



USAID
FROM THE AMERICAN PEOPLE

RISE
Reaching Impact, Saturation,
and Epidemic Control

Reaching Impact, Saturation, and Epidemic Control (RISE)

Standard Operating Procedures: PESO Certification

Contents

1. CONTENTS	2
2. ABBREVIATIONS	3
3. INTRODUCTION	4
4. PURPOSE OF THE SOP	4
5. PESO REQUIREMENTS FOR MEDICAL OXYGEN INFRASTRUCTURE	4
6. STORAGE OF GASEOUS OXYGEN CYLINDERS	4
7. REFILLING OF GASEOUS OXYGEN CYLINDERS	7
8. INSTALLATION AND REFILLING OF LMO TANKS	8
9. ON-SITE REFILLING OF PORTABLE LMO TANKS SUCH AS DURA OR MICRO CYLINDERS	11
10. REFERENCES	11
11. APPENDIX	12
Appendix 1: PESO online application	12
Appendix 2: Form C- Application to fill and/or store compressed gas/es in cylinders	14
Appendix 3: Form E- Application to fill compressed gas in cylinder	17
Appendix 4: Form F- Application to store compressed gas cylinders	20
Appendix 5: Form AS-1- Application to install and refill LMO tanks	23
Appendix 6: Form LS-A1- Application for the grant of license to store LMO	24
Appendix 7: LMO tank installation layout diagram, 100m radius site plan drawing and schematic	27

Abbreviations

BIS	Bureau of Indian Standard
ISO	International Organization for Standardization
kL	kilo liter
LMO	Liquid Medical Oxygen
m	Meter
HAZOP	Hazard and Operability Analysis
PESO	Petroleum and Explosives Safety Organization
PSA	Pressure Swing Adsorption
SOP	Standard Operating Procedures
SMPV	Static and Mobile Pressure Vessels

Introduction

The Petroleum and Explosives Safety Organization (PESO), formerly known as Department of Explosives, since its inception in 1898 has been serving the nation as a model agency for regulating safety of hazardous substances such as explosives, compressed gases and petroleum. PESO's major work is to administer the responsibilities delegated under the Explosives Act 1884 and Petroleum Act 1934 and the Rules made there under the motto "Safety First".

There is a critical need to maintain an adequate supply of medical oxygen in the country in the wake of the COVID-19 pandemic. Medical oxygen is also included in the national as well as WHO's list of essential medicines. Therefore, special attention needs to be given to keep the storage and usage of medical oxygen safe and hassle-free. It is in this context that PESO certification is important for a health facility that is using cylinders, cryogenic tanks, compressed gases storage vessels, PSA plants etc.

Purpose of the SOP

The specifications and guidelines in the "PESO Certification" intend to support health facility administrators, clinical practitioners, procurement officers, planning staff, biomedical engineers, infrastructure engineers and policymakers in the states and at the national level to follow the PESO certification procedure.

This Standard Operating Procedure (SOP) is intended to explain step-by-step the procedure that a health facility needs to undertake for obtaining PESO certification. It details the list of various documents that are a pre-requisite for online application for obtaining the PESO certification. It further guides on the post online application, validity, and renewal process.

This document may also be of interest to health care workers, academic/researchers, development agencies, non-governmental organizations, regulators, and other stakeholders involved in the operations and management of oxygen systems.

PESO requirements for medical oxygen infrastructure

PESO certification is required for the following oxygen infrastructure in the hospital:

- Storage of gaseous oxygen cylinders
- On-site refilling of gaseous oxygen cylinders using booster compressor with PSA plants
- Installation and refilling of liquid medical oxygen (LMO) tanks
- On-site refilling of portable LMO tanks such as dura or micro cylinders

Please note that all the PESO license applications must be submitted online at www.peso.gov.in (please see the appendix).

Storage of gaseous Oxygen cylinders

The Gas Cylinder Rules 2016 are applicable in the case of hospitals storing gaseous Oxygen cylinders.

Requirement of License

A healthcare facility is required to have a PESO license if they have over 200 gaseous cylinders including the ones connected to the manifold. The gaseous cylinders may have non-inflammable and non-toxic gases like oxygen and nitrogen and can be either full or empty at any given time. If the total quantity of these cylinders is below 200, then the facility is exempted from the license.

Grant of License

1. Prior approval of specification and plan of premises proposed to be licensed

- a. Every person desiring to obtain a license to store any compressed gas in any cylinder shall submit to the Chief Controller or Controller authorized by Chief Controller:
 - I. specification and plan drawn to scale in triplicate clearly indicating:
 - the manner in which the provisions prescribed in these rules shall be complied with;
 - the premises proposed to be licensed, the area of which shall be distinctly colored or otherwise marked;
 - the surrounding area lying within 100 metres of the edge of all facilities which are proposed to be licensed
 - II. Scrutiny fee of Rs. 2000 for up to 500 cylinders and Rs 4000 for over 500 cylinders and additional Rs 4000 for every additional 500 cylinders. Scrutiny fee to be paid through DD in favor of Chief Controller of Explosives, payable at Nagpur.
- b. If the Chief Controller or Controller after scrutiny of the specification and plan 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 specification and plan signed by him conveying his sanction subject to such conditions as may be specified.

2. Application for license or approval

A person intending to obtain or renew a license or approval under these rules shall submit an application, in writing, to the Chief Controller or Controller:

In Form 'C' along with a license in Form 'F' for storage of compressed gases granted or renewed under rules shall remain in force till the 30th day of September of the year up to which the license is granted or renewed subject to a maximum of ten years. Please find Form 'C' and 'F' in the appendix.

3. Grant of license or approval

- a. A license or approval, as the case may be, under these rules may be granted by the Chief Controller or Controller on payment of the fee specified above.
- b. A license or approval under point (a) shall be granted if the provisions of these rules are complied with by the applicant.
- c. Every license or approval granted under these rules shall be subject to the conditions specified therein.
- d. When the licensing authority grants a license in Form 'F', after conducting inspection of the premises to ensure conformity of the premises to the provisions of the Act and these rules, the authority shall endorse the license and from the date of such endorsement, the license shall come into force.
- e. If the licensing authority observes on inspection, that the premises do not conform to the provision of the Act and rules and not fit for endorsement, he shall communicate to the

licensee, his direction for rectification of deficiency; or reasons for not endorsement of the license or reasons for suspension and revocation of the license, as the case may be.

