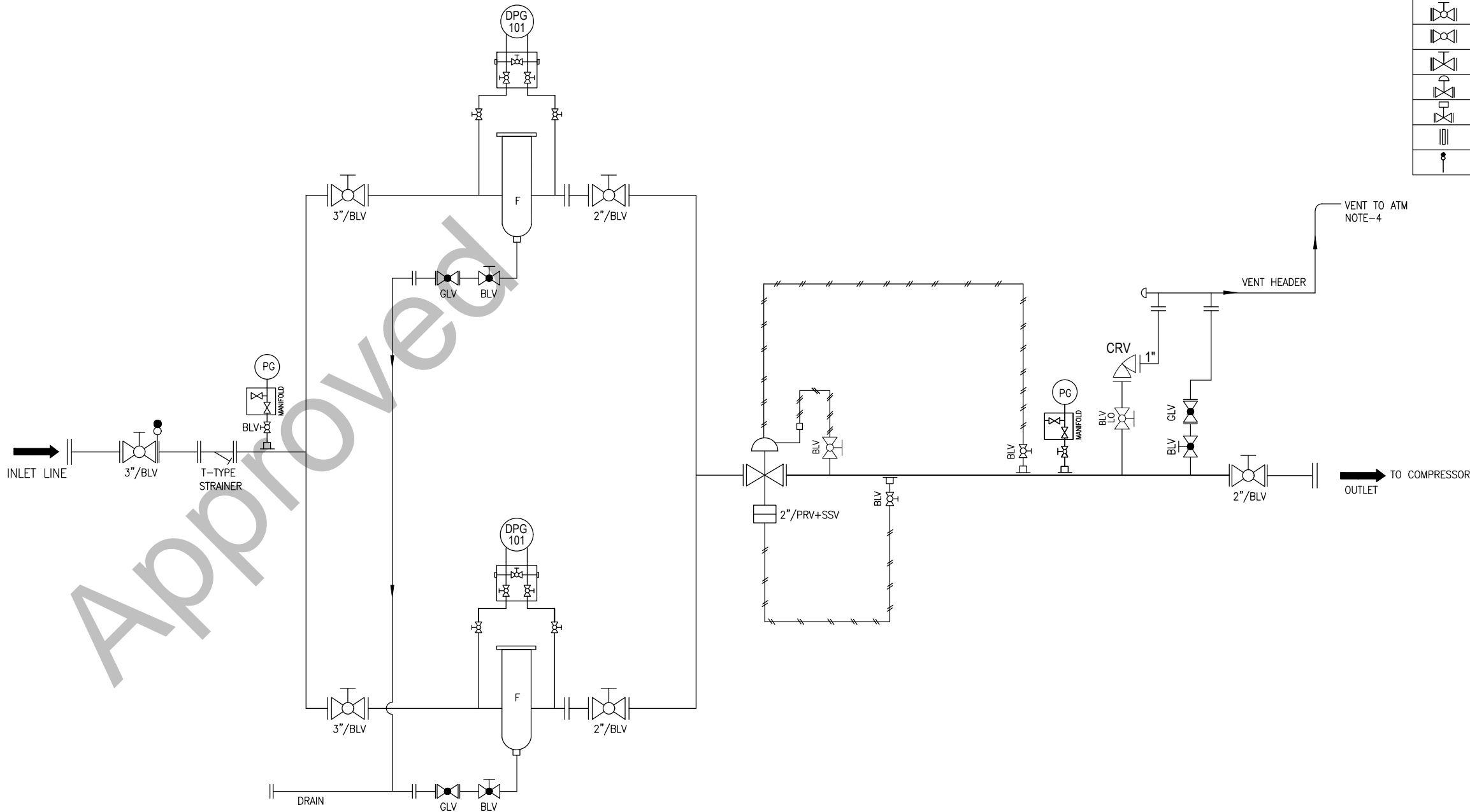


P&ID FOR PRS AT CNG STATION

LEGEND :-	
	PRESSURE GAUGE
	DIFFERENTIAL PRESSURE GAUGE
	INSTRUMENT TUBING
	PNEUMATIC SIGNAL
	CREEP RELIEF VALVE
	BALL VALVE (BLV)
	GLOBE VALVE (GLV)
	PLG VALVE (PLV)
	PRESSURE REGULATOR VALVE (PRV)
	SLAM SHUT-OFF VALVE (SSV)
	CHAECK VALVE WEFER TYPE
	SPECTACLE BLIND



