TITLE: OPERATING & PREVENTIVE MAINTENANCE PROCEDURE FOR NITROGEN GAS PLANT

1.0 PURPOSE:

To describe a procedure for operation and Preventive Maintenance of Nitrogen gas plant.

2.0 SCOPE:

This procedure is applicable to operation and preventive maintenance of Nitrogen Gas plant at Discovery Laboratories Pvt Ltd.

3.0 RESPONSIBILITY:

3.1 Technician and Electrician

Is the responsible to operate follow the safety precautions during the preventive maintenance works

3.2 Engineer:

It is the responsible to monitor the activity.

4.0 DEFINITIONS: NIL

5.0 PROCEDURE :

5.1 Start-up Procedure

5.1.1 Check that all electrical connections are O.K. Power and control panel is getting power supply.

5.1.2 Check the Zeroing of all instruments.

5.1.3 Ensure that manual drain valves of all equipment are closed.

5.1.4 Switch ‘ON’ the main switch & control supply switch and accept ‘hooter’.

5.1.5 Start the air compressor. (push Button on Air Comp. Control Panel)

5.1.6 As soon as air receiver pressure reaches 5.5 Kg/Cm2g, the sequence of PSA starts automatically.

5.1.7 Observe the operation of the Units for same time and see that the PSA module is working all right. Check that the pressurization and depressurization of towers are O.K.

5.1.8 Check the maximum pressure in the adsorbing towers of PSA unit goes to 7.0 Kg/ Cm2g. If required control that airflow by the globe valve V9 provided just at the air inlet

into the PSA module. Settings should be disturbed only after watching the result for 15-20 minutes.

5.1.9 Check and control the Globe valve V10, to produce the desired Nitrogen Flow rate.

5.1.10 After the pressure in surge tank has reached up to 6.0 Kg/Cm2g, open and set the globe valve in Nitrogen line Rota meter for desired nitrogen flow. (Maximum 15 Nm3/Hr).

5.1.11 Check that the purity of raw nitrogen is at-least 99.9% i.e. percentage oxygen analyzer indicates a reading of 0.1%.

5.1.12 Close vent valve by selecting ON Position in SW-3.

5.1.13 Record the operation conditions after regular intervals of 1 hour.

5.2 **Normal Shutdown:**

5.2.1 Open Vent valve by selecting OFF position in SW-3.

5.2.2 De-pressurize system by opening various drain valves. However, if the plant is to be re-started within 2-3 hours, it is not required.

5.3 **Preventive Maintenance of Nitrogen Plant**

5.3.1 Start the Air Compressor and observe for any abnormal sound and vibration

5.3.2 Check the air leakages throughout the system

5.3.3 Check the pneumatic valves for opening and closing

5.3.4 Check the N2 storage tank for any air leakages

5.3.5 Check the safety valves working condition

5.3.6 Isolate the power supply by removing the fuses of the system

5.3.7 Clean the air filter

5.3.8 Check the air compressor oil level

5.3.9 Check the compressor for any oil leakage

5.3.10 Check the belt condition for wear and tear

5.3.11 Tighten all exterior bolts & Nuts

5.3.12 Check for any loose connection in motor terminal

5.3.13 Check the earth connection of motor & System

5.3.14 Check the bearings & pulley for abnormal sound

5.3.15 Record the preventive maintenance observation and action in Preventive maintenance checklist for Nitrogen Plant, ED024-FM068

5.3.16 Record the preventive maintenance activity in Equipment History record, ED010-FM011

1.0 FORMATS / ANNEXURE(S):

Nitrogen gas Plant Log Book : ED024-FM067

Preventive maintenance checklist for Nitrogen gas Plant : ED024-FM068

2.0 CHANGE HISTORY:

Revision No.	Effective Date	Details of Revision	Ref. CCF No.
00	04.04.2018	New SOP Prepared	CCF-GEN-18011

	Prepared by	Reviewed by	Approved by
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