4. Period for which license may be granted or renewed

- a. A license in Form 'F' for filling or storage of compressed gases granted or renewed under rules shall remain in force till the 30th day of September of the year up to which the license is granted or renewed subject to a maximum of ten years.
- b. Notwithstanding anything contained in point (a), the Chief Controller or Controller authorized by Chief Controller, where he is satisfied that a license is required for a specific work which is not likely to last up to the 30th day of September of the year up to which the license is granted or renewed may grant or renew a license for such a period as is necessary.

5. Particulars of license or approval

- a. Every license or approval 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.
- b. One copy of the plan or plans for the licensed premises signed in token of approval by the Chief Controller or Controller shall be attached to the license, which shall form part of such a license, and an identical copy shall be filed for record in the office of the Chief Controller or Controller.

6. Renewal of license or revalidation of approval

- a. A license or approval may be renewed or the validity may be extended by the Chief Controller or Controller.
- b. Every license granted in Form 'F' under these rules, may be renewed for a maximum period of ten years at a time where there has been no contravention of the provisions of the Act or any rules framed there under or of any condition of the license so renewed.
- c. Where a license or approval, which has been renewed for more than one year, is surrendered before its expiry, the renewal fee paid for the un-expired portion of the license shall be refunded to the licensee provided that no refund of renewal fee shall be made for the year during which the Chief Controller or Controller receives the renewed license for surrender.
- d. Every application for the renewal of a license or approval shall be accompanied by the license or approval, which is to be renewed together with or without approved plans attached to the license, and the renewal fee.
- e. Every application for the renewal of a license or revalidation of approval shall be made so as to reach the licensing authority on or 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 Controller or Controller renews the license or until an intimation that the renewal of the license is refused has been communicated to the applicant.
- f. Where the renewal of a license or approval is refused, the fee paid shall be refunded to the licensee after deducting there from the proportionate fee for the period beginning from the date from which the license or approval was to be renewed up to the date on which renewal thereof is refused.
- g. The same fee shall be charged for the renewal of a license or approval for every twelve months for the grant of such renewal: Provided that-

- i. if the application with accompaniments required under point (d) is not received within the time specified in point (e) but received not later than three months the license or approval shall be renewed or revalidated only on payment of a fee amounting to twice the fee ordinarily payable;
- ii. if such an application with accompaniments is received by the Chief Controller or Controller after three months from the date of expiry but not later than one year from the date of expiry, the license or approval may, without prejudice to any other action that may be taken in this behalf, be renewed or revalidated on payment of late fee at the rate of one year license or approval fee for every delay of three months or part thereof:

Provided further that in the case of an application for the renewal or validity extension of a license or approval for a period of more than one year at a time, the fee prescribed under the first proviso, if payable shall be paid only for the first year of renewal.

- h. No license or approval shall be renewed or revalidated if the application for renewal or revalidation is received by the Chief Controller or Controller after one year of the date of its expiry.
- i. The same fee shall be charged for the renewal or validity extension of approval for every twelve months for the grant of such renewal or validity extension.

For further information on **prior approval necessary for alteration in the licensed premises, amendment and transfer of license or approval and refusal, suspension and cancellation of license**, please refer to the Gas Cylinder Rules 2016.

Refilling of Gaseous Oxygen Cylinders

The Gas Cylinder Rules 2016 may also be applicable in the case of hospitals refilling the gas cylinders.

Requirement of License

According to guidelines for PSA installations at hospitals with cylinder filling facility or at COVID centers, hospital must notify it to PESO with following information if PSA is attached with a compressor and filling of oxygen cylinder is to take place:

- a. Number of filling points.
- b. Number of cylinders to be stored at site
- c. An SRV is mandatory to be installed in the filling manifold and pipeline outlet from compressor.
- d. Well ventilated location with adequate illumination.
- e. Before filling the cylinder, shall be examined/ cleaned for absence of any Carbonaceous grease and valid hydro test certificate (tested cylinder at 225 kg/cm² hydrostatically)
- f. Filling operation shall be carried out under supervision of a competent & experienced person.
- g. The space for filling of cylinders to be isolated and maintain clearance of 1m from filling point on all the sides.
- h. Cylinders are permitted by PESO for filling Oxygen Gas

These relaxations shall be valid until June 2022 or till further orders of Department for Promotion of Industry and Internal Trade, whichever is earlier (<https://pib.gov.in/PressReleasePage.aspx?PRID=1718815>). However,

in the future the facilities may have to go for a formal approval process which is very similar to the one described above for storing gaseous oxygen cylinders except for the below listed differences:

- a. **Prior approval of specification and plan of premises proposed to be licensed**
Scrutiny fee of Rs. 5000 to be paid through in DD in favor of Chief Controller of Explosives, payable at Nagpur.
- b. **Application for license or approval**
A person intending to obtain or renew a license or approval under these rules shall submit an application, in writing, to the Chief Controller or Controller:
In Form 'C' along with a license in Form 'E' for filling of compressed gases. Please find Form 'C' and 'E' in the appendix.

Installation and refilling of LMO tanks

The SMPV Rules 2016 are applicable in the case of hospitals installing and refilling LMO tanks greater than 1000 L or 1 kL water capacity.

1. Prior approval of specification and plans of vessels and premises proposed to be licensed

- a. Every person desiring to obtain a license to store any compressed gas in any vessel shall submit to the Chief Controller or Controller authorized by him —
 - i. specifications and plans drawn to scale in triplicate clearly indicating—
 1. the manner in which the provisions prescribed in these rules shall be complied with;
 2. the premises proposed to be licensed, the area of which shall be distinctly colored or otherwise marked;
 3. the surrounding area lying within 100 metres from the edge of all facilities which are proposed to be licensed;
 4. 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 were provided and all other facilities forming part of the premises proposed to be licensed;
 5. piping and instrumentation diagram for the vessels, equipment and system proposed to be installed;
 6. any other documents specified by the Chief Controller or Controller; and
 - ii. a scrutiny fee paid through DD in favor of Chief Controller of Explosives, payable at Nagpur as specified below:
 1. Where the total water capacity of vessels in an installation does not exceed 5,000 litres, Rs.5000.
 2. Where the total water capacity of vessels in an installation exceeds 5,000 litres, Rs.5000 for the first 5,000 litres and for every additional 1,000 litres or part thereof Rs.2500 subject to a maximum of Rs. 50,000.
- b. If the Chief Controller or Controller authorized by him, after scrutiny of the specifications and plans and after making such inquiries as he deems fit, is satisfied that compressed gas can be stored in the premises proposed to be licensed, he shall return to the applicant one copy each of all the specifications and plans signed by him conveying his sanction which may be subject to such conditions as he may specify.

