1	Issue For Use	18/09/20	0469	MG	LF	AC
0	Issue For Approval	23/06/20	0469	MM/MG	LF	AC
REV.	DESCRIPTION	DATE	PROJ.	EXEC.	CHECK.	APPR.

VeniceLNG

VENICE LNG

FEED - Venice LNG Terminal (Porto Marghera)

TECHINT Engineering & Construction

TECHINT ENGINEERING & CONSTRUCTION

Process Engineering

Flare Tip Datasheet

0469-TITA-R-DS-001-016		1
ESC:	JOB:	
-	**0469**	REVISION

DOCUMENT CHANGE RECORD

REV.	DATE	SECTION / PARAGRAPH AFFECTED	INITIATING DOCUMENT/ REASON OF CHANGE/REMARKS

TECHINT Engineering & Construction	VeniceLNG	CLIENT JOB NUMBER	0469	REV
		ITEM	Y-491	
	VENT/ FLARE STACK	SHEET	3 OF 6	
		REV	1 DATE 18-09-20	

PROJECT	**FEED - Venice LNG (Porto Marghera)**					DOCUMENT REFERENCE	**0469-TITA-O-DP-001-003**		
FOR	**Venice LNG**								
UNIT	**FLARE SYSTEMS**				LOCATION	**ITALY**			
Rev.	**0**	**1**							
Date	**23-06-20**	**18-09-20**							
Done	**MM/MG**	**MG**							
App.by	**LF**	**LF**							

GENERAL DATA

DIAGRAM NUMBER	**0469-TITA-O-DP-001-003**
NUMBER OF UNITS IN OPERATION / SPARE / WAREHOUSE	**1 / 0 / 0**
SERVICE	**VENT / FLARE STACK**
TYPE	**Elevated Pipe Flare**

PROCESS DATA FOR FLARE Y-491

FLUID				LNG Storage Tank Depresssuring	HP Area Fire
FLOW RATE			Kg/h	17.722	12.480
TEMPERATURE AT STACK BASE AVERAGE/MIN			°C	-139	11,8
PRESSURE AT STACK BASE			Barg	0,006	0,001
MOLECULAR WEIGHT			kg/kmol	16,5	18
DENSITY			kg/m^3	1,54	0,77
VISCOSITY			cP	0,0053	0,01
LOW HEATING VALUE			kJ/kg	49.890	49.124
RELEASED HEAT			MW	245,6	170,3
ESTIMATED OPERATING TIME			h		
MAX. LIQUID VOLUME			m^3		
COMPONENTS		**Mol. Wt (g/mol)**		**COMPOSITION**	
METHANE	CH4	16,00	% mol	97,3	88,9
ETHANE	C2H6	30,00	% mol	2,2	8
PROPANE	C3H6	44,00	% mol	0,36	2,3
i-BUTANE	i-C4H10	58,00	% mol	0,04	0,4
n-BUTANE	n-C4H10	58,00	% mol	0,028	0,0
i-PENTANE	i-C5H12	72,00	% mol	0,006	0,0
n-PENTANE	n-C5H12	72,00	% mol	0,004	0,0
n-HEXANE	n-C6H14	86,00	% mol	0,0	0,0
n-HEPTANE	n-C7H16	100,00	% mol	0,0	0,0
NITROGEN	N2	28,00	% mol	0,0	0,4
CARBON DIOXIDE	CO2	44,00	% mol	0,0	0,0
WATER	H2O	18,00	% mol	0,0	0,0
TOTAL			% mol	100	100

