



ISSN 2621-458X

**THE ESTABLISHMENT OF LPG BULK FILLING AND
TRANSPORTATION STATION (SPPBE) ACCORDING
TO THE LEGAL PERSPECTIVE (A STUDY ON THE
LEGAL BASIS OF THE ESTABLISHMENT OF SPPBE
IN INDONESIA)**

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ABSTRACT

LPG Bulk Filling and Transportation Station (SPPBE) is a filling plant owned by a privat company that transports LPG in the form of bulk from filling plant of PT. Pertamina and fills LPG tubes for agents of PT. Pertamina that sell Liquefied Petroleum Gas (LPG). The main focus of this research is the Legal Basis of the Establishment of LPG Bulk Filling and Transportation Station (SPPBE), namely the Decree of the Ministry of Energy and Mineral Resources Number 1454K/30MEM/2000 concerning on technical guidance for the implementation of government duties in crude oil and gas. The aim of this research is: crude oil and gas are fuel of which distribution is regulated by the government, so it is necessary to be controlled by Classification of Individual Target of Business Entity which conducts a business in filling oil and gas in a large scale in Indonesia. Research method used was secondary data or literature review, namely a research on secondary data related to the Decree of the Ministry of Energy and Mineral Resources Number

1454K/30MEM/2000 concerning on technical guidance for the implementation of government duties in crude oil and gas, as a legal basis of the establishment of LPG Bulik Filling and Transportation Station (SPPBE) in Indonesia, which is conceptualized as what has been written in some books. Article of this research gives information about terms and condition of the establishment of LPG Bulik Filling and Transportation Station (SPPBE). Equipment for filling LPG is based on the standard of Procedure Operational Standard of PT. Pertamina and explains about the role of PT. Pertamina in the distribution of 3-kg LPG in Indonesia.

Keyword: *Implementation, legal, SPPBE, decree*



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A. INTRODUCTION

A Background and Purpose

Liquefied Petroleum Gas (LPG) is a fuel in the form of liquefied gas (Liquefied Petroleum Gas) and is an environmental-friendly crude oil which is widely used by household and industry.¹ Conversion program of crude oil to Liquefied Petroleum Gas (LPG)

¹ Guofeng Shen et al., “Evaluating the Performance of Household Liquefied Petroleum Gas Cookstoves,” *Environmental science & technology* 52, no. 2 (January 16, 2018): 904–915, <https://pubmed.ncbi.nlm.nih.gov/29244944>; A C Putri et al., “Characteristics Of Liquefied Petroleum Gas (Lpg) Related Burn Injuries In Hasan Sadikin Bandung General Hospital,” *Annals of burns and fire disasters* 34, no. 4 (December 31, 2021): 323–327, <https://pubmed.ncbi.nlm.nih.gov/35035326>.

implemented by Indonesian government since 2007 has reached all areas in Indonesia.² It results in huge demand of LPG, especially 3-kg LPG.³ It is one of LPG products improved by PT. Pertamina which is used by many people due to its simplicity and lowest price among LPG tubes.⁴

The distribution of 3-kg LPG to the community depends on some parties. It is started from PT. Pertamina as a national company in crude oil and gas. LPG filling is conducted in LPG Bulk Filling and Transportation Station (SPPBE) spread in many areas in Indonesia. After then, the agent of 3-kg LPG as a private company cooperated with PT. Pertamina to

² Katharine Thoday et al., “The Mega Conversion Program from Kerosene to LPG in Indonesia: Lessons Learned and Recommendations for Future Clean Cooking Energy Expansion,” *Energy for sustainable development : the journal of the International Energy Initiative* 46 (October 2018): 71–81, <https://pubmed.ncbi.nlm.nih.gov/30333687/>; Ashlinn Quinn et al., “An Analysis of Efforts to Scale up Clean Household Energy for Cooking around the World,” *Energy for sustainable development : the journal of the International Energy Initiative* 46 (October 2018): 1–10, <https://pubmed.ncbi.nlm.nih.gov/30886466/>.

