



MINERAL & INDUSTRIAL GASES SAFETY RULES, 2010

**GOVERNMENT OF PAKISTAN
MINISTRY OF INDUSTRIES AND PRODUCTION
(DEPARTMENT OF EXPLOSIVES)**

Islamabad, the December, 2010.

NOTIFICATION

S.R.O. (I)/2010.- In exercise of the powers conferred by section 4, sub-section (2) of section 5, sub-section (2) of section 14, sections 21 and 22 and sub-section (1) of section 29 of the Petroleum Act, 1934 (XXX of 1934), the Federal Government is pleased to make the following rules, the same having been previously published *vide* its Notification No. S.R.O. 998(I)/2010, dated the 13th October, 2010, as required under sub-section (2) of section 29 of the said Act, namely:-

CHAPTER I

PRELIMINARY

1. Short title and commencement.— (1) These rules may be called the Mineral and Industrial Gases Safety Rules, 2010.

(2) They shall come into force at once.

2. Definitions.— In these rules, unless there is anything repugnant in the subject or context,—

(i) “**Act**” means the Petroleum Act, 1934 (XXX of 1934);

(ii) “**Appendix**” means the Appendix to these rules;

- (iii) “**approved**” means a drawing, design, specification or code approved by the Chief Inspector;
- (iv) “**A S A A 21.1**” means American Recommended Practice Manual for Computation of Strength and Thickness of Cast Iron Pipes;
- (v) “**A S A Code**” means American Standard Code for Gas Transmission and Distribution Piping System (A S A B 31-1-8-1955);
- (vi) “**authority**” means The Chief Inspector of Explosives in Pakistan or his authorized officer or representative duly notified;
- (vii) “**Auto LPG**” means liquefied petroleum gas meant for automotive fuel;
- (viii) “**bottle-type holder**” means any bottle-container or a group of interconnected bottle containers installed at one location and used for the sole purpose of storing gas;
- (ix) “**bottling plant**” means a premises where cylinders are filled with compressed gas;
- (x) “**Chief Inspector**” mean the Chief Inspector of Explosives in Pakistan;
- (xi) “**Company**” means a gas transmission or distribution company or corporation;
- (xii) “**competent person**” means a person or an organization recognized by the Chief Inspector, for such gases and for such period as may be specified as competent for carrying out tests, examination, inspection and certification for installation and transport vehicles as stipulated in these rules, if such a person or organization possess the qualification, experience and other requirements as set out in Appendix-II to these rules and is recognized as per procedure laid down in rule 12, provided that the Chief Inspector may relax the requirements of qualifications in respect of a competent person if such a person is exceptionally experienced and knowledgeable, but not the requirements in respect of the facilities at his command;
- (xiii) “**composite cylinder**” means a cylinder made of resin impregnated continuous filament wound over a metallic or a non-metallic liner. Composite cylinders using non-metallic liners are referred to as all-composite cylinders;
- (xiv) “**Conservator**” in relation to a port includes any person acting under the authority of the officer or body of person appointed to be Conservator of that port;
- (xv) “**Compressed gas**” means any permanent gas, liquefiable gas or gas dissolved in liquid, under pressure or gas mixture which in a closed pressure vessel or

gas cylinder exercises a pressure exceeding two atmosphere (gauge) at the maximum working temperature and includes Hydrogen Fluoride. In case of vessel without insulation or refrigeration, the maximum working temperature shall be considered as 55° C;

- (xvi) **“compressor station”** means an installation for raising pressure in gas transmission and distribution lines as well as for compressing gas/gas vessels in gas holders, vessels or gas cylinders meant for storing gas;
- (xvii) **“corrosion”** means all forms of wastage, and includes oxidation, scaling, mechanical abrasion and corrosion;
- (xviii) **“CNG daughter station”** means CNG facilities not connected to natural gas pipeline. Such CNG dispensing station receives CNG through mobile cascade;
- (xix) **“CNG mother station”** means CNG facilities connected with natural gas pipeline and having a compressor meant primarily to fill mobile cascades of daughter station. Such stations may also have stationery cascade for CNG dispensing to vehicles;
- (xx) **“CNG online station”** means CNG facilities connected with natural gas pipeline and having a compressor primarily to fill stationary cascades for dispensing CNG to vehicles;
- (xxi) **“critical temperature”** means the temperature above which gas cannot be liquefied by the application of pressure alone;
- (xxii) **“cube box”** means a durable receptacle designed to give access to a buried valve (curb shut-off) installed in a service line;
- (xxiii) **“Deputy Chief Inspector of Explosives”** includes Inspector of Explosives and Assistant Inspector of Explosives;
- (xxiv) **“design pressure”** means the pressure used in the design calculations of a vessel for the purpose of determining the minimum thickness of the various component parts of the vessels;
- (xxv) **“dissolved acetylene cylinder”** means a cylinder having a valve and with or without safety devices, containing a porous mass, a solvent for the storage of dissolved acetylene and at least sufficient acetylene to saturate the solvent at atmospheric pressure and at a temperature of +15 °C.
Explanation.-Acetone or any other solvent used shall not be capable of chemical reaction with the acetylene gas or with the porous mass or with the metal of the cylinder or valve;
- (xxvi) **“dissolved gas”** means a gas which under pressure is dissolved in a fluid solvent appropriate to the particular gas as for example, acetylene in acetone or ammonia in water;

- (xxvii) **“dispenser”** means an equipment installed in liquefied petroleum gas dispensing station, meant for dispensing liquefied petroleum gas as automotive fuel to motor vehicles;
- (xxviii) **“district authority”** means— District Nazim, District Coordination Officer; District magistrate, Political Agent or Commissioner , as the case may be;
- (xxix) **“distribution main or supply main”** means pipe installed in a community to convey gas through a Pressure Regulating Station from a transmission line to a feeder main or a service line or a large volume consumer;
- (xxx) **“domestic house line”** means pipe which connect a consumer’s gas equipments to his gas meter;
- (xxxi) **“feeder main”** means pipe for conveying gas through a Pressure Regulating Station from supply main to Consumers meters by means of a Service line;
- (xxxii) **“fill point”** means the point of the inlet pipe connection of a vessel where hose is connected for filling the compressed gas into the vessel;
- (xxxiii) **“filling pressure”** means the maximum permissible gauge pressure, converted to + 15 °C, at which a gas cylinder for permanent gas or gas dissolved under pressure can be filled;
- (xxxiv) **“filling ratio”** means the ratio of the weight of a liquefiable gas introduced in the cylinder to the weight of the water the cylinders will hold at 15 °C;
- (xxxv) **“flammable compressed gas”** means gas 13 percent or less of which when mixed with air forms a flammable mixture or whose flammable range with air is greater than 12 percent;
- (xxxvi) **“flammable gas”** means any gas which, if either a mixture of 13 per cent or less (by volume) with air forms a flammable mixture or the flammability range with air is greater than twelve per cent regardless of the lower limit and these limits shall be determined at atmospheric temperature and pressure;
Explanation.-“flammability range” means the difference between the minimum and maximum percentages by volume of the gas in mixture with air that forms a flammable mixture;
- (xxxvii) **“flammability range”** means the difference between the minimum and maximum percentage by volume of the gas in mixture with air that forms a flammable mixture at atmospheric pressure and ambient temperature;
- (xxxviii) **“Form”** means a Form set forth in a Schedule;
- (xxxix) **“gas”** means natural gas used as industrial or domestic fuel;

- (xl) **“gas cylinder”** or **“cylinder”** means any closed metal container having a volume exceeding 500 ml but not exceeding 1000 litres intended for the storage and transport of compressed gas, including any liquefied petroleum gas (LPG) container/compressed natural gas (CNG) cylinder fitted to a motor vehicle as its fuel tank but not including any other such container also fitted to a special transport or under-carriage and includes a composite cylinder;
- (xli) **“gas free”** in relation to a pressure vessel means the concentration of flammable or toxic gases or both if such pressure vessel is within the safe limits specified for persons to enter and carry out hot work in such vessels;
- (xlii) **“gas service”** means pipeline that connects a gas feeder main or a pipeline with a consumer’s meter;
- (xliii) **“high pressure”** means a gas pressure in a piping system exceeding 150 pounds per square inch gauge;
- (xliv) **“high pressure liquefiable gas”** means a liquefiable gas having a critical temperature between -10°C and $+70^{\circ}\text{C}$;
- (xlv) **“high pressure piping system”** means pipes and components in a system including meters, valves, flanges, gauges fittings, special assemblies, etc., designed to withstand high pressure depending upon its constructional specifications with least hazard to public safety;
- (xlvi) **“hydrostatic stretch test”** means subjecting the cylinder to a hydrostatic pressure equal to the test pressure of the cylinder and recording the permanent stretch undergone by the cylinder;
- (xlvii) **“hydrostatic test”** means the test to which a cylinder is subjected to a hydrostatic pressure equal to the test pressure of the cylinder;
- (xlviii) **“import”** means bringing into Pakistan by land, sea or air;
- (xlix) **“inert gas”** means a gas which is resistant to chemical action under normally encountered conditions;
- (l) **“inspecting Authority”** means a person having qualifications and wide experience in the field of design, manufacture and testing of gas cylinders and recognized by the Chief Inspector of Explosives as authority for inspection and certification of gas cylinder;
- (li) **“installation”** means any premises wherein any place has been specially prepared for the manufacture (filling) or storage of compressed gas in gas cylinder and pressure vessel;
- (lii) **“Inspector”** means a Officer authorized by the Central Government under sub-section (1) of section 13 of the Act;

- (liii) **“inspector of explosive”** includes Deputy Chief Inspector of Explosive, Inspector of Explosive and Assistant Inspector of Explosive;
- (liv) **“licensing authority”** means the Chief Inspector of Explosives;
- (lv) **“liquefiable gas”** means a gas that may be liquefied by pressure at -10°C but will be completely vaporized when in equilibrium with normal atmospheric pressure (760 mm. Hg) at 17.5°C which value shall be increased to 30°C for toxic gases;
- (lvi) **“liquefied petroleum gas”** means any material, which comprises predominantly of any of the following hydrocarbons or mixture of them with vapour pressure not exceeding 16.87 kg/cm² (gauge) at 65°C :- Propane (C₃H₈), propylene (C₃H₆), butane ((C₄H₁₀), (n-butane and iso-butane) and butylene (C₄H₈).
- (lvii) **“liquefiable gas”** means any gas that may be liquefied by pressure above -10°C , but will be completely vaporized when in equilibrium with normal atmospheric pressure (760 mm Hg) at 30°C ;
- (lviii) **“liquefied petroleum gas”** included hydrocarbon gases in liquefied state at normal ambient temperature by the application of pressure, and conforming to Pakistan Standard Quality Control Authority’s specifications;
- (lix) **“liquefied petroleum gas dispensing station”** means a premises used for storing and dispensing liquefied petroleum gas as automotive fuel to the motor vehicles;
- (lx) **“low pressure”** means a gas pressure in a piping system not exceeding 150 pounds per square inch gauge;
- (lxi) **“low pressure liquefiable gas”** means a liquefiable gas having critical temperature higher than $+70^{\circ}\text{C}$;
- (lxii) **“low pressure piping system”** means pipes and components in a community including meters, valves, flanges, gauges, fittings, special assemblies, etc., specific only to with stand low pressure with least hazard to public safety.
- (lxiii) **“manufacture of gas”** means filling of a cylinder with any compressed gas and also includes transfer of compressed gas from one cylinder to any other cylinder;
- (lxiv) **“oxidizing gas”** means a gas which gives up Oxygen readily or removes hydrogen from a compound or attracts negative electrons;
- (lxv) **“Petroleum service station”**, means a premises used for storage of petroleum for the purpose of fuelling motor vehicles, and licensed in Form “K” of the Petroleum Rules, 1937;

- (lxvi) **“Permanent gas”** means a gas whose critical temperature is below -10°C that is to say a gas which cannot be liquefied under any pressure at a temperature above -10°C ;
- (lxvii) **“Poisonous (toxic) gas”** a gas which has a maximum allowable concentration in air for human respiration not exceeding 100 mg/m^3 at 15°C and 1 kgf/cm^2 absolute pressure;
- (lxviii) **“pressure vessel”** means any closed metal container of whatever shape, intended for the storage and transport of any compressed gas which is subjected to internal pressure and whose water capacity exceeds one thousand liters and includes inter connecting parts and components thereof upto the first point of connection to the connected piping and fittings, but does not include containers wherein steam or other vapour is or is intended to be generated or water or other liquid is or is intended to be heated by the application of fire or the products of combustion or by electrical means, heat exchangers, evaporators, air receivers, steam type digesters, steam type sterilizers, autoclaves, reactors, calorifiers, pressure piping components such as separators or strainers and vessels containing a liquid under a blanket of compressed inert gas;
- (lxix) **“pipe”** means a tubular item produced for sale as such;
- (lxx) **“pipe-type holder”** means any pipe-container or a group of interconnected pipe-containers installed at one location and used for the sole purpose of storing gas;
- (lxxi) **“pressure expressed in passing”** means pressure in pounds per square inch above atmospheric pressure i.e., gauge pressure;
- (lxxii) **“private rights of way”** means rights of way not located on public roads, streets, highways or railroads;
- (lxxiii) **“protected works”** means building or places in which persons dwell or assemble or where any combustible material is stored and includes docks, wharves, public roads and streets, public foot-paths and public parks, but do not include any building or place which forms part of an installation;
- (lxxiv) **“regulator station”** means an installation incorporating a number of valves, regulators and vents, if any, for the purpose of controlling gas pressure in a gas transmission or distribution system;
- (lxxv) **“relief valve”** means a valve so designed and installed on a pipeline as to relieve any excess gas pressure in the line by venting the gas out into the atmosphere;
- (lxxvi) **“safety relief device”** means an automatic pressure relieving device actuated by the pressure upstream of the valve and characterized by fully opened pop

action, intended to prevent the rupture of a pressure vessel under certain conditions of exposure;

- (lxxvii) **“Schedule”** means the Schedule to these rules;
- (lxxviii) **“source of ignition”** means naked lights, fires, exposed incandescent materials, electric welding arcs, lamps, other than those specially approved for use in flammable atmosphere, or a spark or flame produced by any means;
- (lxxix) **“service line”** means pipes, which connect a feeder main or supply main to a consumer’s meter;
- (lxxx) **“shut-off valves”** means a valve designed and installed on a gas pipeline to stop the flow of gas and when required;
- (lxxxi) **“tare weight”** in relation to –
- (a) acetylene cylinder means the weight of the cylinder together with any fittings, permanently attached and includes the weight of valve any safety device, porous mass, requisite quantity of solvent for dissolving acetylene, and the weight of acetylene gas saturating the solvent at atmospheric pressure and temperature of 15 °C;
 - (b) liquefiable gas cylinder means the weight of the cylinder together with any fittings permanently attached thereto and includes the weight of valve; and
 - (c) permanent gas cylinder means the weight of the cylinder together with any fittings permanently attached thereto and excludes the weight of valve;
- (lxxxii) **“tank truck loading or unloading gantry”** or **“hard stand”** means the position of parking of tank truck or mobile pressure vessel for loading or unloading of compressed gas into or from it;
- (lxxxiii) **“test pressure”** means the internal pressure required for the hydrostatic test or hydrostatic stretch test of the cylinder, as follows:-
- (a) for permanent and high pressure liquefiable gases, it should be calculated from the following:
$$200. t. Re$$
$$Ph = \frac{1.25 (Do-t)}{t} \times \frac{Re}{100}$$
Where Ph = Test pressure in kgf/cm²
Do = Outside diameter of the cylinder in mm.
t = Minimum calculated wall thickness of the cylinder shell in mm.
Re = Minimum specified yield strength of the material of cylinder in kgf/mm², it is limited to 75 per cent of the minimum value of the tensile strength in the case of normalized cylinder and 85 per cent of the

minimum value of the tensile strength for quenched and tempered cylinder, provided that the value of test pressure shall not exceed 80 percent of the yield strength; and

(b) for low pressure liquefiable gas - One and a half times the saturated vapour pressure of the gas at 65 °C ;

(lxxxiv) “**transport**” means the transport of a pressure vessels/ gas cylinders filled with any compressed gas from one place to another but does not include movement of the vessel from one place to another in the same premises;

(lxxxv) “**transmission line or transmission main**” means pipes installed in a system for the purpose of transmitting gas from source of supply to distribution or supply mains or to large volume customers or pipes installed to interconnect two or more transmission;

(lxxxvi) “**vehicle**” means a mechanically propelled carriage designed to transport by land compressed gas in a pressure vessel mounted thereon, and shall not include a vessel forming the barrel of a rail tank wagon;

(lxxxvii) “**vessel**” means a pressure vessel;

(lxxxviii) “**water capacity**” means the volume of water in litres, a cylinder will hold at 15 °C;

(lxxxix) “**working pressure for low pressure liquefiable gas**” means the saturated vapour pressure at 65°C;

(xc) “**working pressure for permanent gas**” means the internal pressure of the gas the cylinder at a temperature of 15 °C;

(xci) “**yield strength**” means the stress corresponding to a permanent strain of 0.2 per cent of the original gauge length in a tensile test. For practical purpose it may be taken as a stress at which elongation first occurs in the test piece without the increase of load in a tensile test; and

(xcii) “**3rd Party Inspector**” means a professional organization recognized by the Chief Inspector of Explosives for certifying pressure vessels and their fittings after carrying out stage wise inspection during fabrication, as stipulated in the rules so as to ensure that the pressure vessels are designed and constructed in accordance with ASME, Pressure Vessel Code, section VIII div I or any other equivalent standard approved by the Chief Inspector, if the constituent members of the organization possess the qualifications and experience and other requirements as set out in Appendix-II to these rules and the recognition is granted as per procedure laid in rule 12.

3. Restriction on filling and manufacture.—(1) No person shall manufacture and fill any compressed gas in any vessel or transport any vessel filled with any compressed gas unless

such vessel has been manufactured in accordance with a type or standard or code as specified under rule 36.

(2) No person should manufacture any vessel approved under sub-rule (1) without the prior approval of the Chief Inspector.

(3) Any person seeking approval of the Chief Inspector under sub-rule (2) shall submit to him,-

(a) the particulars specified in Appendix- I to these rules; and

(b) a scrutiny fee of rupees five thousands in the manner specified under rule 11.

(4) No person shall import any vessel without prior approval of the Chief Inspector.

(5) Any person seeking the approval of the Chief Inspector under sub-rule (4) shall submit to him,-

(a) a test and inspection certificate of the vessel from the manufacturer or the inspecting agency of the country of origin; and

(b) the design details of the vessel, its fittings and particulars of specifications of the materials used in construction thereof.

4. Restriction on delivery and dispatch. — (1) No person shall deliver or dispatch any compressed gas filled in a vessel to any person other than the holder of a storage license issued under these rules or to a port authority or a railway administration.

(2) No compressed gas delivered or dispatched under sub-rule (1) shall exceed the quantity which the person to whom it is delivered or dispatched is authorized to store under the licence held by him.

5. Repair to pressure vessels. — (1) No person shall carry out any repairs, additions or alterations to any vessel unless; the proposed repairs, additions or alternations and the method of execution have been approved by the Chief Inspector. Any such repairs, additions or alterations approved by the Chief Inspector shall be carried out in the manner and by practices acceptable under the design code referred to in rule 36:

Provided that nothing in this rule shall apply to the replacement of any of the fitments of the vessel, which does not involve any heating.

(2) Before any repairs, additions or alterations are carried out to any vessel; the same shall be completely emptied and purged with an inert gas.

(3) Complete record of repairs, additions or alterations referred to in sub-rule (1) shall be maintained and made available to Chief Inspector and his permission shall be obtained before decommissioning the vessel.

(4) Due safety precautions shall be taken during repair to pressure vessels.

(5) Persons having adequate knowledge, experience, and skill shall be appointed for repairing to pressure vessels.

6. Purging of pressure vessels used for flammable gases.— (1) Before using any new vessel or before the refilling of any existing vessel which has been made gas-free, air contained therein shall be purged by an inert gas or by the gas for which the vessel is to be used.

(2) If the vessel is purged by means of a flammable gas, the flammable mixture so formed shall be vented from the vessel only after taking adequate precautions to prevent its ignition.

7. Prohibition of employment of children and intoxicated persons.—No person under the age of eighteen years or who is in a state of intoxication shall be employed for the loading, unloading or transport of any vessel containing compressed gas, or in any premises licensed under these rules.

8. Prohibition of smoking, fires, lights, etc.—No person shall smoke and no matches, fires, lights or articles or substance, capable of causing ignition of any flammable gas shall be allowed, at any time in proximity to a place where any compressed gas is stored, handled or transported in a vessel.

9. Supervision and operation within the licensed premises. – The operation of the licensed premises shall be under the supervision of persons having knowledge of the equipments being used in the premises and who is/are trained in handling the compressed gas, and other operators shall be conversant with the hazards associated with the compressed gas and fire fighting operation.

10. Special precautions against accidents. — (1) No person shall commit or attempt to commit any act which may tend to cause a fire or explosion in or about any place where any compressed gas is stored, handled or transported in a vessel.

(2) All empty vessels which had contained, any flammable or toxic gases, shall, except when they are opened for the purposes of filling or cleaning, or for rendering the gas free, but kept securely closed until they have been cleaned or freed the gas, as the case may be.

(3) Every person storing compressed gas in a vessel and every person in charge of, or engaged in the storage, handling and transport of such gas in vessels, shall at all times—

- (i) comply with the provisions of these rules and the conditions of any licence issued there under;
- (ii) observe all precautions for the prevention of accident by fire or explosion; and
- (iii) prevent any person from committing any act referred in sub-rule (1).

11. Procedure for payment of fees. — All fees payable under these rules shall be paid in any National/State Bank of Pakistan through treasury challan under correct head of account of Department of Explosives.

12. Procedure for grant and revocation of recognition to competent person and 3rd Party inspector.- (1) Anybody intending to be recognized as competent person or 3rd party inspector shall submit to the Chief Inspector an application in the form prescribed in Appendix-III. The Chief Inspector shall register such application and within a period of sixty days of the date of receipt of the application, either after having satisfied himself with regard to competence and professional ethics recognize the applicant as a competent or 3rd party inspector as the case may be, or reject the application specifying the reason therefore.

(2) The Chief Inspector may, after giving an opportunity to the 3rd party inspector or competent person of being heard, revoke the recognition –

- (a) if he has reason to believe that a 3rd party inspector or competent person has violated any condition stipulated in the letter of recognition or has carried out a test,

- examination and inspection or has acted, in a manner inconsistent with the intent or the purpose of these rules; or
(b) for any other reason to be recorded in writing.

CHAPTER II

CONSTRUCTION, FITMENT AND EXAMINATION.

Part-I

MAINTENANCE OF PIPE LINES ON RAILWAYS LANDS

13. Pipeline casings. - When a pipeline crosses a Railways track it shall do so as nearly as possible at right angles to it and efficient steel casing shall be installed around the pipeline as required by rule 53.

14. Shut-off valves near crossings. - Where warranted by special local conditions, emergency shut-off valves shall be installed at suitable location on each side of the crossing beyond the safety distance as mutually agreed to by Railway and the company.

15. Patrol. - Arrangements shall be made by the company for patrolling all pipelines on railways lands or within the safety distance from the railways protected works at least once a week.

16. Report of leakage. - When a leak is detected within 50 feet of a railways track, in addition to fulfilling the requirements of clause (b) of rule 60, the company shall communicate the news of the leak and particulars of its location in Railways mileage to the nearest Railway Station by the quickest possible means and they shall do everything possible to ensure that no smoking, cooking or any other works involving use of fire or spark takes place within a distance of 50 feet.

17. Duties of the Railway Station Staff on receiving report of the leak. - On receipt of the report of the leak the Station Master shall take up the following steps immediately:-

- (a) he shall inform the station situated on the other side of the leak and suspend all traffic on the section of the leak. He shall not resume traffic until he receives in writing, a certificate from the company's authorized representative that there is no danger to the passage of trains; and
- (b) he shall send a report about the leak by telegraph and quickest means to the General Manager and Government Inspector of Pakistan Railways and all other officials who are advised in case of an 'A' class accident (as defined in the general and Subsidiary Rules for the railway) and also to the Chief Inspector.

18. Additional precautions for trains approaching a pipeline crossing on any section of a pipeline. -

- (a) Permanent indication boards shall be fixed at a distance of half a mile from the pipe crossing in both directions on the single line and the direction from which trains approach on the double line. These boards shall be 4'x4' and shall have white ground and a horizontal black band running right across it. The boards should be placed on the left-hand side of the track at a distance of 10 feet clear from the center line of the track and will be so erected that the lower edge of the boards will be 6 feet above rail level; and
- (b) the driver of a train passing an indication board as required in clause (a) shall be on the lookout for any danger signals and shall stop the train if any such signal is shown.

**Part-II
WELDING AND TESTING**

19. Welding of pipeline. - Welding, when necessary, shall be performed under specification prescribed in the A S A – Code.

20. Welding tests. – If there is any specific reason to question a welder's efficiency of if the welder was not engaged in a particular process of welding for a period of at least six months, he shall be tested to judge his qualifications. A record of qualified welders shall be maintained showing the test results, with dates.

21. Precautions in welding. - Welding should not, normally, be done in bad weather conditions especially in an atmosphere preponderant in moisture and blowing sand or dust or in high wind. Windshield shall be used when welding is to be done in such circumstances.

22. Inspection of welding. - Weld shall be tested by radiographic methods or other non-destructive methods as mentioned in the A S A – Code and at least 10 percent of the welds on high-pressure straight pipeline and 100 percent of the welds at end near bends, water way crossings, rail and road crossings, and barrage crossing in high-pressure pipes shall be tested.

23. Pressure test before commission. - When a pipeline is to be operated at pressure exceeding 50 psig, it shall be tested for strength before commissioning after completion or after any major reconstruction at not less than 25% in excess of the designed operating pressure.

24. Leak test.-

- (a) Before commissioning a pipeline and after completion of pressure test thereof, leakage tests shall be performed in accordance with the up-to-date methods known and approved by the Chief Inspector.

- (b) for the tests in clause (a), internal pressure shall be maintained constant for at least 24 hours for high pressure pipeline and examination for leakage shall be continued repeatedly to ensure complete absence of any leakage. The line shall be completed, as far as practicable, with valves, meters, and gauges and other related components at the time of pressure and leakage tests.

25. Notices to the Chief Inspector. - At least five days notice shall be given to the Chief Inspector before commencement of a leak test or pressure test on a high-pressure pipeline:

Provided that such notice shall not be necessary in the case of a pipeline already placed in operation and warranting immediate continuity of service.

26. Notice to the Local Administration. - The company shall give notice of their transmission pipeline test to the Chief Inspector and the Local Administrative head who shall arrange for adequate police assistance as may be required by the company.

27. Avoiding explosions or uncontrolled fires. -

- (a) Such operations as gas or electric welding and cutting with torches shall not be performed on pipelines or main or auxiliary equipments unless they are completely full of gas or air free from any combustible mixture. Any mixture of gas and air at any point shall be prevented in transmission and supply mains;
- (b) welding or acetylene cutting shall not be done on pipeline main or auxiliary apparatus containing air unless suitable precautions have been taken to prevent entry of gas into the same or the pipe on the main is purged of air with a non-combustible or inert gas; and
- (c) when a high pressure pipeline full of air is placed in service the air shall be purged by introducing a suitable quantity of inert gas into the pipe ahead of the combustible service gas and allowing a moderately rapid and steady flow of the service gas along the line.

