

2015

GAS FORM- C**1. PREAMBLE**

Ship's name	LPG/C GAS SPIRIT I
Owners	URANUS MARITIME S.A.
Flag – Registry	PANAMA - PANAMA
Builder	OY WARTSILA AB FINLAND
Delivery	03 SEPTEMBER 1980
Class	KOREAN REGISTRY OF SHIPPING
IMO No.	7411569

GT (International)	44076.00
NT (International)	18807.00
GRT (Suez)	46599.52
NRT (Suez)	41069.28
GRT (Panama)	N/A
LWT (MT)	20300

Is vessel approved?	
USCG	N/A
IMO	YES

2. HULL

	Metres	Feet
LOA	224.75	737.40
LBP	213.00	698.85
Breadth	34.20	112.21
Depth	21.60	70.87
Air draft (fm Summer LL)	46.00	150.93

	Draft (m)	Corresponding DWT
Tropical	13.29	56938
Summer	13.02	55173
Winter	12.75	53418

TPC fully loaded (MT)	64.3MT
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Estimated Mean draft with full bunkers and 98% cargo & full bunkers

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Cargo	Mean draft (m)	DWT	displacement
0.581	11.98	48580	68880
0.596	12.16	49740	70040
0.680	13.02	55173	75473
0.703	13.02	55173	75473

3. COMMUNICATION EQUIPMENT

International call sign	3EMT8
Radio station	SKANTI 3000 / SAMYUNG SRG 1150
Inmarsat F77	+870 764 859817 (Fleet 33)
- Telephone	+870 764 859818 (Fleet 33)
- Telephone	+870 773 238455 FBB
- Telefax	+870 764 859819 (Fleet 33)
- Telex	435577812
Inmarsat C	435577810
MMSI	355778000
Cell phone	N/A
E-Mail	master@gasspiriti.amosconnect.com

4. MACHINERY

Main Engine	
Maker/model	SULZER 7RND 90M
MCR	122RPM
Grade fuel used	FO 380 cSt ISO 8217: 1987 (E) RMG 35 Max A1/Si 60mg/kg

Auxiliaries Engines	
Type/Model	WARTSILA 8 24TS
Maker	WARTSILA
Output(KW/RPM)	840KW/720RPM per unit
Generator	(4 UNITS)
Grade fuel used	Marine Gas Oil DMA or ditillate non-blended marine diesel oil DMB

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Guarantee average loaded/ ballast speed (kt)	15.0KTS / 16.0KTS
Draft at Guarantee average loaded/ ballast speed (m)	13.02M / 7.25M

Consumption

	Consumption at sea	Consumption at port
Main engine (IFO)	60-63mt/day	N/A
Aux. Engines (IFO)	N/A	N/A
Number of A/E in use	N/A	N/A

MDO Consumption alongside in port	8.5-9.5mt/day	loading=8.0-9.0mt/day disch.=9.5-10.5mt/day
Inert Gas plant when operating	3.0MT/DAY	3.0MT/DAY
Boiler consumption (MT/day)	2.5 mt / day	

Permanent bunkers capacity (Excl. daily service tanks) @ 98%

HFO (MT)	4615.0
MDO (MT)	666.0

5. CARGO INSTALLATION

Re-liquefaction plant Type	Cascade Type - 2 Stage System
Minimum temperature can maintain	-48° C

Tank No.	Capacities		n-C4 0.596 @ -2° C	C3 0.581 @ -41.5° C	Naphtha 0.703 @ 30° C	NH3 0.680 @ -32.0° C	Butadien e 0.651 @ -5° C
	100% M ³	98% M ³					
1	16609	16277	9694	9438	N/A	N/A	N/A
2	20009	19609	11679	11370	N/A	N/A	N/A
3	19953	19554	11646	11338	N/A	N/A	N/A
4	19345	18959	11291	10993	N/A	N/A	N/A
Total	75917	74399	44309	43138	N/A	N/A	N/A

Carried Products

BUTANE 1011
BUTANE-PROPANE MIXTURE 1011/1978
PROPANE 1978

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**Cooling before loading**

(for fully-refrigerated vessels what quantity of cargo is needed and which is the corresponding time to pre-cool the tanks and have them ready to load?)