³ Erdiwansyah Erdiwansyah et al., “Investigation of Availability, Demand, Targets, and Development of Renewable Energy in 2017–2050: A Case Study in Indonesia,” *International Journal of Coal Science & Technology* 8, no. 4 (2021): 483–499, <https://doi.org/10.1007/s40789-020-00391-4>; Anita V Shankar et al., “Everybody Stacks: Lessons from Household Energy Case Studies to Inform Design Principles for Clean Energy Transitions,” *Energy policy* 141 (June 2020): 111468, <https://pubmed.ncbi.nlm.nih.gov/32476710/>.

⁴ Pertamina and WLPGA, “Kerosene to LP Gas Conversion Programme in Indonesia; A Case Study of Domestic Energy” (2011): 1–24.

distribute LPG to the station, which is then to be distributed to the community. Distribution system of 3-kg LPG implemented is a closed distribution system.⁵ The implementation of the closed distribution guarantees the supply of LPG to the community as much as 3 pieces of 3-kg LPG, based on the government regulation.

Few years ago, Indonesian government socializes the conversion of the use of crude oil into gas, which is LPG, managed by PT. Pertamina Indonesia (Persero). It is believed that gas is efficient and simpler than crude oil.⁶ LPG is more environment friendly compared to the kerosene.⁷ Time went by, almost all people have used

⁵ Ilyas Masudin, "An Investigation of the Relationship between Facility Location Decisions, Service Level and Distribution Costs: A Proposed Model for Indonesian Lpg Supply Chain," *International Journal of Business and Society* 16, no. 1 (2015): 117–132; G K Anang, "Supply Chain Management Lpg 3kg In Indonesia," *Journal of International Conference Proceedings* (2018): 3, <http://ejournal.aibpm.org/index.php/JICP/article/view/143>.

⁶ Guofeng Shen et al., "Polycyclic Aromatic Hydrocarbons in Fine Particulate Matter Emitted from Burning Kerosene, Liquid Petroleum Gas, and Wood Fuels in Household Cookstoves.," *Energy & fuels : an American Chemical Society journal* 31, no. 3 (2017): 3081–3090; Mahdi Sheikh et al., "Household Fuel Use and the Risk of Gastrointestinal Cancers: The Golestan Cohort Study," *Environmental health perspectives* 128, no. 6 (June 2020): 67002, <https://pubmed.ncbi.nlm.nih.gov/32609005/>; Nicholas L Lam et al., "Kerosene: A Review of Household Uses and Their Hazards in Low- and Middle-Income Countries," *Journal of toxicology and environmental health. Part B, Critical reviews* 15, no. 6 (2012): 396–432, <https://pubmed.ncbi.nlm.nih.gov/22934567/>.

⁷ Carlos F Gould and Johannes Urpelainen, "LPG as a Clean Cooking Fuel: Adoption, Use, and Impact in Rural India," *Energy policy* 122

gas in their daily life for several needs such as household, business entity, and etc.

Since the use of crude oil has been changed into gas, demand of LPG increases.⁸ Thus, Indonesian government or public gas company managed by PT. Pertamina has anticipated such condition long time ago. Agent has been built in each area, helped by sub-agent to distribute LPG to all areas in Indonesia.

In distributing LPG to the community, PT Pertamina gas conducted a distribution system of LPG using close loop supply chain system, which is the flow is started from the consumers, back to the producer to be re-processed, and given back to the consumers as a new product for the distribution system of 3-kg LPG.⁹ After then, from LPG station, the next flow is called LPG Bulk Filling and Transportation Station (SPPBE),

(November 2018): 395–408, <https://pubmed.ncbi.nlm.nih.gov/32581420>; Rajeev B Ahuja, Jayant K Dash, and Prabhat Shrivastava, “A Comparative Analysis of Liquefied Petroleum Gas (LPG) and Kerosene Related Burns,” *Burns : journal of the International Society for Burn Injuries* 37, no. 8 (December 2011): 1403–1410.

⁸ Thoday et al., “The Mega Conversion Program from Kerosene to LPG in Indonesia: Lessons Learned and Recommendations for Future Clean Cooking Energy Expansion.”

