

EXECUTIVE SUMMARY

FOR

**AUGMENTATION OF LPG STORAGE CAPACITY IN
EXISTING LPG BOTTLING PLANT**

BY

M/s. SHV Energy Private Limited



AT

VILLAGE: Vadakkal

TEHSIL: Sriperumbudur

DISTRICT: Kancheepuram

STATE: Tamil Nadu

Consultant



**(NABET Accredited vide Certificate No. NABET/EIA/1619/RA0083&
MoEF Recognized Lab vide F. No. Q-15018/13/2016-CPW)
HUBERT ENVIRO CARE SYSTEMS (P) LTD, CHENNAI**

MAY 2019

1. Project Description

M/s SHV Energy Private Limited proposes to augment the storage facility with an additional 1 x 49 MT Bullet within the existing premises located at Survey no. 274, No.174, Vadakkal 'B' village, Sriperumbudur Taluk, Kancheepuram District, Tamil Nadu. The existing facility is currently under operation with CTE obtained vide No 6153 Dated 12-08-2013 and CTO obtained vide 180827903309 Dated: 12/01/2018. The details of the proposed products and their capacities are provided in below

Existing & Proposed Capacity

S.No	Units	Existing Capacity	Proposed Capacity	Total capacity
1.	LPG Bullet Storage	1 x 49 MT	1 x 49 MT	2 X 49 MT
2.	Bottling Capacity	49 MT/day	0	49 MT/day
3.	DG Sets	2 x 125 1 x 62.5	0	2 x 125 1 x 62.5

2. Overview of the project

SHV Energy Private limited (SHV) is engaged in the integrated Liquefied Petroleum Gas business including import, storage, filling, sales, distribution of Liquefied Petroleum Gas (LPG) in bulk and also in cylinders of various capacities. The business is done under the brand name 'SUPERGAS' in India since 1996.

SHV Group under brand name Super Gas started its operations in India in 1996 with an aim of developing a robust LPG infrastructure of filling plants and terminals to assure round the year availability of LPG to its customers. SHV is operating through an infrastructure of 21 LPG Bottling Plants and two LPG Import Terminals, one in West Coast (Porbandar), South Coast (Tuticorin) for uninterrupted supply of LPG to its esteemed customers.

SHV Energy Private Limited Bottling plant at Vadakkal was formerly known as SHV LPG India Private Limited.

3. Location of Project

The plant which is located at Survey no. 274, No.174, Vadakkal 'B' village, Sriperumbudur Taluk, Kancheepuram District, Tamil Nadu, is proposed to increase its LPG bulk storage capacity.

4. Need and justification of project

The bottling Plant has been commissioned in the year 2016 and since then it is operating on a 2-shift basis. This plant is one of the major sources of LPG to cater to SHV's strong market

base in and around Chennai region. To improve the ease of operations, SHV has therefore decided to augment the storage facility with an additional 1 x 49 MT Bullet.

5. Cost of project

The total capital investment on the project is INR 2.87 crores.

6. Baseline study

Project Influenced area (PIA)/Study area: In order to assess the baseline status of the project site, the study area was divided into two zones: core zone and buffer zone. Core zone consist of the project site while buffer zone is the area within 10km radius from the project site. Core zone can be considered as the project influence/impact area. To study the ecology and environmental biodiversity, 15km radial distance from the study area is considered.

I. Ambient Air Quality

The ambient air quality has been monitored at 8 locations for 12 parameters as per NAAQS, 2009 within the study area. The average baseline levels of PM₁₀(53.4-71.6 µg/m³), PM_{2.5}(24.5-35.6µg/m³), SO₂ (7.2-13 µg/m³), NO₂(21.0-32.7 µg/m³), CO (0.34-1.24 mg/m³) and some are BDL, all the parameters are well within the National Ambient Air Quality Standards for Industrial, Residential, Rural and Other areas at all monitoring locations during the study period.