FLUID									
FLOW RATE			Kg/h						
TEMPERATURE AT STACK BASE NORM / MIN			°C						
PRESSURE AT STACK BASE			Barg						
MOLECULAR WEIGHT			kg/kmol						
DENSITY NORM / MIN			kg/m^3						
VISCOSITY NORM / MIN			cP						
LOW HEATING VALUE			kJ/kg						
RELEASED HEAT			MW						
ESTIMATED OPERATING TIME			h						
MAX. LIQUID VOLUME			m^3						
COMPONENTS		**Mol. Wt (g/mol)**							
METHANE	CH4	16,00	% mol						
ETHANE	C2H6	30,00	% mol						
PROPANE	C3H6	44,00	% mol						
i-BUTANE	i-C4H10	58,00	% mol						
n-BUTANE	n-C4H10	58,00	% mol						
i-PENTANE	i-C5H12	72,00	% mol						
n-PENTANE	n-C5H12	72,00	% mol						
n-HEXANE	n-C6H14	86,00	% mol						
n-HEPTANE	n-C7H16	100,00	% mol						
NITROGEN	N2	28,00	% mol						
CARBON DIOXIDE	CO2	44,00	% mol						
WATER	H2O	18,00	% mol						
TOTAL			% mol						

TECHINT Engineering & Construction

VeniceLNG

CLIENT JOB NUMBER	0469	REV
ITEM	Y-491	

VENT/ FLARE STACK

SHEET	5	OF	6
REV	1	DATE	18-09-20

PROJECT	FEED - Venice LNG (Porto Marghera)					DOCUMENT	0469-TITA-O-DP-001-003		
FOR	Venice LNG					REFERENCE			
UNIT	FLARE SYSTEMS				LOCATION	ITALY			
Rev.	0	1							
Date	23-06-20	18-09-20							
Done	MM/MG	MG							
App.by	LF	LF							

DESIGN DATA

DESIGN CODE		API 521
DESIGN PRESSURE	barg	Vendor to specify in accordance with API 521
DESIGN TEMPERATURE:Min./Max	ºC	-196 / 55
TEST PRESSURE	barg	According to code
FLARE HEADER DIAMETER	mm	500 (Note 1)
TIP DIAMETER	mm	TBD

CONSTRUCTION

TYPE	FLARE	POSITION	VERTICAL
FLARE TYPE	ELEVATED	VISIBILITY	VISIBLE
FLAME TYPE	SMOKELESS	LOCATION	ON SHORE
STACK TYPE	TBA	REFER. GROUND ELEVATION	3 m

RADIATION AND TOXIC EMISSION LEVELS

FLARE HEIGHT	m	TBA	ALLOWABLE RADIATION	kW/m2	(Note 4) (Note 5)
WIND DESIGN VELOCITY	m/s	25			

MATERIALS

STACK	AISI 316 L (Note 8)	REFRACTORY ON TIP	YES
TIP	AISI 310	RADIOGRAPHY	100%
STRUCTURES	CARBON STEEL	HEAT TREATMENT	NO

UTILITIES

FLUID		ELECTRICITY	NITROGEN	FUEL GAS	AIR	
PRESSURE	barg		8,00	8,00	8,00	
TEMPERATURE	ºC		-20,00	44,00	20,00	
FLOW RATE	Nm3/h		Note 1	Note 1	Note 1	
MOLECULAR WEIGHT	kg/kmol		28	Note 2	28,90	
VOLTAGE	V	690,00				
Nº OF PHASES		3,00				
FREQUENCY	Hz	50,00				

NOTES

1. TO BE CONFIRMED BY VENDOR

2. FUEL GAS IS SUPPLIED BY NATURAL GAS SENDOUT OR BY PROPANE BOTTLE PACKAGE TO BE PROVIDED BY VENDOR

3. DELETED 1

4. ALLOWABLE THERMAL RADIATION FLUX VALUES AS INDICATED IN EN 1473, Table A.3 and A.4

5. EMISSION OF FLARE PILOT SHALL BE IN ACCORDANCE WITH D.Lgs. 152/2006

TECHINT Engineering & Construction	VeniceLNG	CLIENT JOB NUMBER	0469			REV
		ITEM	Y-491			
	VENT/ FLARE STACK	SHEET	6	OF	6	
		REV	1	DATE	18-09-20	