⁹ Joko Sulistio, Afifuddin Thoif, and Aulia Fitri Alindira, “Conceptual Model of Supply Chain Structure Mapping - A Case of Subsidized LPG Commodity in Yogyakarta,” *IOP Conference Series: Materials Science and Engineering* 105, no. 1 (2016); Lindawati Kartika and Andita Sayekti, “The Design and Implementation of 3 Kg Liquefied Petroleum Gas (LPG) Closed-Loop Supply Chain System by the Role of Stakeholders,” *The Acupuncture* 33, no. 3 (2016): 181–187.

which is managed by PT Pertamina and other private company. And then, the LPG package is sent to and received by agent of Liquefied Petroleum Gas (LPG) (in Indonesia, there are about 1500 agents of LPG). And after arrived to the agent of LPG, the last station is sub-agent or LPG base. The sub-agent of LPG then cooperates directly with retailers, shops, or even consumers. Commonly, there are two types of gas size, namely 3 kg (subsidized) and 12 kg, in which the stock of the 3-kg tube is for the middle-to-lower class, while the 12-kg tube is for the middle-to-upper class.

However, in reality, there are some obstacles and unachieved target, such as the lack of stock, so supply for the agent of LPG is not evenly distributed. The uneven need fulfillment is caused by the distance between agents which is sometimes too far or too near. Thus, distributors are often hard to play their role.

BUKL FILLING AND TRANSPORTATION STATION (SPPBE)

Bulk Filling and Transportation Station (SPPBE) is a company in crude oil and gas. It is a partner of PT Pertamina in distributing LPG. Its duty is to fill LPG tubes and to transport them from LPG base to SPBBE.

In 2007, the government converts crude oil into 3-kg LPG to save the subsidy from the government. This conversion results in the increase of LPG users. Thus,

it is necessary to build SPBBE to support the conversion program and to increase the capacity of LPG sales. A feasibility study of the establishment of SPBBE consists of market aspect, technical aspect, management aspect, financial aspect, legal aspect, and environmental aspect.

Market aspect analyzes the demand of LPG in each area in Indonesia that has had SPPBE along with its capacity. It is conducted to find out the location of SPPBE in an area with gap or many obstacles. Based on the analysis, Bangkalan Regency has the highest potential as an area to build SPPBE. In technical aspect, the number of equipment for operating SPPBE and area needed to build SPPBE is found. Area needed to build SPPBE is 6000 m², with the minimum width of 60 m. In management aspect, some aspects of permit, development process, and employment are discussed. In the selection process, there are two steps, namely online selection and physical selection. Employment consists of the number of employees, salary, position description, and position specification. Legal aspect deals with permit in PT Pertamina and Regional Government. Environmental aspect is about the layout of SPPBE which has to be far from settlement and extra high voltage air ducts (SUTET in Indonesia). In financial aspect, there will be calculation of total project

cost, cost of goods sold, income estimation, break event point, accountability report, MARR, NPV, IRR, analysis of financial ratio, and sensitivity analysis. Total project cost needed to establish SPPBE is Rp22,579,517,967.00, net present value (NPV) is Rp2,271,973,133.00. Internal rate of return (IRR) is 15.89%, which is more than MARR (13.66%). Return of capital is calculated using discounted payback period (DPP) method less than plan horizon time (10 years), 9.16 years. Thus, based on the criteria of investment valuation, SPPBE is worthy of being established (Hadiwinata et al, 2012).

SPPBE is a filling plant owned by a private company that transports LPG in the form of bulk from filling plant of PT. Pertamina and fills LPG tubes for agents of PT. Pertamina that sell Liquefied Petroleum Gas (LPG).



Figure 1 LPG Bulk Filling and Transportation Station (SPPBE)



Figure 2 Storage Tank



Figure 3. 3-kg LPG at LPG Bulk Filling and Transportation Station (SPPBE)

A Partnership Pattern

New pattern of partnership that has mutual benefit is offered to all parties. Some principles applied, namely openness, speed, quality of service, and attractive projection of profit, become the philosophy of PT Pertamina.