Part-III

Examination and Testing of Cylinders

28. Periodicity of examination and testing of cylinders.- (1) No person shall fill any cylinder with any compressed gas unless the cylinder has been examined and subjected to hydrostatic test or hydrostatic stretch test, as the case may be, and other tests set forth in Schedule III within such period as approved in writing by the Chief Inspector of Explosive.

(2) Any testing station desiring to obtain recognition for periodical testing and examination of cylinders shall provide the facilities set forth in Schedule III and shall submit to Chief Inspector of Explosives the particulars of the facilities provided.

29. Condemning of cylinders.- (1) Any cylinder which fails to pass periodic examination or test or which loses in its tare weight by over 5 per cent or which for any other defect is found to be unsafe for

use or after expiry of the service life of the cylinder, shall not be filled with any compressed gas and shall be destroyed by flattening it as a whole or after being cut into pieces in such a manner that the pieces cannot again be joined together by welding or otherwise to form a cylinder, under intimation to the owner of the cylinder.

(2) All markings on the cylinder shall be defaced before it is destroyed by the representative of Chief Inspector of Explosives.

(3) History sheets or records of such cylinders shall be closed and kept on record for a period of one year. Reports of the details of such closed history cards or records shall be sent to the Chief Inspector of Explosives, in writing, on the 1st of January, April, July and October every year.

(4) A cylinder, which has been used for the generation of any gas or for any purpose other than storage, transportation and use of compressed gas shall be deemed to have been condemned and unsuitable for such use as a cylinder within the meaning of these rules.

Part-IV

Dissolved Acetylene gas cylinders

30. Additional requirements for dissolved acetylene gas cylinders.- Dissolved acetylene gas cylinder shall comply with following additional provisions, namely:-

- (i) the porous substance shall fill as completely as possible the cylinder into which the acetylene is compressed.;
- (ii) the porosity of the substance shall not exceed 92 per cent and in no case shall be less than 75 per cent;
- (iii) any solvent used shall not be capable of chemical reaction with the acetylene gas or with the porous substance or with the metal of the cylinder;
- (iv) if acetone is used as a solvent, the quantity of acetone including the gas in solution shall be such that the cylinder meets the requirements of additional tests;
- (v) the valves of the cylinders shall not contain more than 70 per cent copper in their composition;
- (vi) the pressure in the cylinder shall not exceed 16 kgf/cm² at a temperature of 15⁰C;
- (vii) every cylinder shall before being filled with porous mass be tested by hydrostatic pressure to a pressure of not less than 60 kgf/cm². This pressure may be reduced to 53 kgf/cm² if the cylinder is fitted with fusible plug. No. cylinder which shows a permanent stretch in excess of 7½ per cent of the total stretch suffered during hydrostatic stretch test shall be allowed;
- (viii) the safety relief devices if fitted, shall operate at a pressure of 53 kgf/cm² or at a temperature of 100⁰C + 4⁰C/-2⁰C; and
- (ix) every cylinder shall have permanently and conspicuously marked upon it or upon a brass plate soldered to it the name of the manufacturer and the words "Acetylene properly compressed into porous substance" and shall bear the following markings, namely:-
 - (a) serial number and identification of manufacturer;
 - (b) number of the standard;
 - (c) test pressure;
 - (d) the date of hydrostatic stretch test with code mark of the place where the test was carried out;
 - (e) date of filling of porous mass;
 - (f) water capacity';
 - (g) a symbol to indicate the nature of heat treatment;

- (h) identification of porous mass and porosity percentage;
- (i) tare weight (inclusive of valve);
- (j) inspectors's official mark; and
- (k) maximum gas capacity.

31. Restriction on filling of dissolved acetylene in cylinders.- No person shall charge with acetylene any cylinder unless he is in possession of full particulars and the previous history of such cylinder and has otherwise assured himself that the cylinder complies with the requirements of these rules.

32. Examination of dissolved acetylene cylinders before filling.- Whenever a cylinder is charged with acetylene, it shall be subjected to a thorough visual examination, if the history of the cylinder shows that it has not been subjected to such an examination within the previous two years and at the same time the valves shall be removed and the conditions of the porous substance at the neck of the cylinder ascertained:

Provided that this period of periodical examination shall be one year in case the cylinders are filled with loose porous mass.

33. Licence for compression of acetylene.- The compression of the acetylene gas into a cylinder shall be carried out only in such premises as are licensed by the Chief Inspector of Explosive,, or Inspector of explosives.

34. Record of dissolved acetylene cylinders.- (1) Each firm charging acetylene in cylinders shall keep a record of every cylinder charged by it and this record shall give the following information, namely:-

- (a) for each charge,-
 - (i) the date of charging of the cylinder;
 - (ii) the empty cylinder weight without gas,
 - (iii) the weight of solvent charged before gas charging; and
 - (iv) full weight of the cylinder;
- (b) the dates upon which solvent has been added; and
- (c) the dates upon which the cylinder has been thoroughly examined as provided rule 32, the results of each such examination and the name of the person carrying out such examination, and in the case of cylinders first issued by the firm, the tare weight of the cylinder including porous substance and acetone or other solvent, the nature of the solvent and the maximum pressure allowed in the cylinder.

(2) The record shall be open for inspection of the Chief Inspector of Explosives or the Inspector of Explosives.

35. Labelling of dissolved acetylene cylinders.- A warning label attached to every dissolved acetylene cylinder shall, in addition to the particulars given in sub-rule (2) of rule 135 bear the following additional particulars, namely:-

- (a) date of last filling of gas in the cylinder;
- (b) weight of gas filled;
- (c) full cylinder weight; and
- (d) the name of the company filling the gas on the last date of the filling.

PART-V

CONSTRUCTION AND FITMENTS OF PRESSURE VESSELS

36. Design code. – (1) Vessels shall be designed, constructed and tested in accordance with ASME Pressure Vessel Code section VIII, Div-I as amended from time to time, or such other standard or code approved by the Chief Inspector.

(2) A test and inspection certificate issued by the manufacturer of the vessel duly countersigned by a 3rd party inspector that the vessel meets with the requirements of the standard or code as referred to in sub-rule (1), shall be furnished to the Chief Inspector.

37. Design pressure. — The design pressure of a vessel shall not be less than –

(a) The vapor pressure of the gas in vessel at 55°C, if the vessel is meant for the storage of liquefiable gas:

Provided that if the vessel is insulated, the vapor pressure of the gas in the vessel shall correspond to the maximum temperature that is likely to be attained by the gas in the vessel.

(b) The developed pressure of the gas in the vessel at 55°C, if the vessel is meant for the storage of a permanent gas.

38. Design of vessels for gases at low temperature. –

(1) **Refrigerated vessels.**-

- (i) Vessels to be used for storage of refrigerated gases shall be designed in accordance with low temperature requirements under the Design Code as referred to in sub-rule (1) of rule 36; and
- (ii) the capacity of the refrigeration system shall be adequate to maintain the gas in the vessel at a temperature so that its vapor pressure does not exceed the design pressure of the vessel and shall also remain below the pressure-setting of the relief valve on the vessel.

(2) **Insulated vessels.**-

- (i) The shell of the vessel and its manhole nozzle shall be insulated with a material approved by the Chief Inspector. The entire insulation shall be covered with a metal jacket of a thickness not less than 3 mm, nominal and flashed around all opening so as to be weather-tight; and
- (ii) The insulation shall be of sufficient thickness so that the thermal conductance at 15°C (expressed in calories or sq. cm. per hour per degree centigrade temperature differential) does not exceed the limit prescribed by the Chief Inspector.

39. Filling capacity and filling pressure. – (1) The maximum quantity of liquefiable gas filled into any vessel shall be limited to the filling density of the gas and shall be such that the vessel shall not be liquid-full due to expansion of the contents with rise of the temperature to 55°C.

(2) No vessel shall be filled with any permanent gas in excess of its design pressure.

40. Markings on pressure vessels. — Every vessel shall have a metal plate permanently fixed to it showing the following particulars which shall be visible from the ground level, namely:-

- (i) manufacturer's name and identification marks;
- (ii) the standard or code to which the vessel is constructed;
- (iii) official stamp of the Inspector;
- (iv) design pressure in Kg/Cm²;
- (v) date of initial hydrostatic test and the subsequent test;
- (vi) hydrostatic test pressure in Kg/Cm²;
- (vii) water capacity in liters;
- (viii) gas capacity, if filled with liquefiable gas; and
- (ix) name or chemical symbol of the gas for which the vessel is to be used.

41. Painting of vessels. – Vessels shall be adequately painted externally to prevent corrosion and shall have a reflecting surface.

42. Fittings. –

(1) **General.**—

(i) **Fittings.** – Each vessel shall be provided with each of the following fittings all of which should be suitable for use with the gas at pressures not less than the design pressure of the vessel to which they are fitted and for temperatures appropriate to the characteristics of the gas and operating conditions, namely:-

- (a) pressure relief valve connected to the vapour space;
- (b) drains;
- (c) contents gauge or maximum level indicator;
- (d) pressure gauge connected to the vapour space; and
- (e) means of measuring the temperature of the contents of the vessel; and

(ii) **Vessel connections.** – Connections of vessels shall be designed and attached to the vessels in accordance with the design code referred to in rule 36. All static vessels for storage of corrosive, flammable or toxic gas in liquefied state shall not have more than one pipe connection to the bottom for inlet or outlet, apart from the drainage. The drainage pipe, if provided, shall be extended beyond the shadow of the vessel and provided with two shut-off valves. No drainage pipe shall be provided direct from spherical vessel. The bottom inlet or outlet pipe for spherical vessel shall be integrally welded to the vessel and extended upto three meters beyond the shadow of the vessel, at the end of which, combination of manual and remote operated valve shall be provided;

(2) Pressure relief .–

- (i) every vessel shall be provided with at least one or more pressure relieving devices in accordance with the provisions of the design code referred to in rule 36;
- (ii) the relief valves shall be spring loaded and shall be set-to-discharge and reach full flow conditions as required by the design code referred to in rule 36;
- (iii) weight loaded relief valves shall not be permitted;
- (iv) the relief valves shall be so designed that they cannot be inadvertently loaded beyond the set pressure;
- (v) the design of the valves shall be such that the breakage of any part will not obstruct free discharge of the liquid under pressure;
- (vi) safety relief valves on any vessel shall be set to start-to-discharge at a pressure not in excess of 110 per cent of the design pressure of the vessel and shall have a total relieving capacity sufficient to prevent the maximum pressure in the vessel of more than 120 per cent of the design pressure;
- (vii) each safety relief valve shall be plainly and permanently marked with the pressure in Kg/Cm² at which it is set to discharge, with the actual rate of discharge of the device in cubic meters per minute of the gas at 150 °C and at atmospheric pressure, and with manufacturer's name. The rated discharge capacity of the device shall be determined at a pressure of 120 per cent of the design pressure of the vessel;
- (viii) connections of safety relief devices shall be of sufficient size to provide the required rate of discharge through the safety relief valves;
- (ix) safety relief valves shall be so arranged that the possibility of tampering is minimized and if the pressure setting or adjustment is external, the safety relief valve shall be provided with suitable means of sealing adjustment;
- (x) each safety relief valve shall be provided with shut-off valve between it and the vessel. The arrangement of the shut-off valve installed between the safety relief valve and the vessel shall be so designed as to afford full required capacity flow through at least one of the safety relief valves;
- (xi) safety relief valves shall have direct communication with the vapour space of the vessel;
- (xii) for vessels other than those mounted on the vehicles of over 4500 liters water capacity, relief valves shall be fitted with extended vent pipes adequately supported and having outlets at least 2 meters above the top of the vessel and at least 3.5 meters above the ground level and the vent pipes shall be fitted with loose-fitting rain caps; and
- (xiii) relief valves shall be tested by a Competent Person for correct operation not less than once in a year and a record of such test shall be maintained. The test certificate shall be issued in the prescribed proforma. Relief valves shall be tested for correct operation not less than once in a year and a record of such test shall be maintained.

(3) Shut-off and emergency shut-off valves.– All liquid and vapour connections on vessels, except those for relief valves, plugged openings, and those where the connection is not greater than 1.4 mm diameter opening shall have shut-off valves located as close to the vessel as practicable:

Provided that the emergency shut-off valves is not required in cases where the connection to a vessel is not greater than 3 mm diameter for liquid and 8 mm diameter for vapour, or for vessels meant for storage of non-corrosive, non-flammable or non-toxic gas.

(4) Liquid level gauging device.—

- (i) A vessel used for liquefiable gas or dissolved gas shall be equipped with a liquid level gauging device to afford ready determination of the amount of liquid in the vessel at any time;
- (ii) all liquid level indicators shall be suitable for operation at the design pressure of the vessel;
- (iii) every vessel shall, in addition, be equipped with a fixed maximum level indicating device depending upon the liquefiable gas or dissolved gas filled in the vessel; and
- (iv) gauging devices that require bleeding of the contents of the vessel such as a rotary tube, fixed tube and slip tube shall be designed in such a manner that the same cannot be completely withdrawn in normal gauging operations.

(5) Pressure gauge – Every vessel shall be provided with at least one pressure gauge.

43. Periodic testing of pressure vessels in service. — (1) All vessels shall be hydraulically tested by a competent person at a pressure marked on the vessel at intervals of not more than 10 years after the date of first test, provided that in the case of vessels, containing corrosive or toxic gases, the periodic test shall be done at an interval of two years. In case of vessels which are so designed, constructed or supported that they cannot be safely filled with water or liquids for hydraulic testing or which are used in services where traces of water cannot be tolerated, the Chief Inspector may permit pneumatic testing along with non-destructive tests instead of hydraulic testing, as per procedure laid down in vessel fabrication code; after satisfying himself about the adequacy of the safety precautions undertaken.

(2) The competent person carrying out the test as required under sub-rule (1) shall issue a certificate of test in prescribed proforma.

44. Precautions to be observed in carrying out hydraulic test.— In carrying out the hydraulic test referred to in rule 43, the following precautions shall be observed, namely:-

- (i) before the test is carried out, each pressure vessel shall be thoroughly cleaned and examined externally, and as far as practicable, internally also for surface defects, corrosion and foreign matter. During the process of cleaning and removal of sludge, if any, all due precautions shall be taken against fire or explosion, if such sludge is of pyrophoric nature or contains spontaneously combustible chemicals;
- (ii) as soon as the test is completed, the vessel shall be thoroughly dried internally and shall be clearly stamped with the marks and figures indicating the person by whom the test has been carried out and the date of test and a record shall be kept of all such tests; and
- (iii) any vessel which fails to pass the hydraulic test or which for any other reason is found to be unsafe for use shall be destroyed or rendered unsuitable in the presence of an officer deputed or nominated by the Department of Explosives .

CHAPTER III
IMPORTATION, STORAGE AND TRANSPORTATION
PART-I
TRANSMISSION, STORAGE AND DISTRIBUTION OF
GAS
SPECIFICATION FOR PIPING SYSTEMS

45. In selecting cast iron pit gas pipe used for gas piping, the following Table-I which bears a relation between pipe diameters, working pressure, wall thickness and laying condition, shall be followed:-

TABLE I

Size in Inches	Working Pressure in Psig	3-1/2 Feet of Cover Laying Condition				5 Feet of Cover Laying Condition				8 Feet of Cover Laying Condition			
		A	B	C	D	A	B	C	D	A	B	C	D
4	10	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40
	50	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40	·50	·40
	100	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40	·50	·40
	150	·40	·40	·40	·40	·40	·40	·40	·40	·40	·40	·50	·40
6	10	·43	·43	·43	·43	·43	·43	·50	·43	·43	·43	·54	·43
	50	·43	·43	·43	·43	·43	·43	·50	·43	·43	·43	·54	·43
	100	·43	·43	·43	·43	·43	·43	·50	·43	·43	·43	·58	·43
	150	·43	·43	·43	·43	·43	·43	·50	·43	·43	·43	·58	·43
8	10	·46	·46	·50	·46	·46	·46	·54	·46	·46	·46	·58	·46
	50	·46	·46	·54	·46	·46	·46	·54	·46	·46	·46	·63	·46
	100	·46	·46	·54	·46	·46	·46	·58	·46	·46	·46	·63	·46
	150	·46	·46	·54	·46	·46	·46	·58	·46	·46	·46	·63	·46
10	10	·50	·50	·54	·50	·50	·50	·58	·50	·50	·50	·68	·50
	50	·50	·50	·58	·50	·50	·50	·58	·50	·50	·50	·68	·54
	100	·50	·50	·58	·50	·50	·50	·63	·50	·54	·50	·68	·54
	150	·50	·50	·58	·50	·50	·50	·63	·50	·54	·50	·68	·58
12	10	·54	·54	·58	·54	·54	·54	·63	·54	·54	·54	·68	·58
	50	·54	·54	·58	·54	·54	·54	·63	·54	·58	·54	·73	·58
	100	·54	·54	·63	·54	·54	·54	·63	·54	·58	·58	·78	·58
	150	·54	·54	·63	·58	·58	·54	·68	·58	·63	·58	·79	·63
16	10	·58	·58	·68	·58	·58	·58	·68	·63	·63	·79	·79	·68
	50	·58	·58	·68	·63	·63	·58	·73	·63	·68	·63	·79	·73
	100	·63	·58	·73	·63	·63	·58	·73	·68	·73	·68	·85	·73
20	10	·66	·66	·77	·71	·71	·66	·83	·71	·77	·71	·90	·83
	50	·71	·66	·77	·71	·71	·66	·83	·77	·77	·71	·90	·83
	100	·71	·66	·83	·77	·77	·71	·83	·77	·83	·77	·97	·83
24	10	·74	·74	·80	·74	·80	·74	·86	·80	·86	·80	·93	·86
	50	·80	·74	·86	·80	·80	·74	·93	·86	·86	·80	·80	·93

	100	·80	·74	·93	·86	·86	·80	·93	·86	·86	·86	1·00	·93
30	10	·87	·87	·94	·87	·94	·87	1·02	·94	1·02	·87	1·10	1·02
	50	·94	·87	1·02	·94	·94	·87	1·10	1·02	1·10	·94	1·19	1·10
36	10	1·05	·97	1·05	·97	1·05	·97	1·13	1·05	1·13	·97	1·22	1·13
	50	1·05	·97	1·13	1·05	1·13	·97	1·22	1·13	1·22	1·05	1·32	1·22
42	10	1·16	1·07	1·16	1·07	1·16	1·07	1·25	1·16	1·35	1·07	1·35	1·25
	50	1·16	1·07	1·25	1·26	1·25	1·07	1·35	1·25	1·35	1·16	1·46	1·35
48	10	1·27	1·18	1·37	1·18	1·37	1·18	1·37	1·27	1·48	1·18	1·60	1·37
	50	1·27	1·18	1·37	1·27	1·37	1·18	1·48	1·37	1·48	1·27	1·60	1·48

Figures in decimals indicate wall thickness in inches

Note:

- Laying Condition A ... Flat bottom trench, without blocks, untamed backfill.
- Laying Condition B ... Flat bottom trench, without blocks, tamed backfill.
- Laying Condition C ... Flat bottom trench, untamed backfill.
- Laying Condition D ... Flat bottom trench, tamed backfill.

46. In selecting cast iron pipe (centrifugally cast in metal moulds or sand lined moulds) for gas piping the following Table-II bearing relation between pipe diameter, working pressure, wall thickness and laying condition, shall be followed: -

TABLE II

Size in Inches	Working Pressure in Psig	3-1/2 Feet of Cover Laying Condition				5 Feet of Cover Laying Condition				8 Feet of Cover Laying Condition			
		A	B	C	D	A	B	C	D	A	B	C	D
4	10	·35	·35	·35	·35	·35	·35	·35	·35	·35	·35	·41	·35
		·38	·38	·38	·38	·38	·38	·38	·38	·38	·38	·41	·38
	50	·35	·35	·35	·35	·35	·35	·35	·35	·35	·35	·41	·35
		·38	·38	·38	·38	·38	·38	·38	·38	·38	·38	·41	·38
	100	·35	·35	·35	·35	·35	·35	·35	·35	·35	·35	·41	·35
		·38	·38	·38	·38	·38	·38	·38	·38	·38	·38	·41	·38
6	10	·38	·38	·38	·38	·38	·38	·38	·38	·38	·38	·48	·38
		·41	·41	·41	·41	·41	·41	·41	·41	·41	·41	·48	·41
	50	·38	·38	·38	·38	·38	·38	·41	·38	·38	·38	·48	·38
		·41	·41	·41	·41	·41	·41	·41	·41	·41	·41	·48	·41
	100	·38	·38	·38	·38	·38	·38	·44	·38	·38	·38	·48	·38
		·41	·41	·41	·41	·41	·41	·41	·44	·41	·41	·48	·41
8	10	·41	·41	·44	·41	·41	·41	·48	·41	·41	·41	·52	·41
		·41	·41	·44	·41	·41	·41	·48	·41	·41	·41	·52	·41
	50	·41	·41	·48	·41	·41	·41	·48	·41	·41	·41	·52	·41
		·41	·41	·48	·41	·41	·41	·48	·41	·41	·41	·52	·41
	100	·41	·41	·48	·41	·41	·41	·48	·41	·41	·41	·52	·41
		·41	·41	·48	·41	·41	·41	·48	·41	·41	·41	·52	·41

	150	·41	·41	·48	·41	·41	·41	·48	·41	·41	·41	·52	·41
10	10	·44	·44	·48	·44	·44	·44	·52	·44	·44	·44	·60	·44
	50	·44	·44	·48	·44	·44	·44	·52	·44	·44	·44	·60	·44
	100	·44	·44	·52	·44	·44	·44	·52	·44	·44	·44	·60	·48
	150	·44	·44	·52	·44	·44	·44	·56	·44	·48	·44	·60	·48
12	10	·48	·48	·52	·48	·48	·48	·56	·48	·48	·48	·60	·52
	50	·48	·48	·52	·48	·48	·48	·56	·48	·48	·48	·60	·52
	100	·48	·48	·52	·48	·48	·48	·56	·48	·48	·52	·65	·52
	150	·48	·48	·52	·48	·48	·48	·56	·48	·48	·52	·65	·52
16	10	·54	·50	·58	·54	·54	·50	·63	·58	·58	·54	·73	·63
	50	·54	·50	·63	·54	·54	·50	·63	·58	·63	·58	·73	·63
	100	·54	·54	·63	·58	·58	·54	·68	·58	·63	·58	·73	·68
20	10	·62	·57	·67	·62	·62	·57	·72	·67	·67	·62	·78	·72
	50	·62	·57	·72	·62	·67	·57	·72	·67	·72	·62	·78	·72
	100	·62	·57	·72	·67	·67	·62	·78	·67	·72	·67	·84	·78
24	10	·68	·63	·73	·68	·73	·63	·79	·73	·79	·68	·85	·79
	50	·68	·62	·79	·68	·73	·63	·79	·73	·79	·73	·85	·79
	100	·73	·63	·79	·73	·73	·68	·85	·79	·79	·73	·92	·85
30	10	·79	·73	·85	·79	·85	·73	·92	·85	·92	·79	·99	·92
	50	·85	·73	·85	·85	·85	·79	·92	·85	·92	·85	·99	·92
36	10	·87	·81	·94	·87	·94	·81	1·02	·94	1·02	·87	1·10	1·02
	50	·94	·81	1·02	·94	1·02	·87	1·10	·94	1·10	·94	1·19	1·02
42	10	1·05	·90	1·05	·97	1·05	·90	1·13	1·05	1·13	·97	1·22	1·13
	50	1·05	·90	1·13	1·05	1·13	·97	1·13	1·15	1·22	1·05	1·32	1·13
48	10	1·14	·98	1·14	1·06	1·14	·98	1·23	1·14	1·06	1·33	1·33	1·23
	50	1·14	·98	1·23	1·14	1·23	1·06	1·33	1·14	1·33	1·14	1·14	1·33

Figures in decimals indicate wall thickness in inches

Note:

- Laying Condition A ... Flat bottom trench, without blocks, untamed backfill.
- Laying Condition B ... Flat bottom trench, without blocks, tamed backfill.
- Laying Condition C ... Pipe laid on block, untamed backfill.
- Laying Condition D ... Pipe laid on block, tamed backfill.

47. Basic equation to determine wall thickness.- For relation between pressures and thickness of cast iron pipes beyond the scope of the tables annexed to rules 45 and 46, reference shall be made to A S A 22.1 latest edition.

48. Scope of practice. - Every transmission, distribution or service line as well as storage main shall be designed, constructed, installed and operated to meet the requirements of these rules and in case any specific aspect cannot be met by the provisions of these rules, it shall be so done within the limits prescribed in the A S A code subject to approval by the Chief Inspector.

49. Minimum cover. – Underground feeder mains shall be installed with a minimum cover of 30 inches unless prevented by other underground structures, to protect the pipe from external load or other damaging factors. Service and house lines shall, wherever possible, have a minimum cover of 18 inches.

50. Casing. - Where cover, as required by rule 49, cannot be provided and the pipe is not designed to withstand normal damaging factors it shall be strongly cased or bridged.

51. Support. - Cast iron pipes installed in unstable soils shall be provided with strong reinforced supports.

52. Clearance from underground structure. - There shall be a clearance of 6 inches for transmission line, 2 inches for supply and feeder main and service line from any other underground structure not in any way related to the pipeline or gas main. Such clearance will not be necessary in case of house line including factories. Where the clearance under this rule is not available, reasonable precautions shall be taken to protect the pipe by insulation of the pipe, installation of casing, etc.

53. Casing of pipeline passing railway tracks, streets and highways. - Efficient steel pipe casing shall be provided,-

- (a) where any pipeline passes across railway track open to passenger traffic;
- (b) where a high pressure pipeline passes across a street, a highway or a railway track not open to passenger traffic;
- (c) such casing shall comply with the following requirements:-
 - (i) the casing shall extend on either side of the railway track up to a point not less than 5' from the toe of the railway embankment subject to a minimum of 25' measured at right angles to the center-line of the outside track if the pipeline is a low pressure one, and not less than 10' and 50' respectively in the pipeline is a high pressure one. The casing shall be installed with even bearing throughout its length and shall slope towards one end; and
 - (ii) in case of roads and streets the casing shall extend up to 5' from the toe of the embankment subject to minimum of 10' from the outer edge of the road or the street;
- (d) The casing shall be provided with an air tight seal at its ends and shall be ventilated to the open air by means of vent pipes which shall not be less than 2 feet in height from the ground level. Each vent pipe shall be less than 2 inches in internal diameter and shall be connected to the bottom of the casing at the lower end and to the top of the casing at the higher end. The top end of each vent pipe shall be deflected downwards and provided with an explosion proof cap;
- (e) Inside diameter of the casing shall be at least 2 inches greater than the outside diameter of the carrier pipe; and
- (f) The depth from the ground level to the top of casing at its closet point shall not be less than 5 feet in case of high-pressure pipes and 3 feet in case of low pressure pipes and the casing shall be capable of safely withstanding the superimposed external load.