PROJECT	FEED - Venice LNG (Porto Marghera)				DOCUMENT REFERENCE	0469-TITA-O-DP-001-003		
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UNIT	FLARE SYSTEMS			LOCATION				
Rev.	0	1						
Date	23-06-20	18-09-20						
Done	MM/MG	MG						
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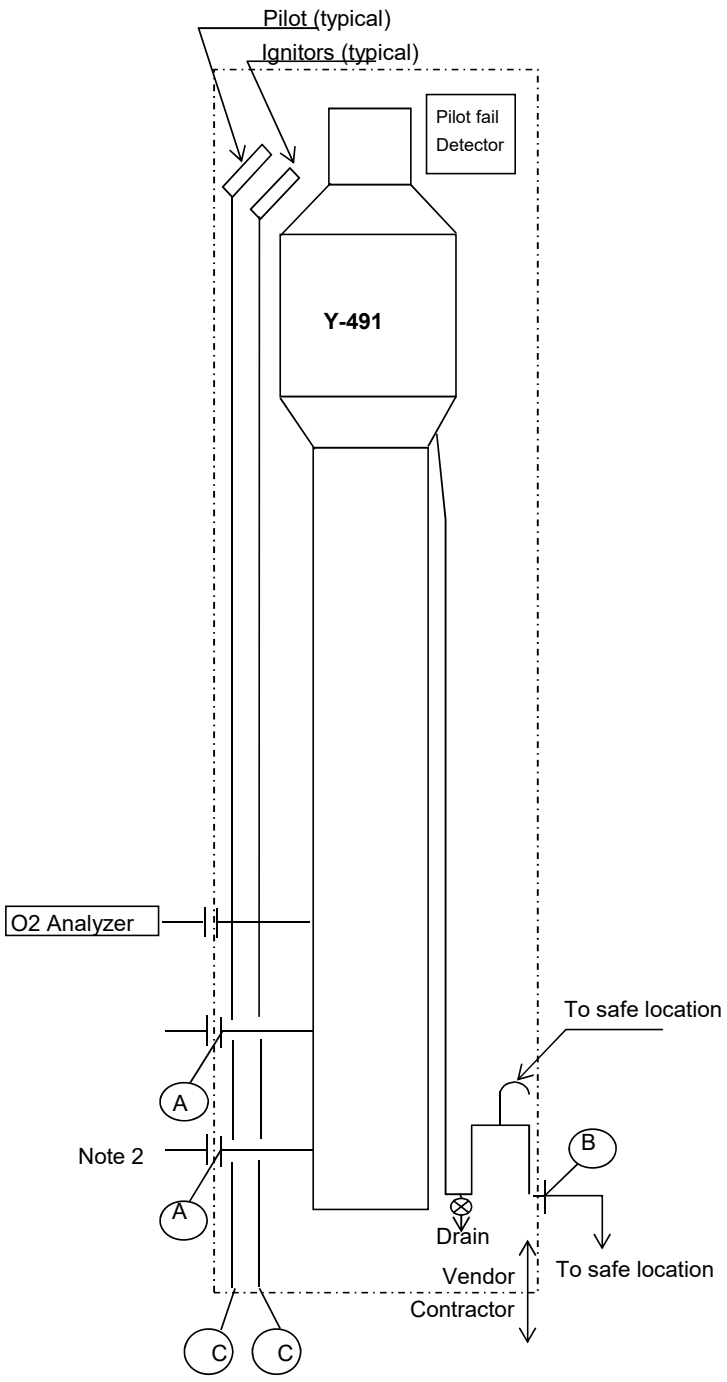
SKETCH



MISCELLANEOUS

SILENCER	YES	IGNITION PANEL FLARE DISTANCE, m		
WATER SEAL	NO	IGNITON	FFG / HIGH ENERGY ELECTRODE	
		AIRCRAFT WARNING LIGHT	YES	
PURGE GAS	Nitrogen	PILOT FUEL GAS BACKUP	PROPANE	
PURGE GAS FLOWRATE	Note 1			
PILOTS	Note 1			
IGNITION PANEL	YES			