NOTE :-

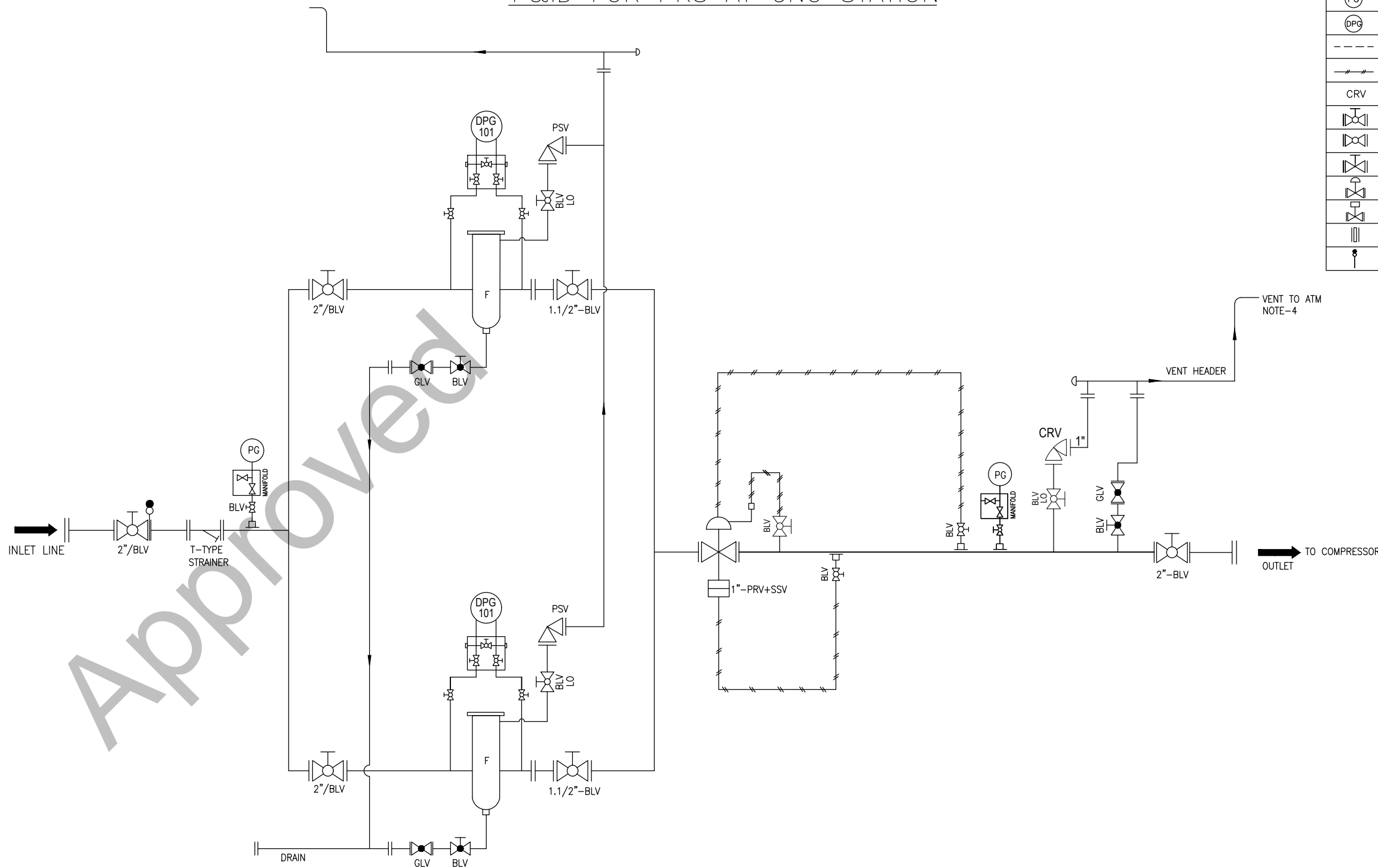
1. MATERIAL OF CONSTRUCTION AS PER GGL PMS.
2. ALL PIPE & PIPE FITNGS & FASTENERS WITH WASHER SHALL BE HOT DIP GALVANIZED.
3. ALL VENT LINE SHALL BE ELEVATED AT 3 METER FROM THE HIGHEST OPERATING PLATFORM.
4. COPPER JUMPER PLATE TO BE PROVIDED AT EACH FLANGE CONNECTION.
5. SIZING SHALL BE DONE BY THE VENDER & SHALL BE SUBMITTED TO GGL FOR APPROVAL.
6. THERE IS NO CHANGE IN PRESSURE CLASS THROUGHOUT THE SKID.
7. ALL THE DRAIN, PIPE SHALL BE RUN TILL SKID FRAME EDGE & TERMINATED WITH FLANGE END. THE COMPANION FLANGE & ASSOCIATED HARDWARE/GASKETS TO BE SUPPLIED AS LOOSE ITEMS.
8. PSV, CRV DOWNSTREAM & VENT LINE SHALL BE OF LTCS MATERIAL.