54. Protection from damages and hazards. – (1) Where pipelines have to be installed under conditions susceptible to natural hazards such as flood, unstable soils, land slides likely to cause serious movement or damage to the line, reasonable precautions shall be taken to protect them, by –

- (i) increasing wall thickness;
- (ii) constructing revetments;
- (iii) installing anchors; and
- (iv) preventing soil erosion.

(2) Where the exposed pipeline might hold subject to accidental disruption from external source it shall be protected by suitable barricades.

55. Support for buried piping. - Uniform and adequate support in the trenches especially for high-pressure pipelines shall be provided to prevent unequal settlements.

56. Removal of leaks before commission .- (1) Each high pressure pipeline shall be tested for leaks by hydrostatic means or by air under suitable pressure; and

- (2) Each low-pressure pipeline by suitable air compression before being placed into operation unless exempted by the Chief Inspector under special circumstances. If the tests indicate that a leak exists, the same shall be located and eliminated.

57. Detection of leaks by means of meters. - Arrangement shall be made for detecting leaks on all high-pressure pipeline by means of meters installed at suitable distances apart from recording pressure and rate of flow of gas. Any appreciable difference in the readings between two contiguous sets of meters will indicate presence of a leakage in the section between two sets meters.

58. Repair and maintenance squads. - The company shall keep adequate repair and maintenance squads in all sections of the transmission and distribution lines to undertake repair work within the shortest possible time. The period of turn out of the repair squad should not exceed one hour after the receipt of the report of the leak at the Sectional Headquarters or the system Headquarters.

59. Other methods of detection of leaks. – (1) Approved apparatus and techniques, which are available, shall be used for the detection of leaks.

(2) The following are some of the methods suggested:-

- (a) By observing vegetation.- Vegetation withers away due to suffocation caused by the gas issuing from the leakage;
- (b) holes are bored at regular intervals in the surface soil along and over the suspected section of the pipeline and the atmosphere in the holes is tested by means of a direct reading gas detector such as Pool's Explosimeter;

- (c) by smelling the odorized gas issuing from a pipeline;
- (d) atmosphere in water meter, boxes, street vaults, cracks in pavements, pockets under pavement, I tested for gas by means of direct reading gas detector such as mentioned in clause (b); and
- (e) by checking the measured gas entering into a section under examination against the measured gas leaving the same section. Any appreciable difference will indicate the presence of leaks.

60. Patrolmen .- (1) The company shall appoint patrolmen for the detection of leaks. All transmission and supply line shall be patrolled once a week. Faults, if any, will require immediate attention.

(2) The patrolmen, on detection of a leak, shall communicate its whereabouts at once to the company who shall in the event of serious rupture, report to the nearest Police Station by the quickest means of communications, e.g., radio contact, telegraph or telephone. The company shall arrange to post men in the vicinity of the leak and generally do everything possible to warn and prevent unauthorized persons from going into the dangerous zone. Provision of rule 16 also shall be complied with in case of leaks occurring within 50 feet of a railway track.

61. Telegraph and telephone lines. - A radio communication system or a telegraph or telephone line shall be provided along each high-pressure line with connections at frequent intervals.

62. Odorizing gas in pipelines. -(1) All gases distributed to consumers shall have an odor to make it detectable by the public or the employees of the company in case of any leakage. The odor shall be so intense and distinctive as to make slight traces of the gas readily detectable. The equipment used for odorization shall be so efficient as to ensure uniform odorization even under varying conditions. These equipments are to be installed in such a manner as not to create any nuisance to the neighborhood.

(2) The company shall maintain a record of its odorization operations and shall make arrangements for inspection of the equipment at least once a week.

(3) The company shall obtain the approval of the Chief Inspector regarding the type of odorant used, the ratio of the odorant to the gas and the location of the odorization station.

63. Pipeline specification, to obtain the approval of the Chief Inspector. - The company shall, at least 30 days prior to any major construction or reconstruction of a high-pressure pipeline, forward the detailed specifications thereof along with the figure of maximum operating pressure to the Chief Inspector for his approval.

64. Progress of work to be reported to the Chief Inspector. - After obtaining approval of such specifications as mentioned in rules 63, the company shall keep the Chief Inspector informed about the progress of the relevant construction work by means of fortnightly reports.

65. Certificate of pipeline safety and report. - Before a gas pipeline intended to be operated at a high pressure is brought into commission a certificate of a qualified engineer shall be furnished to the Chief Inspector to the effect that the pipeline has been constructed in accordance with the specifications approved by the Chief Inspector and installed in such a manner as to ensure safety. A report of the results of all relevant tests performed on the pipeline shall also be furnished.

66. Pipeline to be operated at pressure within the approved limits. - The company shall not operate any pipeline at pressure in excess of that approved by the Chief Inspector.

67. Safety distance. - All high-pressure pipelines shall observe a safety distance of 50 feet from any protected works.

68. Encroachment of safety distances. -(1) No person shall cause encroachment of the safety distance specified in rule 67 by such construction as embodied in rule 65.

(2) The company shall bring to the notice of Chief Inspector any contravention of the sub-rule (a) at any place along the pipelines.

69. Action on receipt of a report as per preceding rule. - After examination of the reported contravention of rule 68, the Chief Inspector shall advise the District Authority concerned to take steps for prosecuting under clause (b) of sub-section (1) of section 23 of the Act, against the person or persons contravening the rule.

70. Relaxation of safety distance. – The Chief Inspector may relax the safety distances in any particular case when necessitated by special circumstances.

PART-II STORAGE AND DISTRIBUTION

71. Bottle type and pipe type gasholders. -(1) Bottle type holder shall not be located except on lands under exclusive possession and control of the company whereas pipe type holders may be installed in streets, highways or in private rights-of-way not under the exclusive control of the company.

(2) Both bottle and pipe type holders shall be designed, installed and tested in accordance with the provisions of these rules applicable to a pipeline operated at the same maximum pressure, installed in the same location and having the same diameter size.

(3) The site of bottle type gasholders when installed above ground shall be surrounded with fencing to prevent entry of unauthorized persons.

(4) Minimum clearance between bottle type holder and the fenced enclosure will be as follows depending on pressure:-

Maximum operating pressure	Minimum clearance
Less than 1000 psig	25 feet
1000 psig or more	100 feet

(5) Both pipe-type and bottle type holders shall be installed underground with the top of each not less than 24 inches below the ground surface when the requirements of sub-rules (3) and (4) cannot be met.

72. License for storage. – (1) Save as provided in sub-rule (2), no one shall store any gas except under a license granted under these rules.

(2) Storage of gas in pipe-type gasholder or any type of underground gas well, other than natural underground structures shall be considered as storage of Mineral Gas and shall be licensed in Form ‘A’:

Provided that no license will be necessary for a vessel or an aggregate of vessels having a total internal volume not exceeding 100 cubic feet irrespective of any approved pressure to which they are subjected.

73. Control of gas pressure in a distribution system. – (1) Each distribution system obtaining its gas supply from a source which is at a higher pressure than the maximum operating pressure for the system shall be provided with efficient pressure regulating devices designed to withstand the pressure under which they will operate or the higher pressure of the source to which they may be subjected.

(2) In addition to the pressure regulating devices mentioned in sub-rule (1), one of the following suitable types of protective devices to prevent accidental over pressuring of distribution system should normally be provided, namely:-

- (i) relief Valves;
- (ii) a monitoring regulator installed in series with primary pressure regulator;
- (iii) a series regulator installed upstream from the primary regulator; or
- (iv) an automatic shut-off device installed in series with primary pressure regulator.

74. Maximum allowable operating pressure in Distribution System. - This is the maximum pressure to which a distribution system may be subjected in accordance with the requirements of A S A – Code and it shall not exceed-

- (a) the pressure for which the weakest element of the system has been designed;
- (b) One psig if the system is neither equipment with any pressure regulating devices nor any over pressure protective devices, which meet the requirements of the A S A – Code; and
- (c) 150 psig when the system is equipped with service regulators and other protective devices.

75. Maximum allowable operating pressure in a domestic house line.- This pressure shall not exceed, -

- (a) pressure above which the operation of any connected and properly adjusted low pressure gas burning equipment becomes unfit; or
- (b) a pressure of 1 psig.

76. Conversion of a low-pressure system into a high pressure system. - Before conversion the following steps shall be taken, namely: -

- (a) replacement of the parts of the system found to be inadequate for higher operating pressure intended;
- (b) Installation of service regulator on each service and test and ensure it functions properly;
- (c) Isolation of the system from adjacent low-pressure system by means of regulators; and
- (d) After a system is converted the pressure shall be increased step by step with a sufficient time gap to check the effect of the previous increase before the next increase is made.

77. Control and limiting of Gas Pressure delivered to domestic and small commercial consumers from a Distribution System. -

(1) If the actual operating pressure of a distribution system does not exceed 60 psig, a service regulator having the following characteristics shall be used, namely: -

- (i) a pressure regulator capable of reducing distribution line pressure to pressure recommended for domestic appliances;
- (ii) a single port valve with orifice diameter recommended by the manufacturer for the maximum gas pressure in the regulator inlet pipe;
- (iii) pipe connections to the regulator shall not exceed 2 inches in diameters; and
- (iv) if the service regulator does not meet the above requirements, suitable protective devices such as a monitoring regulator, a relief valves or an automatic shut-off valve shall be installed to prevent accident over pressuring of the consumer's appliances if the services regulator fails.

(2) If the actual operating pressure of distribution system exceeds 60 psig, a service regulator of the type described in sub-rule (a) above and a primary regulator located upstream of the service regulator shall be provided to regulate and limit the pressure of the gas delivered to consumers. The primary regulator, which is usually set to operate a pressure from 5 to 10 psig on the inlet of the service regulator, shall never be set to operate a pressure higher than 60 psig. A protective device such as a relief valve or an automatic shut-off shall be installed in between the primary regulator and the service regulator to maintain the pressure on the inlet of the service regulator within the maximum limit of 60 psig in case the primary regulator fails.

78. Location of meters and regulators .-

(1) Consumers' meters and regulators may be installed either inside or outside of buildings depending upon local conditions except that primary upstream regulator as required under sub-rule (2) of rule 77 shall be located outside the building.

(2) When installed within a building a service regulator or meter shall be located in any easily accessible position near the point of service entrance where the meter also shall be located if possible. The regulator shall be vented to the outside.

(3) Meters or regulators shall not be installed in bed rooms, bathrooms, kitchens under combustible stair cases in unventilated or inaccessible places and they shall be at least 3 feet away and invisible from any source of heat or ignition such as hearth, furnace, electric heater or open flame of any sort.

79. Inspection of service regulators. - The Company shall make a systematic program for periodic testing and inspecting of individual service regulators and vents attached thereto to ensure their proper operating and safe condition.

PART-III

IMPORTATION OF CYLINDERS

80. Licence for import of gas cylinders.— No person shall import any cylinder filled or intended to be filled with any compressed gas except under and in accordance with the conditions of a licence granted under these rules.

81. Declaration by the master of ship or ship's agent.— (1) The master of every ship carrying cylinders filled with compressed gas for importation into Pakistan, or the agent for such ship, shall give, the Conservator of the Port not less than 48 hours' notice of its intended arrival at the port.

(2) The master of every ship carrying such cylinders shall deliver to the pilot, before entering any port, a written declaration under his signature in Form GC-01, provided that if the agent for such ship delivers to the Conservator of the port a written declaration referred to in sub-rule (1) under his signature, no such declaration shall be made by the master of the ship.

(3) Every declaration delivered to a pilot under sub-rule (2) shall be made over by him without delay to the Conservator of the Port and all declarations received by the Conservator of the Port shall be forwarded by him, with all convenient despatch, to the Collector of Customs of the Port.

82. Production of licence for import.- Every person desiring to import cylinders filled with any compressed gas or intended to be so filled shall produce personally or through his agent, before the Collector of Customs his licence for the import of such gas cylinders.

83. Permission of the Collector of Customs.- (1) No imported cylinder shall be landed except with the permission of the Collector of Customs.

(2) If the Collector Customs is satisfied that the gas cylinders can lawfully be imported, he shall permit it to be landed.

(3) Nothing in this rule shall affect the power of the Collector of Customs to detain the gas cylinders under any other law for the time being in force.

84. **Importation by land.**- No gas cylinder filled with any compressed gas, shall be imported by land save with the previous sanction in each case, of the Federal Government and under such conditions and restrictions as it may impose.

85. **Importation by air.**- No cylinder filled with any compressed gas shall be imported by air save with the previous sanction in each case of the Director General of Civil Aviation.

PART-IV STORAGE

86. **General.**— (1) All vessels meant for storage of compressed gas shall be installed entirely aboveground; that is to say, no part of the vessel shall be buried below the ground level.

- (2) Vessels and first stage regulating equipment shall be located in the open.
- (3) Vessels shall not be installed one above the other.
- (4) Vessels within a group shall be so located that their longitudinal axes are parallel to each other.
- (5) No vessel shall be located within the bonded area of petroleum or other flammable liquid storages.
- (6) Sufficient space shall be provided between two vessels to permit fire-fighting operations.
- (7) Two or more vessels installed in batteries shall be so installed that the top surface of the vessels are on the same plane.
- (8) Vessels with their dished ends facing each other shall have screen walls in between them.
- (9) Notwithstanding anything contained in sub-rules (1) to (8) above, vessels for storage of liquefied petroleum gas can be placed underground or covered by earth in such manner and subject to following conditions, namely:-
 - (i) the underground vessels shall be placed within concrete or brick masonry pit with a gap of 1.0 meter between the walls of the pit and the vessel as well as in between the vessels;
 - (ii) the underground vessels shall be installed on a firm foundation and firmly secured to the foundation so as to prevent movement of floatation;
 - (iii) the underground vessels or above ground vessels covered by earth (mound) shall be,-
 - (a) designed to withstand external pressure due to load of the earth cover;
 - (b) provided with external anti-corrosive coating or cathodic protection to prevent corrosion;
 - (c) covered by earth, sand or any other non-corrosive material free from abrasive particles likely to damage the anti-corrosive coating of the vessel-the thickness of the covering material above the top surface of the vessel shall not be less than 0.5 meter;
 - (d) having the discharge level of the safety relief valves at least 2 meters above the top surface of the vessel, but in any case not less than 3 meters from the ground level; and
 - (e) fitted with the necessary piping, fittings, valves and other mounting on top of vessel in such a manner that they can be operated and maintained without disturbing the earth cover. In case of above ground vessel with earth cover (mound), liquid outlet pipe at the bottom may be allowed provided the control valve and emergency valve of this line is just outside the earth cover for the purpose of operation and maintenance from outside;

- (iv) the above-ground vessels to be covered by earth (mound) shall be installed on concrete foundation or compacted sand; and
- (v) unless inherently resistant to erosion, the earth cover (mound) of above ground vessel shall be provided with mechanisms to prevent erosion of covering soil (mound).

(10) Above-ground vessel for storage of corrosive, flammable or toxic gas in liquefied state shall be provided with enclosure wall all around the ground. The minimum distance between vessel and enclosure wall shall be the diameter of the vessel or five meters, whichever is less. The ground shall be graded to form a slope away from pumps, compressors or other equipments. The height of the enclosure wall shall be thirty centimeters on the upper side and gradually increasing to maximum sixty centimeters on the lower side, at the end of which a shallow sump for collection of the spilled liquid, if any, shall be provided. The minimum separation distance between the vessel and the sump shall be,—

- (a) diameter of the vessel, in case of vessels with water capacity not exceeding forty thousand liters; and
- (b) fifteen meters, if the water capacity of the vessels exceeds forty thousand liters.

87. Locations of pressure vessels.— (1) Each vessel shall be located with respect to the nearest building or group of buildings or line of adjoining property which may be built on and with respect to other vessels and facilities in accordance with the distances specified in the Tables 1 to 5 below:-

TABLE 1

Minimum safety distances for corrosive, toxic or permanent flammable gases.

Sr. No.	Water capacity of vessel(in liters).	Minimum distance from building or group of buildings or line of adjoining property.	Minimum distance between pressure vessels.
(1)	(2)	(3)	(4)
i	Not above 2000	5 meters	1 meter
ii	Above 2000 but not above 10,000	10 meters	1 meter
iii	Above 10,000 but not above 20,000	15 meters	1.5 meters
iv	Above 20,000 but not above 40,000	20 meters	2 meters
v	Above 40,000	30 meters	2 meters

TABLE 2**Minimum safety distances for non-corrosive, non-flammable or non-toxic gases**

Sr. No.	Water capacity of vessel(in liters).	Minimum distance from building or group of buildings or line of adjoining property.	Minimum distance between pressure vessels.
(1)	(2)	(3)	(4)
i	Not above 2000	3 meters	1 meter
ii	Above 2000 but not above 10,000	5 meters	1 meter
iii	Above 10,000 but not above 20,000	7.5 meters	1.5 meters
iv	Above 20,000 but not above 40,000	10 meters	2 meters
v	Above 40,000	15 meters	2 meters

TABLE 3**Minimum safety distances for liquefied flammable gases**

Sr. No.	Water capacity of vessel. (in liters)	Minimum distance from building or group of buildings or line of adjoining property.		Minimum distance between pressure vessels.	
		Above ground vessels. (in meters)	Underground or aboveground vessels covered with earth(mound). (in meters)	Above ground vessels. (in meters)	Underground or aboveground vessels covered with earth(mound). (in meters)
(1)	(2)	(3)	(4)	(5)	(6)
i	Not above 568	3 meters	3 meters	1 meter	1 meter
ii	Above 568 but not	3	3	1	1

	above 1137	meters	meters	meter	meter
iii	Above 1138 but not above 2273	3 meters	3 meters	1.5 meters	1 meter
iv	Above 2274 but not above 9092	7.6 meters	3 meters	2 meters	1. meter
v	Above 9093 but not above 136380	15 meters	15 meters	2 meters	1.5 meter
vi	Above 136381 but not above 318220	23 meters	15 meters	2 meters or 1/4th of the sum of diameter of adjacent vessel or 1/2 diameter of the two adjacent vessels, whichever is greater 2 meters or 1/4th of the sum of diameter of adjacent vessel or 1/2 diameter of the two adjacent vessels, whichever is greater.	
vii	Above 318221 but not above 409140	30 meters	15 meters		
viii	Above 409141 but not above 545520	38 meters	15 meters		
ix	Above 545521 but not above 909200	61 meters	15 meters		
x	Above 909201 but not above 4546000	91	15		
xi	above 4546000	122 meters	15 meters		

TABLE 4

Minimum Safety distances (in meters) between facilities associated with storage of liquefied flammable gas in petroleum refinery, gas processing plants, storage terminals and bottling plants.

(A) FOR TOTAL STORAGE ABOVE 100 TONNES

Sr. No.	From/To	Storage Vessel.	Property line/buildings not associated with storage and operation.	Sheds for filling storage, evacuation of cylinders.	Tank Truck loading/unloading gantry.	Tank Wagon Gantry.	Pump/compressor Shed.	Fire Water Pump room.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i	Storage Vessel	Table 3	Table 3	30 meters	30 meters	50 meters	15 meters	60 meters
ii	Property line/buildings not associated with storage and operation	Table 3	--	30 meters	30 meters	50 meters	30 meters	--
iii	Sheds for filling storage, evacuation of	30 meters	30 meters	15 meters	30 meters	50 meters	15 meters	60 meters

	Cylinders							
iv	Tank Truck loading/ Unloading gantry	30 meters	30 meters	30 meters	30 meters	50 meters	30 meters	60 meters
v	Tank Wagon gantry	50 meters	50 meters	50 meters	50 meters	50 meters	30 meters	60 meters
vi	Pump/compressor shed	15 meters	30 meters	15 meters	30 meters	30 meters	--	60 meters
vii	Fire Water Pump room	60 meters	--	60 meters	60 meters	60 meters	60 meters	--

(B) FOR TOTAL STORAGE NOT ABOVE 100 TONNES

Sr. No.	From/To	Storage Vessel.	Property line/buildings not associated with storage and operation.	Sheds for Filling storage, evacuation of cylinders.	Tank Truck loading/unloading gantry.	Fire Water Pump room.
	(1)	(2)	(3)	(4)	(5)	(6)
i	Storage Vessel	Table 3	Table 3	Table 3	15 meters	30 meters
ii	Property line/buildings not associated with storage and operation	Table 3	--	15 meters	15 meters	--
iii	Sheds for filling storage, evacuation of Cylinders	Table 3	15 meters	15 meters	15 meters	30 meters
iv	Tank Truck loading/ Unloading gantry	15 meters	15 meters	15 meters	15 meters	30 meters
v	Fire Water Pump room	30 meters	--	30 meters	30 meters	--

TABLE 5

Minimum Safety distances (in meters) between facilities associated with storage and dispensing of liquefied petroleum gas in Liquefied Petroleum Gas dispensing station as automotive fuel to motor vehicles.

Sr. No.	To/ From	LPG Storage Vessels.	Fill point of LPG Storage vessel and Centre of LPG Tank Truck unloading hard stand.	LPG Dispenser.	Property line.	DP/HP Service Station licensed in Form 'K' of Petroleum Rules 1937.			
						Fill point of HP/DP tanks	Vent pipe of HP/DP tanks	HP/DP dispensing pumps	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
i	LPG Storage Vessels	Table 3	9 meters (aboveground/ mounded vessels exceeding 7500 liters capacity)	9 meters (aboveground vessels not exceeding 20,000 liters capacity or underground/ mounded vessels)	Table 3	9 meters	9 meters	9 meters	
			6 meters (aboveground/ mounded vessels not exceeding 7500 litres capacity)						15 meters (aboveground vessels exceeding 20,000 litres capacity)
			3 meters (underground vessel)						
ii	Fill point of LPG Storage vessel and Centre of LPG Tank Truck unloading hard stand	9 meters (aboveground/ mounded vessels exceeding 7500 liters capacity)	--	6 meters	9 meters	6 meters	6 meters	6 meters	
		6 meters (aboveground/ mounded vessels not exceeding 7500 liters capacity)							
		3 meters (underground vessel)							
iii	LPG Dispenser	9 meters (aboveground vessels not exceeding 20,000 liters capacity or under-ground/ mounded vessels)	6 meters	--	6 meters	6 meters	6 meters	6 meters	
		15 meters (aboveground vessels exceeding 20000 liters capacity)							
iv	Property Line	Table 3	9 meters	6 meters	--	3 meters	4 meters	6 meters	

(2) If the aggregate water capacity of a multi-vessel installation is 40,000 liters, the minimum safety distances from any vessel to the property line/group of buildings shall not be less than –

- (a) thirty meters for corrosive, toxic or flammable gases; and
- (b) fifteen meters for non-corrosive, non-toxic or non-flammable gases;

(3) The number of above ground storage vessels in one group shall not exceed six. Spherical and cylindrical vessels shall be installed in separate groups. Minimum separation distance between two such groups of vessels shall be the distance from the vessel to property line in accordance as mentioned in Tables 1, 2, 3 of sub-rule(1) as the case may be, or thirty meters whichever is less. Each such group of vessels shall be covered under separate license under these rules.

(4) The distances specified above may be relaxed by the Chief Inspector in cases where he is of the opinion that the additional safety measures have been provided.

Explanation.- The distances specified above are required to be measured from the nearest point on the periphery of the vessel.

88. Foundations for pressure vessels. — (1) General. – The materials, principles, methods and details of design and construction of foundations and supports of vessels shall comply with approved specifications, standards or codes.

(2) **Ground conditions .–** A thorough knowledge of the ground condition shall be obtained by the person installing the vessel with particular reference to establishing an allowable bearing pressure, total and differential settlements, and expected risk of floatation and possible deterioration of original conditions.

(3) **Materials.—**

- (i) the choice of materials for construction shall be determined by the ground conditions, loading and detailed design constructions;
- (ii) the materials may be of –
 - (a) brick-work masonry;
 - (b) re-inforced concrete; or
 - (c) steel plate, steel pipe or structural steel.

(4) **Loading.—** The greatest combined effect of static and imposed loading shall be used for design as under:-

- (a) static loading, weight of vessel and its contents;
- (b) test loading if tested by water;
- (c) wind loading; and
- (d) operational loading such as vibration or thermal (natural and operational).

(5) **Settlement.—** Any particular differential settlement shall be limited to prevent excessive stress in the connected pipe work and vessel shell.

(6) **Vessel supports.—**

- (i) The design of supports for vessels shall follow the standard or code to which the vessel is constructed;
- (ii) the spacing of vessel support shall be decided after close consideration of vessel-shell stressing and transmission of the loading to the ground;

- (iii) the design of supports for vessels shall provide flexibility to allow for movement of the vessel as a result of pressure and thermal expansion;
- (iv) the vessel shall be securely anchored or weighed or provided with adequate pier height to avoid floatation due to flood water; and
- (v) in case of structural steel supports such supports, excluding vessel saddles or supporting feet 45 cm or less in height, shall be encased in fire-resisting materials of adequate thickness.

89. Fencing. — (1) The area where vessels pumping equipment, loading and unloading facilities and direct fired vaporizers are provided shall be enclosed by an industrial type fence at least two meters high along the perimeter of the safety zone.

(2) Every fence shall have at least two means of exit and the gates of such exits shall open outwards and shall not be self-locking.

90. Cleanliness. — An area of three meters around the vessel shall be kept free from readily ignitable materials, such as weeds and long dry grass.

91. Earthing. — (1) All vessels used for storage of flammable liquefiable gases shall be electrically connected with the earth in an efficient manner.

(2) Pipelines conveying flammable liquids shall be adequately prepared for electrical continuity and connected with the earth in an efficient manner.

92. No smoking. — A permanent notice with letters at least five cms in height prohibiting smoking and naked lights shall be fixed to the fence surrounding the area where flammable or oxidizing gases are stored and the notice shall be visible from outside.

93. Fire protection. — All vessels used for the storage of flammable compressed gases shall be protected against fire hazards as under:-

- (i) provision shall be made for an adequate supply of water and fire protection in the storage area in accordance with the provision of the rules and the regulation applicable in that area. The application of water may be by hydrants, hoses and mobile equipments, fixed monitors or by fixed spray systems which may be automatic. Control of water flow should be possible from outside any danger area. The fire water system shall be designed with medium velocity sprinklers for above ground storage vessels, filling sheds, loading or unloading area, and pump the single largest risk area and with additional requirements for hydrant points. In plants referred to in Table 4 of rule 87, the quantity of water available shall be sufficient for four hours of fire fighting, and in plants referred to in Table 4 of rule 87, the same shall be for two hours of fire fighting. For other installations not covered under Tables 4, the fire water storage shall be as approved by the Chief Inspector;
- (ii) hydrants, where provided, shall be readily accessible at all times and so spaced as to provide for the protection of all vessels;
- (iii) sufficient length of fire hose shall be provided and be readily available. The outlet of each hose line shall be equipped with a combination jet and fog nozzle. The hoses should be maintained well and periodically inspected;

- (iv) mobile equipment, fixed monitors or fixed spray systems shall be designed to discharge water at a rate sufficient to maintain an adequate film of water over the surface of the vessel and supports under fire conditions;
- (v) consideration shall be given to the provision of mobile or fixed water spray systems giving suitable and effective protections for vehicle loading and unloading areas;
- (vi) at least two dry chemical powder type fire extinguishers of nine kg capacity each shall be installed at each point of access to the installations;
- (vii) in liquefied Petroleum Gas dispensing station for fuelling motor vehicles, having only underground or earth covered (mounded) liquefied petroleum gas storage vessels, two numbers seventy kilograms dry chemical type fire extinguishers shall be provided. In dispensing stations having above ground liquefied petroleum gas storage vessels, hydrants with minimum water pressure of seven kilograms per square centimeter shall be provided at convenient positions for around coverage of storage vessels and handling area, and water sprinklers with spray density of ten liters per minute per square meter shall be provided. The fire water pump shall be preferably diesel engine driven with capacity to deliver water at the rate and pressure specified above. The minimum fire water storage at the premises shall be that needed for fighting fire at least for one hour; and
- (viii) the organization of licensed premises shall establish, implement and maintain a procedure to identify the potential for emergency situation and respond to such situation.