Please note below the minimum safety distance requirements for non-inflammable, non-toxic cryogenic liquids:

Water capacity of vessel (litres)	Between two vessels (meter)	Between vessel and any building or adjoining property line or pedestrian passage (meter)	Between vessel and flammable structure, naked flame, pipeline containing flammable fluids, electric installation or places of public assembly or drain (meter)
(1)	(2)	(3)	(4)
Up to 1,000	0.5	2	3
Above 1,000 but not above 10,000	1	3	5
Above 10,000	1	3	7.5

2. Grant of license

- a. A license prescribed under these rules shall be granted by the Chief Controller or Controller on payment of the fees as specified above.
- b. 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.
- c. The licensing authority shall issue an authenticated copy of the license when so applied for by the licensee with a fee as specified above.
- d. When the licensing authority grants a license in Form LS-1A, after conducting inspection of the premises to ensure conformity of the premises to the provisions of the Act and these rules, such authority shall endorse the license and from the date of such endorsement, the license shall come into force. Please see the Form LS-1A in the appendix.
- e. If the licensing authority observes on inspection, that the premises do not conform to the provision of the Act and rules and not fit for endorsement, he shall communicate to the licensee-
 - i. his direction for rectification of deficiency; or
 - ii. reasons for not endorsement of the license; or
 - iii. reasons for revocation of the license, as the case may be.

3. Application for license

A person intending to obtain a license under these rules shall submit to the Chief Controller or Controller authorized by him-

- a. an application—
 - i. in Form AS-1, if the application is in respect of a license in Form LS-1A to store compressed gas in pressure vessels. Please see the Form AS-1 in the appendix.
- b. a certificate of safety in the proforma prescribed by the Chief Controller 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.
- c. a test and inspection certificate required as per Design code

- i. Vessels shall be designed, constructed and tested in accordance with IS 2825; ASME Section VIII Division 1 or Division 2, PD5500, EN 13458, EN 13530, AD:2000 code as amended from time to time, or such other standard or code accepted by the Chief Controller.
- ii. A test and inspection certificate issued by the Inspector and countersigned by the approved fabricator in the prescribed proforma that the vessel meets with the requirements of the standard or code referred to in (a) shall be furnished to the Chief Controller or Controller authorized by the Chief Controller.
- d. four copies of the drawings for the site, layout, installation details (for static vessel) and as-built vessel design drawing duly endorsed by the inspector
- e. license fee as specified above

4. Period for which licenses may be granted or renewed

- a. A license in Form LS-1A for the storage of a compressed gas in a pressure vessel shall be granted or renewed subject to a maximum five years and shall remain in force until the 30th day of September of the year up to which the same is granted or renewed.
- b. Notwithstanding anything contained in point (a), the Chief Controller or Controller authorized by him may, if he is satisfied that a license is required for a specific work, may grant such license for specific period.

5. Renewal of license

- a. A license granted under these rules may be renewed by the Chief controller or Controller authorized by him.
- b. Every license granted in Form LS-1A under these rules, may be renewed for a maximum period of five years where there has been no contravention of the Act or the rules framed there under or of any conditions of the license so renewed.
- c. Where a license 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 Controller receives the renewed license for surrender.
- d. Every application for renewal of the license shall be made in Form AS-1, as the case may be, and shall be accompanied by the original license, which is to be renewed and renewal fee.
- e. Every application for the renewal of a license shall be made so as to reach the licensing authority on or 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 licensing or renewing authority renews the license or until an intimation that the renewal of the license is refused has been communicated to the licensee.
- f. 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.
- g. The same fee shall be charged for the renewal of a license for every twelve months as for the grant of such license, if the application is received within the validity of the license:
Provided that-
 - i. if the application with accompaniments required under point (d) is not received within the time specified in point (e) but received not later than three months, the license

- shall be renewed only on payment of a fee amounting to twice the fee ordinarily payable;
- ii. if such an application with accompaniments is received by the Licensing or renewing authority after three months from the date of expiry of the license but not later than one year from the date of expiry of the license, the license may, without prejudice to any other action that may be taken in this behalf, be renewed on payment of late fee at the rate of one year license fee for every delay of three months or part thereof: Provided further that in case of an application for the renewal of a license for a period of more than one year at a time, the fee prescribed under the first provision, if payable shall be paid only for the first year of renewal.
 - h. No license shall be renewed if the application for renewal is received by the licensing or renewing authority after one year of the date of its expiry and in such case, the applicant has to seek fresh license by submitting all documents again and late fee for the entire period along with prescribed license fee.

For further information on **prior approval necessary for alteration in the licensed premises, amendment and transfer of license**, and **refusal, suspension, and cancellation of license**, please refer to SMPV rules 2016.

On-site refilling of portable LMO tanks such as dura or micro cylinders

Please note that no PESO license is required by the hospital facility for off-site refilling of portable LMO tanks such as dura or micro cylinders. However, PESO license may be required if the portable LMO tanks are being refilled on-site. Specifically, the area of refilling on hospital premises must be PESO certified; therefore, please reach out to a PESO official for the approval process as well as inquiries. Additionally, note that the approval process may be like the one listed out about under “Installation and refilling of LMO tanks”.