	MT	Hrs
BUTANE	400	20
PROPANE	600	20

6. CARGO TANKS

Type	A, 1-4. CARBON-MANGANESE STEEL, fully killed and fined grain treated
Material	CARBON-MANGANESE STEEL
MARVS	0.250 BAR at sea 0.400 BAR at port
Maximum Vacuum	0.25bar
Minimum pressure	0.15kp/cm ²
Minimum temperature acceptable in tanks	-48 deg. Celsius
Maximum Specific Gravity	0.700
Maximum Loading rate – m³/hour	BUTANE w/vapor return=2200m ³ /hr BUTANE w/o vapor return=2000m ³ /hr PROPANE w/vapor return=2100m ³ /hr PROPANE w/o vapor return=1800m ³ /hr
Number of deck tanks	Nil

7. CARGO PUMPS

Number/Type	Thune-Eureka CL200-1 vertical centrifugal deepwell pumps
Maker	Thune-Eureka
Location	2 Pumps each, Tank No. 1, 2, 3, 4. One in each side of center bulkhead
Max permissible specific gravity	0.700

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Cargo remaining onboard in cargo tanks after total completion pumping	300cbm vapour and 100cbm liquid (propane)	
Cargo remaining onboard in cargo tanks (heel) after completion pumping	100cbm	
Total head when working in series with booster pump	120mlc	
Booster pumps (number/type)	1 / Centrifugal	
Maker	Thune Eureka CP 100L	

Stripping	
Stripping system	N/A
Time required for all traces of liquid cargo	Puddle Heating 24 Hours

Loading Rates	
Loading rate (storage tank at atmospheric pressure + vapor return) -BUTANE	2200m3/hr
Loading rate (storage tank at atmospheric pressure) – PROPANE*	1800m3/hr
Loading rate (storage tank at atmospheric pressure) – AMMONIA *	N/A
Loading rate (storage tank at atmospheric pressure) – BUTADIENE*	N/A
Loading rate (pressurized storage tank with vapour return line) – PROPANE	2100m3/hr
Loading rate (pressurized storage tank with vapour return line) – AMMONIA	N/A

(*)Note: for pressure or semi-refrigerated vessels using the cargo heater with sea temperature +15° C

Time for discharging full cargo using all pumps against no backpressure		
	With vapour return line (hours)	Without vapour return line (hours)
Discharging rate (atm)	20	20
Discharging rate (1 bar)	20	20
Discharging rate (5 bars)	30	30
Discharging rate (10 bars)		

8. CARGO COMPRESSORS

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Number/Type	3 Howden HP 204/110.36 Screw Cargo Compressors 3 Howden WRV 255/1.1 Screw Ref Compressors
Maker/Model	Howden HP 204/110.36 / Howden WRV 255/1.1
Total Swept volume	1230 MJ/H
Can re-liquefy VCM	N/A

	Ethylene	Propane	Ammonia
Refrigeration Capacity	N/A	3x294800kcal/h	N/A
Suction pressure		1.23bar	N/A

9. INERT GAS SYSTEM

Does the vessel use inert gas?	Yes
Method	When Inerting and Gas Freeing, Filling of Holds spaces
Maker	Moss Verft LPI 6000-0, 2 inert plant
Fuel used	Gas Oil

Does the vessel produce inert gas?	Yes
Type	Moss Verft LPI 6000-0, 2 inert plant
Daily production	144,000 Nm ³

Composition of inert gas	
Carbon dioxide	15% by volume
Oxygen max.	0.5% by volume
Carbon monoxide max.	0.1% by volume
Hydrogen max.	0.1% by volume
Nitrogen	84% by volume
Soot	0
Suphur oxides max.	traces only
Dewpoint	5 °C above seawater temp.