94. Loading and unloading facilities. – (1) Pumps. —

- (i) pumps may be centrifugal or positive displacement pumps;
 - (ii) design materials and constructions of pumps shall be suitable for the type of gas to be handled and they shall be designed for the maximum outlet pressure to which they will be subjected to in operation; and
 - (iii) positive displacement pumps shall have a by-pass valve or other suitable protection against over pressure.
- (2) Compressors .—**
- (i) The design, material and construction of compressors shall be suitable for the type of gas which they are to handle and they shall be designed for the maximum outlet pressure to which they will be subjected to in operation; and
 - (ii) compressors other than multi-stage compressors shall take suction from the vapour space of the vessels being filled.
- (3) Transfer systems. —**
- (i) Transfer systems shall be so designed that the risk of a gas of a higher vapour pressure being transferred to equipment designed for gas of a lower vapour pressure is minimized;
 - (ii) there shall be positive means of rapidly shutting off flow, located at a safe distance from the vessel which is being filled or emptied; and
 - (iii) automatic alarm device to indicate the approach to maximum permissible height or automatic shut-off valves shall be used to prevent over filling.
- (4) Hoses —**
- (i) The hoses for liquid transfer shall be designed to withstand not less than four times the maximum operating pressure they will carry in service;

- (ii) hoses shall be mechanically and electrically continuous; and
- (iii) in the tank-truck loading or unloading gantry, number of bays for parking tank trucks shall not exceed eight, and number of such gantries in a premise shall not exceed two.

(5) Rail tank wagon loading or unloading shall be restricted to a maximum of half a rak (six hundred tones). If full rake handling is required, it shall be placed in two separate gantries with fifty meters distance in between them.

(6) All valves on the vessel and pipelines in the premises shall be permanently marked in a manner clearly indicating the direction of opening and closing.

95. Transfer operations. — (1) Before transfer of gas,-

- (i) every vehicle shall be carefully examined at the installation to ensure that it complies in all respects with the requirements of these rules and shall be completely emptied before it is passed for filling;
- (ii) a visual check shall be made of the surroundings for unusual or dangerous situations before any filling or discharging procedure is commenced;
- (iii) warning notices, as necessary, shall be displayed;
- (iv) the receiving vessel shall be checked to ensure that it has sufficient ullage to receive quantity of gas being transferred to it; and
- (v) the inter-connecting system, that is pipe work-fittings, valves or hoses, shall be checked to ensure that it is in safe working condition and that only valves and other fittings required in the transfer operations or any other operations proceeding simultaneously are open.

(2) During transfer the receiving vessel shall be checked to ensure that it is not being filled above its safe filling capacity or beyond its design pressure.

(3) On completion of transfer before the vehicle is allowed to leave the licensed premises it shall be weighed over a weigh-bridge to ascertain the quantity of the compressed gas filled therein if the vehicle is filled with a liquefiable gas.

(4) When filling the vessels on vehicles with compressed gas, the following procedure shall be complied with in addition to the other requirements, namely:--

- (i) the place where the vehicle is parked shall be properly leveled;
- (ii) the vehicle shall be prevented from accidental movement during the transfer operation. The parking brake of the vehicle shall be on and the engine shall remain stopped, except when it is necessary to drive the pump. Where necessary, wheel chock blocks shall be used;
- (iii) any driving units or electrical equipment not required and not specifically designed for the transfer operation shall be stopped or isolated;
- (iv) the vessel mounted on a vehicle shall be electrically bonded to the fixed installation before any flammable liquefied gas transfer operations is carried out; and
- (v) before a vehicle is moved, the electrical and the liquid and vapour connections shall be disconnected, care being exercised to avoid spillage, where wheel chock blocks have been used they shall be removed. The vehicle shall be checked to ensure that it is in safe working order and the surrounding areas checked to ensure that any liquefied flammable gas that may have leaked or has to be vented has safely dispersed.

(5) For keeping attention during operations—

- (i) a competent person shall remain in attendance during all the operations connected with the transfer and ensure that all the requirements of these rules are complied with; and
 - (ii) if it is necessary to discontinue a vehicle loading operation temporarily, the loading hose, shall be disconnected from the vehicle for the period of such discontinuance.
- (6) The person in charge of transfer operations shall ensure that transfer operations are stopped in the event of –
- (i) any leakage;
 - (ii) a fire occurring in the vicinity; or
 - (iii) a severe electrical storm occurring in the vicinity in the case of an operation which involves venting of flammable gas.

96. Dispenser for liquefied petroleum gas dispensing station. -- The dispenser and connected fittings used for dispensing liquefied petroleum gas in motor vehicles provided in the liquefied petroleum gas dispensing station shall be design, constructed, tested and maintained in accordance with the requirement laid down in Schedule II of these rules and be of a type approved in writing by the Chief Inspector.

97. Special Provisions for filling fuel tanks of motor vehicles and unloading of tank-truck in liquefied petroleum gas dispensing station. – (1) Liquefied Petroleum Gas shall not be filled in fuel tank of motor vehicle while the engine of the vehicle is running.

(2) During the period of unloading of liquefied petroleum gas from tank-truck to the storage vessels, operation of dispensing liquefied petroleum gas to motor vehicles shall not be carried out.

98. Electrical apparatus and installations. — (1) No electrical wire shall pass over any storage vessel.

(2) All electrical wires installed within the safety zone of any storage vessel for the storage of flammable compressed gases shall consist of insulated cables of approved type. The cables shall be mechanically continuous throughout and effectively earthed away from the vessels.

(3) For pump rooms used for pumping flammable compressed gases, –

- (i) all electrical meters, distribution boards, switches, fuses, plugs and sockets shall be of flame-proof construction complying with the requirements approved by Chief Inspector of Explosives; and
- (ii) all electrical fixed lamps shall be enclosed in a well glass flameproof fitting conforming to approval of Chief Inspector of Explosives.

(4) All electrical portable hand lamps shall be of a type approved by the Chief Inspector of Explosives

99. Classification of hazardous area for flammable gases. -- (1) A hazardous area for flammable gases shall be deemed to be –

- (a) a division ‘0’ area if inflammable gases of vapors are expected to be continuously present in the area;
- (b) a division ‘1’ area, if inflammable gases of vapors are expected to be continuously present in the area under normal operating conditions; or

- (c) a division '2' area, if inflammable gases of vapors are expected to be continuously present in the area only under abnormal operating conditions or failure or rupture of equipment.

(2) If any question arises as to whether hazardous area is a division '0' area or a division '1' area or a division '2' area, the decision thereon of the Chief Inspector shall be final.

100. Extent of hazardous area. — The extent of hazardous area for liquefied petroleum gas dispenser shall be as under :—

- (i) entire space within the dispenser enclosure cabinet and forty six centimeters horizontally from the exterior of enclosure cabinet and up to an elevation of one hundred and twenty two centimeters above dispenser base and the entire pit or open space beneath the dispenser shall be division '1' ; and
- (ii) up to forty six centimeters vertically above the surrounding ground level and horizontally beyond forty six centimeters up to six meters on all sides of the dispenser enclosure cabinet shall be division '2'.

101. Lighting of storage and operating areas. — Operations shall not be carried out during the night unless adequate artificial lightings of approved type are available and used.

102. Certificate of safety. — A certificate of safety in the proforma prescribed by the Chief Inspector and signed by a competent person shall be furnished to the licensing authority before any vessel is used for the storage of any compressed gas or whenever any addition or alteration to the installations or foundations for the vessel is carried out.

PART-V TRANSPORT

103. Application. — The rules in this Chapter shall apply to the transport of compressed gas by vehicles.

104. Vehicles for transport of compressed gas. — (1) Every vehicle for the transport of compressed gas shall be of a type approved, in writing, by the Chief Inspector

(2) Where approval is sought to a vehicle under sub-rule (1) or to any of its special safety fittings, four numbers of detailed drawings drawn to scale shall be forwarded to the Chief Inspector.

(3) If the Chief Inspector, after receipt of the drawing under sub-rule (2) and after making such further inquiries as he deems necessary, is satisfied that the vehicle or the special safety fittings, as the case may be, meets with the requirements laid down in these rules, he shall approve the drawing and return to the applicant one copy thereof duly endorsed.

105. Design.— (1) Every vessel used for the transportation of compressed gas shall, in addition to the requirements of this rule, be constructed and tested in accordance with the requirements of rule 36.

(2) The design stress shall include an allowance to enable the vessel to withstand shocks normally encountered by movements on road, such as, acceleration and deceleration for a minimum of 3g when the vessel is self-supporting, the vessel design shall provide for carrying

the additional stresses normally carried by the chassis frame. Provision shall be made for distributing the localized stresses arising from attachments to the vessels.

(3) Mounting of vessels on the chassis or under-frame shall be done in such a manner as to keep the vibrations to the minimum.

(4) All attachments to the vessel shall be protected against accidental damage which may result from collision, over-turning or other operational cause.

(5) All vessels shall be designed to withstand the most severe combined stresses to which they may be subjected to by the pressure of the gas, the pumping pressures and shock loading caused by transport conditions.

106. Protection of valves and accessories. — (1) All valves and accessories shall be safeguarded against accidental damage or interference.

(2) Valves and accessories shall be mounted and protected in such a way that risk of accidental rupture of the branch to which the valve or accessory is connected is minimized.

(3) Valves or accessories situated at the rear of a vehicle shall be protected by the rear cross member of the frame of the vehicle against damage and shall comply with sub rule (2).

107. Equipment.—

(1) Piping, fittings, pumps and meters. —

(i) All piping, fittings, pumps and meters permanently mounted on the vehicle shall be designed to withstand the most severe combined stresses imposed by the following, namely:-

(a) the maximum designed pressure of the vessel; and

(b) the super imposed pumping pressure of the shock loading caused by road movements; and

(ii) The materials used for vessel equipment shall be sufficiently ductile to withstand rough usage and accidental damage. Brittle materials such as cast iron shall not be used.

(2) Protection of piping and equipment.—

(i) All piping and equipment shall be adequately protected to minimize accidental damage which may be caused by rough usage, collision or over-turning; and

(ii) Any equipment or section of piping in which liquid may be trapped shall be protected against excessive pressure caused by thermal expansion of the contents.

(3) **Marking of connection.**— All connections on the vehicle which require manipulation by the operator of the vehicle should be clearly marked to prevent incorrect operation. The form of this marking should correspond with the operating procedure laid down for the vehicle.

108. Vehicle design considerations.—

(1) **General.**— The vessels shall be securely attached to the chassis of the vehicle in such a manner as to take care of the forward movement of the vessel due to sudden deceleration of the vehicle.

(2) Design safety requirements. – Mechanical:-

(i) The engine of the vehicle shall be of an internal combustion type;

(ii) Where the fuel system is gravity-fed, a quick action cut-off-valve shall be fitted to the fuel feed pipe in an easily accessible and clearly marked position;

- (iii) The engine and exhaust system together with all electrical generators, motors, batteries, switch-gears and fuses shall be efficiently screened from the vessel or the body of the vehicle by a fire-resisting shield or by enclosure within an approved fire-resisting compartment;
- (iv) When the equipment referred to in clauses (i), (ii) and (iii) are mounted forward of the back of the driving cab, the cab can be considered to act as an acceptable shield, provided the back, the roof and the floor of the cab, are of fire-resisting construction for the full width of the cab, without any openings in the back or roof, and that the back extends downwards to the top of the chassis;
- (v) When the cab construction does not conform to the equipments mentioned above, a separate fire resisting shield should be installed extending upwards without any openings from the top of the chassis to the top of the vessel;
- (vi) In any case, where windows are provided in the shield, they should be fitted in fire-resisting framing with wired glass or other heat-resisting material and shall not be capable of being opened;
- (vii) When the equipment referred to in clauses (i), (ii) and (iii) are mounted to the rear of the back of the cab, it shall be contained wholly within an approved fire resisting compartment;
- (viii) In any case where the fuel used to propel a vehicle gives off a flammable vapour at a temperature less than 65°C, the fuel tank shall not be behind the shield unless the following requirements are complied with, namely:-
 - (a) the fuel tank is protected from blows by stout steel guards or by the frames of the vehicle;
 - (b) the fill pipe of the fuel tank of the vehicle is provided with a cover having locking arrangement; and
 - (c) the fuel feed apparatus placed in front of the fire-resisting shield is used to lift the contents of the fuel tank; and
- (ix) Where a transfer pump is driven by the engine of the vehicle, provision shall be made to stop the engine from outside the cab.

(3) **Design safety requirements.— Electrical:-** The following requirements shall be complied with in connection with the electrical and antistatic properties of the vehicle, namely:-

- (i) The Electrical system shall have –
 - (a) the battery in an easily accessible position;
 - (b) readily accessible cut-off switches of not less than 300 Amps rating; and
 - (c) wiring so fixed and protected as to minimize accidental damage or undue wear;
 - (ii) the vessel shall be electrically continuous with the chassis;
 - (iii) the vehicle shall be provided with a bonding point or bonding cable; and
 - (iv) tyres shall be of the “anti-static” type.
- (4) **Design safety requirements .– General:-**
- (i) There shall be a clear space of at least fifteen cm between the back of the cab and the front of the vessel;
 - (ii) the rear of the vessel shall be protected by a robust steel bumper and this bumper shall be—

- (a) attached so that collision stresses will be transmitted to the frame work of the vehicle or, in the case of an articulated vehicle to the frame work carrying the wheels of the vessel; and
 - (b) Situated at least 7.5 cm to the rear of the rear-most part of the vessel; and
 - (c) extended on each side of the vehicle to at least the maximum width of the vessel; and
- (iii) the maximum weight of the liquefied gas for which the vehicle is designed should not exceed the difference in weight between the unladen weight of the vehicle and the maximum gross weight permitted for that class of vehicle under the appropriate transport regulations.

109. Marking of vehicle. — All vehicles shall be conspicuously marked on the vessel to show the product which is being carried.

110. Fire protection. — (1) Two serviceable fire extinguishers of suitable size and type shall be provided on each vehicle, one on each side and should be accessible from outside the cab.

(2) A person, while in, or attending, any vehicle conveying flammable gas, shall not smoke or use matches or lighters.

(3) No fire, artificial light or article capable of causing fire or explosion shall be taken or carried on any vehicle carrying flammable gas.

111. Operations. — (1) Drivers shall be carefully selected and given appropriate training in driving and safe handling of the equipment and the compressed gas carried in the vehicle.

(2) When loading or discharging of a vehicle takes place within the operator's own premises, a competent person shall be present throughout the operations:

Provided that nothing in this sub-rule shall apply to vehicles which are left in places previously approved for the purpose by the Chief Inspector.

(3) When discharge is in progress, at a customer premises, the driver shall remain with his vehicle in such a position so as to be able to stop the discharge immediately in an emergency.

(4) Every vehicle shall be constantly attended to by at least one person who is familiar with the rules in this Chapter.

(5) In the event of an over-night stop away from home base, prior arrangements shall be made for the safe parking of the vehicle overnight. In an emergency, a driver may seek the co-operation of the local police in finding suitable parking facilities for his vehicle.

112. Certificate of Safety. — A certificate of safety in prescribed proforma signed by a competent person shall be furnished to the licensing authority before any vehicle is used for the transportation of any compressed gas to the effect that the vehicle meets with the provisions of the rules in this Chapter.

113. Inspection and maintenance of vehicles. — (1) The licensee for any vehicle shall ensure that it is at all times road-worthy, and that it is in a fit condition to fill, transport and discharge its load safely.

(2) An examination of the vehicle to check that the vehicle is maintained as per sub-rule (1) shall be carried out every six months by a competent person and a certificate in the prescribed proforma shall be issued by him.

CHAPTER IV LICENCES PART-I COMPONENTS AND INSTALLATIONS

114. Shut-off valves or block valves. - Shut-off valves shall be so designed as to withstand operating pressure and field test pressure to which they are to be subjected without failure or leakage. They shall conform to American or corresponding standards governing maximum wall thickness, material and dimensions and shall be used only in accordance with service recommendations of the manufacturer.

115. Location of shut-off valves on service lines and house lines. -

(1) They shall be installed in readily accessible positions.
(2) They shall be located upstream of the meter if there is no regulator or upstream of a regulator where there is one.

(3) All pipelines having a diameter of 2 inches or more and operating at a pressure higher than 10 psig shall be equipped with shut-off valves, which should preferably be located outside of buildings. When gas is supplied to a theatre, church, school, factory or other buildings wherein a large number of persons assemble, shut-off valves are indispensable and shall be installed outside irrespective of size of the pipe and the pressure of the gas.

(4) Shut-off valves may be located under ground also but these shall be covered with a durable curb box designed to permit easy operation of valves.

116. Spacing of shut-off valves or block valves on transmission line. - In areas outside cities, towns and villages the length of a section between two shut-off valves on a transmission line shall not exceed 30 miles and where the pipeline passes through cities, towns and villages the length of such section shall not exceed 8 miles and sufficient additional valves shall be provided to turn off the gas readily in case of failure of a pipeline.

117. Spacing of shut-off valves on distribution lines. - (1) The spacing of shut-off valves on these lines shall be determined keeping in view the operating pressure, size of the line, local physical conditions and the number and type of consumers likely to be affected by a shut-off valve.

(2) One valve shall be installed on the inlet piping of each regulator station controlling the pressure, or flow of the gas. The distance between the valve and the regulator or regulators shall be such as to allow easy operation of the valve during an emergency.

118. Automatic valves on regulator Station. - An automatic valve if used shall be of an approved and tried pattern.

119. Relief valves on regulator Station. - (1) Relief valves shall be such material as not to be liable to corrosion by rust or by gas itself.

(2) Vents and outlets of a relief valve shall be located where gas can discharge into the atmosphere without any hazard and shall be protected with rain shields (when required) to prevent entry of rainwater into them.

(3) A sufficient number of relief valves shall be provided to all regulator station located on gas pipeline to ensure that complete failure of one or more regulator stations shall not cause undue pressure on any part of the line beyond one for which it is designed. Such valves shall be equipped to vent the gas to atmosphere by means of vent pipes not less than 2 feet high from the ground level.

(4) The relief valve shall be tested at least once in six months and shall be overhauled, if necessary.

(5) No relief valve shall be operated under circumstances such as would create a hazard to public life or property.

120. Compressor station on pipelines .- (1) A compressor building shall be located away from protected works at a distance as specified in rule 67.

(2) Sufficient open space shall be provided around the building to allow free movement of fire-fighting equipment, when necessary.

(3) All buildings in a compressor station housing gas pipes larger than 2 inches in diameter and other gas handling equipments shall be constructed of non-combustible materials and shall be provided with adequate ventilation.

(4) At least two exits shall be provided for each operating floor, basement elevated walkway or platform. The exits from upper operating floors, elevated walkway platforms should directly lead to ladders or stairways. These exits shall be un-obstructed doorways facilitating smooth escape to a place of safety in times of emergency. The door latches shall be of a type which can be operated from inside without a key. All swinging doors located in an exterior wall shall swing outwards.

121. Relief valves and other devices at a compressor Station. - All compressor stations on a pipeline shall be provided with adequate relief valves or other protective devices of sufficient capacity to ensure that working pressure in the gas piping at no time exceeds the maximum operating pressure by 10% of the same or by 50 psig, whichever is less. The relieved gas shall be vented to the open air away from any source of fire or spark by means of vent pipes as specified in sub-rule (3) of rule 119. All such devices shall be inspected periodically (at least once in six months) and shall be overhauled if necessary to keep them in a perfect order.

122. Shut-off valves at a compressor station. - An emergency shut-off valve shall be provided to every compressor station. This valve shall be installed at a safe distance from the compressor station enabling it to be shut-off readily in times of emergency.

123. Engine over speed stop at a compressor station. - Every compressor engine except electric induction or synchronous motors shall be provided with an automatic device designed to shut it self down before its speed exceeds the maximum safe speed.

124. Fire precautions at compressor station. - Lubricants, gasoline, paint and such other materials as required for operations in a compressor station shall be stored separately at a distance not less than 50 feet from the compressor station under a license as required by rule 90

of Petroleum Rules 1937. Crank case of gas engines shall be vented out of the compressor building. Caution notices shall be posted in conspicuous positions around compressor stations.

125. Specification of electrical equipments to be used. - All electric devices, including meters, bulbs, sockets, wiring, switches, etc, within a compressor, regulator or meter stations on a pipeline shall be designed and installed in accordance with specifications prescribed in rule 105 of Petroleum rules, 1937.

126. Vaults and their structure. - Underground vaults or pits for shut-off valves, relief valves or regulators shall be designed and constructed as follows:-

- (a) all vaults and pits shall be of firm construction in accordance with efficient constructional engineering practice;
- (b) all vaults and pits situated in roads, street or highways and exposed to heavy traffic shall be constructed of durable materials, the cover being designed to bear 7000 lbs., of wheel load over a strip of road surface not less than 15 inches in diameter. The walls shall be designed to withstand horizontal pressure not less than 250 lbs., per square foot;
- (c) sufficient working space shall be provided in the vault for easy operation and maintenance;
- (d) piping entering, and within regulator vaults or pits shall be of steel. Gauge and control piping may be of copper; and
- (e) Vault or pit opening shall be so located as to minimize the risk of tools and other things falling on the regulator piping or other equipment. The control piping and other operational equipment shall not be installed under any vault or pit opening where workers can step on them while entering or leaving a vault or a pit.

127. Fencing of a regulator or a compressor station. - A regulator or a compressor station shall be protected by means of at least 6 feet high masonry wall or mesh wire fence around it. Each enclosure of a compressor station shall be provided with a minimum of two gates, which shall be located to facilities easy escape to places of safety in time of emergency. These gates shall open outwards and shall be kept unlocked at all times during which the station is attended. At least one of them shall be attended by a chowkidar during the period when they are required to be kept open. If the second gate is unattended it shall be latched in such a manner as to be readily opened from the inside only.

128. Control of corrosion in compressor stations. - Gas piping in each compressor station shall be examined from time to time to notice corrosion. In case of corrosion of any pipe, all pipes within the station shall be protected by any of the recognized methods, coating with protective materials and/or application of cathodes current.

PART-II GENERAL PROVISIONS

129. Filling, possession, import and transport of cylinders .- (1) No person shall fill any cylinder with any compressed gas or import, possess or transport any cylinder so filled or intended to be filled with such gas unless,-

- (a) such cylinder and its valve have been constructed to a type and standard approved by Chief Inspector of Explosives; and
- (b) the test and inspection certificates issued by the inspecting authority in respect of cylinder and its valve are made available to the Chief Inspector of Explosives, and prior approval of the said authority is obtained.

(2) For obtaining approval under clause (b) of sub rule (1), the following shall be submitted to the Chief Inspector of Explosive, namely:-

- (i) total number and serial numbers of the cylinders;
- (ii) name and address of the manufacturers of the cylinders;
- (iii) specification of the cylinders and the valves;
- (iv) previous approval, if any;
- (v) the test and inspection certificates in respect of the cylinders; and
- (vi) the test and inspection certificates pertaining to the valves fitted/to be fitted to the cylinders.

(3) The test and inspection certificates required to be obtained from the inspecting authority in respect of cylinders and valves inspected and certified by it in accordance with the approved design and specification or code shall give the information included in Schedule I.

(4) Any person desiring to manufacture cylinders, valves, LPG regulators attached to self-closing valves, multi-function valves and other fittings shall obtain approval from the Chief Inspector of Explosive, and in order to seek such approval, submit the particulars set forth in Schedule II with design drawings and calculations duly endorsed by Inspecting Authority.

(5) For any subsequent changes in the design drawing, a fresh approval shall be obtained.

130. Valves.- (1) Valves fitted to gas cylinders shall comply in all respects with the specifications approved by the Chief Inspector of Explosive:

Provided that the Chief Inspector of Explosive may, if he is of opinion that it is necessary so to do in the public interest, permit the use of valves not conforming to any of the above specifications.

(2) Valves fitted to Carbon Dioxide cylinders shall be provided in the body with a safety release consisting of softened copper disc so arranged as to burst at a pressure between 200 kg/cm² and 220 kg/cm²

(3) Valves for cylinders containing flammable gases shall have outlets provided with left handed screw threads for the pipes or other connections.

(4) All other valves shall have outlets with right-handed screw threads.

(5) The valves shall be attached to the cylinder neck by screwing and not by making any permanent attachment or inserting adapter in between.

(6) The design of spindle-operated valves shall be such that when fitted to the cylinders it shall not be possible to withdraw the spindle under normal operating conditions.

131. Safety relief devices.- (1) Cylinders manufactured in Pakistan, if fitted with safety relief devices in their bodies, shall have such safety devices manufactured and maintained in accordance with the type approved by the Chief Inspector of Explosive.

(2) Cylinders containing obnoxious or poisonous gases shall not be provided with any safety device.

*Explanation.-*For the purpose of this sub-rule, “obnoxious or poisonous gases” include Carbon monoxide, Hydro-cynic acid, Hydrogen chloride, Hydrogen bromide, Hydrogen fluoride, Sulphur dioxide, Chlorine, Methyl bromide, Nitrogen tetroxide, Nitrosyl chloride, Hydrogen sulphide, Carbonyl chloride (Phosgene), Cyanogen, Cyanogen chloride, Fluorine and Carbon oxychloride.

(3) Cylinders manufactured in foreign countries, approved for use in Pakistan, if fitted with safety relief devices, shall have these devices fully maintained in accordance with the requirements of the specification to which they were originally made.

132. Marking on cylinders - (1) Marking generally.-

(a) every gas cylinder shall be clearly and permanently marked in accordance with following conditions by stamping, engraving or similar processes:-

- (i) on the shoulder of the cylinder which shall be reinforced by forging or other means, or
- (ii) on such a part which is inseparably bound with the cylinder and which is not or only negligibly affected by the stresses due to the gas pressure within it;

(b) the name plate shall not be affixed to the cylinder by soldering if there is a risk of corrosion or embitterment;

(c) in conjunction with the original marking, space shall be provided for stamping the test date obtained at the periodic inspection; and

(d) markings shall be so carried out and the letters and numerals used shall be of such shape and size that the marking is clear and easily readable and does not give place for misreading.