B Characteristic of Partnership

PT Pertamina provides Filling Fee Volume of SPPBE depending on the market, and PT Pertamina does not guarantee. The location of the establishment of SPPBE depends on which location is converted. The need of SPPBE in a location really depends on the distribution of crude oil and the number of population that will be converted. If the need has been fulfilled, the area will be closed. It is expected that the profile of the business managers have educational background, work experience and entrepreneurship experience. Information: variable of educational background only becomes supporting fact and not the determinant factor

in the decision making of selection (Amran Bonar, 2012). Facilities and infrastructure which are compulsory for SPPBE should meet the standard:

Equipment of filling LPG based on the standard of PT Pertamina consists of:

Storage Tank;	Public facilities: Toilet; <i>Mushola</i> ;
LPG Filling Machines;	Parking area
Chain Conveyor;	Electricity installation and sufficient water
Emptying Tank	Standard signs of PT. Pertamina: No smoking; Keep it clean;
Duiker (public waterways in front of SPPBE)	
Fire sensors and fire extinguishers	
Generator	
Procedures for using fire extinguishers.	

Table 1. Equipment and supplies of LPG Bulk Filling and Transportation Stations

Operational implementation of SPPBE should be based on Standard Operating Procedure (SOP) of PT Pertamina. Recruitment of employees is the responsibility of applicant, and all employees are required to work based on the standard work ethics of PT Pertamina, general regulation about location or placement, and intensity and mass building.

C Location/Placement

SPPBE can be built anywhere as long as it is far from settlement and *SUTET*.

D Lighting

SPPBE has lighting that can reach all operational area of SPPBE.

E Permit

The following explanation contains terms and condition of SPPBE that should be met by the candidate of partner that has passed the online selection verification process.

Requirements of re-registration of permit for SPPBE:

- Copy of Identity Card of the owner of business entity;
- Copy of permit of SPPBE (showing the permit of SPPBE);
- Profile of company/act of the establishment of company (for business entity);
- Evidence of the payment of natural gas tax;
- Evidence of the payment of retribution for re-registration of permit;
- The latest report of the management of environment;
- Certificate of land ownership;
- Attachment of evidence of minimum fund of 40% of total investment.
- Act of the establishment of company (should be PT (Limited Liability Company)/Cooperation).

F Operational Implementation

Operational implementation of SPPBE should be based on the SOP (Standard Operating Procedure) of PT Pertamina, and the recruitment of employees is the responsibility of applicant, and all employees should work based on the standard work ethics of PT Pertamina.

G Initial Fee

Every application approved will be charged of initial fee as much as IDR 250,000,000.00, that can be paid in installment by giving down payment when receiving permit, and the rest can be paid through a-year installment after the permit location is issued (Amran Bonar, 2012).

B. RESEARCH METHODS

This research uses secondary data or literature study, namely a research on secondary data related to the Decree of the Ministry of Energy and Mineral Resources Number 1454K/30MEM/2000 concerning on technical guidance for the implementation of government duties in crude oil and gas, as a legal basis of the establishment of LPG Bulk Filling and Transportation Station (SPPBE) in Indonesia, which is conceptualized as what has been written in some books.

C. RESEARCH RESULTS AND DISCUSSION

PERMIT OF ESTABLISHMENT OF BULK FILLING AND TRANSPORTATION STATION (SPPBE)

The Legal Basis of the Establishment of LPG Bulk Filling and Transportation Station (SPPBE), namely the Decree of the Ministry of Energy and Mineral Resources Number 1454K/30MEM/2000 concerning on technical guidance for the implementation of government duties in crude oil and gas. The aim of this research is: crude oil and gas are fuel of which distribution is regulated by the government, so it is necessary to be controlled by Classification of Individual Target of Business Entity which conducts a business in filling oil and gas in a large scale in Indonesia, with the following terms and conditions:

Permit Letter	Copy of contract with PT Pertamina
Spatial Use Permit	Location map and development plan
Copy of applicant's identity card	Technical information about equipment and the number of workers
Deed of Establishment of a legal entity from a notary	List of equipment and facilities
Copy of Disturbance Permit	Copy of evidence of ownership of land/ certificate /deed of sale/purchase/lease
Copy of Building Construction Permit	Permit for Establishment of old gas stations / SPBE for extension
Copy of TDP Siup	Deed of sale or purchase for those who transfer of title
Legalized Photocopy of Certificate/ Recommendation from PT. Pertamina	

Table 2 Some requirements of the establishment of SPPBE

Based on the procedure and requirements made by SPPBE, SPPBE can only be asked by Cooperation with Legal Entity and Limited Liability Company (PT) with the initial requirements stated below:

- Valid Identity card
- Tax ID number of business entity
- Copy of permit of SPPBE (showing the original version of permit of SPPBE);

- Profile of company/act of the establishment of company (for business entity);
- Evidence of the payment of natural gas tax;
- Evidence of the payment of retribution for re-registration of permit;
- The latest report
- Certificate of land ownership;
- Attachment of evidence of minimum fund of 40% of total investment.
- Land certificate (Certificate of Property/Land Deed)
- Checking account
- Company establishment deed (must be in the form of PT/Cooperative).

Meanwhile, other requirements are *HO*, *IMB*, *SIUP*, *TDP*, land permit, etc. which are issued by regional government after the issuance of recommendation letter from PT Pertamina.

Business unit of SPPBE is a franchise company of PT Pertamina with different commitment and mechanism. The differences are as follow:

- SPBU entrepreneurs must sell their own fuel stock while the entrepreneurs of SPPBE do not serve sales, but simply provide refill services, especially

for 3-kg tubes (kerosene conversion program) because all LPG stocks will be taken and distributed by partner LPG agents appointed by PT PERTAMINA.

- SPBU entrepreneurs are required to buy/redeem Delivery Orders (DO) before receiving BBM shipments while the entrepreneurs of filling stations and transportation of LPG bulk do not need to do so, so the filling station operators and transportation of LPG bulk do not need working capital, as it is understood that the capital is large. This work is influenced by fluctuations or rising/falling fuel prices.
- Currently, the profit margin of SPBU is Rp205; per liter, while the filling fee for SPPBE is Rp300; per kg and more transportation services are still added depending on the distance from the pickup depot.

Besides different commitment of franchise between SPBU and SPPBE, there is other difference, namely volume of area and investment value: to establish SPBU, the minimum land required is 700 m² and lower investment of Rp 5,000,000,000 (five billion rupiah), while SPPBE needs minimum land of 1 (one) hectare

and investment higher than Rp10,000,000,000.00 (ten billion rupiahs) depending on the capacity and usage of technology used.

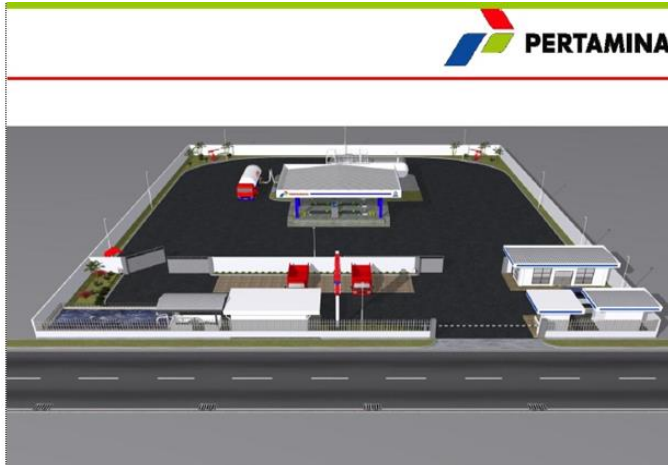


Figure 5 Layout of the Establishment of SPPBE
(Source: Directorate of Marketing and Trade of PT.PERTAMINA)

STANDARD OPERATING PROCEDURE (SOP) OF SPPBE

The implementation of Operation of SPPBE should be based on the SOP of PT Pertamina. Recruitment of employees is the responsibility of the applicant, and all employees should obey the standard work ethics of PT Pertamina. Receiving operation of LPG is through land transportation. Receiving LPG at SPPBE through land transportation is from: skid tank and pipe.