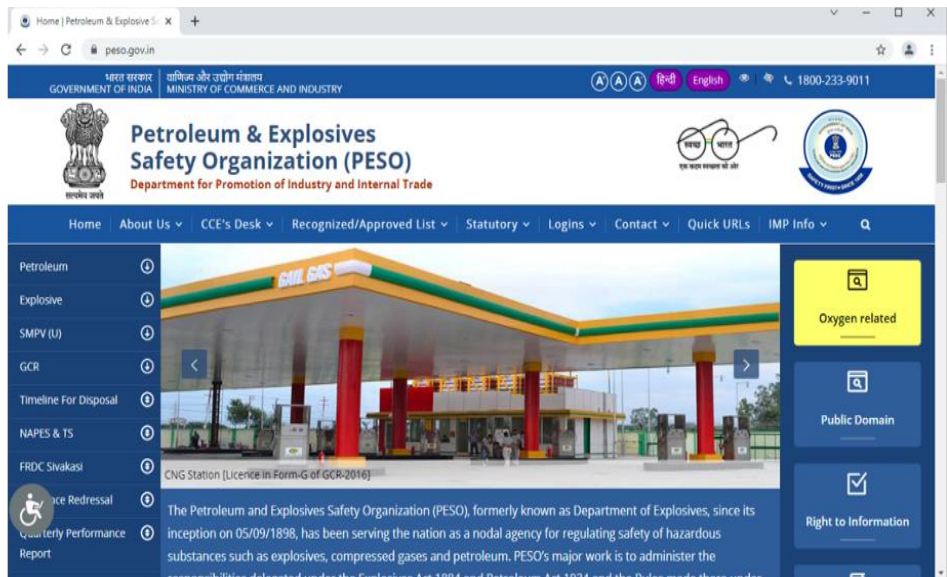
References

1. Accessed from <https://www.certification-india.com/en/peso/certification-mandatory-products/>
2. Accessed from <https://peso.gov.in/web/home>
3. SMPV Rules 2016
4. Gas Cylinder Rules 2016

Appendix

Appendix 1: PESO online application

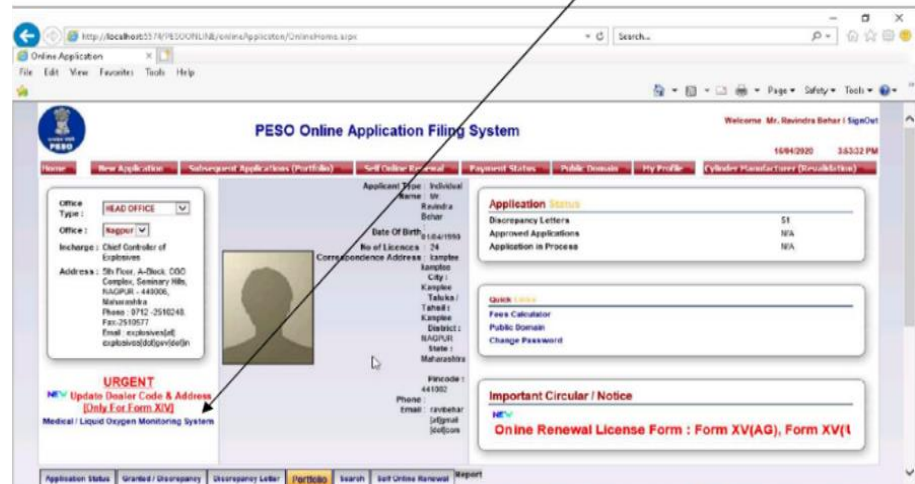
1. Go to PESO Online Site- www.peso.gov.in

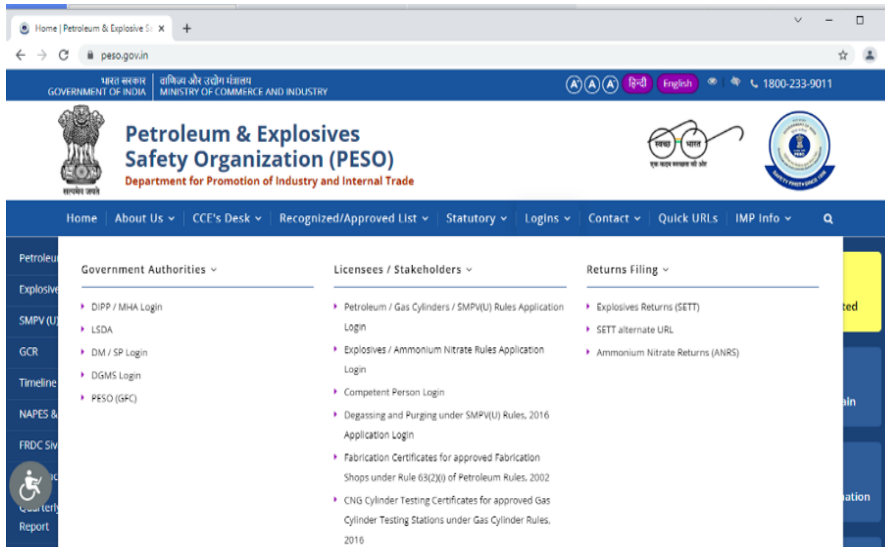


2. Generate Online user ID and password

After login following screen will appears as below Click on this link **Medical / Liquid oxygen monitoring system**

3. Click on **Medical/Liquid Oxygen Monitoring System**

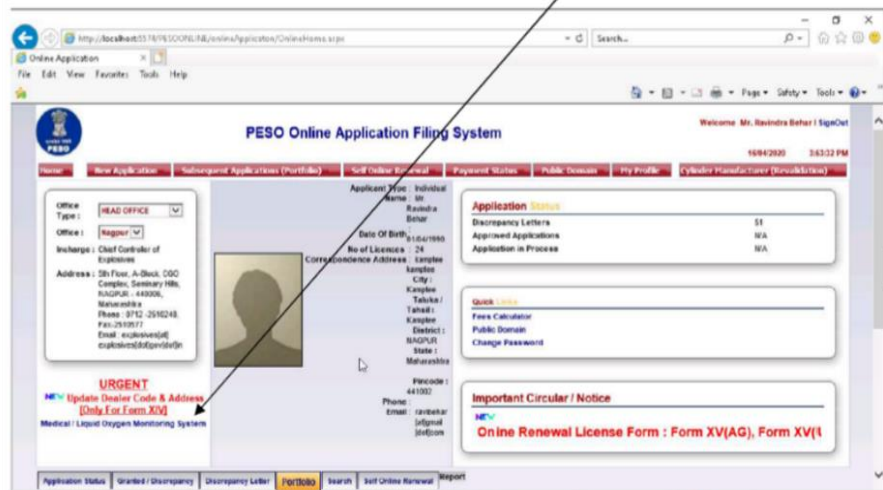




4. Select User Login-Petroleum/Gas Cylinders/SMPV Rules

After login following screen will appears as below Click on this link Medical / Liquid oxygen monitoring system

5. Click on link for Medical/Liquid Oxygen Monitoring System



Appendix 2: Form C- Application to fill and/or store compressed gas/es in cylinders

Form C

(See Rules 49, 54 and 55)

Application for the grant/ amendment/ renewal/ duplicate copy of a license to fill and/or store compressed gas/es in cylinders:

Documents listed overleaf must be enclosed with this application, if it is for the grant of a license in Forms 'E', 'F' & 'G'.

