

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

|                        |   |
|------------------------|---|
| <b>Ship's name</b>     | BW LORD   |
| <b>Owners</b>          | Bergesen Gas Shipping AS  |
| <b>Flag – Registry</b> | Norway (NIS)  |
| <b>Builder</b>         | Daewoo Shipbuilding & Marine Engineering Co. Ltd., Okpo, South Korea  |
| <b>Delivery</b>        | 30. September 2008  |
| <b>Class</b>           | Det norske Veritas (DnV)  |
| <b>Class notation</b>  | +1A1 'Tanker for Liquefied Gas', Ship type 2G, (-50 deg C, 610 kg/m <sup>3</sup> , 0.250 bar), E0, Nauticus (Newbuilding), Plus-1, Clean, Coat-2, TMON, BIS |
| <b>IMO No.</b>         | 9350604   |

| <b>GRT / NRT</b>     |                       |
|----------------------|-----------------------|
| <b>International</b> | 48,502 / 17,512       |
| <b>Suez</b>          | 50,856.44 / 44,387.29 |
| <b>Panama</b>        | N/A                   |

**2.2 HULL**

|                              | <b>Metres</b> |
|------------------------------|---------------|
| <b>LOA</b>                   | 226.00 mtrs   |
| <b>LBP</b>                   | 215.00 mtrs   |
| <b>Breadth</b>               | 36.60 mtrs    |
| <b>Depth</b>                 | 22.20 mtrs    |
| <b>Keel to highest point</b> | 54.965 mtrs   |

|                         |             |                                 |           |
|-------------------------|-------------|---------------------------------|-----------|
| <b>Max summer draft</b> | 11.822 mtrs | <b>Corresponding deadweight</b> | 54,691 mt |
|-------------------------|-------------|---------------------------------|-----------|

|                         |          |
|-------------------------|----------|
| <b>TPC fully loaded</b> | 70.87 mt |
|-------------------------|----------|

| <b>Mean draft with 95% full bunkers and full cargo</b> |                   |                         |
|--|-------------------|-------------------------|
| <b>Specific Gravity</b>                                | <b>Mean draft</b> | <b>Corresponding DW</b> |
| 0.581  | 11.73 m           | 54356                   |
| 0.596  | 11.80 m           | 54939                   |
| 0.680  | 11.80 m           | 54957                   |
| 0.703  | N/A               | N/A                     |



| <b>Communication equipment</b>                      |                   |
|---|-------------------|
| <b>International call sign</b>                      | LAFX7             |
| <b>Radio station</b>                                | GMDSS             |
| <b>Satcom F-77</b>                                  |                   |
| - Telephone (Bridge/Capt Office/Dayroom)            | 764 842 111       |
| (CCR)   | 764 842 114       |
| - Telefax   | 764 842 115       |
| <b>Satcom F-33 (Conf. room/Capt Office/Dayroom)</b> | 764 842 116       |
| <b>Satcom C</b>                                     | 425 978 110 / 111 |
| <b>Cell phone</b>                                   | +47 905 33 271    |
| <b>MMSI</b>   | 259 781 000       |
| <b>E-mail</b>                                       | bw.lord@bwgas.com |

### 2.3 MACHINERY

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

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

| <b>Speed/Consumption*</b>                              |  |
|--|--|
| 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

| <b>Slow speed/consumption figures as guidance only</b> |             |
|--|-------------|
| Average loaded/ballast                                 | Consumption |
| 13 Knots   |             |
| 14 Knots   |             |
| 15 Knots   |             |

|                                       |  |
|---------------------------------------|--|
| <b>Average consumption in port</b>    |  |
| <b>Inert gas plant when operating</b> |  |
| <b>Boiler consumption</b>             |  |

| <b>Permanent bunkers capacity (95% full)<br/>(Excl. daily service and settling tanks)</b> |            |            |
|---|------------|------------|
| <b>HFO</b>  | 2,599.3 m3 | 2,547.3 mt |
| <b>LSFO</b>   | 528.1 m3   | 517.5 mt   |
| <b>GAS OIL</b>  | 128.9 m3   | 109.6 mt   |
| <b>MDO</b>  | 103.0 m3   | 87.5 mt    |