II. Noise Environment

It is observed that the day equivalent and night equivalent noise levels at all locations are within prescribed CPCB standards

- In industrial area, day time noise level was in range of 70dB(A) to 75 dB(A) and 64 dB(A) to 69 dB(A) during night time, which is within the limit prescribed by CPCB (75 dB(A) Day time & 70 dB(A) Night time).
- In residential area day time noise levels varied from 53 dB(A) to 58 dB(A) and night time noise levels varied from 43 dB(A) to 47dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels except few in Residential area noise are within the limit prescribed by CPCB (55 dB(A) Day time & 45 dB(A) Night time).

III. Surface water quality

- Water sampling results are compared with Surface water standards IS 2296:1992.
- pH in the collected surface water samples varies between 6.9 to 8.21.
- The Total Dissolved Solids range from 156 mg/l to 231 mg/l. As per IS:2296:1992
- The Total hardness ranges between 61.3 mg/l – 183 mg/l.
- BOD values varying from 2.6 to 3.3 mg/l. COD varies from 7.4 to 9.5 mg/l.
- The concentration of heavy metals like As, Cd, Cr, Pb, Mn, Hg and Se are within the limits of IS 2296:1992 for Class A water.

IV. Ground Water Quality

A summary of analytical results monitored at 8 locations are presented below:

- The average pH ranges from 6.85-8.01.
- The acceptable and permissible limit of Fluoride is 1mg/l and 1.5mg/l respectively. The concentrations of fluoride in all the ground water samples are within the limit.
- In the present findings the TDS value varied from 425 mg/l to 1023 mg/l for the ground water and for all samples it exceeds the acceptable limits but within permissible limits of IS 10500: 2012. The acceptable and permissible limit of TDS for drinking water is 500 mg/l and 2000 mg/l.
- The Total hardness ranges is between 105mg/l – 261 mg/l. for ground water and for few samples it exceeds the acceptable limit but are within permissible limits of IS 10500: 2012.
- The Total alkalinity as calcium carbonate, Magnesium and Chloride are well within the permissible limits.
- Most of the heavy metals concentrations in the study area samples are below detection limits and all are well within the limits.

V. Soil Quality

Summary of analytical results

- The pH of the soil samples ranged from 7.3-8.41.
- Conductivity of the soil samples ranged from 241 – 352umhos/cm. As the EC value is less than 2000 µS/cm, the soil is found to be non-saline in nature
- The water holding capacity of the soil samples varied from 33.8 –39.1 (%).

- Nitrogen content ranged from 217 kg/ha to 251 kg/ha, Phosphorous ranged from 63 kg/ha to 101 kg/ha, Potassium content ranges from 119 kg/ha. to 214 kg/ha.

VI. Biological Environment

There is a very little vegetation within the study area. The predominant species are small trees and shrubs. The growth of natural flora is limited. *Azadirachta indica* and *Cocos Nucifera* have better adaptability among the naturally growing species.

There is no National park/Wild life Sanctuary within 10 Km radius of the study area. There is no rare/endangered species within study area of 10 Km radius.

7. Anticipated environmental impacts and Mitigation measures

A. Construction phase

I. Air environment

Impacts:

Construction phase involves site preparation, site clearing, foundation and superstructure works, excavation, using cranes, machinery, welding, cutting etc which cause noise pollution and dust emission. These activities will result in increase in concentration of suspended matter in the ambient air. However, this change will be temporary in nature and will be diminished after the completion of the project work.

Transportation of the waste debris of dust, sand, coarse gravels in uncovered trucks, mixing of the construction materials, diesel operating vehicles and machineries will also contribute to air pollution.

Mitigation measures

1. Areas generating dust during dry weather will be sprayed with water.
2. Appropriate enclosed areas for storage of construction materials.
3. Facilitating the workers with the required personal protective equipment's.
4. Efficient usage and maintenance of equipment's/machineries to lower air emissions, noise pollution and consumption of energy resource.
5. Exhaust vent of DG set will be provided with adequate stack height to ensure quick dispersal of gaseous emissions.
6. Periodic monitoring and maintenance of transport vehicles to check on the quality of emission to be within permissible limits and consumption of fuel.

7. Regular inspection of construction site to ensure timely removal and disposal of construction debris to the dumping sites or for recycle/reuse.

