

GREEN GAS LIMITED



Safe Operation and Disaster Risk Reduction
Plan adopted in supply of PNG & CNG
through CGD Networks.

Date: 19th June 2018

Venue: Lucknow



INTRODUCTION

- i. Green Gas Limited is a Joint Venture of GAIL (INDIA) Ltd. & Indian Oil Corporation Ltd.
- ii. Green Gas Ltd. (GGL) incorporated on 7.10.2005 as Public Limited Company, registered in Lucknow to implement CGD projects in Lucknow & Agra as per directive of MoPNG.
- iii. Post formation of PNGRB, authorization by PNGRB received on 3.11.2009 for Agra and 15.3.2016 for Lucknow.



NATURAL GAS - FACTS

Typical Natural Gas Composition:

- ▶ Methane – 90-95%
- ▶ Ethane – 3–5 %
- ▶ Other Hydrocarbons – 1.5 %
- ▶ Carbon Di Oxide – 0.11 %
- ▶ Nitrogen – 0.2%
- ▶ Sulphur – less than 10 ppm

Properties of Natural Gas:

- i. Colorless
- ii. Odorless
- iii. Tasteless
- iv. Non-toxic
- v. Flammable
- vi. Net Calorific Value: 8500 Kcal / SCM (approx.)
- vii. Flammability Range: 5% - 15%
- viii. Auto-ignition Temperature: 540 degree C

Fire Safety Trainings at CNG Stations

Monthly Fire & Safety Trainings to all workers of CNG Stations. Following topics are covered:

- i. Types of Fire Extinguishers
- ii. How to use Fire Extinguishers
- iii. Actions in case of an emergency





SAFETY INTERLOCKS IN MACHINES

Safety interlocks are provided in the PLC system to give Audio-Visual alarm & trip the unit whenever following parameters crosses the High/Low limits :

- ✓High Discharge Pressure : Each stage
- ✓Low Pressure : Suction, Engine Lube Oil, Compressor Oil
- ✓High Temperature : Each stage, Lube Oil, Coolant
- ✓Gas Leakage in the Package
- ✓Flame
- ✓Low Level : Lube Oil, Coolant
- ✓High Vibration



Safety Parameters in Compressor Package

- ✓ 2 Nos. of L.E.L. Detectors in each partition of the package provided to sense gas leakage.
- ✓ 2 Nos. of UV / IR flame detectors provided in each partition of the package to sense Flame.
- ✓ The signals of each of these sensors are continuously monitored by the PLC system. Upon sensing presence of Gas or Flame, the PLC trips the unit, and isolates it from suction line, CNG dispensers & the cascades.
- ✓ The compressor package is provided with a CO₂ flooding system, which is triggered by signal from the UV/IR flame detectors. On detection of flame, CO₂ is discharged to extinguish the fire.
- ✓ The CNG compressor packages are provided with an Emergency Shut Down System.
- ✓ The ESD system is activated by pushing a Mushroom Head type Emergency switch mounted in a safe & accessible location.



IGNITION SOURCES OF FIRE

- ✓The Natural Gas Engine is provided with a Breaker-less Ignition system. There is no distributor in the system, which might be a potential source of spark.
- ✓All the wiring harness of the Ignition system are enclosed in grounded, metal shielded flexible conduits, thus any leakage current does not generate spark.
- ✓The Ignition transformers are mounted on the spark plug, avoiding any high tension cable.
- ✓Engine Silencer is Residential / Hospital type with Exhaust Flame trap and Spool type Flexible Connector.



FIRE TRAININGS AT PNG SITES

- ❑ Fire Safety Training at PNG sites.
- ❑ Training to the Security Guards of Apartments.





MITIGATION PLAN FOR DISASTER REDUCTION

To avoid any damage by Third Party we are taking care as per following:

1. Round the clock Patrolling on different routes.
2. Inspection of Braided Rubber Hose Pipe of Domestic Consumers with LEL Meters.
3. Awaring the residents of societies / apartments / colonies for passing the information of Third Party Work on gas pipeline to GGL Office.
4. In case of any emergency, O&M and F&S team along with Emergency Response Vehicle rush to the site and rectify the leakage.



OTHER SAFETY PARAMETERS FOR PNG & CNG SITES

- Installation of Fire Extinguishers & Sand Buckets at CNG Stations as per Gas Cylinder rules, 2016.
- Safety Audits of all CNG Stations.
- Safety & Operational Training to all staff
- Preventive Maintenance of Equipment
- Regular Testing and Calibration
- Portable & fixed Gas Detectors for Checking Leaks
- Compressor Area Fenced
- Installation of Safety Guards for Dispensers
- Mock Drills.
- Permit to work System
- House to House physical inspection of Braided Hose Pipes.
- Screening of Safety Films.



Thank You.....!!