State if any shore supply of liquid nitrogen may be required	
May be required for pumping tanks prior to loading butadiene and ammonia	
What quantity?	Depending on Shore Requirements

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10. GAS FREEING

Can this operation be carried out at sea?	YES
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State method incl. all details

For LPG	inerting w/ inert gas, venting w/ air
For NH₃	N/A

Advise time required and consumption of inert gas if any

From LPG about	1-2 days
From NH₃	N/A
Is the vessel equipped with inert gas blower?	Yes, 1
Capacity	20,000Nm ³ /h
Ventilation fan	2x20000NM ³ /h

11. CHANGING GRADE

Can this operation be carried out at sea?	Yes
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State method used and time required for charging from NH₃ to LPG and vice versa, to reach 50 ppm to previous cargo in tanks atmosphere, the tanks being dry and free of moisture (dewpoint plus 10° C)

From NH₃ to LPG	N/A
Time required	N/A

From LPG to NH₃	N/A
Time required	N/A

Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?	Yes, but time consumed and expenses incurred to reduce concentration of previous cargo in tank atmosphere and gas installation below 50ppm to be for charterer account
Method used, time required and extra shore supply if any	inerting and ventilation, normally no shore supply
How can it be checked that no liquid gas remain onboard	Remote temperature sensor at tank bottom

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12. CARGO HEATER

Cargo Heater	1	
Maker	Kvaerner	
Type	Seawater Type Tube Direct	
Discharging rate for C3 & NH3 to be brought fm atmospheric pressure to -5° C @ S.W 15° C	325m3	
	325m3	
State discharging rate for propane with 2.5 mol % ethane to be brought from -44oC to -5oC at sea temperature of 15oC	325m3	

13. CARGO VAPORIZER

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

It is independent of cargo?	No
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15. MEASURING APPARATUS

What gauges onboard	Float Level Gauge
Location and type	Tank Dome / Whessoe 3303 + Whessmatic 26 Mark II
Number of temperature sensors/gauges per tank	2 on each Tank
Number of pressure sensors/gauges on tank	1 on each Tank

16. SAMPLES

Where samples can be taken?	by sample valve at cargo pump disch. Flange
Are sample bottles available onboard?	No

17. CARGO LINES

Is vessel fitted with midship manifolds	Yes, both sides
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Number of lines on each side	2 each
Lines Configuration	L-V-V-L
Distance from cargo manifold to bow	116.4m
Distance from manifold to stern	108.2m
Height upper cargo manifold above main deck	1.35m
Height above Summer Draft mark	10.02m
Height upper cargo manifold waterline when LWT	15.8m
Height upper cargo manifold above waterline when in ballast	15.95m
Distance manifold from ship's rail	3.7m
Distance between liquid lines	6.94m
Distance between vapour lines	2.31m
Distance between loading and vapour return connections	2.31m
Is vessel fitted with stern discharge	No
Is vessel fitted with fore discharge	No

Note: Above distances from center line of liquid and vapour crossovers

Dimension of lines		
	Diameter	Flange size
Liquid (P/S)	12 inches	12 inches
Vapour	10 inches	10 inches
Booster	6 inches	6 inches

What reducers onboard			
Number	Diameter	Length	Pressure rating
1	8x300 6x300	13"	300
2	10x150 8x150	13"	150
4	12x150 10x150	14"	150
3	14x150 10x150	15"	150
2	14x150 16x150	16"	150
1	8x150 6x 300	13"	300
1	12x150 8x300	14"	300
4	14x150 8x150	14"	150
4	14x150 12x150	15"	150

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18. LIFTING APPLIANCES

Where situated	Amidship	Aft
Number and lifting capacity	2 / SWL 5 tons	2 / SWL 6 tons
Max. distance from ship's side of lifting hook	8.5M	8.0M

19. HOSES

For what products are hoses suitable			Propane / Butane	
Number	Length	Diameter	Working pressure	Flange
14	10M	200mm	14barG	150/300

20. SPECIAL FACILITIES

How many grades can vessel segregate?	
Indicate systems	2 / TK1 TK4 system 1, TK2 TK3 system 2
Is vessel able to load/discharge two or more grades simultaneously?	2/Yes
Can vessel sail with slack tanks?	Yes
Is vessel fitted with purge tank?	No

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