(2) Marking on permanent and liquefiable gas cylinders.-

(a) every cylinder shall be marked with the following markings, namely:-

- (i) manufacturer’s, owner’s and inspector’s marking and rotation number;
 - (ii) specification to which the cylinder has been made;
 - (iii) A symbol to indicate the nature of heat treatment given to the cylinder during manufacture or after repairs;
 - (iv) the date of the last hydrostatic test or hydrostatic stretch test, as the case may be, with the code mark of recognized testing station where the test was carried out and the code mark shall be registered with the Chief Inspector of Explosives. In the case of liquefied petroleum gas cylinders, the quarter and the year of test shall be given as an additional marking in a neck or on a shoulder plate;
 - (v) working pressure and test pressure;
 - (vi) tare weight; and
- Explanation.-* In the case of liquefiable gas cylinders, tare weight shall include the weight of valve fitted to the cylinder; and
- (vii) water capacity; and

(b) all the markings, except the manufacture’s markings, which may be on the base, shall be stamped on the neck end of the cylinder. However, seamless cylinders having no foot ring or skirt shall be stamped with the manufacturer’s marking on the neck end of the cylinder.

133. Markings on valve.- Valves fitted to the cylinder shall be clearly and durably marked in accordance with the following provisions by stamping, engraving or similar processes namely:-

- (i) the specification of the valves;
- (ii) year and month or quarter of manufacture;
- (iii) manufacturer’s symbol;

- (iv) working pressure;
- (v) the name or chemical symbol of the gas for which the valve is to be used;
- (vi) the type of screw threads on the outlet, in case of left handed as (L.H.);
- (vii) Inspector's stamp; and
- (viii) where dip tubes are provided, special indications shall be given by a clear and durable marking on the valve or on a badge fixed between the valve and the cylinder and the total length in millimeter of the tube shall also be indicated.

134. **Identification colours.** - (1) Every person filling any cylinder with any compressed gas shall, before it is stored or dispatched, see that the cylinder is painted with appropriate identification colours for industrial cylinders and medical cylinders.

(2) Cylinders used for new gases and gas mixtures for which identification colours are not provided in sub-rule (1) shall be painted with the colours indicated in the following Table, namely: -

TABLE

Name of the gas contained in the cylinder shell.	Colour of the end of cylinder.	Colour of band at neck cylinder.
(1)	(2)	(3)
Non-flammable and non-toxic.	White.	
Non-flammable but toxic.	White.	Yellow.
Flammable but non-toxic other than the LPG.	White.	Red.
Flammable and toxic.	White.	Red and Yellow.
Gas mixtures.	Major gas colour.	Minor gas colour with band width approximately 1/5th of the cylinder length.

Explanation. - Cylinders intended for gas mixtures shall be marked with the words "Gas Mixture" or "Mixed Gas" and in addition, the cylinders shall be marked with the names (symbols, if necessary) of the components of the mixture by stamping, if the cylinders are intended for the permanent use of the particular gas mixture, or by painting, if the cylinders are intended for the casual use of the particular gas mixture.

(3) No person shall in any way interfere with or change the colour painted on a gas cylinder:

Provided that nothing in this sub-rule shall be deemed to prohibit the re-painting of a cylinder with the identification colour painted on it when it is required for the maintenance of the cylinder or when a cylinder is converted from one gas service to another gas service in accordance with these rules.

135. **Labelling of cylinders.** - (1) every cylinder shall be labeled with the name of the gas and the name and address of the person by whom the cylinder was filled with gas.

(2) A warning in the following terms shall be attached to every cylinder containing permanent or liquefiable gas, namely: -

“WARNING”

- (i) do not change the colour of this cylinder.
- (ii) This cylinder should not be filled with any gas other than the one it now contains.
- (iii) No flammable material should be stored in the close vicinity of this cylinder or in the same room in which it is kept.
- (iv) No oil or similar lubricant should be used on the valves or other fittings of this cylinder.
- (v) Please look for the next date of test, which is marked on a metal ring inserted between the valve and the neck of the cylinder, and if this date is over, do not accept the cylinder for filling.

136. Restriction on delivery or despatch of cylinders.- (1) No person shall deliver or despatch any cylinder filled with any compressed gas to any other person in Pakistan who is not the holder of a license to possess such compressed gas cylinders or his authorized agent unless he is exempted under these rules to possess such compressed gas cylinders without a licence.

(2) The gas cylinders delivered or dispatched by a person under sub-rule (1) shall be of the type for which he is licensed and shall not exceed the quantity which the person to whom it is delivered or dispatched is authorised to possess under these rules.

(3) Nothing in sub-rules (1) and (2) shall apply to the delivery or despatch of gas cylinders to the defence forces.

137. Repairing of seamless gas cylinders during use.- No person shall repair or cause to repair any leakage in the body of a seamless gas cylinder.

138. Repairing of welded or brazed cylinders. — (1) Welded or brazed cylinder showing leaks at any place other than the welded or brazed seams shall not be repaired and shall be rendered unserviceable.

(2) In the case of cylinders having welded or brazed seam, repairing of minor defects, such as small weld cracks, pin holes, blow holes, undercuts in welding, leaks at the weld (shown in periodical hydrostatic test) may be allowed provided-

- (a) the defects have been removed by grinding, chipping, gouging or other approved methods;
- (b) the repairing is carried out by a certified welder at the premises of a manufacturer of cylinders recognized by the Chief Inspector of Explosive, under the supervision of a competent person by-
 - (i) welding if the original seams were welded; or
 - (ii) brazing, if the original seams were brazed;
- (c) the cylinder is properly heat-treated after the repairs;
- (d) the welded or brazed seams of the cylinder are radiographed if the cylinder was originally required to be radiographed after its manufacture; and
- (e) after repairs and heat-treatment, the cylinder is subjected to the same pneumatic and hydrostatic test or hydrostatic stretch test as was done at the time of manufacture.

(3) Welded or brazed cylinder, before repairing, shall be thoroughly cleaned and gas-freed or otherwise prepared for safely carrying out hot work and certified in writing, by a competent person, to have been so prepared. The certificate shall be preserved for a period of three months and produced to the Chief Inspector of Explosive, on demand.

(4) No person shall refill any cylinder which has been repaired under sub-rule (2) with any gas unless a full report on the repairs and test carried out on the cylinder, accompanied by the repairer's

certificate of testing are furnished to the Chief Inspector of Explosive, and his permission is obtained for its refilling.

(5) Notwithstanding anything contained in sub-rule (2), no repairs shall be carried out to any dissolved acetylene gas cylinder showing leaks in its weld seam.

139. Prohibition of employment of children and intoxicated persons.- No child under the age of eighteen years and no person who is in a state of intoxication shall be employed in-charge of loading or unloading or transport of any compressed gas cylinder or in any premises licensed under these rules.

140. Prohibition of smoking, fires, lights and dangerous substances.- (1) No person shall smoke and no fires, other than blow pipe flames for repairs, or no articles or such other substances of flammable nature or liable to spontaneous ignition or to cause or communicate fire or explosion shall be allowed at any time in proximity to a place where any cylinder for flammable gases is being filled, stored or handled.

(2) No person in or near any place where cylinders containing flammable gases are filled, stored or handled shall have in his possession any matches, fuses, mobile phones or any other appliances for producing ignition or explosion.

141. General precautions. - (1) Cylinders together with their valves and other fittings and the identification colours under these rules shall always be maintained in good condition.

(2) No oil or similar lubricant shall be used on any valves or other fittings of any cylinder.

(3) Save as provided in rules 138 and clause B 2(1)(b) of Schedule III, no cylinder shall be subjected to any heat treatment or exposed to a high temperature or to the Sun or stored with any other flammable or explosive material.

(4) Every cylinder containing compressed gas shall have its valve securely closed so as to prevent leakage. Valves fitted to the cylinders containing Liquefied Petroleum Gas and highly toxic gases like Boron trifluoride, Carbon monoxide, Fluorine, Hydrogen chloride, Cyanogen chloride, Chlorine trifluoride, Hydrogen cyanide, Hydrogen fluoride, Hydrogen sulphide, Methyl bromide, Nitrogen tetroxide, Chlorine, Ammonia or Sulphur dioxide shall be provided with security nut on the outlet to act as a secondary means of safeguard against leakage of gas.

(5) If a leak in the valve cannot be rectified by tightening the gland nut or the spindle, the cylinder shall be removed to an open space where it is least dangerous to life and property and the filler shall be informed. In the case of Liquefied Petroleum Gas cylinder, the safety cap shall be fixed to arrest the leak and the cylinder shall be moved to an open space.

142. Special precautions against accidents.- (1) No person shall commit or attempt to commit any act, which may tend to cause a fire or explosion in or about any place where gas under pressure in a cylinder is stored, handled or transported.

(2) Every person storing compressed gas cylinders and every person in charge of or engaged in the storage, handling and transport of such gas cylinders, shall at all times-

(a) comply with the provisions of these rules and the conditions of any licence relating thereto;

(b) observe all precautions for the prevention of accident by fire or explosion; and

(c) prevent any person from committing any act referred to in sub-rule (1).

143. Competent person to be incharge of operations.- Every person holding or acting under a licence granted under these rules, shall, whenever cylinders are filled, loaded, unloaded, examined or tested, depute a competent and experienced person to be present and to conduct any of the said operations in accordance with provisions of these rules and the name, qualification and experience of such personnel deputed in each shift shall be furnished to the Chief Inspector of Explosive, or Inspector of Explosive for considering filling permission round the clock.

144. Handling and use.- (1) Cylinders shall be adequately supported during handling.

(2) Conveyors, trolleys and cradles of adequate strength shall, as far as possible, be used when moving the cylinders.

(3) The cylinders shall be handled carefully and not be allowed to fall upon one another or otherwise subjected to any undue shock.

(4) Sliding, dropping or playing with cylinders is prohibited.

(5) Liquefied petroleum gas cylinders and cylinders containing liquefiable gases shall always be kept in an upright position and shall be so placed that they cannot be knocked over.

(6) Cylinders used in horizontal position shall be so secured that they cannot roll.

(7) Open flames, lights, mobile phones, lighting of fires, welding and smoking shall be prohibited in close proximity to any cylinder containing flammable gases except those while in use for welding, cutting or heating.

(8) Working places shall not be classified as storage places for the purpose of licensing.

145. Restrictions on filling.- (1) Welded cylinders shall not be used for filling any permanent or high pressure liquefiable gas or highly toxic gases like Boron trifluoride, Carbonyl chloride (Phosgene), Chlorine trifluoride, Cyanogen, Cyanogen chloride, Hydrogen cyanide, Hydrogen sulphide.

(2) No cylinder, which has once been used for storage and transportation of coal gas, carbon monoxide or methane shall be used for filling with any other gas except mixture of these gases with inert gases.

(3) No cylinder shall be filled with any gas that is capable of combining chemically so as to endanger its serviceability.

146. Loading, unloading and transport of cylinders. - Cylinders filled with any compressed gas shall be transported duly complying with the provisions laid down in Schedule III and also observing the relevant provisions of other statutes as applicable.

147. Storage of cylinders.- (1) Cylinders shall be stored in a cool, dry, well ventilated place under cover, away from boilers, open flames, steam pipes or any potential sources of heat and such place of storage shall be easily accessible.

(2) The storage room or shed shall be of fire resistant construction.

(3) Thin wall cylinders such as liquefied petroleum gas cylinders and dissolved gas cylinders shall not be stacked in a horizontal position.

(4) Cylinders containing flammable gases and toxic gases shall be kept separated from each other and from cylinders containing other types of gases by an adequate distance or by a suitable partition wall.

(5) Cylinders shall not be stored under conditions, which will cause them to corrode.

(6) Cylinders shall not be stored along with any combustible material.

(7) Empty cylinders shall be segregated from the filled ones and care shall be taken that all the valves are tightly shut.

148. Electrical installations.- In premises for filling and storing flammable gases in cylinders all electric meters, distribution boards, switches, fuses, plugs and sockets, all electric fittings, fixed lamps, portable hand lamps and motors, shall be of flame proof construction or such other specification as approved by the Chief Inspector of Explosive, and shall be effectively earthed.

149. Purity of gas.- (1) Compressed gases shall be free from impurities, which are likely to corrode the metal of the cylinder or form an explosive substance with it or cause the gases to decompose or explode.

(2) The gases shall be as dry as possible and in no instance shall the aqueous phase separate when a liquefied gas is cooled to 0°C.

(3) Before filling any cylinder with gases like carbon monoxide, coal gas, hydrogen or methane, the gas shall be free from hydrogen sulphide and other sulphurous impurities as far as practicable. The moisture shall be less than 0.02 g/m³ of gas at normal temperature and pressure.

150. Cylinder subjected to the action of fire.- (1) A cylinder exposed to fire shall not be used unless it has undergone proper examination and hydrostatic test or hydrostatic stretch test.

(2) If deleterious structural changes in the material due to the action of heat of the fire is apprehended to have taken place, the cylinder shall have to be subjected to proper heat treatment, followed by hydrostatic test or hydrostatic stretch test, as the case may be, before the cylinder is taken into use.

(3) Dissolved acetylene cylinders, which have been damaged by fire shall be condemned and destroyed by an experienced and competent person nominated by Chief Inspector of Explosives.

151. Ownership of cylinder.- A cylinder shall not be filled with a compressed gas and transported unless it was charged by or with the written consent of the owner of the cylinder.

152. Re-testing of cylinder.- A cylinder for which prescribed periodical re-test has become due shall not be charged and transported until such re-test has been properly made.

153. Owner's record.- The owner of a cylinder shall keep for the life of each cylinder, a record containing the following information regarding each cylinder, namely:-

- (i) cylinder manufacturer's name and the rotation number;
- (ii) the specification number to which the cylinder is manufactured;
- (iii) date of original hydrostatic test or hydrostatic stretch test;
- (iv) cylinder manufacturer's test and inspection certificates; and
- (v) number and date of letter of approval granted by the Chief Inspector of Explosives

154. Conversion of cylinders.- (1) Gas cylinders designed and approved for filling with a particular gas shall not be used for filling with any other gas unless specific approval is obtained from the Chief Inspector of Explosive, except that,—

- (a) inert gases, oxygen and compressed air cylinders made to the same specification and design may be converted from one gas to another after fitting with appropriate valve and painting with appropriate identification colour without prior permission from , Chief Inspector of Explosive, with approval of the cylinder owner; and
- (b) proper records of such conversions shall be maintained by the gas filler for examination of Chief Inspector of Explosives, or Inspector of Explosives as and when needed.

(2) Any person desiring for conversion approval shall submit to Chief Inspector of Explosives, the following, namely:-

- (i) documentary evidence indicating that the cylinders have been purchased by him;
- (ii) an authenticated copy of letter permitting filling of the cylinders in the past;
- (iii) a statement in duplicate, showing manufacturer's serial numbers of the cylinders in ascending order; and
- (iv) a certificate to the effect that the cylinder had not been converted to any other gas service in the past;

PART-III
FILLING AND POSSESSION

155. Licence for filling and possession.- (1) No person shall fill any cylinder, vessel, and container with compressed gas and no cylinder, vessel and container filled with compressed gas shall be possessed by anyone except under and in accordance with the conditions of a licence granted under these rules.

(2) The licensee shall be responsible, for all operations connected with the filling and possession of cylinders, vessels and containers in the licensed premises.

156. No licence needed for filling and possession in certain cases.- Notwithstanding anything contained in rule 155, no licence shall be necessary for -

- (a) possession of any cylinder filled with a compressed gas by a carrier or other person for the purpose of transport in accordance with the provisions of these rules; and
- (b) possession of cylinders filled with -
 - (i) liquefied petroleum gas when the total quantity of gas does not exceed one hundred kg at a time;
 - (ii) any other flammable but non-toxic gas when the total number of cylinders containing such gas does not exceed twenty-five or the total weight of gas does not exceed two-hundred kg., whichever is less, at a time;
 - (iii) any non-flammable non-toxic gas when the total number of such cylinders does not exceed two-hundred at a time;
 - (iv) any toxic gas when the total quantity of such cylinders does not exceed five at a time; and
 - (v) acetylene gas contained in cylinders in dissolved state when the total quantity of such cylinder does not exceed fifty at a time.

157. Restriction on filling.- No person shall fill any cylinder, vessels, and container with any compressed gas unless such a cylinder vessels, and container and their valve or other fittings -

- (a) are of approved type and standard and has been specifically approved for filling by the Chief Inspector of Explosives;
- (b) have passed the examination and test specified in rule 28; and
- (c) conform to the provisions of rules 130, 131, 132, 133 and 134.

158. Working pressure and filling ratios.— (1) The working or internal pressure in any cylinder and container charged with a permanent gas shall not exceed two-third of the test pressure.

(2) Cylinders charged with liquefiable gases shall not be filled in excess of the filling ratios for low pressure liquefiable gases and for high pressure liquefiable gases.

159. No Objection Certificate. – (1) An applicant for a new license shall apply to the District Authority with two copies of site plan showing the location of the premises proposed to be licensed under these rules for a certificate to the effect that there is no objection to the applicant's receiving a licence for storage of compressed gas in pressure vessel at the site proposed, and the District Authority shall, if he sees no objection, grant such certificate to the applicant who shall forward it to the Chief Inspector with his application.

(2) Every certificate issued by the District Authority under sub-rule (1) shall be accompanied by a copy of the plan of the proposed site duly endorsed by him under official seal.

(3) The Chief Inspector may refer an application not accompanied by a certificate granted under sub-rule (1) to the District Authority for his observation.

(4) If the District Authority, either on a reference being made to him or otherwise, intimates to the Chief Inspector that any licence which has been applied for should not, in his opinion, granted, such licence shall not be issued without the sanction of the Federal Government.

(5) Notwithstanding anything contained in sub-rules (1) to (4), No Objection Certificate shall not be required for grant of licence in form GC-04, GC-05, GC-06 and PV-III.

(6) Notwithstanding anything contained in sub-rules (1) to (4) above, all licenses granted or renewed under the said rules prior to the date on which the above provisions come in force, shall be deemed to have been granted or renewed under these rules.

(7) Notwithstanding anything contained in sub-rules (1) to (4) above, an applicant for a new licence in Form 'B-1', for a CNG dispensing station shall apply to the T.M.O with two copies of site plan showing the location of the premises proposed to be licensed under these rules for a certificate to the effect that there is no objection to the applicant's receiving a licence for a CNG dispensing station at the site proposed, and the T.M.O, Civil Defense Authority and Sui Gas Company if satisfied, shall grant no objection certificate to the applicant who shall forward it to Chief Inspector of Explosive, or Inspector of Explosives with his application.

(8) Every certificate issued by the T.M.O under sub-rule (1) above shall be accompanied by a copy of the plan of the proposed site duly endorsed by him under official seal.

(9) The Chief inspector of explosives. or Inspector of Explosives may refer an application not accompanied by a certificate granted under sub-rule (1) to the T.M.O for his observation.

(10) If the T.M.O, either on a reference being made to him or otherwise, intimates to the Chief Inspector of Explosive, or Inspector of Explosives that any licence which has been applied for should not, in his opinion, granted, such licence shall not be issued without the sanction of the Central Government.

160. Prior approval of specifications and plans of premises proposed to be licensed.-

(1) Every person desiring to obtain a licence to fill and store any compressed gas in any cylinder, container shall submit to the Chief Inspector of Explosives, or Inspector of Explosives authorized by Chief Inspector of Explosives, specifications and plans drawn to scale in triplicate clearly indicating,—

- (i) the manner in which the provisions prescribed in these rules will be complied with;
- (ii) the premises proposed to be licensed, the area of which shall be distinctly coloured or otherwise marked; and
- (iii) the surrounding area lying within one-hundred meters of the edge of all facilities which are proposed to be licensed.

(2) Notwithstanding anything contained in sub-rule (1), every person desiring to obtain permission for construction and approval for storage of compressed gas in Form of licence N and O set forth in Schedule I, for storage of compressed gas shall submit following particular to the Chief Inspector---

- (i) valid permission from Oil and Gas Regulatory Authority for establishment of liquefied petroleum gas storage installation;
- (ii) application Form PV- I or PV –II which is the case may be, dully filled and signed;

- (iii) attested copy of valid registered document which proves that applicant has the rights to use the proposed piece of land;
- (iv) original copy of treasury receipt duly paid as per Schedule I as license fee;
- (v) No Objection Certificate issued by concerned District Authority along with site plan duly attested by him;
- (vi) complete profile of company or applicant; and
- (vii) specifications and plans drawn to scale in triplicate clearly indicating—
 - (a) the manner in which the provisions prescribed in these rules shall be complied with;
 - (b) the premises proposed to be licensed, the area of which shall be distinctly colored or otherwise marked;
 - (c) the surrounding area lying within 100 meters of the edge of all facilities which are proposed to be licensed; and
 - (d) the position, capacity, materials of construction and ground and elevation views of all vessels, all valves and fittings, filling and discharge pumps and fire-fighting facilities where provided and all other facilities forming part of the premises proposed to be licensed.

(3) If the Chief Inspector of Explosives, or Inspector of Explosives after scrutiny of the specifications and plans and after making such inquiries as considered necessary, satisfied that compressed gas will be filled and stored in the premises proposed to be licensed, according to the provisions of these rules, he shall return to the applicant one copy of each of the specifications and plans signed by him conveying his sanction subject to such conditions as may be specified.

(4) Prior approval specified in sub-rules (1) and (2) is not mandatory for installation of non-toxic non-flammable gases and an applicant for such installation is at liberty to install the facilities in accordance with provisions of these rules without obtaining prior approval from Chief Inspector of Explosive,, or Inspector of Explosive.

161. License for transport of compressed gas. — (1) No compressed gas filled in a cylinder, vessel and container shall be transported by a vehicle except under and in accordance with the conditions of a license granted under these rules.

(2) Nothing in this rule shall apply to the transport of compressed gas filled in a vessel by a Railway Administration.

162. Application for grant of licence. A person wishing to obtain or renew a licence under these rules shall submit an application, in writing, to the Chief Inspector of Explosive, or Inspector of Explosive, namely:-

- (a) in Form 'GC-02' for a licence in form GC-04 , prescribed in sub- rule (1) of rule 164;
- (b) in Form 'GC-03', for a licence in form GC-05 and GC-06 and B-I for prescribed in sub-rule (2) of rule 164; and
- (c) in Form 'PV-II', for a licence in form R sub-rule (2) of rule 162 and 168.

163. Grant of licence.- (1) A licence under these rules may be granted by the Chief Inspector of Explosive,. or Inspector of Explosive on payment of the fees specified.

(2) A licence under sub-rule (1) shall be granted if the provisions of these rules are complied with by the applicant.

(3) Every licence granted under these rules shall be subject to the conditions specified therein.

164. Period for which licenses may be granted or renewed.- (1) A licence in Form ‘GC-04’ for the import of cylinders filled or intended to be filled with compressed gas may be granted for such period as the Chief inspector of explosive may deem necessary subject to a maximum of one year.

(2) All licenses granted in forms set forth in schedule II other than licence in form ‘GC-04’ renewed under rules shall remain in force till the 31st day of December of the year up to which the licence is granted or renewed .

(3) Notwithstanding anything contained in sub-rule (2), the Chief inspector of explosives. or Inspector of Explosives authorized by Chief Inspector of Explosives, where he is satisfied that a licence is required for a specific work which is not likely to last up to the 31st day of December of the year up to which the licence is granted or renewed may grant or renew a licence for such a period as is necessary.

165. Particulars of licence. — (1) Every license granted under these rules shall be subject to the conditions specified therein and shall contain all the particulars which are contained in the form specified under these rules.

(2) One copy of the plan or plans for the licensed premises, signed in token of approval by the Chief Inspector, shall be attached to the licence which shall form part of such licence and an identical copy shall be filed for record in the office of the Chief Inspector.

(3) Every licensed premise under these rules shall have prominently marked thereon the number of the license held for it.

(4) The emergency telephone numbers of local fire service, police and the principal marketing company or supplier of the compressed gas, and emergency instructions shall be conspicuously displayed in the licensed premises.

166. Power of licensing authority to alter conditions. -- Notwithstanding anything contained in rule 165, the Chief Inspector may omit, alter or add to any of the conditions specified in the Form of a licence.

167. Prior approval necessary for alteration in the licensed premises. — (1) No alteration shall be carried out in the licensed premises until the plan showing such alteration has been approved in writing by the Chief Inspector.

(2) A person wishing to carry out any alteration in the licensed premises shall submit to the Chief Inspector—

(i) three copies of a properly drawn plan of the licensed premises showing in distinct color or colors, the proposed alteration and the reasons therefor; and

(ii) amendment fee equivalent to licence fee paid

(3) If the Chief Inspector after scrutiny of the plan showing the proposed alteration and after making such enquiries as he deems fit, is satisfied that the proposed alteration may be carried out, he shall return to the licensee one copy of the plan signed by him and conveying his sanction subject to such condition or conditions as he may specify.

(4) The holder of a licence shall apply to the Chief Inspector for the amendment of the licence as soon as the sanctioned alteration has been carried out.

168. Amendment of license. – (1) Any license granted under these rules may be amended by the Chief Inspector.

(2) The fee for amendment of a license shall be equal to license fee.

(3) A licensee who desires to have his license amended shall submit to the Chief Inspector –

- (i) an application duly filled in and signed in Form PV- I or in Form PV- II, as the case may be;
- (ii) where any alteration in the licensed premises has been carried out, three copies of the properly drawn plan showing the alteration sanctioned by the Chief Inspector;
- (iii) fee for the amendment of the licence as specified in sub-rule (2); and
- (iv) a certificate of safety, if required under these rules.

169. Renewal of license. — (1) A license granted under these rules may be renewed by the Chief Inspector.

(2) Every license granted under these rules, may be renewable for one year where there has been no contravention of the Act or the rules framed there under or of any conditions of the license so renewed.

(3) Where a licence which has been renewed for more than one year is surrendered before its expiry, the renewal fee paid for the unexpired portion of the license shall be refunded to the licensee, provided that no refund of renewal fee shall be made for any financial year during which the Chief Inspector receives the renewed license for surrender.

(4) Every application for renewal of the license shall be made in application form prescribed in Schedule II, as the case may be, and shall be accompanied by the prescribed license fee.

(5) Every application for the renewal of a license shall be made so as to reach the licensing authority at least thirty days before the date on which it expires, and if the application is so made, the license shall be deemed to be in force until such date as the Chief Inspector renews the license or until an intimation that the renewal of the license is refused has been communicated to the applicant.

(6) Where the renewal of a license is refused, the fee paid for the renewal shall be refunded to the licensee after deducting there from the proportionate fee for the period beginning from the date from which the license was to be renewed up to the date on which renewal thereof is refused.

(7) The same fee shall be charged for the renewal of a license for each year as for the grant thereof, provided that if the application with accompaniments required under sub-rule (4) is not received within the time specified in sub-rule (5), the license shall be renewed only on payment of a fee amounting to twice the fee ordinarily payable.

(8) No license shall be renewed if the application for renewal be received by the Chief Inspector after the date of its expiry.

170. Refusal of licence. — (1) The Chief Inspector refusing to grant, amend, renew or transfer a license, shall record his reasons for such refusal in writing.

