

PAKISTAN FAST TRACK PFD - RICH LNG - 600 MMSCFD - OPEN LOOP RE-GASIFICATION - SEA WATER TEMPERATURE 66 °F - SSGC NETWORK PRESSURE 1,200 PSIG

Process Node			1	1B	2	2B	3	3B	4	5	6	7A	7B	8A	9A	8B	9B
Description		Notes	FRSU HP Manifold / HP Loading Arm LA-1-001 Inlet	FRSU HP Manifold / HP Loading Arm LA-1-001-B Inlet	HP Loading Arm LA-1-001 Outlet	HP Loading Arm LA-1-001-B Outlet	New Jetty Approach Line Inlet	Jetty ESD Skid Y-1-001-B Outlet	Onshore Reception Facility Inlet	Existing Jetty Approach Line Inlet	Custody Transfer Station Inlet	Working Meter Inlet	Standby Meter Inlet	Process Gas Heater A Inlet	Process Gas Heater A Outlet	Process Gas Heater B Inlet	Process Gas Heater B Outlet
Pressure Class			900	900	900	900	900	900	600	600	600	600	600	900	900	900	900
Design Parameters																	
Temperature - Maximum	°F		176	176	176	176	100	100	100	100	100	100	100	212	212	212	212
Temperature - Minimum	°F		-4	-4	-4	-4	-4	-4	23	23	23	23	23	23	23	23	23
Maximum Pressure	psig		1,943	1,943	1,943	1,943	1,943	1,943	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479
Fluid Parameters																	
Phase	-		RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG
Source	Qatar																
Composition																	
Methane	mol%		89.75														
Ethane	mol%		6.33														
Propane	mol%		2.26														
i-Butane	mol%		0.40														
n-Butane	mol%		0.61														
i-Pentane	mol%		0.02														
n-Pentane	mol%		0.01														
Hexane	mol%		0.00														
Nitrogen	mol%		0.62														
Carbon Dioxide	mol%		0.00														
Total	mol%		100.00														
Molecular Weight	kg/kmol																
Higher Heating Value	Btu/scf																
FRSU IAS Operating Parameters																	
FRSU Ordered Minimum Temperature	°F																
FRSU Ordered Maximum Pressure	psig																
FRSU Ordered Volumetric Flow Rate	MMSCFD																
Temperature	°F		42	42	41	41	41	41	40	40	38	38	38	38	52	38	38
Pressure	psig		1,302	1,302	1,279	1,279	1,279	1,279	1,274	1,264	1,231	1,231	1,231	1,229	1,214	1,229	1,214
Volumetric Flow Rate	(NOTE 2) MMSCFD		600	600	600	600	600	600	600	600	600	600	0	200	200	200	200
Heat Exchanged	MMBTU/h		-	-	-	-	-	-	-	-	-	-	-	2.3		2.3	

Process Node			(NOTE 2)										
		Notes	8C	9C	8D	9D	10A	11A	10B	10B	12	23	24
Description			Process Gas Heater C Inlet	Process Gas Heater C Outlet	Process Gas Heater D Inlet	Process Gas Heater D Outlet	Working Back Pressure Control Stream Inlet	Working Back Pressure Control Stream Outlet	Standby Back Pressure Control Stream Inlet	Standby Back Pressure Control Stream Outlet	Custody Transfer Station Outlet / Delivery Point	Vent Stack Outlet	Fuel Gas Distribution System Inlet
Pressure Class			900	900	900	900	600	600	600	600	600	150	600
Design Parameters													
Temperature - Maximum	°F		212	212	212	212	100	100	100	100	100	100	100
Temperature - Minimum	°F		23	23	23	23	23	23	23	23	23	-148	23
Maximum Pressure	psig		1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479	231	1,479
Fluid Parameters													
Phase	-		RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG	RLNG
Source	Qatar												
Composition													
Methane	mol%												
Ethane	mol%												
Propane	mol%												
i-Butane	mol%												
n-Butane	mol%												
i-Pentane	mol%												
n-Pentane	mol%												
Hexane	mol%												
Nitrogen	mol%												
Carbon Dioxide	mol%												
Total	mol%												
Molecular Weight	kg/kmol												
Higher Heating Value	Btu/scf												
FRSU IAS Operating Parameters													
FRSU Ordered Minimum Temperature	°F												
FRSU Ordered Maximum Pressure	psig												
FRSU Ordered Volumetric Flow Rate	MMSCFD												
Temperature	°F		38	38	-	-	42	41	42	41	41	-	38
Pressure	psig		1,229	1,214	1,229	1,214	1,214	1,200	1,214	1,200	1,200	-	1,231
Volumetric Flow Rate (NOTE 2)	MMSCFD		200	200	0	0	600	600	0	0	600	-	0.114
Heat Exchanged	MMBTU/h		0.0		0.0		-	-	-	-	-	-	-

NOTES

- 1) THE TEMPERATURE OF THE RLNG AT THE INLET TO THE DELIVERY FACILITY IS ASSUMED TO HAVE EQUALIZED WITH THE GROUND TEMPERATURE. THE DELIVERY FACILITY RLNG INLET TEMPERATURES WILL BE CONFIRMED AT DETAIL DESIGN STAGE.
- 2) RLNG FLOWRATE (MMSCFD) BASED ON BOD E-10100111-P-0500-001-4 INCLUDING THREE WBH. CLIENT IS ADVISED CURRENT MAXIMUM FLOW OF 400MMSCFD WITH TWO WBH INSTALLED, FOR FUTURE HIGH FLOWS ADDITIONAL HEATERS OR USE OF BYPASS TO BE CONSIDERED.

REFERENCES:

PROCESS PFD'S - 10100111-P-0700-XXX

001 - PFD SCHEMATIC

002 - PFD PROCESS DATA TABLE (HP)

003 - PFD PROCESS DATA TABLE (LP)

6	14/02/18	FINAL (EETL EXPANSION)	RW	SS	AW
5	03/07/15	FOR INFORMATION	RW	AN	DB
4	28.03.14	FOR REVIEW	RW	AN	DB
3	07.02.14	POST HAZOP ISSUE FOR REVIEW	RW	AN	DB
2	21.01.13	ISSUED FOR HAZOP	RW	DB	JAC
1	20.01.13	ISSUED FOR HAZOP	RW	DB	JAC
0	29.08.13	FOR COMMENTS	RW	DB	JAC
REV	DATE	DESCRIPTION	BY	CHK	APP



DRAWN BY	R.WHITELEY	PROJECT No	10100111
DATE	02.01.13	CLIENT REF	—
CLIENT	EXCELERATE ENERGY		
TITLE			
EETL FAST TRACK LNG PROJECT - PFD PROCESS DATA TABLE (HP) (SHEET 2 OF 3)			
SCALE @A1	DRAWING NUMBER		REVISION
NTS	E-10100111-P-0700-002		6