1. Applicant's details: -----
 - (i) Name in which license required ** -----
 - (ii) Applicant's full postal address with PIN Code -----
 - (iii) Applicant's telephone/ mobile numbers: -----
 - (iv) Applicant's email ID: -----
2. Location of the premises where compressed gas/es are to be filled and stored:
 - (i) Survey No./ plot number : -----
 - (ii) Town or village: -----
 - (iii) District: -----
 - (iv) State: -----
 - (v) PIN Code: -----
 - (vi) Telephone numbers: -----
3. Name and Nature of each compressed gas proposed to be filled/stored:

Type of the Gas	Name of the gas	No. of filling points	Numbers of the filled cylinders/ Kgs of gas/es proposed to be stored.
(i) Toxic			
(ii) non-toxic and non-flammable			
(iii) non-toxic and flammable			
(iv) dissolved acetylene gas			
(v) non-toxic and flammable liquefiable gas other than LPG or			
(vi) liquefied petroleum gas:			

4. Name and Nature of each compressed gas already filled/stored (applicable in case of amendment):

Type of the Gas	Name of the gas	No. of filling points	Numbers of the filled cylinders/ Kgs of gas/es proposed to be stored.
(i) Toxic			
(ii) non-toxic and non-flammable			
(iii) non-toxic and flammable			
(iv) dissolved acetylene gas			
(v) non-toxic and flammable liquefiable gas other than LPG or			
(vi) liquefied petroleum gas:			

- 5 Number of the license/s held for the -----
Premises (not applicable in new case)
- 6 Particulars of NOC issued by District -----
Authority where applicable
- 7 Particulars of CNG Dispensers/ -----
Cascade & Compressors
(In case of Form 'G' license)

Note: In the case of application for grant or amendment of license in Form 'G', 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 license, 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 & address of the company and the name of the Director/ Partner/ Manager of the company should be given and the application should be signed by him. Every change in the name of the Director/ Partner/ Manager shall be forthwith intimated to and his specimen signature filed with licensing authority.

Documents Required to be submitted with this application for A license in form 'E', 'F' & 'G'

- (i) Four copies of specifications and plans approved under rule 47 (Not required for renewal of a license without amendments)
- (ii) License together with approved plans and specifications attached thereto. (Not required for the first grant of a license)
- (iii) Requisite amount of license fee for the grant, amendment or renewal of a license paid in the manner specified in Rule 65.
- (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 with all relevant requirements under these rules.
- (vi) No Objection Certificate from the District Authority under rule 48 in the case of application for license in Form F for storage of flammable, Toxic and/ or corrosive gases for the purpose of sale /trade or Form 'G'
- (vii) HAZOP Study or Disaster Management Plan in case of toxic and/or corrosive or flammable gases.
- (viii) SOP regarding toxic gas handling.
- (ix) Documents required to be submitted for renewal of cylinder manufacturing permission, valve manufacturing permission, LPG regulator manufacturing permission, cylinder testing permission and hot repairing permission-
 - (a) Renewal fees as prescribed in Schedule V
 - (b) An undertaking duly signed by director or authorized signatory of the company to effect that there are no changes in the organizational set up, plant machinery and manpower.
 - (c) Performance report for the period of last validity of the permission.
 - (d) Copy of valid ISO Certificate duly issued by BIS or any other accredited agency.
 - (e) Compliance of any other condition, if any imposed by the approving authority at the time of grant/ renewal of the approvals.

Appendix 3: Form E- Application to fill compressed gas in cylinder

Form E

(See rules 50, 51 and 54)

License to fill compressed gas in cylinder

License No Fee Rs

License 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 Explosives Act, 1884 (4 of 1884) and the rules made there under and to the further conditions of this license.

The license shall remain in force up to 30th day of September, 20 the 20

Chief Controller/ Controller 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. dated..... are 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 license should be renewable without any concession in fee for ten years in the absence of contraventions of Explosives Act, 1884 or Gas Cylinders Rules, 2016, framed there under or of the conditions of the this license.	Date of renewal	Date of expiry	Signature and office stamp of the licensing authority

The license liable to be canceled if the cylinders do not conform to the description given in the body of the license and for contravention of any of the rules and conditions under which this license is granted and the holder of the license is also punishable as provided for under section 9B of the Explosives Act, 1884.

Conditions

- (A) 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 Controller 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 color, 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 license.
Provided that this shall not be applicable to non toxic non flammable gas filling plants with lighting or illumination conforming to IS: 6665 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 conforming to IS :2148./IEC 60079(in lieu of IS 2148)
10. No artificial light capable of igniting flammable vapor 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 prescribed in OISD Standards 169 and 144 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 Controller, Controller, District Magistrate 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 71 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this license are duly observed.

(B) Additional requirements for dissolved acetylene cylinder filling and storage plants:-

1. Safety devices shall be provided in the acetylene cylinder filling and storage plants to ensure that the pressure, temperature and flow levels are maintained within safe limits.
2. The equipments shall be designed, operated and maintained in such a way that during normal operation air or oxygen entry to the equipments is prevented, under pressure shall be prevented, air acetylene mixtures shall be safely eliminated by purging and excessive rise in temperature and pressure is prevented.
3. Regulators shall conform to ISO-7291 and high pressure hoses shall conform to ISO-14113. Hoses for high pressure acetylene shall have burst pressure not less than 1000 bar (100 MPa).
4. Flame arrestors or shut off devices shall be provided on all the strategic locations in the plant to arrest both ignition and the gas flow.

5. Although the pressure in the filling manifolds may be 25 bar but while designing the manifolds possibility of acetylene decomposition and detonation resistance shall also be taken into the account.
6. An efficient fire Protection System, Deluge system and Emergency response system for dissolved acetylene cylinder filling and storage plants shall be provided.
7. Carbon Dioxide fire extinguishers shall not be used for extinguishing flammable gas fires due to the risk of static electricity generation. Dry Chemical Powder type fire extinguishers shall be installed at all the strategic locations in the acetylene filling and storage plant.
8. Acetylene plants shall be equipped with emergency procedures for Calcium Carbide storage and transportation, Carbide fires, Carbide lime spillage and hot acetylene cylinder.
9. Spray of cooling water over the hot cylinder shall be continued for a sustained period of time till acetylene cylinder is attaining cool.