(2) A copy of the order containing the reasons for such refusal shall be given to the applicant on payment of a fee of rupees five hundred paid in the manner specified in rule 11.

171. Suspension and cancellation of license. — (1) Every license granted under these rules shall be liable to be suspended or cancelled, by an order of the chief Inspector for any contravention of the provisions of the Act or these rules or of any condition contained in such license, or by an order of the Federal Government if at any time the continuance of the licence in the hands of the licensee is deemed objectionable:

Provided that –

- (i) before suspending or canceling a license under this rule, the holder of the license shall be given an opportunity of being heard;
 - (ii) the maximum period of suspension shall not exceed three months; and
 - (iii) the suspension of a licence shall not debar the holder of the license from applying for its renewal in accordance with the provisions of rule 169.
- (2) Notwithstanding anything in sub-rule (1), an opportunity of being heard may not be given to the holder of a license before his license is suspended or cancelled in case—
- (i) where the licence is suspended by the Chief Inspector as an interim measure for the violation of the provisions of the Act or these rules, or of any condition contained in such license or in his opinion such violation is likely to cause imminent danger to the public: Provided that where a license is so suspended, the Chief Inspector shall give the holder of the license an opportunity of being heard before the order of suspension is confirmed; or
 - (ii) where the license is suspended or cancelled by the Federal Government, if that Government considers that in the public interest or in the interest of the security of the country such opportunity should not be given.
- (3) The Chief Inspector or the Federal Government suspending or canceling a license under sub-rule (1), shall record his or its reasons for so doing in writing.

172. Procedure on expiration, suspension or cancellation of licence.—A person licensed to store compressed gas shall, on the expiration, suspension or cancellation of his licence, forthwith give notice to the Chief Inspector of the nature and quantity of compressed gas in his possession and shall comply with any directions which the Chief Inspector may give in regard to its disposal.

173. Appeals. — (1) An appeal shall lie with Federal Government against any order passed by the Chief Inspector refusing to grant, amend or renew a licence or canceling or suspending a licence.

(2) Every appeal shall be in writing and shall be accompanied by a copy of the order appealed against and shall be presented within sixty days of the order passed.

174. Procedure on death or disability of licensee.-- (1) If a licensee dies or becomes insolvent or is mentally incapable or is otherwise disabled, the person carrying on the business of such licensee shall not be liable to any penalty or confiscation under the Act or these rules for exercising the powers granted to the licensee during such time as may reasonably be required to allow him to make an application for a new license in his own name for the un-expired portion of the original license in respect of the year in which the licensee dies or becomes insolvent or mentally incapable or is otherwise disabled, provided that nothing in this sub-rule shall be deemed to authorize the exercise of any power under this sub-rule by any person after the expiry of the period of the license.

(2) A fee equal to the license fee shall be charged for a new license for the un-expired portion of the original license granted to any person applying for it under this rule.

175. Loss of license.—When a license granted under these rules is lost or accidentally destroyed, a duplicate may be granted on the submission of a copy of the plan or plans identical with those attached to the license and on payment of a fee equal to the license fee paid in the manner specified in rule 11.

176. Production of license on demand. — (1) Every person holding or acting under a license granted under these rules shall produce it, or an authenticated copy of it, at the place to which the license applies, when called upon to do so by any of the officers specified in rule 188.

(2) Copies of any license may, for the purpose of this rule, be authenticated by the authority which granted the license—

(a) on payment of a fee of rupees five hundred in the manner specified in rule 11 for each authenticated copy; and

(b) on the submission of a copy or copies of the plans identical with the approved plan or plans attached to the license.

177. Transfer of license for storage. – (1) The holder of a license for the storage of compressed gas may, at any time before the expiry of the license, apply for permission to transfer his license to another person.

(2) Such application shall be made to the licensing authority, who shall, if he approves the transfer, enter upon the license, under his signature, an endorsement to the effect that the license has been transferred to the person named.

(3) A fee equal to the license fee shall be charged on each such application.

(4) The person to whom the license is so transferred shall enjoy the same power and be subject to the same obligations under the license as the original holder.

178. Compliance of instruction of licensing authority. – If the licensing authority calls upon the holder of the license by a notice in writing to execute any repairs in the licensed premises which are, in the opinion of such authority, necessary for the safety of the premises, the holder of the license shall execute the repairs within such periods as may be specified in the notice.

179. Procedure on reports of infringement. -- The District Authority shall inform the Chief Inspector of the action taken by him on any reports of infringement of the Act or of these rules which the Chief Inspector may make to him.

180. Executive control over authorities. — Every authority, other than the Federal Government, acting under this Chapter shall perform its duties subject to the control of the Federal Government:

Provided that nothing in this rule shall be deemed to affect the powers of executive control of the Chief Inspector over the officers subordinate to him.

181. Licence fee and other than licence fee.- (1) Licence fee and fees other than licence fee are specified. The fees are liable to be revised from time to time by an order issued by the [Federal Government](#).

(2) All fees payable under these rules shall be paid through a Treasury Receipt in any Bank branch of National Bank and State Bank of Pakistan under the head of account of this department.

CHAPTER-V MISCELLANEOUS

182. Record of maintenance. - The Company shall maintain all records as required by these rules and specified by the Chief Inspector and shall preserve them for a period of at least 5 years for scrutiny by the Chief Inspector as and when required.

183. Report of accident. - Any accident happening on a pipeline involving loss of life or serious injury to any person or severe damage to property shall be immediately reported to the Chief Inspector and to the nearest Police Station by the quickest means of communication by a responsible officer of the company whose name, address and telephone number will be furnished with the report.

184. General power to exempt by Federal Government.- The Federal Government may, on the recommendation of the Chief Inspector in exceptional cases, grant by order in writing exemption to any person or persons from any of the provisions of these rules under such conditions if any, as may be specified in the order.

185. Indemnity. - Any action taken or any proceedings commenced before the commencement of these rules under any of the provisions of the Petroleum Rules, 1937, as then in force, relating to natural gas shall be deemed to have been done, taken or commenced under the corresponding provision of these rules as if they were in force at the time when such thing, action or proceeding as done, taken or commenced.

186. Power to exempt by Chief Inspector.- If the Chief Inspector of Explosives is satisfied that in respect of any cylinder or any mode of conveyance, any of the requirements of these rules may be safely suspended or modified, he may, by written order, authorise such suspension or modification for such period and under such condition as he may think fit and such order may be revoked at any time.

187. Special powers to exempt by Federal Government.—The Federal Government may, on the recommendation of the Chief Inspector, in exceptional cases, by order and for reasons to be recorded in writing, exempt storage and transportation of any compressed gas in any vessel from all or any of the provisions of these rules on such conditions, if any, as may be specified in the order

188. Notice of accident.-- The notice of an accident, required to be given under section 27 of the Act, shall be given to the Chief Inspector of Explosives by fax or through any other electronic means followed within twenty-four hours by a letter giving particulars of the occurrence, in addition to the persons mentioned in section 27.

189. Inquiry into accidents. – (1) Whenever a Magistrate holds an inquiry under section 28 of the Act, he shall adjourn such an inquiry unless the Chief Inspector or an officer nominated by him is present to watch the proceeding or he has received written information from the Chief Inspector that he does not wish to send a representative.

(2) The Magistrate shall, at least fourteen days before holding the adjourned inquiry send to the Chief Inspector notice in writing of the time and place of holding the adjourned inquiry.

(3) All expenses incurred in or about in inquiry or investigation under this rule shall be deemed to be part of the expenses of the Department of Explosives in carrying the Act into execution.

190. Inquiry into more serious accidents. — (1) Whenever an inquiry is held under the Act, the persons holding such inquiry shall hold the same in open court in such manner and under such conditions as they may think most effectual for ascertaining the causes and circumstances of the accident, and enabling them to make the report under this rule:

Provided that where the Federal Government so directs the inquiry may be held in camera.

(2) Persons attending as witnesses before the Court under sub-rule (1) shall be allowed such expenses as are paid to witnesses attending before a civil court subordinate to the High Court having jurisdiction in the place where the inquiry is held and in case of any dispute as to the amount to be allowed, the question shall be referred to the local Magistrate who, on a request being made to the Court, shall ascertain and certify the proper amount of such expenses.

(3) All expenses incurred in or about in inquiry or investigation under this rule shall be deemed to be part of the expenses of the Department of Explosives in carrying the Act into execution.

191. Repeal.- The Mineral Gas Safety Rules, 1960, are hereby repealed.

SCHEDULE I

[see rule 129(3), 160(2)]

Sr. No.	Form of Licence	Purpose for which granted.	Authority empowered to grant licence.	Fees.	Rupees.
1.	A	License for storage of mineral gas for distribution	Chief Inspector of Explosives or Inspector of Explosives authorized by him in this behalf		5000.00
2.	GC-04	To import cylinder filled or intended to be filled with compressed gas.	Chief Inspector of Explosives	For the first 100 nos. cylinders or part thereof. Exceeding 100 nos. but no exceeding 500 nos. cylinders of cylinders or part thereof.	5000.00 10000.00
3.	GC-	To fill compressed	Chief Inspector of	For each type of gas	5000.00

	05	gas in cylinders	Explosives or Inspector of Explosives authorized by him in this behalf.	filled in the plant, namely (a) toxic (b) non-toxic and non-flammable, (c) non-toxic and flammable, (d) dissolved acetylene gas, (e) non-toxic and flammable liquefiable gas other than LPG or (f) liquefied petroleum gas, as the case may be.	
4.	GC-06	(a) To store compressed gas in cylinders in storage shed attached to the filling premises. (b) To store compressed gas in cylinders in storage shed other than attached to the filling premises.	Chief Inspector of Explosives or Inspector of Explosives authorized by him in this behalf. Inspector of Explosives	(i) For toxic and flammable gases (permanent as well as liquefied). Exceeding 100 nos. but no exceeding 500 nos. cylinders. Exceeding 500 nos. of cylinders, Rs. 1000/- for every additional 500 nos. of cylinders or part thereof. (ii) For non-toxic and non-flammable liquefied): Note exceeding 500 nos. of cylinders exceeding 500 nos. of cylinders or part thereof. (iii) for Liquefied petroleum gases. Exceeding 100 Kg. but not exceeding 500 kg. Exceeding 500 Kg. but not exceeding 2000 kg. Exceeding 2000 Kg. but not exceeding 5000 kg. Exceeding 5000 Kg. but not exceeding 10,000 kg. Exceeding 10,000 Kg. for Rs. 1000/- every additional 5000 Kg. or part thereof. (vi) For acetylene gas contained in cylinders	1000.00 2000.00 1000.00 1000.00 2000.00 4000.00 5000.00 1000.00

				in dissolved state: Not exceeding 200 cylinders. Exceeding 200 Nos. of cylinders Rs. 500/- for every additional 200 nos. of cylinders of part thereof.	
5	B-1	To manufacture/ store/ sale & dispense compressed natural gas in connection with dispensing unit for fueling motor conveyances only.	The Chief Inspector or an Inspector of Explosives authorized by the Chief Inspector of Explosives in this behalf.		Rs. 20,000/-
6	S	License to transport compressed natural gas in bulk on land by mechanical propelled vehicle.	The Chief Inspector or an Inspector of Explosives authorized by the Chief Inspector of Explosives in this behalf.		10,000/-
7	N	To store and sale liquefied petroleum gas in a tank or tanks & dispense liquefied petroleum gas in connection with a dispensing unit for fueling motor conveyances.	The Chief Inspector or an Inspector of Explosives authorized by the Chief Inspector of Explosives in this behalf.		Rs. 20,000/-
8	O	To import/store/sale liquefied petroleum gas in installation (Plants) for filling in cylinders.	The Chief Inspector or an Inspector of Explosives authorized by the Chief Inspector of Explosives in this behalf.		Rs. 25,000/-
9	R	License to transport liquefied petroleum gas in bulk on Land by mechanically propelled vehicle.	The Chief Inspector or an Inspector of Explosives authorized by the Chief Inspector of Explosives in this behalf.		Rs. 5,000/-

SCHEDULE II

[see rule 96,129(4), 164(2) and 169(4)]

FORM GC-01

[See rule 81 (2)]

Declaration to be made by the Master of a ship carrying cylinder filled with compressed gas before entering a port or by the ship's agent.

Name of ship _____.

Description of filed cylinders.	True chemical name and nature of the gas i.e. whether flammable corrosive or toxic.	Total quantity carried in the ship.		Quantity to be landed at port.			Remarks.
		No. of Cylinders	Kg, or M ³ of gas	No. of Cylinders	Kg. Or M ³ of gas	Or	

Date the _____ day of _____ 20 _____

Signature of Master / Agent of Ship
With official stamp)

FORM GC-02

(See rules 162, 164 and 168)

Application for the grant/amendment of a licence to import cylinders:

1. Name in which licence required
Applicant's calling
Applicant's full postal address
Telephone No(s) and E-mail
2. Particulars of storage licence held by:
 - (i) Number and date of storage licence issued by the Chief Inspector of Explosives/ Inspector of Explosives
 - (ii) Renewed/valid upto
 - (iii) Capacity of storage as per above licence
3. Description of the cylinders to be imported:
 - (i) Number of cylinders
 - (ii) Specification of cylinders
 - (iii) Manufactured by
 - (iv) Inspected and tested by
 - (v) Specification of the valves fitted to the cylinders
 - (vi) Filled with _____
(True chemical name of the gas)

- (vii) *Filling pressure at 15⁰C if filled with permanent gas or dissolved acetylene
- (viii) *Filling ratio, if filled with a liquefiable gas
- (ix) Date of last hydraulic stretch test
- (x) Rotation numbers of cylinders

- 4. Cylinders proposed to be stored at
- 5. Name of the port
- 6. Remarks

Date of application

Signature of applicant
Postal address of the applicant

Note:- Particulars marked with * are not required to be furnished if empty cylinders are desired to be imported

2. Manufacturers test and inspection certificates complete in all respects pertaining to each lot of cylinders and valve shall accompany this application.

3. In case cylinders are desired to be imported duly filled with gas, filler certificates in respect of items 3(vi), (vii) and (ix) shall be furnished.

FORM GC-03
[See rule 162]

Application for the grant/amendment/renewal of a licence to fill and/or store compressed gas in cylinders: Documents listed overleaf must be enclosed with this application, if it is for the grant of a licence in Forms 'GC-05', 'GC-06' & 'B-I'. The replies to be given in this column.

- 1. Name in which licence required ** -----
Applicant's calling -----
Applicant's Full postal address -----
- 2. Situation of the premises where compressed gas is to be stored/filled:
State -----
District -----
Town or village -----
Survey No. & name of road -----
Nearest Police Station -----
Nearest Rly. Station -----
- 3. Nature of each compressed gas proposed to be filled/stored namely:
(a) toxic (b) non-toxic and non-flammable (c) non-toxic and flammable (d) dissolved acetylene gas (e) non-toxic and flammable liquefiable gas other than LPG or (f) liquefied petroleum gas.
- 4. Chemical name of each compressed gas proposed to be filled/stored. -----

5. Quantity of each compressed gas _____
Proposed to be filled/stored in terms
of numbers for gases mentioned under
Items 3(a), 3(b), 3(c) or 3(d); and
In terms of Kgs. for gases mentioned under _____
items 3(e) or 3(f) _____
6. Nature, chemical name and _____
quantity of each compressed gas already _____
filled/stored in the premises. _____
7. Number of the licence held for the premises and the full name of the
holder of the licence. _____

Note: In the case of application for grant/amendment of licence in Form 'B-I', particulars of the compressor, CNG cylinder cascades, CNG dispensers, etc. shall also be furnished. I hereby declare that the statements made above have been checked up by me and are true and I undertake to abide by the norms and conditions of the licence, which will be granted to me.

Date of application _____ Signature and designation of the applicant _____

** Where the application is made on behalf of a Company, the name and address of the Company and the name of the Manager or Agent should be given and the application should be signed by him. Every change in the name of the Manager or Agent shall be forthwith intimated to and his specimen signature filled with licensing authority.

**DOCUMENTS REQUIRED TO BE SUBMITTED WITH THIS APPLICATION FOR A
LICENCE IN FORM 'GC-05', 'GC-06' and 'B-1'**

[see rule 162 and 159(7)]

- (i) Four copies of specifications and plans approved under rule 160.
(NOT REQUIRED FOR RENEWAL OF A LICENCE WITHOUT AMENDMENTS).
- (ii) Licence together with approved plans and specifications attached thereto.
(NOT REQUIRED FOR THE FIRST GRANT OR A LICENCE)
- (iii) Requisite amount of fee for the grant, amendment or renewal of a licence paid in the manner specified in rule 181.
- (iv) Documentary evidence in support of legal physical possession of the premises proposed to be licensed, copies of lease agreement, partnership deed/memorandum and article of association, approval/clearance/permit as applicable from the Local Administration, etc.
- (v) An undertaking stating that all necessary clearances from revenue, fire, local administration, etc. have been obtained and the construction of the premises has been completed as per approved plan complying all relevant requirements under these rules.
- (vi) No Objection Certificate from the T.M.O, Civil Defense Authority and Sui Gas Company under rule 159 in the case of application for licence in Form 'G'

FORM PV- I

[see rules 160(2), and 168(3)]

Application for grant, amendment or renewal of a license to store or store and dispense liquefied petroleum gas in liquefied petroleum gas dispensing station as automotive fuel to motor vehicles.

(RELEVANT DOCUMENTS LISTED OVERLEAF MUST BE ENCLOSED WITH THIS APPLICATION IF IT IS FOR THE GRANT OF A LICENCE IN FORM PV –V or PV-III)

(Replies to be written in the relevant box)

1. Name in which license is required to be granted. (See notes below)

Name.	National Identity Card No.

2. Status (Tick the relevant box)

Individual	<input type="checkbox"/>
Company	<input type="checkbox"/>
Society	<input type="checkbox"/>

3. Applicant's address

Postal address	
Permanent Address	
Telephones Nos.	
Telex / E. Mail	

4. Qualification and experience of applicant and technical personnel employed by him. (Attach separate sheet if required)

Name.	Designation.	Qualifications.	Experience.

5. Situation of premises –

Province.	District.	Town or village.	Survey No.	Police Station.	Railway Station.

6. Liquefied Petroleum Gas proposed to be stored:

Chemical name and composition of Liquefied Petroleum Gas.	Details of LPG Vessels to be installed				Total quantity of the Liquefied Petroleum Gas.
	Nature.	Nos.	Capacity of each vessel.	Manufacturer name and origin.	
	Above-ground				
	Under-ground				
	Mounded				

7. Have the premises already been licensed? If yes, please give details:

Sr. No.	Form of licence.	License No.	Quantity of HP/DP/CNG/LPG already stored.				
			HP	DP	CNG	LPG	No of tanks/cylinders/vessels
1							
2							
3							
4							

8. Additional information, if any

I hereby declare that the statements made above have been checked up by me and are true and I undertake to abide by the terms and conditions of the license which will be granted to me.

Date

Place

Full Name

Address

.....

Signature of applicant
(Authorized person in case of Company)

Notes: -

- (1) In case where application is made in the name of a Company, the names and addresses of Directors and Partners and the name, address and specimen signatures of person or persons authorized to sign correspondence in respect of license applied for should be given on a separate sheet and enclosed with this application form. Any change in the above information should be immediately communicated to the licensing authority and authority renewing the license.
- (2) Age to be given in case the applicant is an individual.

(3) DOCUMENTS REQUIRED TO BE SUBMITTED WITH APPLICATION FOR A LICENSE

- (i) Four copies of specification and plans approved under rule 155 (not required for renewal a license without amendment).
 - (ii) Specification with certificates of dispenser, piping, hoses and other fittings (required for grant or amendment of license).
 - (iii) License together with approved plans and specifications attached thereto. (Not required for first grant of license).
 - (iv) Fee for the grant, amendment or renewal of a license specified under the scheduled, sub rule (2) of rule 169 and sub-rule (7) of rule 169, as the case may be, to be paid in the manner specified in rule 11.
 - (v) A certificate of safety under rule 102 (not required for renewal of license).
- (4) Delete whichever is not applicable.

FORM PV-II

[see rules 160(2) and 168(3)]

Application for the grant or amendment of a license to transport compressed gas in a vehicle

DOCUMENTS LISTED OVERLEAF MUST BE SUBMITTED WITH THIS APPLICATION

1. Name in which license is required to be granted. (See notes below)

Name.	National Identity Card No.

2. Status (Tick the relevant box)

Individual	<input type="checkbox"/>
Company	<input type="checkbox"/>
Society	<input type="checkbox"/>

3. Applicant's address

Postal address	
Permanent Address	
Telephones Nos.	
Telex / E. Mail	

4. Particulars of the vehicle in which compressed gas is proposed to be transported,

Make and Model.	Engine No.	Chassis No.	Registration No.	Date of expiry of registration.	Name and full postal address of the registered owner.
(1)	(2)	(3)	(4)	(5)	(6)

5. Details about the compressed gas proposed to be transported.

Name of the compressed gas.	Chemical name of compressed gas.	Water capacity of the pressure vessel.	net weight of the compressed gas.	No. and date of approval of the drawing of the vehicle by the Chief Inspector.

6. I certify that the vehicle is fully conforming to the requirements laid down in the rules and the design drawing approved by the Chief Inspector.

7. Full postal address of the place where the vehicle will be normally stationed.

--

I/We declare that the particulars given above have been checked up by me/us and are correct. I/We undertake to transport compressed gas in the vehicle particulars of which are given above, in accordance with the provisions of the Petroleum Act, 1934 and the Mineral and Industrial Gases Safety Rules, 2010 framed there under and any other law or rule for the time being in force. I/We understand that any contravention of the said Act and the rules framed there under is punishable with fine which may extend to three thousand rupees.

Place:

Date:

Signature of applicant

DOCUMENTS REQUIRED TO BE SUBMITTED WITH THIS APPLICATION

- (1) Two copies of drawing approved under rule 104.
- (2) Safety certificate required under rule 102.
- (3) Expired license, if the vehicle was previously licensed.
- (4) Required amount of fee paid in the manner specified in rule 11.

“Form A”
[Article 1 of Schedule I and rule 72]
Licence for storage of mineral gas for distribution

No. _____

Fee Rs.10/-

Licence is hereby granted to M/s _____ valid for storage of Mineral Gas in _____ of total volume _____ cubic feet installed on the site described below and as shown in the plan attached hereto subject to the provisions of the Petroleum Act, 1934 and Mineral and Industrial Gases Safety Rules, 2010 framed thereunder and to the further condition on the back of this licence.

This licence shall remain in force till 31st December, 20 _____
 The _____ 20 _____

Chief Inspector of Explosives

Plan No _____

Dated _____

Description of the site referred to above

Date of Renewal	Date of Expiry	Signature of the licensing authority

Conditions of the licence

1. The premises shall conform to the approved site and detailed constructional plans.
2. All designs, specifications and constructions shall fulfil the requirements of rule 71.
3. The premises shall be maintained scrupulously clean and all precautions shall be taken against fire or explosion.
4. The premises shall maintain clear safety distances as required by rule 67.

5. Any accident happening on a pipeline involving loss of life or serious injury to any person or severe damage to property shall be immediately reported to the Chief Inspector and to the nearest Police Station by the quick means of communication by a responsible officer of the company whose name, address and telephone number will be furnished with the report.
6. Free access to the licensed premises shall be given to the Chief Inspector or any other officer authorized in this behalf to ascertain in the rules and conditions of the license are being duly observed.

FORM GC-04

[see rules 159(5) and 164]

LICENCE TO IMPORT GAS CYLINDERS BY SEA

No.

Fee Rs.....

Licence is hereby granted to M/s to import by sea at any one time cylinders of the description given below at the port..... for consignment to.....subject to the provisions of the Petroleum Act, 1934 and the rules framed there under and to the conditions of this licence.

The licence shall remain in force up to 31st day of December, 20

Date

Chief Inspector of Explosives

DESCRIPTION OF THE CYLINDERS

1. Number of cylinders
2. Specification of cylinders
3. Manufactured by.
4. Inspected and tested by.
5. Specifications of the valves fitted to the cylinders.
6. Filled with
(True chemical name of the gas)
7. Filling pressure at 150C, if filled with permanent gas or dissolved acetylene.
8. Filling ratio, if filled with a liquefiable gas.
9. Date of last hydraulic stretch test.
10. Rotation numbers of cylinders.

The licence liable to be cancelled if the cylinders do not conform to the description given in the body of the licence and for contravention of any of the rules and conditions under which this licence is granted and the holder of the licence is also punishable under the Petroleum Act, 1934.

CONDITIONS OF LICENCE

1. This licence shall become void after the expiry of the period mentioned therein.
2. Filled cylinders on becoming empty shall not be refilled with any gas except after obtaining prior concurrence of the licensing authority.

3. The licensee shall make prior arrangements for expeditious removal of the filled cylinders from the port of importation to an authorized premises.

FORM GC-05

[see rules 163, 164 and 168]

‘LICENCE TO FILL COMPRESSED GAS IN CYLINDERS’

Licence No..... Fee Rs.....

Licence is hereby granted to valid only for the filling of cylinders with compressed gas in the licensed premises described below and shown in the plan No..... datedsubject to the provisions of the Petroleum Act, 1934 and the rules made there under and to the further conditions of this licence.

The licence shall remain in force up to 31st day of December, 20.....

The 20..... Chief Inspector of Explosives

DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

The licensed premises, the layout boundaries and other particulars of which are shown in the attached approved plan No..... datedare situated at..... and consist of for filling of the gas(es) in cylinders as described hereunder:

Type of gas

- (a) Toxic
- (b) Non-toxic and non-flammable
- (c) Non-toxic and flammable
- (d) Dissolved acetylene gas
- (e) Non-toxic and flammable liquefiable gas other than LPG.
- (f) Liquefied petroleum gas

and is situated at

(Plot number) (Name of Street) (village or town)
(Police Station) (District)

SPACE FOR ENDORSEMENT OF RENEWALS

This licence should be renewable without any concession in fee for one year in the absence of contraventions of Petroleum Act, 1934 or Mineral and Industrial Gases Safety Rules 2010, framed thereunder or of the conditions of the this licence.	Date of renewal	Date of expiry	Signature and office stamp of the licensing authority.
--	-----------------	----------------	--

This licence is liable to be cancelled if the licensed premises are not found conforming the description and conditions attached thereto and contravention of any of the rules and conditions under which this licence is granted and the holder of this licence is also punishable with imprisonment for the term which may extend to two years, or with fine which may extend to three thousand rupees, or with both.