II. Noise Environment

Impacts:

1. Equipment's and diesel generators are the stationary sources of the noise pollution during the construction phase.
2. Noise generated from operation of pumps, blowers, vehicular movement, DG sets.
3. Activities such as site preparation, site clearing, foundation and superstructure works, excavation, using cranes, machinery, welding, cutting etc cause noise pollution.
4. Overall the impact of noise generated due to the proposed activity will not be significant unless the construction activity continues round the clock.

Mitigation measures

1. Use of low noise generating equipment or installation of sound insulation fences may reduce noise pollution.
2. Limitation of working hours may be a possible means to mitigate the nuisances of the construction activities.
3. Personal protective equipments, education and public awareness and exposure control through rotation of work will be provided to the workers engaged in construction activities in the area generating high levels of noise.
4. Periodic maintenance of the construction machinery and transportation vehicles should be undertaken to reduce the noise impacts.

III. Water environment

Impacts

- Construction activities that can cause water quality impacts are oil spill or leakage of oil from machineries and runoff.
- Increase water demand during construction phase for site preparation, dust spraying, construction activities, domestic and other water requirement for labor and staff onsite.

Mitigation measures

1. Impenetrable lining will be provided to storage premises to avoid accidental mixing or fugitive losses.
2. An appropriate water management system will be implemented.

3. During construction activities, every effort should be made to minimize and reduce accidents with awareness training, defining clear procedures and placing of appropriate signage.
4. Storage should be designed such that the risk of water pollution to be minimized.

IV. Wastewater management

During construction phase, if the waste water is not properly managed or treated then it may lead to the impacts on nearby surface water and ground water body. The proposed expansion project should have provision for recycling/reuse of wastewater and modification of equipment for water conservation. Domestic sewage during construction phase will be sent to STP.

V. Ecology

- Excavation, filling up of land leads to the fugitive dust emission. Deposition of this dust on the leaves of nearby vegetation will result in temporary reduction in photosynthesis.

B. Operation phase

I. Air Environment

Following Air pollution control measures will be adopted

1. Ambient air quality monitoring will be carried out regularly at selected locations in order to check and compare the predicted concentrations with the measured concentrations. NAAQS exceedance if any may be checked thoroughly and adequacy/Performance of Air Pollution Control measures shall be reviewed.
2. Water sprinkling shall be carried out on road surfaces in the project area.
3. Adequate Greenbelt width will be provided.
4. Trucks with cargo susceptible for fugitive suspension will be covered with tarpaulin. All the vehicles will be periodically checked to ensure compliance to the emission standards.
5. In addition, EMC will ensure that unit will be with essential pollution control measures as to be stated by TNPCB in their CTO.

II. Noise Environment

Impacts

- During the operation phase, the major noise generating equipment are generators, pumps.
- During operation phase there will be significant number of vehicles coming to the site for transportation of cylinders which will contribute to noise pollution.

- Equivalent sound level (Leq) averaged over 8 hours is used to describe noise exposure in work place. The damage risk criteria for hearing as enforced by CPCB and OSHA (Occupational Safety and Health Administration) stipulated that the noise level up to 90 db are acceptable for 8-hour exposure of the day.

Mitigation measures

- The noise generating equipment like DG set & pumps etc. will be enclosed in an acoustic enclosure designed for an insertion loss of 25 dB (A) and silencers to other equipment etc.
- Major noise generating equipment will be designed with 85 dB (A) ensuring cumulative noise at 1.0 m remains at 85 dB (A).
- Adequate PPE will be provided to the staff exposing to noise risks.
- Acoustic silencers will be provided in equipment wherever necessary.
- Acoustic design with sound proof glass paneling will be provided for critical operator cabins / control rooms of individual modules as well as central control facilities.
- Use of personal protective equipments/devices such as ear-muffs, ear plugs etc. will be strictly enforced for the workers engaged in high noise areas.

III. Water Environment

Impact

The source of wastewater generation from the project is as follows

- Boiler blow down
- cooling water blow down
- Domestic wastewater/Sewage
- Equipment cleaning and floor washings, etc.
- The untreated wastewater if discharged into nearby surface water may affect the surface water and/or if disposed off on land without treatment may pollute the ground and surface water.