Safety distance table for acetylene plant

From	To	Distance in Meter
Acetylene plant	Factory boundary wall, buildings adjacent properties, office building etc.	15
Acetylene plant	Pressure vessels containing cryogenic liquid storage	15
Acetylene plant	Oxygen manufacturing plant	30
Acetylene plant	Air compressor air intake point	90
Lime sludge drying pits	Boundary wall and acetylene generation unit	9
Acetylene plant	Non flame proof electrical fittings	15

Appendix 4: Form F- Application to store compressed gas cylinders

Form F

(See rules 50, 51 and 54)

License to store compressed gas in cylinders

License No. Fee Rs.

License is hereby granted to valid 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 Explosives Act, 1884 (4 of 1884) and the rules made there under and to the further conditions of this license. The license shall remain in force up to 30th day of September, 20..... Chief Controller/Controller 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. dated are 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 license shall be renewable without any Date of	Signature and
Date of concession in fee for ten years in the expiry	stamp of the
absence renewal of contraventions of	licensing
Explosives Act, 1884 or Gas Cylinders Rules,	authority
2016, framed there under or of the	
conditions of this license.	

The license liable to be canceled if the cylinders do not conform to the description given in the body of the license and for contravention of any of the rules and conditions under which this license is granted and the holder of the license is also punishable as provided for under Section 9B of the Explosives Act, 1884.

Conditions

1. Construction details of LPG storage shed

- (a) LPG cylinder storage shed shall be constructed from any non flammable material having floor area of minimum 11 square meter for 1000 Kgs of LPG storage. Mastic flooring conforming to IS-1195/1196 shall be provided in the LPG cylinder storage shed .The ventilator area shall be minimum 10 % of the floor area. Minimum safety distances as specified in table given in condition 5a of Form F license shall be maintained and minimum 1.8 M high brick masonry compound wall shall be provided all around the

LPG storage shed maintaining minimum safety distances as specified in condition 5a of form F license. Compound wall gate width shall not be more than 1.2 M. Dedicated LPG cylinder truck parking area in front of LPG cylinder storage shed shall be provided, which shall be surrounded by an industrial type of fencing of minimum 2.0 m height.

(b) 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 nonflammable 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 liquefied petroleum 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 cylinder is stored in the same shed, cylinder may be grouped together depending on the nature of the gas contained therein e.g. flammable gas cylinder shall be separated from cylinder containing oxidizing gases by an intervening space of one metre or by a fire resisting partition wall in between them and cylinder containing toxic gases shall be segregated from the cylinder containing non-toxic gases by a suitable partition wall.

5.(a) 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 (in Meters)
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 Controller (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 Controller would justify such reduction.

(b) Minimum 3.0 m clear safety distances shall be maintained all around toxic gas and flammable gas storage shed other than LPG .An industrial type fencing of height not less than 2.0 M shall be provided all around the cylinder storage shed.

6. Notwithstanding anything contained in condition 6 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 cylinder 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 or loading of cylinders shall be provided by the licensee.

8. Thin wall cylinder 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 cylinder shall be stored vertically and not be stacked more than 2 high;
- (ii) empty cylinder 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 cylinder 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 Controller, Controller, District Magistrate and the Officer-in-Charge of the nearest Police Station and by quickest mode of communication.

12. Any person storing gas cylinder, 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 cylinder 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 6.

- (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 Hindi, 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 or ordinary 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 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 71 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this license are duly observed.

Appendix 5: Form AS-1- Application to install and refill LMO tanks

FORM -AS-I (See rules 50, 54 and 55)	
Application for grant, amendment, transfer or renewal of a licence in Form LS-1A/LS-1B to store compressed gas/Auto LPG in vessel or vessels and dispense Auto LPG in Auto LPG Dispensing Station as automotive fuel to motor vehicles.	
DOCUMENTS LISTED IN THE NOTE MUST BE ENCLOSED WITH THIS APPLICATION	
1. Name in which licence is required:* 2. Status of applicant(individual/company/partnership/Society): 3. Licensee's complete postal address with pin code Phone No. with STD code : Fax No. Mobile No. Email: 4. Location of the premises where compressed gas in vessel(s) is to be stored: (a) Plot/Survey/Khasra/Gat No.(s): (b) Town/Village: (c) Tahsil/Taluka/Mandal: (d) Police Station: (e) District and State: (f) PIN Code: 5. Chemical name and nature of compressed gas proposed to be stored:** (please state whether flammable, corrosive or toxic or other type) 6. Chemical name of compressed gas already stored in the premises:*** 7. (i) Quantity of the compressed gas/Auto LPG proposed to be stored. **(strike out whichever is not applicable): (ii) Quantity of the compressed gas/Auto LPG already stored in the premises*** (strike out whichever is not applicable): (iii) Quantity of Petroleum already stored, if any: 8. Particulars of the licence held for the premises under SMPV(U) Rules and Petroleum Rules, if any and full name of the licensee: 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 licence which will be granted to me.	The replies to be given in this column.
Date of Application	
Signature & 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 filed with the licensing authority.	
** Applicable for grant of licence.	
*** Applicable for amendment, transfer and renewal case	
NOTE:	
DOCUMENTS REQUIRED TO BE SUBMITTED WITH APPLICATION	
Four copies of specifications and plans approved under rule 46 (NOT REQUIRED FOR	

Appendix 6: Form LS-A1- Application for the grant of license to store LMO

FORM-LS-1A

(See rules 50, 51, 54 and 55)

LICENCE TO STORE COMPRESSED GAS IN PRESSURE VESSEL OR VESSELS

Licence No. _____

Fee Rs. _____

Licence is hereby granted to _____ for the storage of compressed gases in the vessels as indicated below in the premises described below and shown in the plan No. _____ subject to the provision of the Indian Explosives Act, 1884 (4 of 1884) and the rules made there under and to the further conditions of this licence.

Vessel No.	Name of Gas	State of Gas	Water capacity in cubic meter	Max. working pressure (kg/cm ²)	Quantity granted in Kgs (liquefied gas)

The licence shall remain in force upto the 30th day of September 20_____.

The _____ 20_____ Chief Controller of Explosives/Controller 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. _____ and consists of _____ vessels for storage of

(a) Flammable/Corrosive/Toxic gases _____

(b) non-toxic Gases _____

and situated at _____

(Plot number) (Name of Street) (Village or Town) (Police Station) District).