						PREPARED BY	CHECKED BY	APPROVED BY	GUJARAT GAS LIMITED GUJARAT GAS TECHNICAL SERVICES			
					SIGN.							
					NAME				PROJECT NAME: ARC FOR IPRS 150#			
					DATE	08.03.2019			STATUS: ISSUED FOR BID			
					FOR	GGL	GGL	GGL	TITLE: P&ID FOR PRS AT CNG STATION			
					CONTRACTOR :				SCALE	SHEET	DRAWING NO.	REV.
NO.	DATE	REVISION	REV.BY.	SIGN.	INSPECTION AGENCY :				NTS	1 OF 1	GGL-TS/PRS CNG/P&ID-001	00

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## P&ID FOR PRS AT CNG STATION


LEGEND :-	
	PRESSURE GAUGE
	DIFFERENTIAL PRESSURE GAUGE
	INSTRUMENT TUBING
	PNEUMATIC SIGNAL
	CREEP RELIEF VALVE
	BALL VALVE (BLV)
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	PRESSURE REGULATOR VALVE (PRV)
	SLAM SHUT-OFF VALVE (SSV)
	CHAECK VALVE WEFER TYPE
	SPECTACLE BLIND





### NOTE :-


1. MATERIAL OF CONSTRUCTION AS PER GGL PMS.
2. ALL PIPE & PIPE FITNGS & FASTENERS WITH WASHER SHALL BE HOT DIP GALVANIZED.
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7. ALL THE DRAIN, PIPE SHALL BE RUN TILL SKID FRAME EDGE & TERMINATED WITH FLANGE END. THE COMPANION FLANGE & ASSOCIATED HARDWARE/GASKETS TO BE SUPPLIED AS LOOSE ITEMS.
8. PSV, CRV DOWNSTREAM & VENT LINE SHALL BE OF LTCS MATERIAL.


						PREPARED BY	CHECKED BY	APPROVED BY	<b>GUJARAT GAS LIMITED</b> GUJARAT GAS TECHNICAL SERVICES PROJECT NAME: ARC FOR IPRS 300# & 600# STATUS: ISSUED FOR BID TITLE: P&ID FOR PRS AT CNG STATION SCALE: SHEET: DRAWING NO.: REV.: NTS 1 OF 1 GGL-TS/PRS CNG/P&ID-002 00			
					SIGN.							
					NAME							
					DATE	08.03.2019						
					FOR	GGL	GGL	GGL	CONTRACTOR :			
NO.	DATE	REVISION	REV.BY.	SIGN.	INSPECTION AGENCY :							