Mitigation measures

Various mitigation measures are proposed to be adopted to minimize the impact if any on the water environment due to the wastewater/ runoff generation during the operation phase of the project.

- Corrective and preventive measures if any contamination happens.

- Monitoring should ensure early determination of any threats to water resources in terms of contamination.
- If contaminated, proper expertise will be brought to schematize the various recharge mechanism to reduce or nullify the impact effects.

IV. Biological Environment

There is no National park/Wild life Sanctuary within 10 Km radius of the study area. There is no rare/endangered species within study area of 10 Km radius.

V. Solid waste management

During operation phase, various types of solid waste are likely to be generated which can be broadly categorized as Hazardous Waste and Non-hazardous Waste. Further, the generated solid waste generation may include Biodegradable, Recyclable and Inert compounds. The details of solid waste generation and its management proposed are discussed in **Chapter 2, Section 2.9.**

VI. Socio Economic environment

Similar to the construction phase, the operation phase will also provide significant opportunities for employment in skilled, semi-skilled & unskilled categories. This would multiply economic opportunities, and henceforth enhance the livelihood patterns of this region. The proposed project would considerably be beneficial to the socioeconomic conditions of local area. Rise in indirect employment and enterprise development due to proposed project would also be significantly beneficial to the economy of local area. These indirect employments would proliferate economic opportunities & conditions, henceforth enhance the livelihood patterns of this region.

During the operation phase the operational & vehicular noise may have some impacts but as mentioned earlier by implementation of necessary mitigations for noise control such impacts would be avoided. Welfare activities along with employment done by project proponent will improve the socio economical condition as well status of health & education in the region. Thus looking to the overall scenario of activities & probable impacts of the proposed projects, it has been envisaged that there will be an overall improvement in socioeconomic layout of project area will be the key benefits of the proposed projects. The adverse impacts will be almost none during the operation phase of project. The proposed project would bring over significant improvement of economic condition and improving the availability of LPG.

8. Analysis of Alternative

The proposed augmentation will be carried out within the existing SHV Energy Private Limited LPG plant. Hence no alternate sites were considered for the project.

9. Environmental Monitoring program

Environmental monitoring programme has been formulated and the same will be implemented. The effective implementation and close supervision of the environmental management to mitigate the environmental impacts, which are likely to arise due to operation phases of the project could be achieved through a suitable institutional mechanism.

10. Project Benefits

1. Socio economic benefit to the local as it would provide both direct employment and indirect employment during construction and operation phase of the plant.
2. During the project implementation, demand for goods and services required for the project will directly or indirectly contribute to the growth of other sectors such as cement, steel, heavy and light industries, construction equipment manufacturing industry, transport sector and other services.
3. Fulfill the market requirement and play a vital role in domestic and private sectors and thereby meet the market demand and Social benefits. The LPG manufactured at the facility will aid in adding revenue to the nation.

11. Environmental Management Plan

The EMP has the following goals:

- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation
- An integrated plan for monitoring, assessing and controlling potential impacts once the project has been approved and all permits and conditions granted.
- Facilitate a continual review of post construction and operation activities.
- Preparation of afforestation or Greenbelt Development scheme.
- Preparation of rain water harvesting scheme and energy conservation actions
- To prepare a detailed action plan for implementation of mitigation measures.
- Measure the effectiveness and success of proposed mitigation measures.

12. Administrative and Technical Setup for Environmental Management:

- Rainwater harvesting
- Occupational health and safety: Occupational health & safety needs attention during operation and maintenance phases. As per the MoEF&CC suggestion in ToR, broad framework for Occupational health and safety measures are presented in EIA report.
- Institutional arrangements/framework for environmental management.
- The effective implementation and close supervision of the environmental management to mitigate the environmental impacts, which are likely to arise due to the operational phase of the project could be achieved through a suitable institutional mechanism. The proposed institutional mechanism recommended for the implementation of the mitigation measures is presented in EIA report.