Space for Endorsement or Renewals

The licence shall be renewable without any concession in fee for five years in the absence of contravention of the provision of the Indian Explosives Act, 1884, or the Static and Mobile Pressure Vessels (Unfired) Rules, 2016 framed there under or of the conditions of the 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 to the description and conditions attached hereto and for contravention of any of the rules and conditions under which this licence is granted and the holder of this licence is also punishable under the Act.

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 licence.
2. The licensed premises shall have prominently marked thereon the number of the licence held for it.
3. 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.
4. The licensed premises shall not be used for any purpose other than the purpose for which the licence is granted.
5. The compressed gas shall be stored only in the vessels specified in the licence and shown in the approved plan attached hereto.
6. The storage vessel shall at all times maintain requisite safety distance from any other facility, building, boundary, fencing or protected works as specified in appropriate Table specified in rule 22.
7. 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 as specified under item (ii) of sub-rule 5 of Rule 27.
8. All fittings of the vessel shall be maintained in good operating condition.
9. 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 as provided in the rules.
10. Every vessel before being repaired or exhumed shall be made free of compressed gas and thoroughly cleaned in a safe manner. 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 vapours shall be brought near the vessel.
11. 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-free 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 licensing authority on demand.
12. No person shall enter any vessel used for the storage of a toxic or corrosive gas unless he is adequately protected by means of protective clothing, gas masks and such other equipments as may be required in the specific case.
13. Compressed gas shall be filled into or removed from the vessel through designated pipes of required specification and through transfer facilities shown in the approved plan.
14. The vessel shall not be filled between the hours of sunset and sunrise, unless adequate lighting of approved type is provided and except in such manner and such other condition or conditions as are specifically endorsed on the licence by the licensing authority.
15. All operations in the licensed premises shall be carried out by persons competent in such operation. 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.
16. The licensee shall provide for each licensed premises a minimum of two portable foam type or dry chemical type fire extinguishers of 9 kg. capacity each, which shall be kept ready at 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.
17. All valves in the premises must be permanently marked in a manner clearly indicating the direction of opening and shutting the valve.
18. Free access to the licensed premises shall be given at all reasonable times to any of the officers specified in rule 70 and every facility shall be afforded to such officer for ascertaining that the rules and the conditions of this licence are duly observed.

19. If the licensing authority calls upon the holder of a licence 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 licence shall execute the repairs within such period as may be specified in the notice.
20. Every vessel shall be outside any building and shall be supported on well designed calculations
21. No artificial light capable of igniting flammable vapour shall at any time be present within nine 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.
22. All electrically equipment such as motors switches, starters used for transfer of liquefied petroleum gas shall be of flameproof construction conforming to IS/IEC 60079-1 to 11 or of a type approved by the Chief Controller.
23. Smoking, naked lights, lamps, source of fire or any other stimulant capable of igniting flammable vapours shall not be allowed inside the premises. 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. Any accident, fire, explosion or untoward incident occurred within the licensed premises shall be immediately reported to the Chief Controller of Explosives, Controller, nearest police station and District Magistrate by quickest mode of communication.

Additional conditions for LNG

(i) Licensee shall -

- (a) provide for written procedures covering operation and maintenance of the installation and the training of personnel involved in operation and maintenance.
- (b) provide for written emergency plan as part of operation manual.
- (c) shall remain in liaison with local authorities like Police, Fire Department, Health Authorities to keep them informed about emergency plan.
- (d) identify safety related malfunctioning of the equipment and analyze them for preventing their possible reoccurrence.

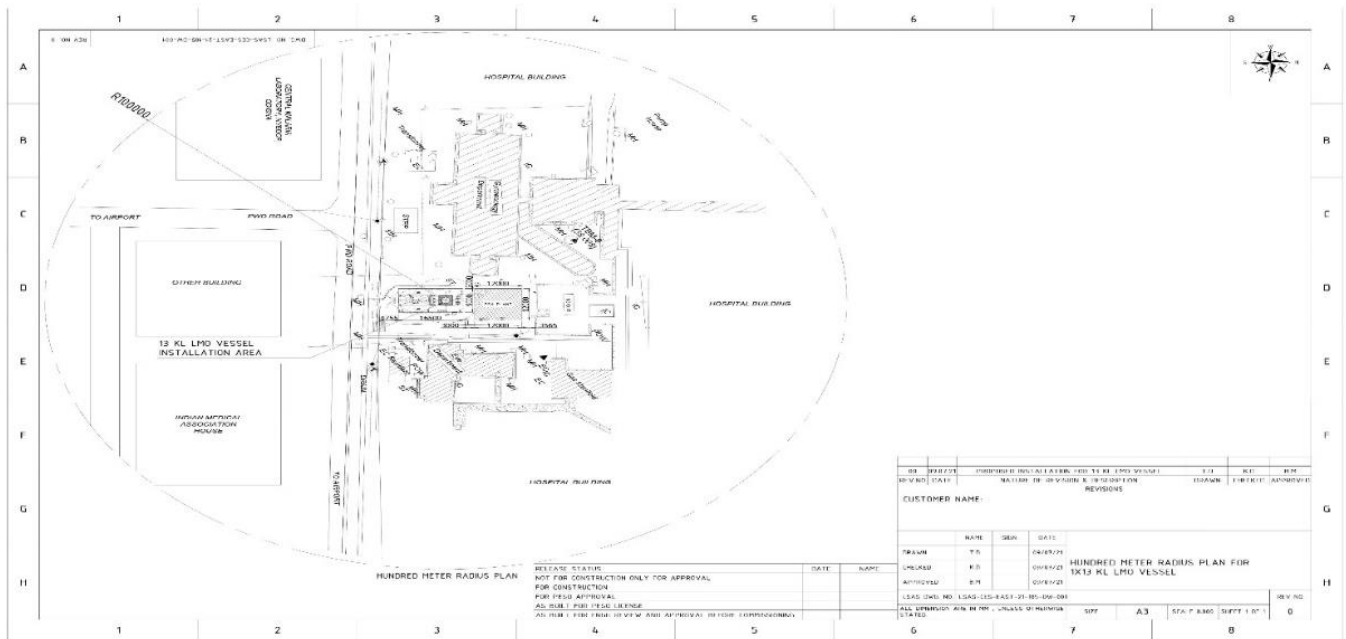
(ii) The personnel engaged in operation of the installation shall be adequately trained with respect to following -

- (a) Procedure for basic operation to be carried out in the installation.
- (b) Carrying out emergency procedure.
- (c) The methods for carrying out duties for maintaining and operating the facilities as set out in the operating and maintenance procedure.
- (d) LNG transfer procedure.
- (e) Fire prevention including familiarization with the fire control plan.
- (f) Recognising situations in which it is necessary to obtain assistance outside to maintain safety of the facility.