A Receiving Operation of LPG through Skid Tank
Before receiving:

- Re-measure the contents of the skid tank using a scale and or gauge. Make sure that the LPG is in accordance with the nominated one. When the process of weighing the skid tank, the driver is required to get off the vehicle.
- Make sure the vehicle engine is turned off and the handbrake is installed and the wheel is in a blocked position.
- Make sure the safety switch is off.
- Lower the APAR and place it next to the skid tank.
- Install Bounding Cable.
- Prepare “Log Sheet” book to note the data of skid tank and its contents.
- Check the completeness of the documents and complete the administration (delivery order, weighing scales).
- Measure the contents of the storage tank and make sure there is enough ullage.
- Prepare demolition facilities.
- Perform a seal check on the valve skid tank.
- Connect the Connector Coupling (liquid and vapor) to the Skid Tank.
- Open the related valve (liquid valve and vapor valve).

- Turn on the transfer pump

During Receiving LPG:

- Manage the pipeline and flexible hose from the Skid Tank until the tank accumulates from the possibility of leakage. Make sure that the LPG has flowed into the storage tank that has been prepared.
- If there is a leak, stop pumping, close the shell and make repairs as soon as possible and report to the supervisor.
- Monitor tank temperature during reception, if the tank temperature rises to around 45°C, run the tank cooling system and/or refrigerant compressor so that the temperature drops by around 30°C.
- Reception staff should always stand by.
- Stop the operation during bad weather (lots of lightning)

Finish receiving LPG:

- Make sure that the Skid Tank is empty with the roto gauge designation in the position “0” (zero) %.
- Turn off the transfer pump and close the shell.

- Remove the connection of Connector Coupling (liquid and vapor) and bounding cable.
- After loading the entire tank car, take measurements on the contents, temperature and pressure on the storage tank, and report on the amount of receipt.
- Measure the contents of the storage tank, through recording density (based on the density of the supply point), temperature and pressure.
- Record and complete all receipt documents and do Good Receipts through the Web filling station and transport of bulk LPG filling stations and transporting bulk LPG (SPPBE)/SPPEK/SPBE.

B Receiving Operation of LPG through Pipe

LPG receipt operations through pipes from Refinery, LPG, or LPG Depot

Before receiving LPG:

- Make sure the plan before receiving LPG and start the operation.
- Check the completeness of documents and administration (mode of transportation).
- Measure the contents of the recipient's tank and make sure there is enough Ullage.

- Hold communications with the refinery, LPG terminals, or LPG Depots for pumping activities include: Amount, Time, Flow rate, Refinery Readiness, LPG Terminal or LPG Depot.
- Make a note in the "Log Sheet" related to Point No. 4
- Ensure Fire & Safety equipment is ready for operation

During receiving LPG:

- Open the valve from the LPG pipeline to be fed.
- Determination of flow rates on the basis of mutual agreement, adapted to local conditions and adjusting hours (time) in each location.
- Observe continued changes in the increase in LPG levels in the receiving tank.
- Continue to monitor during reception, if the tank temperature rises to around 45°C, use a tank compressor or refrigeration compressor with a temperature of around 30°C.
- If the first receiving tank is full, then transfer the LPG reception to another tank.
- Let the sender know that the receiving operation will be completed.

Finish receiving LPG.

- Close all valves
- Measure tank content including, density (based on density from supply point), temperature and pressure.
- Record and complete all receipt documents and do Good Receipts through the Web filling station and transport of bulk LPG filling stations and transporting bulk LPG (SPPBE)/SPPEK/SPBE.

C Stockpiling

Every process of stockpiling LPG bulk products must consider the technical work steps and the administration and security of the work. The product stockpiling process must be supported by the administration and technical matters which are the responsibility of mass LPG.