2.4 CARGO INSTALLATION

| Transportable products and respective quantities   |                         |                        |                               |                                   |  |                                  |                                |                                |
|--|-------------------------|------------------------|-------------------------------|-----------------------------------|--|----------------------------------|--------------------------------|--------------------------------|
| Tank No.   | 100 %<br>m <sup>3</sup> | 98 %<br>m <sup>3</sup> | Butane<br>0.596<br>-2°C<br>mt | Propane<br>0.581<br>-41.5°C<br>mt | NH <sub>3</sub><br>0.680<br>-32°C<br>MT                          | Butadiene<br>0.651<br>-5°C<br>MT | Naphtha<br>0.703<br>30°C<br>MT | Naphtha<br>0.676<br>30°C<br>MT |
| 1  | 18,407.96               | 18,039.80              | 10,751                        | 10,481                            | N/A  | N/A                              | N/A                            | N/A                            |
| 2  | 22,354.13               | 21,907.05              | 13,056                        | 12,727                            | N/A  | N/A                              | N/A                            | N/A                            |
| 3  | 22,357.80               | 21,910.64              | 13,058                        | 12,730                            | N/A  | N/A                              | N/A                            | N/A                            |
| 4  | 21,494.72               | 21,064.82              | 12,554                        | 12,238                            | N/A  | N/A                              | N/A                            | N/A                            |
| <b>Total</b>   | 84,614.62               | 82,922.33              | 49,414                        | 48,146                            | N/A  | N/A                              | N/A                            | N/A                            |
| <b>Deck tank capacity</b>  |                         |                        |                               |                                   | 403.416 m <sup>3</sup> / 18 barg / -50 C / 690 kg/m <sup>3</sup> |                                  |                                |                                |
| Transportable products and respective quantities   |                         |                        |                               |                                   |  |                                  |                                |                                |
| <i>Other transportable products:<br/>Pure Propane, Commercial Propane, Commercial Butane,<br/>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/m<sup>3</sup>. Cargo with density up to 1,000 kg/m<sup>3</sup> may be carried in the cargo tanks on the following conditions:

|   |  |
|---|--|
| For density of 1,000 kg/m <sup>3</sup>                | N/A  |
| For densities between 610 and 1,000 kg/m <sup>3</sup> | 87% by volume for cargo density of 690 kg/m <sup>3</sup> |

| 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 |
|--------------------------|---------------------------|

2.5 CARGO PUMPS

|   |  |
|---|--|
| Number and type   | 8 x 600 m <sup>3</sup> /hr Hamworthy Svanehoj deepwell pumps                 |
| Location  | 2 x pumps in each cargo tank   |
| Max permissible specific gravity  | 120 mLC, 690 kg/m <sup>3</sup>   |
| 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 <sup>3</sup> unpumpable liquid (all cargo tanks)             |
| Total head when working in series with booster pump                     | 210 mLC  |
| Booster pumps   | 2 x 600 m <sup>3</sup> /h Hamworthy Svanehoj, 115 mLC, 690 kg/m <sup>3</sup> |



## 2.6 CARGO COMPRESSORS

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

## 2.7 INERT GAS SYSTEM

|                                       |   |
|---------------------------------------|---|
| <b>Does the vessel use inert gas?</b> | Yes                                     |
| <b>Utilization</b>                    | Inerting of Void spaces and Cargo tanks |

|   |                                    |
|---|------------------------------------|
| <b>Does the vessel produce inert gas?</b> | Yes                                |
| <b>Type</b>                               | Hamworthy Moss Inert Gas Generator |
| <b>Daily production</b>                   | 120,000 m <sup>3</sup>             |

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

|   |     |
|---|-----|
| <b>State if any shore supply of liquid nitrogen may be required</b> | No  |
| <b>What quantity?</b>   | N/A |

## 2.8 GAS FREEING

|  |     |
|--|-----|
| <b>Can this operation be carried out at sea?</b> | Yes |
|--|-----|

| <b>State method incl. all details</b> |  |
|---------------------------------------|--|
| <b>For LPG</b>                        |  |
| <b>Boil Off</b>                       | 18/24 hrs C3/C4                        |
| <b>Inerting</b>                       | 30 hrs                                 |
| <b>Ventilating for Entry</b>          | 30 hrs (IG blower) / 15 hrs (Deck fan) |
| <b>For NH<sub>3</sub></b>             | N/A                                    |

| <b>Advise time required and consumption of inert gas if any</b> |                                 |
|---|---------------------------------|
| <b>From LPG approximately</b>                                   | 30 hrs / 150,000 m <sup>3</sup> |
| <b>From NH<sub>3</sub> approximately</b>                        | N/A                             |

|  |                          |
|--|--------------------------|
| <b>Is the vessel equipped with inert gas blower?</b> | Yes                      |
| <b>Capacity</b>                                      | 5,000 m <sup>3</sup> /hr |

|                        |   |
|------------------------|---|
| <b>Ventilation fan</b> | 1 x 10,000 m <sup>3</sup> /hr at 1,600 mmWC |
|------------------------|---|