CONDITIONS

1. The licensed premises shall not be used for any purpose other than filling compressed gas into cylinders and keeping thereof for the time being and for the purpose connected therewith.
2. No cylinder shall be filled with any compressed gas unless-
 - (i) such cylinder has been approved in writing by the Chief Inspector of Explosives for filling;
 - (ii) the cylinder has been examined and tested as required under the relevant rules.
3. Before filling, every cylinder with its valve and other fittings shall be carefully examined to ensure that it complies in all respects with the relevant provisions of the rules before it is passed for filling.
4. No cylinder shall be filled with any compressed gas in excess of the design working pressure and the filling ratio prescribed under the rule.
5. Where it becomes necessary to change the valve and other fittings of the cylinder, a check shall be maintained on the tare weight originally stamped on the cylinder and necessary corrections made for any variation.
6. No cylinder, which is not painted with appropriate colour, as prescribed in the rules shall be filled with any compressed gas.
7. Compressing and filling apparatus for any gas shall be wholly distinct from and unconnected with the compressing and filling apparatus for any other gas.
8. No cylinder shall be filled with any compressed gas between the hours of sunset and sunrise except in the manner and under such other condition(s) specially endorsed on the licence. However, this condition will not be applicable to non toxic non flammable gas filling plants with lighting/illumination - Code of practice for industrial lighting.
9. All electrical equipment such as motors, switches, starters, etc., installed in the premises used for compressing and filling of flammable gases shall be of flameproof construction.
10. No artificial light capable of igniting flammable vapour or gas, mobile phones, etc. shall at any time be present at the premises during the filling of any compressed gas in cylinder and no person engaged in such filling shall smoke.
11. Every person managing or employed on or in connection with the licensed premises shall abstain from any act whatsoever which tends to cause fire or explosion and which is not reasonably necessary and to the best of his ability, shall prevent any other person from doing such act.
12. The licensee shall provide at the licensed premises a minimum of two portable foam type or dry chemical type fire extinguishers of 10 kg. each BIS marked or approved which shall be kept ready at a convenient location for immediate use in the event of any fire in addition to other fire fighting or other mitigating facilities required for flammable or toxic gases.
13. All filling operations shall be supervised under the direct supervision of a competent person.
14. The licensed premises used for compressing and filling of liquefied petroleum gas shall at all time maintain a clear safety zone as the case may be, all round from any building, public place, public road or any adjoining property which may be built upon.
15. The licensed premises shall be constructed of non-flammable materials and adequately ventilated.

16. Any accident, fire, explosion or untoward incident occurred within the licensed premises shall be immediately reported to the Chief Inspector of Explosives, Inspector of Explosives, DCO and the Officer-in-Charge of the nearest Police Station and by quickest mode of communication.
17. Free access to the licensed premises shall be given at all reasonable time to any of the officers listed in rule 188 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this licence are duly observed.

FORM GC-06

[see rules 163, 164 and 168]

Licence to store compressed gas in cylinders

Licence No..... Fee Rs.....

Licence is hereby granted tovalid only for the possession of cylinders filled with compressed gas in the licensed premises described below and shown in the plan No..... dated subject to the provisions of the Petroleum Act, 1934 and the rules made thereunder and to the further conditions of this licence.

The licence shall remain in force up to 31st day of December, 20.....

The20.....

Chief Inspector of Explosives

Description and location of the licensed premises

The licensed premises, the layout boundaries and other particulars of which are shown in the attached approved plan No..... datedare situated at and consist of for possession of the gas contained in cylinders as described hereunder:

Type of gas	Quantity
(a) toxic.....	
(b) non-toxic and non-flammable.....	
(c) Non-toxic and flammable.....	
(d) Dissolved acetylene gas.....	
(e) Non-toxic and flammable liquefiable gas other than	LPG
(f) Liquefied petroleum gas.....	

and is situated at
 (Survey No/Plot number) (Name of street) (Village or town) (Police Station)
 (District)

Space for Endorsement of Renewals

This licence shall be renewable annually in the absence of contravention's of Petroleum Act, 1934 or Mineral and Industrial Gases Safety Rules, 2010, framed authority there-under or of the conditions of this licence.

Date of renewal

Date of expiry

Signature and stamp of the licensing

This licence is liable to be cancelled if the licensed premises are not found conforming to the description and conditions attached hereto and contravention of any of the rules and conditions under which this licence is granted and the holder of this licence is also punishable with imprisonment for the term which may extend to two years or with fine which may extend to three thousand rupees, or with both.

CONDITIONS

1. The licensed premises shall not be used for any purpose other than for keeping of compressed gas filled in cylinders.
2. Compressed gas cylinders shall be stored only in the storage shed, which shall be constructed of suitable non-flammable materials provided that, when only non-flammable gas filled in cylinder is stored, the beams, rafters, columns, windows and doors may be of wood.
3. The storage shed shall be adequately ventilated near the ground level and near or in the roof. In case the storage shed is used for keeping L.P. gas cylinder, the ventilators shall be provided with two thickness of fine copper or other non-corroding metal wire gauge of mesh not less than 11 to the linear centimeter.
4. As far as possible, different types of gases should not be stored in the same shed. Where different types of gas cylinders are stored in the same shed, cylinders may be grouped together depending on the nature of the gas contained therein e.g. flammable gas cylinders shall be separated from cylinders containing oxidizing gases by an intervening space of one metre or by a fire resisting partition wall in between them and cylinders containing toxic gases shall be segregated from the cylinders containing non-toxic gases by a suitable partition wall.
5. The following distances shall be kept clear at all times, between any building, public place, public road or any adjoining property which may be built upon and the storage shed used for the storage of liquefied petroleum gas cylinder:

Quantity of compressed gas in Cylinder			Minimum distance to be kept clear
	Kg.		Metres
0	--	101	--
101	--	2000	3
2001	--	3000	4
3001	--	4000	5
4001	--	6000	6
6001	--	8000	7
8001	--	10000	8
10001	--	12000	9
12001	--	20000	12
over	20000		15

Provided that the distance specified above may be reduced by the Chief Inspector of Explosives (i) where screen walls are provided or other special precautions taken, or (ii) where there are special circumstances which in the opinion of the Chief Inspector of Explosives would justify such reduction.

6. Notwithstanding anything contained in condition 5 above, cylinders containing liquefied petroleum gas exceeding 100 Kg. but not exceeding 500 Kg. may be kept in a storage shed forming part of, or attached to a building, provided that it is separated there from by a substantial partition and the only means of access to it is from outside air, such a storage shed shall not be situated under any staircase or near other entrances to, or exits from the rest of the building or other buildings.

7. A shed used for storage of liquefied petroleum gas cylinders shall be surrounded by a suitable brick masonry compound wall of 1.8 meters high with a 1.2 meter wide gate to prevent unauthorized person from having access to the shed and its safety zone.

Note : Suitable space for parking of truck and unloading/loading of cylinders shall be provided by the licensee

8. Thin wall cylinders shall not be stacked in a horizontal position, provided that in case of liquefied petroleum gas cylinders, the following method of stacking may be permitted:-
 - (i) filled cylinders shall be stored vertically and not be stacked more than 2 high;
 - (ii) empty cylinders if stored vertically, shall not be stacked more than 3 high and; if stored horizontally, shall not be stacked more than 5 high;
 - (iii) the pile of the cylinders shall be kept stable by using chocks at the ends;
 - (iv) at least 60 centimeter wide gangway, to permit access and maneuvering of cylinders, shall be left between stacks of single or double rows and between stacks and walls,
9. True chemical name(s) of the gases shall be prominently displayed in the storage shed.
10. The storage shed shall be in the charge of a competent person.
11. Any accident, fire, explosion or untoward incident occurred within the licensed premises shall be immediately reported to the Chief Inspector of Explosives, Inspector of Explosives, DCO and the Officer-in-Charge of the nearest Police Station and by quickest mode of communication.
12. Any person storing gas cylinders, when called upon by a notice in writing, to execute any additions, alterations or repairs to the gas cylinders storage shed, which in the opinion of the inspecting authority, are necessary for the safety of the premises, shall execute the said additions, alterations or repairs within such period not being less than one month from the date of receipt of the notice, as may be specified in the notice.
13. No shed used for storage of flammable gases shall be opened and no handling of the gas cylinders shall be permitted between the hours of sunset and sunrise, except where approved electric lighting is exclusively used.
14. The storage shed and the area surrounding it shall at all times be kept clean and free from all flammable materials, waste vegetation and, rubbish.
15. (a) No fire, furnace or other source of heat or light other than flameproof electric light and fittings shall be allowed in the storage shed and within the safety zone required to be maintained under condition 5.
(b) No person shall smoke in the storage shed or carry matches, fuses, mobile phones or other appliances producing ignition in the premises. Conspicuous 'No smoking signs in Urdu, English and the regional language shall be pasted or hung up at prominent places outside the storage shed.
16. The licensee shall provide at the licensed premises a minimum of two potable foam type/ordinary chemical type fire extinguishers of 10 kg. each which shall be kept ready at a convenient location for immediate use in the event of any fire in addition to other fire fighting for other mitigating facilities required for flammable or toxic gases.
17. Free access to the licensed premises shall be given at all reasonable times to any of the officers listed in rule 188 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this licence are duly observed.

FORM 'B-I
[see rule 159(7)]

**LICENSE TO MANUFACTURE/STORE/SALE & DISPENSE COMPRESSED NATURAL GAS
IN CONNECTION WITH DISPENSING UNIT FOR FUELING MOTOR CONVEYANCES
ONLY.**

No:

Fee

Licence is hereby, granted to _____, to manufacture/store/sale and dispense compressed natural gas in connection with dispensing unit for fueling motor conveyances only at the premises described below and shown in the plan attached here to subject to the provisions of the Petroleum Act. 1934 and the Petroleum Rules, 1937 and Mineral and Industrial Gases Safety Rules, 2010 made there under and to the further conditions prescribed on the back of this Licence.

Total capacity of gas storage units at S.T.P is -- cubic meter of gas or _____ water liters capacity of cylinders / tanks (s).

This Licence shall remain in force till the 31st day of December .

Licencing Authority
Chief Inspector of Explosive in Pakistan

The:

Plan No.

Dated:

Description of the licensed premises referred to above. _____

Date of renewal	Date of expiry	Signature of licensing authority

This Licence is liable to be canceled if the Licence premises when inspected is not found confirming to the description and condition attached here to and contravention of any of the rules and conditions under which this Licence is granted is also punishable with fine which may extended to fifteen thousand rupees or with simple imprisonment which may extended to one month or with both for a first offence and fine which may extended to twenty-five thousand rupees or with simple imprisonment which may extended to three months or with for any subsequent offence.

CONDITIONS OF LICENCE

1. All design, specifications, standards and construction of Gas tanks, Cylinders, Compressor and Fuelling Station shall fulfill the requirements of Code of practice issued by the Pakistan Standard Institution or any other Code approved by the Chief Inspector.
2. Tanks, cylinders gas holders and regulating equipments used at the premises shall be located outdoors unless otherwise specially approved.
3. A group of gas cylinders shall be linked by piping to from a single gas storage unit.
4. CNG Storage unit(s) shall be at least three (3) meters away from footpath and five (5) meters away from CNG or Petroleum filling point.
5. CNG Storage unit(s) shall be provided with security fence at least 1 meter away from the cylinder banks.
6. Every CNG storage unit including manifold group of cylinders or bulk storage tank shall be provided with suitable pressure gauge.
7. Where more than one CNG units are installed, the separating distance between the units shall not be less than two (2) meters.
8. CNG dispensing point shall be at least 4.5 meters away from footpath or public place three (3) meters away from the nearest petroleum dispensing unit and 2 meters from any opening into a building.
9. Every CNG system shall be fitted with a device to prevent the cylinder being charged with a pressure greater than the cylinder test pressure.
10. CNG storage unit(s) shall be provided with isolating valves and master shut-off valve.
11. Emergency and isolating shutoff valve shall be provided near CNG refueling bays in easy accessible position. Each flexible hose for refueling vehicle(s) shall be provided with shut-off valve.
12. Compressor room shall be ventilated properly at lower level.
13. Natural gas shall not be vented to the atmosphere unless the vent is led to a safe point of discharge.
14. The inlet gas line to a CNG compressor shall be provided with a non-return valve to prevent back flow in the event of compressor malfunction.
15. An effective drying system shall be provided to ensure that moisture is absorbed from the gas prior to its compression.
16. All electrical wiring, equipment within hazardous area shall comply with the requirements of BS 4683, BS 229 and BS 4137.
17. Gas detector operated cut-out switch shall be fitted to the electrical system of compressor to switch off the unit automatically in the event of a major gas leak.
18. A licensing shall not make any alteration, addition or extension of his works without prior approval in writing of the licensing authority.
19. If the licensing authority calls upon the holder of a licence by a notice in writhing execute any repairs of the equipment etc which are in the opinion of such authority, necessary for the safety of the premises, then holder of the licence shall execute the repairs within such period, not being less than one month from the date of receipt of the notice, as may be fixed by the notice.
20. The premises shall be posted prominently at the entrances of compressor room.
21. A "NO SMOKING" sign shall be posted prominently at the entrance of compressor room.
22. There shall be no smoking within six (6) meters of the vehicle.

23. Filling instruction shall be posted in a conspicuous place adjacent to the dispensing hose.
24. Any accident involving loss of life or serious injury or severe damaged to property shall be immediately reported to the Chief Inspector of Explosive and the nearest Police Station by the quickest means of number shall be furnished with the report.
25. Free access to the licensed premises shall be given at all reasonable times to the Chief Inspector of Explosives or Office authorized in this behalf for ascertaining that rules and conditions of the licence are duly observed.

FORM-S
[Schedule-I]

LICENSE TO TRANSPORT COMPRESSED NATURAL GAS IN BULK ON LAND BY MECHANICAL PROPELLED VEHICLE. (COMPRESSED NATURAL GAS STORAGE CYLINDER MOUNTED IN VEHICLE FOR FUELING ARE EXEMPTED).

License No. _____

Fee Rs. _____

License is hereby granted to _____ to transport compressed natural gas by the vehicle as described below subject to the provisions of the Petroleum Act 1934 the rules made there under and to the further conditions of this license.

This license will remain valid up to the 31st day of December _____ (year)

Date of Issue:

Chief Inspector of Explosives

Approved Plan No. _____

Dated _____

DESCRIPTION OF THE VEHICLE

Make and Model _____ Engine Number _____

Chassis Number _____ Registration Number _____

Name of the registered owner _____

Chemical name of the compressed natural gas to be carried in the Vehicle _____

Authorized carrying capacity of the container _____

ENDORSEMENT OF RENEWALS

Date of Renewal	Date of Expiry	Signature and office Stamp of the Licensing Authority

This license is liable to be cancelled if the licensed vehicle is not found conforming to the description of approved plan by Department of Explosives No. _____ dated _____ and conditions attached thereto, and contravention of any of the rules and conditions under which this license is granted and the holder of this license is also punishable with fine which may extend to thirty thousand rupees.

CONDITIONS

1. The license or its authenticated copy shall at all times be kept in the licensed vehicle and produced on demand by an Inspector.
2. Only responsible persons who are conversant with the conditions of this license shall be

- employed for driving the licensed vehicle or attending to it.
3. The licensed vehicle shall be constantly attended to by a responsible person and by at least two persons while it is transporting compressed natural gas .
Provided that the licensed vehicle may, if empty, be kept unattended in a place approved for the purpose, in writing, by the Chief Inspector.
 4. The licensed vehicle shall at all times carry –
 - (a) at least two portable fire extinguishers of capacity not less than 9 liters and suitable for extinguishing chemical fires;
 - (b) a strong flexible cable for electrical bonding in case of vehicle used for transportation of flammable compressed natural gas ; the cable shall be at least 5 meters long and shall have at each end a suitable clamp or clip.
 5. The licensed vehicle shall not be loaded or unloaded except in a place which is approved within the premises licensed for the purpose under the rules by the Chief Inspector.
 6. No vehicle shall discharge any compressed natural gas directly, into any process vessel in operation or vehicles fuel tank
 7. The licensed vehicle shall not be loaded if any of the fitments including vessel becomes leaky, defective or otherwise insecure.
 8. Before compressed natural gas is loaded into or unloaded from the licensed vehicle –
 - (a) its engine shall be stopped and the battery shall be isolated by a proper switch or otherwise;
 - (b) its wheels shall be secured by brakes or by scotching;
 - (c) its chassis shall be electrically bonded by a cable with the pipe into or from which it is to be loaded or unloaded, in case of vehicle used for transportation of flammable gas;
 - (d) the correct filling or discharge pipe connections are made at both ends;
 - (e) a responsible person shall be in attendance and remain so until loading or unloading is over and the vehicle has been sealed.
 9. Except when called upon by traffic signals or required by the licensing authority or any other officer entrusted with the job of enforcing the rules, the licensed vehicle shall not stop on any road, congested area or a place which is not a place situated within the premises licensed under the rules for the loading and unloading of vehicle.
 10. No smoking and no fire or artificial light or any article capable of igniting flammable vapors shall be allowed on the licensed vehicle used for the transportation of any flammable gas.
 11. The licensed vehicle shall not be used for carrying passengers.
 12. The licensed vehicle shall not be allowed to be repaired.
Provided that replacement by any of the fitments of the pressure vessel may be done without involving any hot work.
 13. No alteration in the licensed vehicle or its safety fittings shall be carried out without previous sanction in writing of the licensing authority. Such alteration so sanctioned shall be endorsed on the license by an amendment.
 14. Every facility shall be given at all reasonable times to any Inspector for ascertaining that the rules and the conditions of this license are duly observed.
 15. Any accident, fire or explosion occurring in the licensed vehicle, which is attended with loss of human life or serious injury to person or property shall be immediately reported to the nearest magistrate or to the officer-in-charge of the nearest police station having jurisdiction and by telephone or by fax to the Chief Inspector of Explosives.
 16. Compressed natural gas shall not pass through congested or/and busy city roads as far as possible.
 17. The maximum speed limit shall be restricted to 25KM/hrs.
 18. The word “DANGER” shall conspicuously be written on the back of the tanker in red color with signs of danger.

19. A red flag of adequate size shall be installed on the drivers cab.
 20. A report about satisfactory performance to the tanker along with details of problems/difficulties faced in their operation, if any shall be furnished to this office on monthly basis.

FORM N
 [See Schedule-I]

TO STORE AND SALE LIQUEFIED PETROLEUM GAS IN A TANK OR TANKS & DISPENSE LIQUEFIED PETROLEUM GAS IN CONNECTION WITH A DISPENSING UNIT FOR FUELING MOTOR CONVEYANCES.

License No _____ Fee Rs. _____
 License is hereby granted to _____ valid
 for storage of _____ kilograms of liquefied petroleum gas in _____ numbers
 pressure vessels in the premises described below and dispensing of liquefied petroleum gas as automotive
 fuel to motor vehicles, subject to the provisions of the Petroleum Act, 1934 and the Mineral and
 Industrial Gases Safety Rules, 2010.

The license shall remain in force upto 31ST December _____
 the _____ (Date of Issue) Chief Inspector of Explosives

DESCRIPTION OF LOCATION AND FACILITIES OF THE LICENSED PREMISES

The licensed premises, the layout, boundaries and other particulars of which are shown
 in the attached approved plan No. _____ dated _____ are situated at
 (address) _____ and consists of:-

- (i) Storage vessels _____
(Identification number and water capacity) (Specify whether aboveground, mounded or underground)
 ii) Number of dispensers _____ make _____
 iv) other facilities _____

SPACE FOR ENDORSEMENT OF RENEWALS

Date of Renewal.	Date of Expiry.	Signature and Office Stamp of the Licensing Authority.

The license shall be renewable without any concession in fee for one year in the absence of
 contravention of the provisions of the Petroleum Act, 1934 or Mineral and Industrial Gases Safety Rules,
 2010 framed there under, or of any of the conditions of the license.

This license is liable to be cancelled if the licensed premises are not found confirming to
 the description and conditions attached hereto and for contravention of any of the rules and
 conditions under which this license is granted. The holder of this license is also liable for

punishment under section 9B of the Petroleum Act, 1934 for the contraventions of the provisions of the said Act and the rules framed there under.

CONDITIONS

1. The licensed premises shall conform to the description of location and facilities and to the approved plan, as mentioned on the body of the license.
2. The licensed premises shall be used only for the purpose it is licensed for.
3. Liquefied petroleum gas shall be stored only in one or more pressure vessels installed aboveground, underground or aboveground covered with earth (mound) as per provisions of these rules.
4. Liquefied petroleum gas storage vessel, dispenser, pumps, compressor, piping and other fittings shall be of a design suitable for commercial propane.
5. Storage vessels shall not be installed within any building or shed.
6. A hard stand for parking the tank-truck for the purpose of unloading liquefied petroleum gas into the storage vessels shall be provided as per rules.
7. The facilities and equipments of the licensed premises shall meet the safety distance requirements as specified in Table-5 of rule 23.
8. Liquefied petroleum gas shall be dispensed only into those cylinders used as fuel tanks of motor vehicles, which are duly approved by the Chief Inspector, and have passed the periodic statutory tests under Gas Cylinders Rules, conducted by a testing station recognized by the Chief Inspector.
9. The type of the dispenser used for dispensing liquefied petroleum gas shall conform to a specification approved by the Chief Inspector.
 - (a) It shall be provided with an excess flow valve, a remote operated shut-off valve and pipe shear provision in the liquid inlet pipe.
 - (b) The dispenser shall be installed on a firm foundation and protected against physical damage.
 - (c) A breakaway device with excess flow valves or quick action cut-off valves on both sides of the breakaway device conforming to Underwriters Laboratory USA, specification no 567 or equivalent shall be provided on the delivery line from the dispenser before the connection of the hose so as to prevent spillage of liquefied petroleum gas from both sides of the breakaway point in the event of its breakage.
10. The design pressure of the hose for delivery of liquefied petroleum gas by dispenser to motor vehicles shall be minimum thirty two kilograms per square centimeter with a safety factor of five and shall be tested at one and half times the design pressure at an interval not exceeding every one year. The hose shall be mechanically and electrically continuous. The length of the hose shall not exceed five meters and fifty centimeters.
11. The dispensing nozzle at the end of the hose shall be self sealing type of twenty two millimeters nominal size and suitable for matching with filling connection of cylinders fitted to vehicles as fuel tanks, as specified in Australian Specification AS- 1425 or equivalent standard approved by the Chief Inspector.
12. Clearly identified switches or circuit breakers shall be provided at easily accessible location minimum six meters away from dispenser to cut-off the power supply in the event of fire, accident or other emergency. The switches or circuit breakers shall be visible from the point of dispensing liquefied petroleum gas to motor vehicles.

13. Pump used for pumping liquefied petroleum gas shall be of either centrifugal submersible or positive displacement type. Positive displacement pump shall be provided with bye-pass to prevent over-pressure.
14. Hazardous area classification for the dispenser shall be as under :-
 - a) Entire space with in the dispenser enclosure cabinet and forty six centimeters horizontally from the exterior of enclosure cabinet and up to an elevation of one hundred and twenty one centimeters above dispenser base and the entire pit or open space beneath the dispenser shall be Division-1.
 - b) Up to forty six centimeters vertically above the surrounding ground level and horizontally beyond forty six centimeters up to six meters on all sides of the dispenser enclosure cabinet shall be Division-2.
15. All metallic liquefied petroleum gas piping shall be rated for Propane and designed to American Standard ASME-B-31.3 with minimum design pressure of thirty two kilograms per square centimeters with a factor of safety of four . The materials of pipe shall be low carbon or alloy-steel conforming to American Standard ASTM-SA- 333, grade 6, or SA-106, Grade-B-Schedule 80; or API-5L or equivalent. The pipeline shall be tested at one and half times of the design pressure, if hydro-tested. Joints of pipeline above forty millimeters diameter shall be welded or flanged. Threaded or screwed connection shall not be provided except for special fittings like excess flow valve, pump connection upto fifty millimeters diameter.
16. No addition or alteration in the licensed premises shall be carried out without prior sanction of the licensing authority.
17. No person shall enter or cause to repair or repair either by the use of fire, welding, hot riveting or brazing any vessel used for the storage of flammable gas unless it has been thoroughly cleaned and gas-freed or otherwise prepared for safely carrying out such hot work and certified in writing, by a competent person, to have been so prepared. Where the vessel has been certified as gas-free, the certificate shall be preserved by the licensee for a period of not less than six months and produced to the Chief Inspector, on demand.
18. The operation of the licensed premises shall be under the supervision of a person having knowledge of the equipments used in the premises and trained in handling compressed gas, and other operators shall be conversant with the hazards associated with the compressed gas and fire fighting operations.
19. Liquefied petroleum gas shall not be removed from the vessel except by means of transfer facilities shown in the approved plan attached to the license.
20. Smoking, naked lights, lamps, source of fire or any other stimulant capable of igniting flammable vapors shall not be allowed inside the premises.
21. The vessel shall not be filled between the hours of sunset and sunrise, except in such manner and under such other condition or conditions as are specifically endorsed on the license by the licensing authority.
22. All electrical equipment such as motors switches, starters, etc, used for transfer of liquefied petroleum gas shall be of flameproof construction conforming to standard/type approved by Chief Inspector.
23. Every person managing or employed on or in connection with licensed premises shall abstain from any act whatsoever which tends to cause fire or explosion and which is not reasonably necessary and to the best of his ability, shall prevent any other person from doing such act.
24. At least two numbers of nine kilograms capacity dry chemical type fire-extinguishers shall be provided near the tank-truck unloading area and one number similar extinguisher shall be

provided near each dispenser and transfer pump location. In dispensing station having aboveground liquefied petroleum gas storage vessels, hydrants with minimum water pressure of seven kilograms per square centimeters shall be provided at convenient positions for all-round coverage of liquefied petroleum gas storage vessels, and handling area and water sprinklers with a spray density of ten liters per minute per square meter shall be provided. The fire water pump shall be preferably diesel engine driven, with capacity to deliver water at the rate and pressure specified above. The minimum fire water storage at the premises shall be needed for fighting fire at least for one hour.

25. During the period of unloading of liquefied petroleum gas from tank-truck to the storage vessels dispensing operation to vehicles shall not be carried out.
26. The emergency telephone numbers of local fire service, police and the principal marketing company, and emergency instructions shall be conspicuously displayed in the licensed premises.
27. All valves on the vessel and pipelines in the premises must be permanently marked in a manner clearly indicating the direction of opening and closing.
28. If the licensing authority calls upon the holder of a license by a notice in writing to execute any repairs in the licensed premises which are, in the opinion of such authority, necessary for the safety of the premises, the holder of the license shall execute the repairs within such period as may be specified in the notice.
29. Any accident, fire or explosion within the licensed premises which is attended with loss of life or serious injury to person or property shall be immediately reported to the nearest Judicial Magistrate or to the officer-in-charge of the nearest police station and to the Chief Inspector of Explosives by telephone/fax.
30. Free access to the licensed premises shall be given at all reasonable times to any of the officers specified in rule 84 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this license are duly observed.

FORM 'O'

[See Schedule-I]

Licence to import/store/sale liquefied petroleum gas in installation (Plants) for filling in cylinders.

No.

Fee

Rs.....

License is hereby granted to.....valid only for import/store/sale liquefied petroleum gas in installation (Plants) for filling in cylinders for the storage ofwater liters liquefied petroleum gas in the place described below and shown on the plan attached hereto subject to the provisions of the petroleum Act, 1934 and the rules made there under and to the further condition on the back of this license.

This license shall remain in force till the 31st day or December 20

Sr. No.	Nature of Petroleum to be stored/imported	Quantity of petroleum (In liters)
1.	Liquefied petroleum gas in bulk	
2.	Liquefied petroleum gas not in bulk	
	Total	

Chief Inspector of Explosives

Plan No.dated

Description of the place referred to above

.....
.....
.....