The procedure of the LPG Bulk stockpiling on a daily basis.

Measurements made before the commencement of operations in the tank include:

1. Measurement of the height of the LPG liquid with the level gauge or roto gauge.
2. Density measurement.

3. Temperature measurement.
4. Pressure measurement.
5. Calculate the tank stock using parameters of temperature, pressure, level/roto gauge, and density, and adapted to tank tables and ASTM tables.

All storage tanks at the filling station and transportation of the bulk LPG (SPPBE)/SPPEK/SPBE must be done by filling in the stock (shipping) every day before the operation or before distribution activities begin and after the distribution operations are completed and operated by the Domestic Gas Operation (Rendal) on each visit (see the Administration SOP).

Tubes Arrangement in the Warehouse

- a. Handling empty and filled tubes in a similar treatment.
- b. The arrangement of tubes must be grouped according to their capacities.
- c. Filled tubes must be arranged separately with empty tubes; therefore it needs to be given a board which written "Filled Tubes" and "Empty Tubes".
- d. Place the signs in such a way that they are easy to read.
- e. Damaged and leaky tubes must be separated and marked as defective tubes.

- f. Tubes must be arranged upright by paying attention to these:
- 50-kg tubes, filled or empty, must not be stacked.
 - 12-kg tubes, filled or empty, may be stacked at maximum of 2 (two) stacking.
 - 3-kg tubes, filled or empty, may be stacked at maximum of 4 (four) stacking.
 - The minimum distance between the wall and the LPG tube is 100 Cm.
- g. In order to calculate easily, the number of tubes per row in a group (block) must be made the same.
- h. The safety plug for 50-kg tubes must always be attached to the valve.
- i. To avoid the fall of the tube arrangement or the possibility of theft, the tube can be tied using a steel rope, and locked.
- j. The distance among groups of tube structures is at least 1.5 meters, and must be safe enough for stockpiling and distribution activities.

D Filling, Distribution, Submission

Filling

Before filling, make sure all equipment is ready to use. Things that

need to be considered include:

- a. Drain all tank air compressors (air receivers), and dispose all remaining water.
- b. Lubrication is always maintained for transfer pumps, air compressors, and conveyor filling machines.
- c. Check or record the size of the temperature and pressure in the storage tank.

Skid Tanks Filling for Industrial Agents.

1. Pull the hand brake, and the gear must be in the neutral position.
2. Weigh the Skid Tank in the empty condition, and the driver must get off the vehicle.
3. Check the LO and travel documents, whether they are in accordance with the capacity of the skid tank and the balance of the scales.
4. Place the skid tank at the specified filling point.
5. Turn off the vehicle engine and install the grounding cable / bonding cable.
6. The driver and co-driver who are behind the wheel are not allowed to enter in the charging area. The safety switch is in the off position.
7. Connect the filling nozzle to the skid tank (liquid & vapor), open the liquid valve and vapor, both at

the filling point and skid tank, and run the transfer pump.

8. During the charging, the filler officers always control the roto gauge until it approaches the weight of LPG to be loaded ($\pm 80\%$ to 86% safe capacity skid tanks / the amount to be filled); if it has reached the above conditions, the filling process is stopped.
9. Close the liquid and vapor valve inlet and outlet on the skid tank and filling point.
10. At the end of the filling activity, discard the remaining LPG vapors which are still present in the hose, with the evacuation pump. Remove the hose connection between the filling nozzle and the skid tank.
11. Weigh the skid tank (the driver must get off the vehicle); if the contents are lacking, add LPG according to the deficiency at the weighbridge.
12. For the additional of this LPG deficiency, do such as No.1 to 11, until the weight is in accordance with the loaded LPG.
13. The liquid valve inlet and outlet cover and vapor on the skid tank are then sealed.

Filling LPG Tubes

The filling is carried out in LPG tubes of 3 Kg, 6 kg, 12 kg, and 50 kg. Therefore steps are needed including

preparation of filling LPG tubes, and tube filling process.

