


GUJARAT GAS

**SITE ACCEPTANCE TEST PROCEDURE
FOR
NATURAL GAS FILTRATION & PRESSURE REDUCTION SKID**

Document No. GGL/TS/SAT/SKID/001

00	Approved.	28/12/2017
REV. NO	REVISION DESCRIPTION	DATE OF ISSUE

NAME OF COMPANY	GUJARAT GAS LTD.		
	NAME	DESIGNATION	SIGN & DATE
Technical Committee (PRI)			
Approved By			



GUJARAT GAS

1 PREFACE

1.1 INTRODUCTION :

This document defines procedure for Site acceptance Test (SAT) to be carried out for Filtration & Pressure Reduction skid. The purpose of carrying out SAT is to check functionality of entire skid with respect to agreed technical documents & Commissioning.

1.2 SCOPE :

The SAT will confirm the compliance of Filtration & Pressure Reduction skid with project specifications.

All the equipment's / instruments/ items shall be installed (as far as possible) for functionality demonstration during SAT. In case some of the items cannot be erected/ installed during SAT, list of such item along with the reason for not installing the same shall be provided before start of SAT.

1.3 REFERENCE DOCUMENTS :

A) FOR _____ SCM#:

Design Documents of Skid		DOCUMENT No.
1	P & ID	
2	GA Drawing	
3	Base frame and Foundation Drawing	
4	Canopy Drawing	
5	Painting datasheet	
Datasheet / Drawing of Equipments:		
4	Active Pressure Control Valve	
5	Monitor Pressure Control Valve + Slam Shut off valve	
6	Pressure Safety valve	
7	Creep Relief Valve	
8	Cartridge Filter	



GUJARAT GAS

B) COMMON DOCUMENTS :

Design Documents of Skid		DOCUMENT No.
1	Quality assurance plan - Mechanical Items	
2	Quality assurance plan-Instrumentation Equipment	
3	Material Test certificate, Radiography test report, Hydro-test certificate	
Datasheet / Drawing of Equipments:		
4	Pressure Gauge	
5	Differential Pressure Gauge	
6	Temperature Gauge	
7	Ball Valves	
8	Check Valves	
9	Globe Valve	

1.4 ORIENTATION WITNESSES :

All Representatives shall be briefed on operating principles of the Filtration & Pressure Regulating Skid package before commencing the SAT.

1.5 TEST CERTIFICATES:

Upon completion of the tests mentioned in this document, Test Certificate should be filled with the results and signed/stamped by representatives of all the parties-VENDOR and TPI/Client

2 VISUAL INSPECTION OF SKID**2.1 SKID REVIEW :**

The skid will be inspected for installation of all the components as per approved P&ID and G.A. Drawing and other related documents listed in section 1.3. Dimensional checking shall be done as per approved G.A. drawing. The Skid will be inspected for proper support with rubber pads/ clamps for the major equipments/ Instruments and pipes, Blinds (for Drains/ Vent / End Flange), Jumpers Platforms, crossovers .etc.,

Stud & nuts with minimum 2 to 3 threads shall fall beyond the nut on both sides,

Vipul



GUJARAT GAS

Copper jumper plate on each flange joint.

2.2 TEST CERTIFICATE FOR VISUAL INSPECTION :

Upon completion of the visual inspection described in this section, the Test Certificate for Visual Inspection of skid should be dully filled and signed by both parties.

3 FACTORY ACCEPTANCE TEST

3.1 PNEUMATIC LEAK TEST:

Pneumatic leak test is carried out on completely erected skid using compressed air.

- 1) Keep all valves open. Close either inlet or outlet side pipe with blind flange.
- 2) Check all drain and vents are in closed position and safety valve inlets and intermediate line ball valves are in open condition.
- 3) Charge air at 1 Barg from inlet.
- 4) Slowly increase the pressure by steps of 1 Barg up to 7 Barg.
- 5) Inspect all flanged joints using soap water for 30 minutes and also inspect for any leakage in all Isolation Valve (Ball, Plug, Globe valves)/ control valve gland, joints, connections, impulse tubing or any other connection or any other part of skid. In case the leakage from skid or its part is noticed, the same shall be attended and corrected.

3.2 PRESSURE REGULATION SYSTEM:

This Section describes the procedure for checking the working of SSV, Pressure Regulators & CRV. However, final procedure with vendor recommendation shall be prepared by vendor and submitted to GGL for review.

Set points of all Pressure Regulators should be checked according to FAT Report attached at the end of this document.

- 1) Close outlet ball valves of pressure regulation system.
- 2) Open inlet ball valve of main pressure regulation system.
- 3) Pressurizing will make upstream pressure of SSV to an inlet pressure which is higher than the PRV set pressure so that simulation can be done.
- 4) Check the set point of each regulator. If required reset the set points and lock it. Record the set points in report.
- 5) SSV Limit switches feedback signal shall be checked for continuity by multimeter.