		<b>SPECIMEN COPY QUALITY ASSURANCE PLAN FOR PRS</b>			QAP No.:		PROJECT :PRS FOR CNG				
					DATE:						
GUJARAT GAS LIMITED		P.O. NO. :			MANUFACTURE'S NAME & ADDRESS:						
SR No	Component & Stage	Characteristic	Type of Check	Quantam of Check	Reference Standard/ Documents	Acceptance Standard / Documents	Format of Records	Inspection By			Remarks
								M	TPA	CLIENT	
1	Drawings & Calculations										
1.1	P & ID, GAD, BOM, QAP, Technical Datasheet, FAT ,SAT	Complete Skid	Submittals	100%	Technical Spec. and Datasheets	Approved Datasheet	Mfrs Format	P	RF	A	
2	Incoming Material Identification of Broughtout Items										
2.1	Ball valves, Globe valves & Check Valves	Material TC for valves	Chemical test	Per heat No	ASTM 370	As per GGL datasheet	Inspection Report 3.1	P	R	R	
			Physical Test (tensile,yield ,elongation& Hardness)	Per heat No							
			Impct Test	Per heat No							
		Dimension- Size, Rating,	Visual, Measurement	100%	Approved Datasheet	1)- Ball Valve: a)- Below 2" as per BS 17292 b)- Above 4" as per API 6D 2)-Globe valve:0.5-1.5" As per BS 15761	Inspection Report 3.1	P	R	R	--
		RT for casting	Test	100%	ASME B16.34 Appendix 1	ASME B16.34 Appendix 1	Inspection Report	P	R	R	
		UT for Forging	Test	100%	ASME B16.34 Appendix 1	ASME B16.34 Appendix 1	Inspection Report	P	R	R	

<div></div>		SPECIMEN COPY QUALITY ASSURANCE PLAN FOR PRS			QAP No.:		PROJECT :PRS FOR CNG				
					DATE:		2 of 5				
GUJARAT GAS LIMITED		P.O. NO. :			MANUFACTURE'S NAME & ADDRESS:						
SR No	Component & Stage	Characteristic	Type of Check	Quantam of Check	Reference Standard/ Documents	Acceptance Standard / Documents	Format of Records	Inspection By			Remarks
								M	TPA	CLIENT	
Ball valves, Globe valves & Check Valves		Hydro Body Test	Leak Test	100%	Approved datasheet/API6D/API 598	1.5 x Design Pressure Holding Time shall be as per the standard	Inspection Report 3.1	P	R	R	
		Hydro seat test	Leak Test	100%	Approved datasheet/API6D/API 598	1.1 x Design Pressure Holding Time shall be as per the standard	Inspection Report 3.1	P	R	R	
		High Pressure closer seat test	Leak Test	100%	Approved datasheet/API6D/API 598	Approved datasheet/API6D/API 598	Inspection Report 3.1	P	R	R	
		LOW PRESSURE (AIR) CLOSER(SEAT) TEST AT 7 KG/CM²	Leak Test	100%	Approved datasheet/API6D/API 598	at 7 kg/cm2 pressure Holding Time shall be as per the standard	Inspection Report 3.1	P	R	R	
		Back seat test	Leak Test	100%	Approved datasheet/API6D/API 598	Approved datasheet/API6D/API 598	Inspection Report 3.1	P	R	R	Not Applicable for Check Valves
		High Pre. Pneumatic Shell Test	Leak Test	100%	Approved datasheet/API6D/API 598	1.1 x Design Pressure Holding Time shall be as per the standard	Inspection Report 3.1	P	R	R	
		External Leak test at 7 kg/cm2	Leak test	100%	Approved datasheet/API6D/API 598	at 7 kg/cm2 pressure Holding Time shall be as per the standard	Inspection Report 3.1	P	R	R	
		Fire Safe Test	Type Test	100%	Approved datasheet/API6D/API 598 API 6FA	Approved datasheet/API6D/API 598 API 6FA	Inspection Report 3.1	P	R	R	
		Double Block & Bleed Test for 4" and above		100% for TMBV	Approved datasheet/API6D/API 598	Approved datasheet/API6D/API 598	Inspection Report 3.1	P	R	R	
		Anti Static Test (as Applicable)		100%	Approved datasheet/API6D/API 598	Direct current <12V and resistance on dry valves shall not exceed 10 ohms	Inspection Report 3.1	P	R	R	
		Operational Torque Test (As applicable)		100%	Approved datasheet/API6D/API 598	Breakaway torque or thrust shall not exceed 360 N (80 lbf)	Inspection Report 3.1	P	R	R	
		Functional Inspection (Open/Close Operation for flange end valves)	MINIMUM 10 CYCLES	100%	ASME B 16.34/ API 598	ASME B 16.34/API 598	Inspection Report	P	W	V	

