 mm	ASA 150
1	8"- 6"	360 mm	ASA 300

2.16 LIFTING DEVICE

Where situated	**Aft**	**Amidship**
	Electrical chain hoist	2 hose crane
Number and lifting capacity	1 x SWL 3.2 tonnes	2 x 5,0 tons
Max. distance from ship's side of lifting hook	About 3,0 m from ship's starboard side	About 5,0 m from ship's side

2.17 HOSES

For what products are hoses suitable	No cargo-hoses onboard

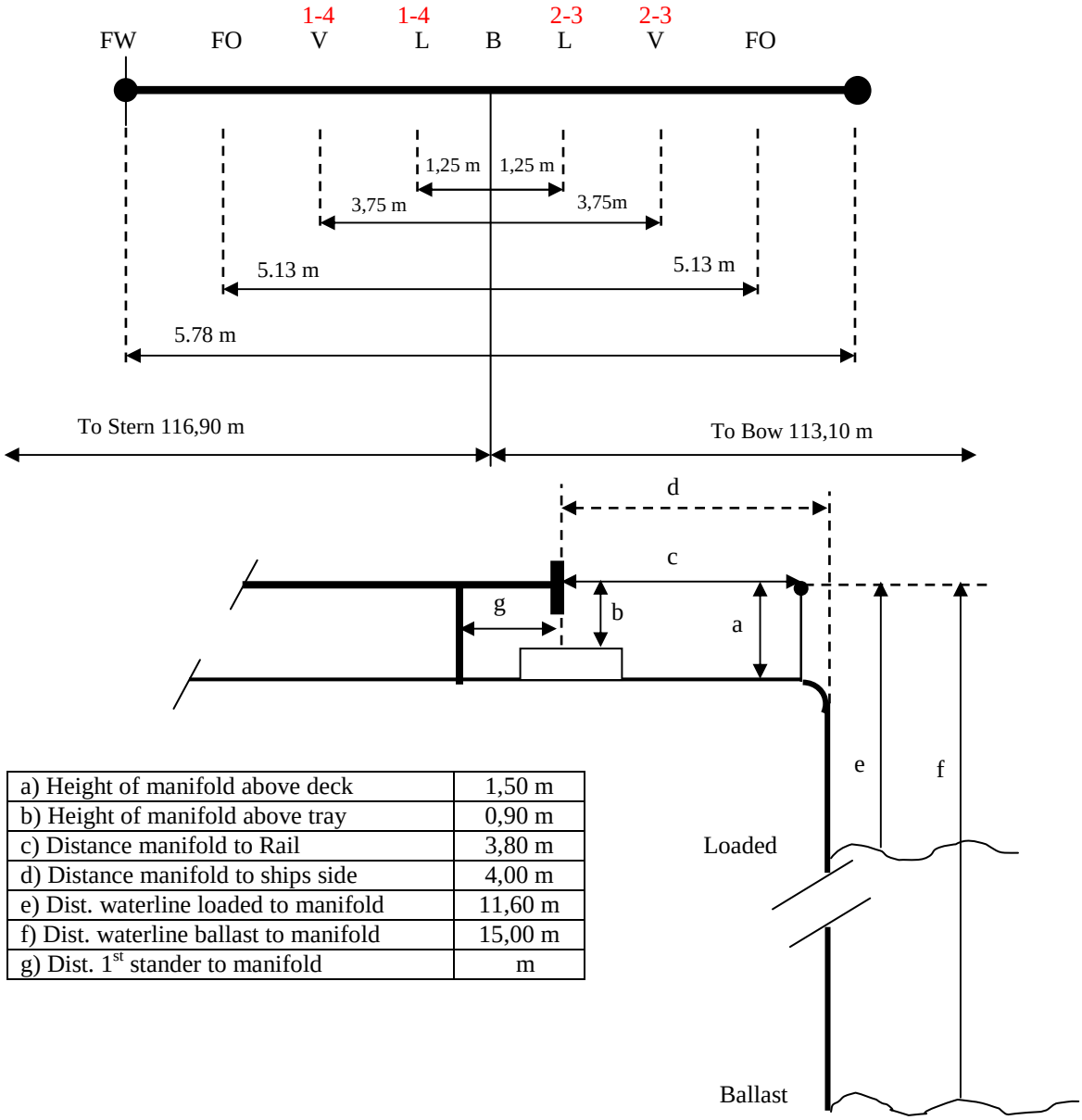
Number	**Length**	**Diameter**	**Working pressure**	**Flange**

2.18 SPECIAL FACILITIES

How many grades can vessel segregate?	Two

Indicate systems	Any tank combinations
Is vessel able to load/discharge two or more grades simultaneously?	Yes, two grades
Can vessel sail with slack tanks?	Yes
Is vessel fitted with purge tank?	No

ARRANGEMENT OF CARGO MANIFOLD



a) Height of manifold above deck	1,50 m
b) Height of manifold above tray	0,90 m
c) Distance manifold to Rail	3,80 m
d) Distance manifold to ships side	4,00 m
e) Dist. waterline loaded to manifold	11,60 m
f) Dist. waterline ballast to manifold	15,00 m
g) Dist. 1st stander to manifold	m

PARALLEL BODY LENGHT