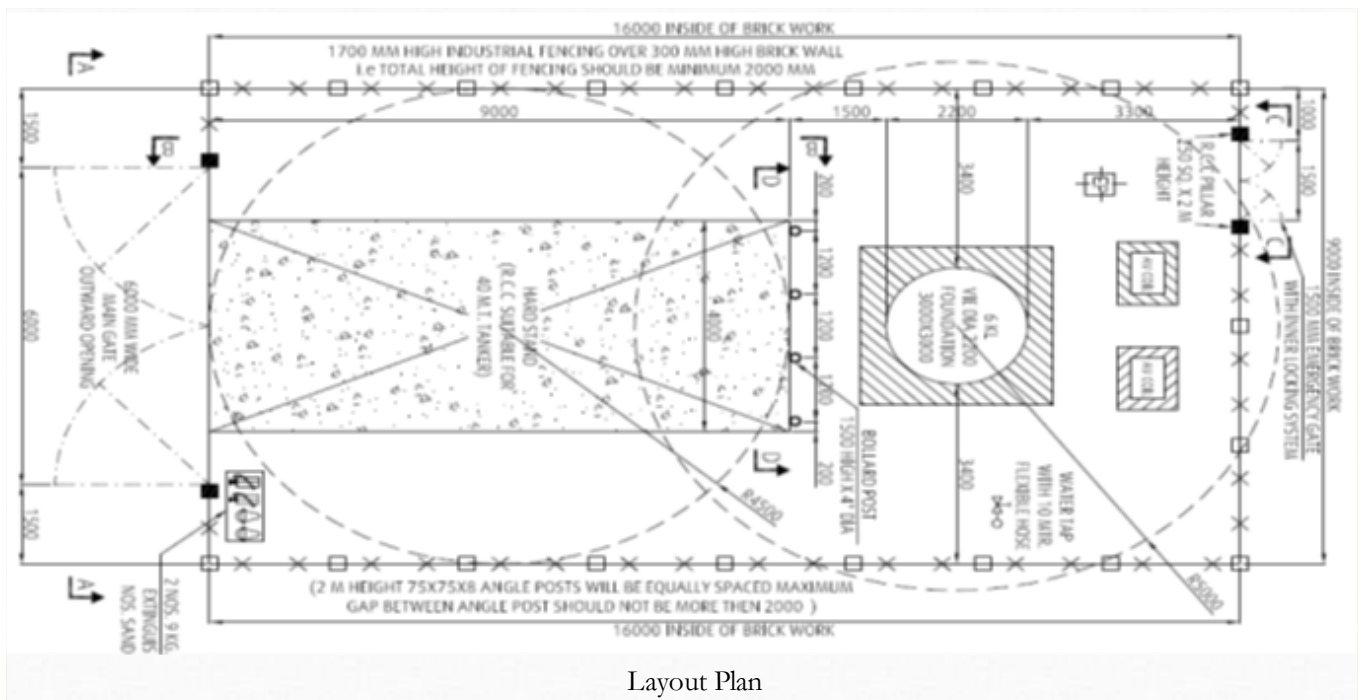
(iii) The installation shall be equipped with adequate personnel protective safety equipments like gloves, goggles, apron, etc. and no person shall operate any equipment in the installation without making use of such protective equipment.

(iv) Emergency rescue vehicle shall be provided for installation more than 400 kms from the loading installations.

Appendix 7: LMO tank installation layout diagram, 100m radius site plan drawing and schematic

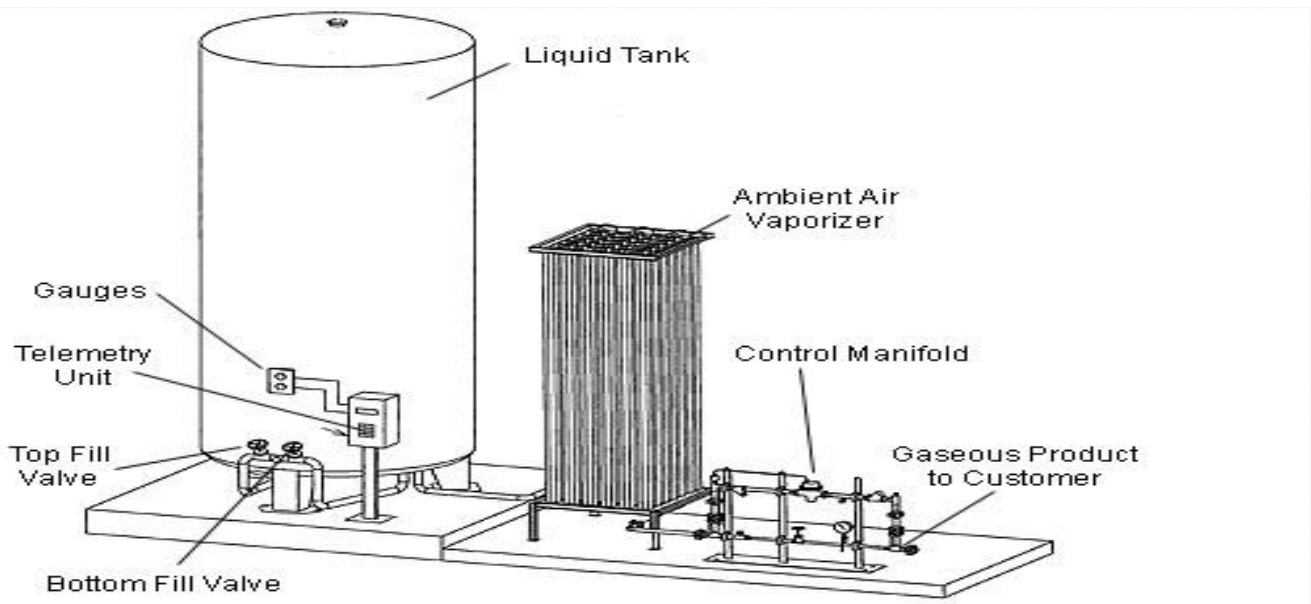


LMO tank installation layout diagram



Layout Plan

100 m radius site plan drawing



Typical Liquid Oxygen Vessel Installation
LMO tank schematic