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GUJARAT GAS LIMITED		P.O. NO. :			MANUFACTURE'S NAME & ADDRESS:						
SR No	Component & Stage	Characteristic	Type of Check	Quantam of Check	Reference Standard/ Documents	Acceptance Standard / Documents	Format of Records	Inspection By			Remarks
								M	TPA	CLIENT	
2.2	PG/DPG	Calibration, Accuracy, Range, Size, End connection)	Visual, Measurement Checks	100%	As per Approved Datasheet	As per Approved Datasheet	Inspection Report 3.1	P	R	R	--
2.3	Pipe, Pipe Fitting, Flanges for Interconnecting Piping & Fastners	Material TC, Size & Dimension	Chemical test	Per heat No	ASTM 370,ASME B 16.20 & B16.5 ASTM A320 & ASTM A194	As per GGL PMS and Datasheet	Inspection Report 3.1	P	R	R	
			Physical Test (tensile,yield,elongation & hardness)	Per heat No							
			Impact test	Per heat No							
2	Gaskets	Material TC	Chemical test & Physical Test	Per heat No	As per GGL Data sheet/Specification	As per drawing and Data sheet	Inspection Report 3.1	P	R	R	
		Size & Dimension	Visual, Measurement	100%							
3	Equipments										
3.1	Filter	Raw Material -Material TC, Size & Dimension	Chemical test	Per heat No	ASTM 370	As per GGL PMS and Datasheet	Inspection Report 3.1	P	R	R	
			Physical Test (tensile,yield ,elongation& Hardness)	Per heat No							
			Impact Test	Per heat No							
3.2	Filter	WPS & PQR	Welders Qualification & Welding	100%	ASME Sec. IX, Article II, follow QW200.1, QW482 for WPS & QW 483 for PQR or API 1104	As per ASME SEC. IX	WPS / PQR from Record	P	R	R	
3.3		In Process Inspection	Fit Up	100%	Approved Drawing	Approved Drawing & Standards	Inspection Reports	P	R	R	
3.4		DP test on Fillet Welds	Surface Defects	100%	As per ASME SEC. V	As per ASME SEC. VIII Div: 1	Inspection Reports	P	R	R	
3.5		Radiography after Final Weld	Soundness of weld joints	100%	As per ASME SEC. V	As per ASME SEC. VIII Div: 1	Inspection Reports	P	R	R	
3.6		Visual & Dimensional Check of Filter & Filter Element	Surface Finish & Dimensions	100%	Approved Drawing	Approved Drawing	Inspection Reports	P	W	R	
3.7		Hydro Test (4 hours Holding time)	Strength of weld joints	100%	Approved Drawing/1.5 times of Design Pressure/ASME SEC VIII DIV 1 UG 99	Approved Drawing/1.5 times of Design Pressure/ASME SEC VIII DIV 1 UG 99	Inspection Reports	P	W	V	