Date of renewal	Date of expiry	Signature of licensing authority

This license is liable to be cancelled if the licensed premises, when inspected, are not found conforming in the description approved plan by Department of Explosives and conditions attached hereto and contravention of any of the rules and conditions under which this is granted is also punishable with fine may extend to ten thousand rupees for a first offence and may extend to twenty thousand rupees for any subsequent offence.

CONDITIONS

1. The licensed premises shall not be used for any purpose other than storage and transfer of compressed gas and purposes directly connected therewith.
2. The compressed gas shall be stored only in one or more vessels of capacity.....cubic meters.....Kg. and in position shown in the approved plan attached hereto.
3. Every vessel shall be outside any building and shall be supported on well designed foundations.
4. The storage vessel shall at all times maintain from any other facility, building, boundary, fencing or protected works the distances specified rules/standards in the matter.
5. A suitable hard stand for parking of the vehicle during loading or unloading of any compressed gas shall be provided . The following minimum safety distances shall be provided between the centre of the hard stand and the storage vessel or boundary line of installation; as well as between the loading or unloading points and storage vessel or boundary line of installation, -
 - i) as per rules/standards in the matter, as the case may be, in case of refinery, terminal and cylinder filling plants for flammable liquefied gases;
 - ii) four meters and fifty centimeters in case of non-corrosive, non-toxic and non-flammable gases; and
 - iii) nine meters in all other cases.

6. All fitments of the vessel shall be well maintained.
7. No alteration of the position of the vessel and no replacement of the vessel shall be effected except with the previous sanction, in writing, of the licensing authority. All alterations so sanctioned under this condition shall be shown on an amended plan to be attached to the license.
8. If the licensing authority calls upon the holder of a license by a notice in writing to execute any repairs in the licensed premises which are, in the opinion of such authority, necessary for the safety of the premises, the holder of the license shall execute the repairs within such period as may be specified in the notice.
9. Every vessel before being repaired or exhumed shall be made free of compressed gas and thoroughly cleaned. When a vessel is opened for cleaning or repairs, no lamp of any description either ordinary or electric, electric cables or fans and no articles, appliances or equipment capable of igniting flammable vapors shall be brought near the vessel.
10. No person shall cause to repair or repair either by the use of fire, welding, hot riveting or brazing any vessel used for the storage of flammable gas unless it has been thoroughly cleaned and gas-freed or otherwise prepared for safely carrying out such hot work and certified in writing, by a competent person, to have been so prepared. Where the vessel has been certified as gas-free, the certificate shall be preserved by the licensee for a period of not less than three months and produced to the Chief Inspector, on demand.
11. No person shall enter any vessel used for the storage of a toxic or corrosive gas unless he is adequately protected by means of clothing, gas masks and such other protective equipment.
12. Compressed gas shall enter the vessel through sound pipes having no leaks at any place.
13. The vessel shall not be filled between the hours of sunset and sunrise, except in such manner and under such other condition or conditions as are specifically endorsed on the license by the licensing authority.
14. No artificial light capable of igniting flammable vapors shall at any time be present within 9 meters of the vehicle and the loading or unloading points during the transfer of the compressed gas and no person engaged in such transfer shall smoke.
15. No compressed gas shall be removed from the vessel except by means of transfer facilities marked in the plan attached hereto.
16. All electrical equipment such as motors switches, starters, etc., used for transfer of flammable compressed gas shall be of flameproof construction conforming to approved specifications.
17. Every person managing or employed on or in connection with the licensed premises shall abstain from any act whatsoever which tends to cause fire or explosion and which is not reasonably necessary and to the best of his ability, shall prevent any other person from doing such act.
18. The licensee shall provide for each licensed premises a minimum of two portable foam types or dry chemical type fire extinguishers of 9 Kgs capacity each, which shall be kept ready at convenient location for immediate use in the event of any fire.
19. Except for necessary pipes and valves and approved electric lights the space within the licensed premises shall be kept entirely clear and unoccupied.
20. All valves in the premises must be permanently marked in a manner clearly indicating the direction of opening and shutting the valve.
21. Any accident, fire or explosion within the licensed premises which is attended with loss of life or serious injury to person or property shall be immediately reported to the nearest Judicial Magistrate or to the officer in-charge of the nearest police station and by telephone to the Chief Inspector of Explosives.
22. Free access to the licensed premises shall be given at all reasonable times to any of the Inspector of Explosives and every facility shall be afforded to such officer for

ascertaining that the rules and the conditions of this license are duly observed.

- (ii) All metal pipes shall be flexible pipes shall be tested once every 6 months by a competent engineer holding license to ascertain fitness and compliance with the requirement of strength laid down above.
- (iii) (a) A complete and permanent record of such testing shall be maintained in the licensed premises.
(b) The date of the last test shall be recorded on the pipes and pipe sections concerned in a distinctive manner.

22. The license shall not deliver from the licensed premises:-

- (a) Petroleum in bulk to any vessel used in the carriage of petroleum in bulk by water; and
- (b) Any petroleum in bulk shall be delivered to any vehicle used for the transport of petroleum in bulk by road unless such vehicle is licensed by the Chief Inspector.

FORM R
[Schedule-I]

LICENCE TO TRANSPORT LIQUEFIED PETROLEUM GAS IN BULK ON LAND BY MECHANICALLY PROPELLED VEHICLE.

License No. _____ Fee Rs. _____

License is hereby granted to _____ to transport liquefied petroleum gas by the vehicle as described below subject to the provisions of the Petroleum Act 1934 the rules made there under and to the further conditions of this license.

This license will remain valid up to the 31st day of December _____ (year)

Date of Issue: _____ Chief Inspector of Explosives

Approved Plan No. _____ Dated _____

DESCRIPTION OF THE VEHICLE

Make and Model _____ Engine Number _____

Chassis Number _____ Registration Number _____

Name of the registered owner _____

Chemical name of the liquefied petroleum gas to be carried in the Vehicle _____

Authorized carrying capacity of the container _____

ENDORSEMENT OF RENEWALS

Date of Renewal	Date of Expiry	Signature and office Stamp of the Licensing Authority

This license is liable to be cancelled if the licensed vehicle is not found conforming to the description of approved plan by Department of Explosives No. _____ dated _____ and conditions attached thereto, and contravention of any of the rules and conditions under which this license is granted and the holder of this license is also punishable with fine which may extend to thirty thousand rupees.

CONDITIONS

1. The license or its authenticated copy shall at all times be kept in the licensed vehicle and produced on demand by an Inspector.
2. Only responsible persons who are conversant with the conditions of this license shall be employed for driving the licensed vehicle or attending to it.
3. The licensed vehicle shall be constantly attended to by a responsible person and by at least two persons while it is transporting liquefied petroleum gas.
Provided that the licensed vehicle may, if empty, be kept unattended in a place approved for the purpose, in writing, by the Chief Inspector.
4. The licensed vehicle shall at all times carry –
 - (a) at least two portable fire extinguishers of capacity not less than 9 liters and suitable for extinguishing chemical fires;
 - (b) a strong flexible cable for electrical bonding in case of vehicle used for transportation of flammable liquefied petroleum gas; the cable shall be at least 5 meters long and shall have at each end a suitable clamp or clip.
5. The licensed vehicle shall not be loaded or unloaded except in a place which is approved within the premises licensed for the purpose under the rules by the Chief Inspector.
6. No vehicle shall discharge any liquefied petroleum gas directly, into any process vessel in operation or vehicles fuel tank
7. The licensed vehicle shall not be loaded if any of the fitments including vessel becomes leaky, defective or otherwise insecure.
8. Before liquefied petroleum gas is loaded into or unloaded from the licensed vehicle –
 - (a) its engine shall be stopped and the battery shall be isolated by a proper switch or otherwise;
 - (b) its wheels shall be secured by brakes or by scotching;
 - (c) its chassis shall be electrically bonded by a cable with the pipe into or from which it is to be loaded or unloaded, in case of vehicle used for transportation of flammable gas;
 - (d) the correct filling or discharge pipe connections are made at both ends;
 - (e) a responsible person shall be in attendance and remain so until loading or unloading is over and the vehicle has been sealed.
9. Except when called upon by traffic signals or required by the licensing authority or any other officer entrusted with the job of enforcing the rules, the licensed vehicle shall not stop on any road, congested area or a place which is not a place situated within the premises licensed under the rules for the loading and unloading of vehicle.
10. No smoking and no fire or artificial light or any article capable of igniting flammable vapors shall be allowed on the licensed vehicle used for the transportation of any flammable gas.
11. The licensed vehicle shall not be used for carrying passengers.
12. The licensed vehicle shall not be allowed to be repaired.
Provided that replacement by any of the fitments of the pressure vessel may be done without involving any hot work.
13. No alteration in the licensed vehicle or its safety fittings shall be carried out without previous sanction in writing of the licensing authority. Such alteration so sanctioned shall be endorsed

on the license by an amendment.

14. Every facility shall be given at all reasonable times to any Inspector for ascertaining that the rules and the conditions of this license are duly observed.
15. Any accident, fire or explosion occurring in the licensed vehicle, which is attended with loss of human life or serious injury to person or property shall be immediately reported to the nearest magistrate or to the officer-in-charge of the nearest police station having jurisdiction and by telephone or by fax to the Chief Inspector of Explosives.
16. Liquefied petroleum gas shall not pass through congested or/and busy city roads as far as possible.
17. The maximum speed limit shall be restricted to 25KM/hrs.
18. The word "DANGER" shall conspicuously be written on the back of the tanker in red color with signs of danger.
19. A red flag of adequate size shall be installed on the drivers cab.
20. A report about satisfactory performance to the tanker along with details of problems/difficulties faced in their operation, if any shall be furnished to this office on monthly basis.

SCHEDULE III

[see rules 28, 141(3), and 146]

A. FACILITIES REQUIRED FOR CYLINDER TESTING STATIONS

1. Management:

- 1.1 **General Requirements:-** Personnel, equipments, inspection procedures, recording and organization shall be adequate and the test station will be operated with safe operating conditions. The procedures and testing shall ensure that cylinders, which fail to meet the requirements and intent of these rules, are not returned into normal service. All personnel shall fully recognize their individual responsibilities and that the minimum inspectional requirement shall not be lowered for any reason whatsoever.

Note:- The area of responsibility shall be divided into three separate function as indicated below. The numbers of personnel employed shall, however, be related to the quantum of work.

- 1.2 **Manager:-** The manager responsible for the working of the test station shall be properly qualified; his qualifications shall include training on the dangers associated with gas cylinders, purpose of inspection, test methods, equipment, test requirements, and recording of test results, and he shall have appropriate technical qualifications in Mechanical or Chemical Engineering. He shall also be conversant with the Codes, Specifications and /or Regulations applying to the cylinders for which the test station is approved.

- 1.3 **Supervisor: -** The Supervisor shall possess the following qualifications, namely:-
 - (i) have at least two years' experience in the examination of gas cylinder;
 - (ii) be at least 21 years of age;
 - (iii) be conversant with these rules, Codes, Specifications and/or Regulations applying to the cylinders for which the test station is approved.

- 1.4 **Operator: -** Personnel conducting inspections and tests shall have qualifications and experience suitable for the work on which they are engaged. They shall be trained to understand the dangers associated with gas cylinders and the purpose and method of inspection.

2. Equipment:

- 2.1 **Type of equipment:-** The test station shall have adequate equipment to carry out inspection and testing of cylinders as required under these rules. It shall contain—

- (i) One set of these rules, Codes, Specifications and/or Regulations applying to the cylinders, which the test station is authorized to test. All these rules, Codes, Specifications and/or Regulations shall be maintained with all current amendments.
- (ii) Hydrostatic test apparatus comprising pressurizing equipment, pressure gauge and volumetric measuring equipment in accordance with specification approved by the Chief inspector of explosives Hydrostatic stretch testing of compressed gas cylinders. The apparatus shall be equipped with at least two 15cm diameter (minimum) working pressure gauges.
- (iii) Non-destructive testing facilities like ultrasonic flaw detection, acoustic emission techniques, etc. for detection of stress corrosion cracks developed during the service.
 - (iv) Dead-weight pressure gauge tester of appropriate pressure range or a master pressure gauge of 15cm minimum diameter covering the appropriate pressure range.
 - (v) Boroscope, extra-low voltage lamps to permit adequate internal viewing of cylinders and other lamps necessary for close examination of external surfaces.
 - (vi) Straightedges, templates, miscellaneous tool and gauges for measurement.
 - (vii) Weighing equipment, where applicable.
 - (viii) One set of standard test weights for the weighing machine, stamped by the relevant statutory authority.
 - (ix) Adequate cylinder handling equipment.
 - (x) Adequate cylinder draining equipment.
 - (xi) Facilities for internal drying of cylinders.
 - (xii) Marking and stamping equipment.

- 2.2 **Accuracy:-** The accuracy of equipment shall be as follows: -
- (i) Volumetric equipment shall be capable of measuring a permanent change in volume of the cylinder under test of the order of 1/20,000 of its total capacity.
 - (ii) Weighing equipment error not greater than +0.1 per cent.
 - (iii) Working pressure gauge error not greater than 1 per cent of the pressure.
 - (iv) Master pressure gauge error not greater than 0.25 per cent of the full-scale deflection.

- 2.3 **Calibration:-** Calibration of equipment shall be carried out at periods not exceeding the following:-
- (i) Working pressure gauge -1 month.
 - (ii) Master pressure gauge- 6 months.
 - (iii) Weighing equipment-checked by test weight daily when in service.
 - (iv) Test weights – 2 years.

3. **Working conditions:-** Working conditions for the test stations shall be conducive to accurate and safe inspection and testing of gas cylinders. The test station shall comply with the following conditions:-
- (i) It shall have good lighting to permit ready external examination of gas cylinders, preferably including natural lighting.
 - (ii) It shall have adequate ventilation to remove residual gases from cylinders.
 - (iii) It shall provide sufficient space to permit safe working.
 - (iv) It shall be maintained in a clean dry condition.

4. **Quality management system:-** The quality management system of a cylinder testing station for seamless steel/composite cylinder shall be got duly certified under ISO Standards from any internationally reputed agency.

B. Testing of cylinders

1. Condition of cylinders for test.- Cylinders forwarded to the test station for testing shall have first been emptied of their contents and then labelled as 'empty'. Irrespective of this label all cylinders other than cylinders at the manufacturers works shall be presumed to contain gas under pressure and the following precautions shall accordingly be observed:
 - (i) The cylinder contents shall be released in a safe manner keeping in mind dangers associated with the nature of the gas in the cylinder. Cylinders, which contain or may have been contaminated by poisonous or obnoxious substances shall be emptied only by test stations properly equipped and experienced to handle the particular gas/substance. Such cylinders shall be clearly labelled that they have been contaminated.
 - (ii) The valve shall be opened and if no gas escapes and the port is not visibly blocked, a charge of low-pressure nitrogen or other inert gas shall be blown into the valve outlet. Discharge of gas after removal of the nitrogen supply indicated the cylinder is empty. When no gas discharges the valves shall be treated as "obstructed". Where a cylinder has contained poisonous or obnoxious substances, and the valve is suspected of being obstructed, the gas shall be released within an approved appliance and the valves shall be removed in such a manner that the gas escapes without danger to the operator.
 - (iii) Should the valve be obstructed the contents of the cylinder shall be released in safe manner as stated in (i) above. Work on cylinders containing combustible gases shall be carried out in the open air.

Note:- A suitable method of dealing with a valve in which the spindle cannot be removed is to drill a 1/16th in (1.6 mm) diameter hole with a hand drill through the valve body to the gas passage below the spindle seating. Alternatively, a fine-tooth hacksaw may be used. Drilling or sawing must be stopped immediately upon the first sign of escaping gas. A continuous jet of water must be directed on to the cutting tools and the operator must wear protective clothing.

2. Inspection of cylinders before carrying out hydrostatic/hydrostatic stretch test:-

- (1) Prior to carrying out hydrostatic/hydrostatic stretch test, every cylinder shall be thoroughly cleaned by steam cleaning or washing out with approved solvents. Where the interior of the cylinder is affected by rust or other foreign matter it shall be cleaned by one of the following methods namely:-
 - (a) Approved blasting, rotary wire brushing;
 - (b) Burn out treatment carried out in a furnace at a temperature not exceeding 300⁰C for a period of not exceeding one hour after which all free rusts and any other foreign matter shall be removed by steam cleaning or washing with approved solvents.
- (2) The cylinders after cleaning shall be visually examined externally and as far as practicable internally for surface defect in accordance with codes approved in writing by the Chief inspector of Explosives.

3. Hydrostatic/hydrostatic stretch test/proof pressure test:-

- (1) For cylinders used for permanent gases, high pressure liquefiable gases and all toxic and corrosive gases:-
 - (i) The cylinders shall be subjected to hydrostatic stretch test in accordance Specific codes. The test pressure applied to the cylinder shall be retained for a period of not less than 30 seconds.
 - (ii) The permanent stretch suffered by the cylinder due to application of test pressure shall not exceed the following limits, namely:-
 - (a) In the case of cylinder 10% of the total stretch suffered during the test. below 20 litres water capacity for non-corrosive gases.

(b) In other cases. 10% of the total stretch suffered during the test or 1/5000th of the original volume of the cylinder, whichever is less.

(iii) Any reduction in pressure noticed during the retention of 30 seconds or any leakage, visible bulge or deformation should be treated as case of failure in the test.

(2) For cylinders for low pressure non-corrosive liquefiable gases:

(i) The cylinder shall be subjected to hydrostatic test in accordance with the codes approved by Chief inspector of explosives by non-jacket method except that the volumetric changes during the test need not be measured.

(ii) The test pressure shall be retained for a period of not less than 30 seconds. Any reduction in pressure noticed during this retention period or any leakage, visible bulge or deformation shall be treated as case of failure in the test.

(3) As soon as the test is completed, the cylinder shall be thoroughly dried internally and shall be clearly stamped on the neck and with marks and figures indicating the person by whom the test has been carried out and the date of test. Code mark of the person by whom the test has been carried out shall be registered with the Chief inspector of explosives .

4. Any cylinder which fails to pass periodic examination or test or which loses in its tare weight by over 5 per cent or which for any other defect is found to be unsafe for use and which cannot be repaired shall be reported to the owner of the cylinder and shall be destroyed by rendering the cylinder unusable.

5. Records of test:- Full record of cylinders examined and tested at any testing station shall be maintained giving the following particulars, namely:-

(a) Name of the manufacturer and the owner of the cylinder.

(b) Rotation Number.

(c) The specification to which the cylinder conforms.

(d) Date of original hydrostatic/hydrostatic stretch test.

(e) Test reports and certificates furnished by the manufacturer, if available.

(f) Test pressure.

(g) Maximum working pressure.

(h) Water capacity.

(i) Tare weight.

(j) Variation, if any, in the tare weight marked on the cylinder and actual tare weight.

(k) Condition of cylinder shell.

(l) Name of gas.

(m) Type of valve fitted, and

(n) Remarks, if any.

Note : (1) The above particulars shall form the history card or record for each cylinder and all changes from time to time shall be indicated therein.

(2) The test station shall adopt procedures, which fully comply with the requirements of these rules and guidelines issued by Chief inspector of explosives from time to time.

APPENDIX - I

[see rule 3(3)(a)]

Particulars to be submitted to the Chief Inspector for manufacture of pressure vessels

1. Applicants name and full address.
2. Whether the applicant has manufactured any unfired pressure vessel. If yes—
 - (i) date from which such vessels were manufactured.
 - (ii) For whom the vessels were fabricated and there approximate numbers.
 - (iii) Details of the vessels manufactured.
3. Specifications of Code proposed to be adopted for the manufacture of the vessels or containers.
4. Organizational set-up with specific reference to qualifications and experience of the personnel engaged in the manufacture of vessels.
5. Organizational set-up of the inspecting personnel engaged by the applicant.
6. Process of manufacture of vessels or containers, beginning with raw material and ending with the finished vessels or containers.
7. Quality control checks or tests carried out at each stage of manufacture of vessels or containers.
8.
 - (i) Details of the equipment installed for chemical analysis and mechanical tests.
 - (ii) Details of templates or gauges provided to check or test.
 - (iii) Steps taken to check the accuracy of testing and checking equipment and frequency of such checking.
9. Equipment available for carrying out non-destructive examination such as radio-graph, Gamma ray, ultrasonic tests, etc.
10. List of machinery provided for manufacturing vessels or containers.
11. Name and address of the independent inspecting authority.
12. Records and certificate of tests:-
 - (i) Proforma of records for various tests carried out by the inspecting and certifying organization; and
 - (ii) Proforma of tests and inspection certificate issued by the independent inspecting authority.

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APPENDIX - II

[see rule 2(xii)]

**QUALIFICATION AND EXPERIENCE OF 3RD PARTY INSPECTOR OR
COMPETENT PERSON**

Sr. No	Qualification and other requirements	Experience for the purpose	Minimum facilities
1	<p>(1) Degree in chemical or Mechanical or Metallurgical or Marine Engineering from a recognized university or equivalent professional qualifications.</p> <p>(2) Physically fit and mentally sound for carrying out tests and examination.</p>	<p>(1) A minimum experience of 10 years in design, fabrication and stage-wise inspection during fabrication of pressure vessels and equipments operating under pressure.</p> <p>(2) He shall be –</p> <p>(a) Conversant with the relevant codes of fabrication and test procedures relating to pressure vessels and their fitting.</p> <p>(b) Conversant with the statutory requirements concerning design and safety of unfired pressure vessels.</p>	<p>Standard gauges and instruments conforming to national/international standards for test and examination at every stage of fabrication. Either the 3rd party Inspector shall have these or these shall be available to him. The 3rd party Inspector shall be responsible for ensuring the equality and accuracy of these gauges and instrument used by him. A documented system to ensure this shall be maintained by 3rd party Inspector the Inspector.</p>
2	<p>(1) Degree in Chemical or Mechanical Engineering or Marine Engineering or equivalent professional qualifications.</p> <p>(2) Physically fit and mentally sound for carrying out tests and examinations.</p>	<p>(1) A minimum experience of 10 years in—</p> <p>(a) design and fabrication, erection, operation, maintenance and;</p> <p>(b) testing examination and inspection of pressure vessels or equipment operating under pressure.</p> <p>(2) He shall be—</p> <p>(a) conversant with the relevant code of practice</p>	<p>Standard gauges, pumps and gadgets for hydraulic and pneumatic pressure tests, non-destructive tests, equipments for ultrasonic thickness test, ultrasonic flaw detection, magnetic particle inspection and any other test that may be required by Chief Inspector in specific cases. Either the Competent Person shall</p>

		<p>and test procedures relating to pressure vessels;</p> <p>(b) conversant with statutory Requirements concerning safety of unfired pressure vessels installations & transport vehicles.</p> <p>(c) Conversant with nondestructive testing techniques as are applicable to pressure vessels.</p> <p>(d) able to identify defects and arrive at a reliable conclusion with regard to the safety of pressure vessels.</p>	<p>have these facilities or these shall be available to him.</p> <p>The Competent Person shall be responsible for ensuring the quality and accuracy of the gauges and equipments and the competence of any person that may be employed for performing a nondestructive test.</p>
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APPENDIX - III

[see rule 12(1)]

A. Application of recognition as competent person under the Mineral & Industrial Gases Safety Rules, 2010.

1. Name & Full address of the organization:
2. Organization status (specify whether individual or Govt., Autonomous, Co-operative, Corporate or Pvt. Body registered under Company Act.)
3. Purpose for which competency is sought (Specify the rules)
4. Whether the organization/person has been declared as a competent person under any other status, if so, give details.
5. (i) Set up of the organization/person.
(ii) Name & qualification (of constituent members in case of organization).
(iii) Experience (of constituent members in case of organization) with regard to fabrication, installation, maintenance in case of transport vehicles and examination and testing of pressure vessels and various fittings and in other related fields. Please refer to requirements mentioned in column 4 of Appendix II. (Please attach documentary evidence of the experience).
6. Particulars of equipment, Gauges etc. available with the Organization for carrying out the inspection/testing.
7. Details of the procedures followed in carrying out stage by stage inspection/test for certification under different rules.
8. Any other information.
9. Declaration

I _____ hereby, on behalf of _____ certify the details furnished above are correct to the best of my knowledge. I undertake to -

- (i) maintain the facilities in good working order and calibrated periodically;
- (ii) to fulfill and abide by all the conditions stipulated in the certificate of competency and instructions issued by the Chief Inspector from time to time.

Place:

Date:

Signature of the Head of the organization

Name & Designation

Seal of the Institution

B. Application for recognition as an inspector coming under the Mineral & Industrial Gases Safety Rules, 2010.

1. Name & Full address of the organization:
2. Organization status (specify whether individual or Govt., Autonomous, Co-operative, Corporate or Pvt. Body registered under Companies Act.)

3. Whether the organization/person has been declared as a competent person under any other status, if so, give details.
4. (i) Set up of the organization.
(ii) Name & qualification of its constituent members.
(iii) Experience of the organization and constituent members with regard to stage-wise inspection during fabrication of pressure vessels and various fittings and in other related fields. Please refer to requirements mentioned in column 4 in Appendix II. (Please attach documentary evidence of the experience).
5. Particulars of equipment, Gauges etc. available with the Organization for carrying out the inspection/testing.
6. Details of the procedures followed in carrying out stage by stage inspection/test for certification.
7. Proforma of test and Inspection certificates to be issued to various parties.
8. Any other information.
9. Declaration

I _____ hereby, on behalf of _____ certify that details furnished above are correct to the best of my knowledge. I undertake to fulfill and abide by all the conditions stipulated in the certificate of competency and instructions issued by the Chief Inspector from time to time.

Place:
Date:

Signature of the Head of the Organization
Name & Designation
Seal of the Institution

C. Application for grant of certificate of competency to a person for certifying storage installations or transport vehicles owned and operated by the organization in which he is employed.

1. Name.
2. Date of birth.
3. Name of the organization.
4. Designation.
5. Educational qualification (Copies of testimonials to be attached).
6. Particulars of professional experience (in chronological order):
 - (i) name of the organization,
 - (ii) period of service,
 - (iii) designation,
 - (iv) area of responsibilities.
7. Membership, if any, of professional bodies.
8. Details of facilities (examination, testing etc.) at his disposal.
9. Purpose for which competency certificate is sought (specify the rules).
10. Whether the applicant has been declared as a competent person under any statute (if so, give details)
11. Any other relevant information.

12. Declaration by the applicant.

I hereby declare that the information furnished above is true. I undertake –

- (a) that in the event of my leaving the aforesaid organization, I will promptly inform the Chief Inspector
- (b) to fulfill and abide by all the conditions stipulated in the certificate of competency and instruction issued by the Chief Inspector from time to time.

Place:

Date:

Signature of applicant

I _____ certify that Mr. _____ whose particulars are furnished above, is in our employment and nominate him on behalf of the organization for the purpose of being declared as a competent person under the rules. I also undertake that I will;

- (a) notify the Chief Inspector in case the competent person leaves our employment;
- (b) provide and maintain in good order all facilities at his disposal as mentioned above;
- (c) Notify the Chief Inspector any change in the facilities.

Place:

Date:

Telephone No.

Telex No/Fax No.

Signature

Name and Designation

Official Seal

[**F. No.** _____]

(_____)