GUJARAT GAS

- 6) Changeover of Stream shall be demonstrated.
- 7) Functional test is to be performed in order to provide evidence that equipment is in working order. Functional tests are to be performed to ensure the continuity of supply of gas and/or to prevent system over pressurization.
- 8) Sequence of pressure setting for regulating devices of stream in skid during functional test is given below:
- 9) Pressure setting is started from;
 - 1st - SSV
 - 2nd - CRV
 - 3rd - Monitor-PRV
 - 4th - Active-PRV
- 10) Following steps are to be performed at factory location to carry out the functional test of skid.

Functional Test:-

- 1) Functional test of each stream should be carried out by safe venting of gas from venting line of each stream.
- 2) For functional test of current standby line, isolate the downstream by closing the outlet valve. Ensure current working line is functioning during testing.
- 3) For functional test of current working line, isolate the downstream by closing the outlet valve. Ensure the standby line which was converted as working stream is opened and functioning during testing.

Before starting functionality test of SSV ensure-

- Fully open both PRVs (Active & Monitor) & full tight the nut of CRV to fail CRV which makes bypass for setting of SSV.
- Functional test of SSV, CRV and PRVs in line order to be done as per steps given below.

Functional test of SSV:-

- 1) Make the PRV-A & PRV-M full tight (Max. downstream pressure) allow to pressure increased for functional checking of SSV at set pressure.
- 2) Slowly increase the line pressure by adjusting pilot valve of Monitor PRV till line pressure reaches at the predefined set pressure of SSV.
- 3) Adjust SSV pilot valve for tripping on set point.
- 4) If SSV is tripped at set point then lock the nut of SSV pilot.
- 5) Reset SSV that was tripped for further operation.
- 6) To ensure functionality repeat steps 4 and 5 for 2-3 times.

Functional test of CRV:-

- 1) After setting of SSV, slowly reduce the line pressure through pilot valve of Monitor PRV till line pressure reaches the set point of CRV. Adjust the CRV till gas starts slowly passing from venting line at the set point.

Vignesh R



GUJARAT GAS

- 2) Lock the CRV nut at set point of pressure.
- 3) Reduce pressure after resetting CRV.
- 4) Increase pressure repeat to observe functionality.

Functional test of Monitor-PRV:-

- 1) After setting of CRV, slowly reduce the line pressure through pilot valve of Monitor-PRV till line pressure reaches the set point of Monitor PRV.
- 2) When pressure is set on set point of Monitor-PRV then lock the nut of pilot valve.

Functional test of Active-PRV:-

- 1) After setting of Monitor-PRV, slowly reduce the line pressure through pilot valve of Active-PRV till line pressure reaches at the set point of Active-PRV.
- 2) When pressure is set on set point of Active-PRV then lock the nut of pilot valve.
- 3) Follow the safety norms as applicable during the carried out functional test of Filtration & Pressure Reduction skid.
- 4) So during functional test, both current working and standby stream shall be checked. Both streams should be functioning on predefined pressure set point.

4 PAINTING :

Painting shall be checked as per Painting procedure, Document No. -



GUJARAT GAS

TEST CERTIFICATE

LEAKAGE TEST OF COMPLETE SKID

Project NATURAL GAS FILTRATION & PRESSURE REDUCTION SKID.

Customer M/S. GUJARAT GAS LTD.

PO. NO.

System No. --

Test Pressure: 7.0 Barg.

Test Media : Nitrogen

Duration : 30 minutes

Sr.No.	POINTS INSPECTED	FOUND OK
1	LEAK TEST AT FLANGE JOINTS AND OTHER CONNECTIONS	YES / NO

Vendor

TPIA

Customer

Representative

Representative

DATE:

Vijay R.



GUJARAT GAS

TEST CERTIFICATE

FUNCTIONAL TEST OF PRESSURE REGULATION SYSTEM

Project NATURAL GAS FILTRATION & PRESSURE REDUCTION SKID.

Customer M/S. GUJARAT GAS LTD.

PO. NO.

System No. --

SAT CHECK LIST

ITEM	INSPECTION	SET PRESSURE (Barg)	CHECKED	REMARKS
1	Set Point of PCVA-101		Accepted / Rejected	
2	Set Point of PCVA-102		Accepted / Rejected	
3	Set Point of PCVM-101		Accepted / Rejected	
4	Set Point of SSV-101		Accepted / Rejected	
5	Set Point of PCVM-102		Accepted / Rejected	
6	Set Point of SSV -102		Accepted / Rejected	
7	Set Point of CRV-101		Accepted / Rejected	
8	Set Point of CRV-102		Accepted / Rejected	
9	Set Point of PSV-101		Accepted / Rejected	
10	Set Point of PSV-102		Accepted / Rejected	
11	Limit switch continuity check		Accepted / Rejected	

* -Set points shall be set as per site requirements within the acceptable limits of approved P&ID process parameters & the same shall be filled in above table.

Vendor

TPIA

Customer

Representative

Representative

DATE:

SAT PROCEDURE FOR FILTRATION AND PRESSURE REDUCTION SKID


Page 7 of 8



GUJARAT GAS

TEST CERTIFICATE

ACTION LIST

Project NATURAL GAS FILTRATION & PRESSURE REDUCTION SKID.

Customer M/S. GUJARAT GAS LTD.

PO. NO.

System No. --

Sr. No.	Description	Action By
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Vendor

TPIA

Customer

Representative

Representative

DATE:

Vipul R