Preparation for Filling LPG Tubes

The following are things that need to be done before filling into the tube:

1. Check and set the scales according to the provisions of the applicable Metrology Service. If anything suspicious happens, it should be reported to the Metrology Service to be reviewed.
2. Check all other facilities and make sure those facilities are ready for operation.
3. Check old LPG tubes, whether they meet the requirements to be filled, or not. If it does not meet the requirements, the tube has to be separated, and then sent to the Engineering and Work and Environmental Protection (K3LL) section'.

Tube Filling Process

1. Operators / officers must wear uniforms, safety helmets, safety shoes, masks, and gloves.
2. Check the weight of the empty tube before the tube is placed in the filling machine, because the setting of the scales in the filling machine is based on the weight of the empty tube, the weight of the hoses, and the filling head, and the weight of LPG to be filled.

3. The charging pressure may not reach open pressure from the installed safety valve.
4. Ensure that the filling machine is in good condition; check filling hoses and the filling head.
5. Set the scales to the desired weight automatically. For manual scales, set according to the weight of the empty tube, the filling process will stop if the contents of the tube are sufficient.
6. Tubes must be filled carefully and precisely, do checks so there is no filling difference.
7. Make sure the connection between the filling head and the valve tube is properly connected to avoid leakage.
8. Perform a leakage test by soaked in water, visual check, and other leak test kits. If there is a leaky tube, it is separated to be emptied (with evacuation pump), then the tube is moved to the repair tube location. Re-weigh to ensure that the contents of LPG in the tube are filled correctly.
9. Install safety seal cap and plastic wrap for 3-kg, 6-kg, and 12-kg tubes, and safety plugs and seals for 50-kg tubes, as a guarantee of LPG content and quality.
10. When the filling activity is complete, close all valves and turn off the filling machine.
11. Clean the filling area and spray pressurized air to remove the remaining LPG under the conveyor.

Workers are filling 3-kg LPG cylinders in one of the LPG Bulk Filling and Transportation Stations (SPBE) in Indonesia



Figure 7 The LPG filling machine

Notes:

- For new tubes, used tubes are repaired, used tubes are retested; before being filled with LPG, it must be vacuumed.
- Scales must be calibrated and obtaining the TERA Letter from the Department of Commerce and the local Metrology Service.

D. CONCLUSION

Based on the description and discussion of the problem in this article, the conclusions put forward are:

- Legal Basis: Decree of the Minister of Energy and Mineral Resources Number 1454K/30MEM/2000 concerning the Technical Guideline for administering governance tasks in the sector of oil and gas. Purpose and Objectives: Oil and gas fuels are fuels whose distribution is regulated by the government, for this reason there is a need for supervision and guidance of the Individual *Sarasan* Classification of business entities conducting large-scale oil and gas refueling business activities.
- LPG Bulk Filling and Transportation Station (SPPBE) is a privately owned filling plant that transports LPG in bulk form from PT. Pertamina, and filling LPG tubes for agents of PT. Pertamina who sell the Liquefied Petroleum Gas (LPG).
- In the financial aspect, there have been calculations for the total project cost, cost of goods sold, estimated income, breakeven point calculation, financial report making, calculation of MARR, NPV, IRR, financial ratio analysis, and sensitivity analysis. The total project cost needed

to establish LPG Bulk Filling and Transport Stations (SPPBE) is IDR 22,579,517,967, and the Net Present Value (NPV) which is equal to IDR 2,271,973,133.00. The value of the internal rate of return (IRR) is 15.89%, which exceeds the MARR value of 13.66%. Returns of capital calculated by the discounted payback period (DPP) method are less than the time of the planning horizon (10 years) which is 9.16 years. Thus, when viewed from the criteria for evaluating investment, LPG Bulk Filling and Transportation Stations can be said to be feasible to be established.

- a. It should be in accordance with the Standard Operating Procedure (SOP) of PT. Pertamina in the Operational Implementation of LPG Bulk Filling and Transportation Stations (SPPBE).
- b. It should be based on applicable legal provisions in Indonesia in establishing LPG Bulk Filling and Transport Stations (SPPBE).

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