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GUJARAT GAS LIMITED		P.O. NO. :			MANUFACTURE'S NAME & ADDRESS:						
SR No	Component & Stage	Characteristic	Type of Check	Quantam of Check	Reference Standard/ Documents	Acceptance Standard / Documents	Format of Records	Inspection By			Remarks
								M	TPA	CLIENT	
4	<b>Welding, NDT &amp; Testing for Interconnecting Piping</b>										
4.1	WPS / PQR	Welders Qualification & Welding	Welders Qualification & Welding	100%	ASME Sec. IX, Article II, follow QW200.1, QW482 for WPS & QW 483 for PQR or API 1104	As per ASME SEC. IX//ASME B 31.8	WPS / PQR	P	R	R	
4.2	Liquid Penetrant Examination (DPT)	On Fillet Welds	Surface Weld Defects	100%	ASME Sec V	ASME SEC.31.3	Internal Inspection Report	P	R	R	
4.3	Radiography Test	To identify internal surface defects	Soundness of weld	100%	ASME Sec V	ASME SEC.31.3	Interpretation Report - Review of report	P	R	R	
4.4	Hydro Testing of Interconnecting Piping	Hydro test of weld joints	Strength of weld joints	100%	1.5 times of Design Pressure for 4 hrs	1.5 times of Design Pressure Holding time: 4 Hours	Inspection Report	P	W	V	
5	<b>PRV (Pressure Regulating Valve), SSV, CRV, PSV (Pressure Safety Valve)</b>										
5.1	PRV, SSV, CRV, PSV	Material TC for Body and Trim	Chemical Test	Per heat No	ASTM 370	Material as per GGL datasheet	Inspection Report 3.1	P	R	R	
			Physical Test(Tensile, Yield , elongation & hardness)	Per heat No							
			Impact Test	Per heat No							
		Dimension- Size, Rating, End Connection	Visual, Measurement	100%	Approved Datasheet	Approved Datasheet	Inspection Report 3.1	V	R	R	
5.2	PRV (Pressure Regulating Valve), SSV	Body Hydrotest as per Standard	Strength test	100%	EN 334, Clause no. 7.7.4, 1.5 times of design pressure Table no. 14 EN 14382	PRV as per EN 334 SSV as per 14382	Test Reports	P	R	R	
		External Seat tightness test			EN 334, Clause no. 7.7.6, 1.1 times of design pressure Table no. 15 EN 14382						
5.3	PRV	Accuracy Test	Accuracy Test	100%	EN 334, Clause no. 7.7.7.3	PRV as per EN 334 & approved data sheet	Test Reports	P	R	R	
5.4	CRV & PSV	Body Hydrotest as per Standard	Leak Test	100%	API 520	API 527	Test Reports	P	R	R	
		External Seat tightness test									
5.5	PRV, SSV, CRV, PSV	Set Point	Visual, Measurement	100%	Approved Datasheet	Approved Datasheet	Test Reports	P	R	R	

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SR No	Component & Stage	Characteristic	Type of Check	Quantam of Check	Reference Standard/ Documents	Acceptance Standard / Documents	Format of Records	Inspection By			Remarks
								M	TPA	CLIENT	
6	<b>Final Inspection of Skid Assembly</b>										
6.1	Final Dimensional/ Visual Inspection	Complete Skid	Visual Inspection	100%	Approved P&ID & GAD	Approved Drawings	Test Reports	P	W	V	--
6.2	Painting of Complete Skid & Canopy	1) Surface preparation: as per SA 2.5 2) Galvanizing as per ASTM A 153 3) Check Total DFT at Random Location	Visual & Final DFT measurement	100%	Surface preparation	Surface Preparation as per GGL approved Painting Procedure	Inspection Reports	P	W	V	--
					Visual & DFT Check as per Approved Painting Spec.	Hot Deep Galvanized & Painting as per GGL Approved paint procedure					
6.3	Verification of Material from approved vendor of equipments	Each Material (valves,,Piping ,fittings & Filter)	Approved Vendor	100%	Approved Vendor List of GGL	Approved Vendor List of GGL	Inspection	P	V	V	
6.4	Factory Acceptance Test	Pneumatic Test	No leakage from bolt Joints	100%	Approved FAT procedure	1) Pneumatic Test @ 7 kg/cm2 Time 30 mins      2) Holding	FAT Report	P	W	V	--
7	<b>Final Documentation:</b>										
7.1	Design & Calculation, Material compliance report as per EN 10204 3.1 , Calibration Certificate, GAD & P & ID, Final FAT report,NDT reports,Hydro & Pneumatic report,Test certificate of PRV,PSV,SSV,CRV	History docket	Verification of records	100%	Approved specification	As per approved specification	History Docket	P	R	R	
<b>M : Manufacturer; P : Performer; W : Witness ; R : Review ; A: Approval; RW: Random Witness ; V : Verification</b>											
Prepared By:			Reviewed By:				Approved By:				