**2.9 CHANGING GRADE**

|   |           |
|---|-----------|
| Can this operation be carried out at sea? | NH3 - N/A |
|---|-----------|

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)

|                             |     |
|-----------------------------|-----|
| From NH <sub>3</sub> to LPG | N/A |
| Time required               | N/A |

|                             |     |
|-----------------------------|-----|
| From LPG to NH <sub>3</sub> | 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 <sup>3</sup> /hr |
|--|------------------------|

**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                          | Kongsberg Radar                                       |
| Location and type                            | 2 for each cargo tank<br>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<br>Stb. 4.0 mtrs | 6.6 mtrs |

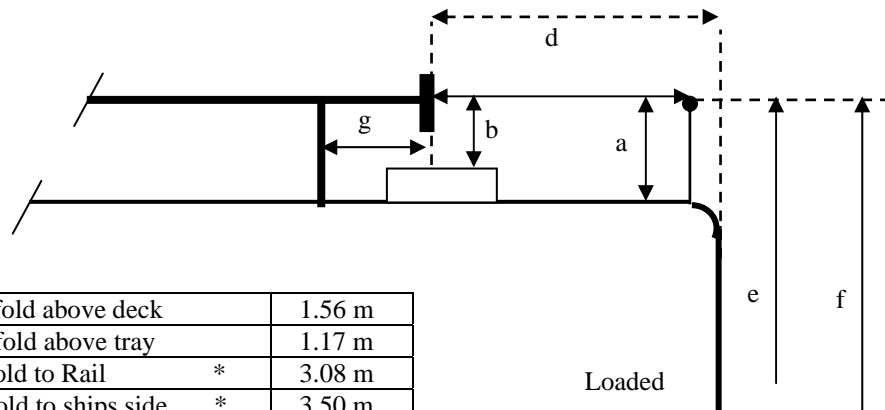
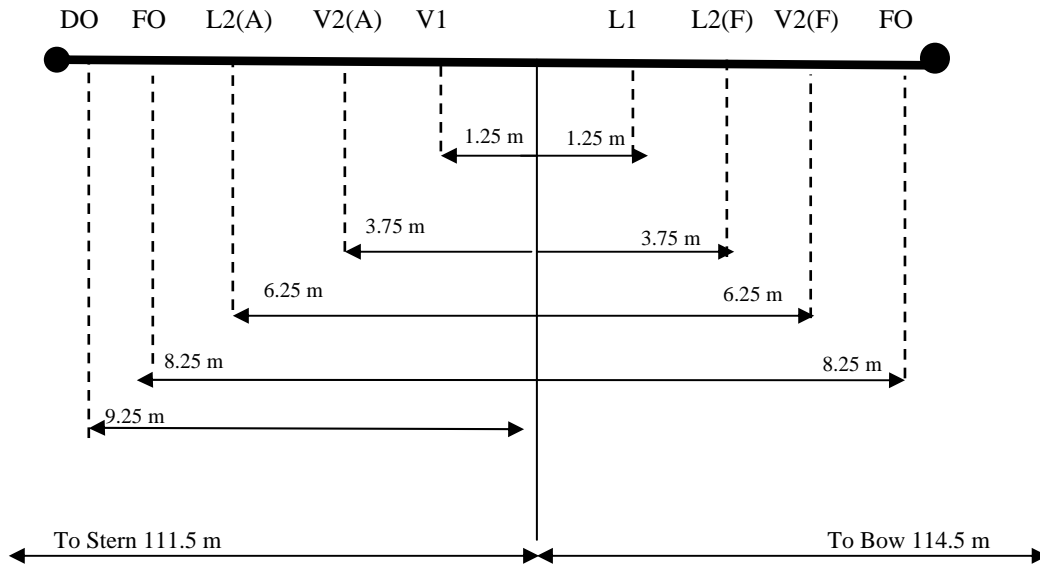
**2.17 SPECIAL FACILITIES**

|  |   |
|--|---|
| <b>How many grades can vessel segregate?</b> | 2 |
|--|---|

|  |   |
|--|---|
| <b>Indicate systems</b>  | (Tks 1+3) and (Tks 2+4) or (Tks 1+3+4) and (Tk 2) |
| <b>Is vessel able to load/discharge two or more grades simultaneously?</b> | Yes   |
| <b>Can vessel sail with slack tanks?</b>                                   | Yes   |
| <b>Is vessel fitted with purge tank?</b>                                   | 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 <sup>st</sup> stander to manifold | 0.55 m  |

\* without reducer

### PARALLEL BODY LENGTH

LOADED CONDITION

