IMPLEMENTATION OF PETROLEUM PRODUCTS TANK TRUCK TRANSPORTATION SAFETY MANAGEMENT SYSTEM OF COMPANY X

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ABSTRAK

Kata Kunci: Truk, Bahan Bakar, Kecelakaan, Keselamatan

ABSTRACT
This research aimed to share the experience with observers Health Safety of Academician and Practitioner in implementation of Safety Management Systems for Land Transportation Petroleum Products Tank Truck at Company X. Accidents often occur during the tank truck activities. In early 2012 the Company X implemented a system mentioned above. The method used was descriptive qualitative analysis. The result was that at the end of 2012 the Company X successfully applied the system. In conclusion, there was one way to minimize the tank truck accident was to implement the system above.

Keywords: Truck, Fuel, Accident, Safety

INTRODUCTION

Company X who deals with upstream oil and gas business sector, had three business pillars, namely Operation of Petroleum Products Terminal, distribution and Transportation of petroleum products, as well as petroleum products trade. The distribution of petroleum products used tank trucks need to be handled as a whole in order to minimize accidents. The integrated handling includes the function of petroleum products Terminal, distribution and transportation as well as trade. The tank truck accidents during petroleum products distribution can be caused by several factors such as driver, vehicle and completeness of its equipment, land infrastructure, Occupational Health and Safety, and maintenance of vehicles by the third party. Base on Company X recorded statistics, the accidents reached thirty six percent and these accidents were among the highest compare to other accidents occurred at Company X. Important risk related to land transportation was the tank truck accidents covered the leakage or spillage of petroleum products at the Terminal or during the travel, by not obeying the legal requirements, fire or explosion, which may affect the surrounding community, cause business interruption and other related effects. In this regard, the risk management of all the above mentioned related to the petroleum products transportation tank truck was an important part of Safety Management System for Land Transportation (SMKTD) [1].

Without SMKTD aspect, all elements involved, namely the elements of management, workers, environment and business process were unable to persist sustainably. Consequently, the life and health quality as well as business process will be interrupted, caused the setback from time to time. Therefore, it created awareness of land transportation safety. Where it was a very good momentum to start to develop a system that was able to manage all elements involved in transportation activities at Company X [2].

In the framework of improving the “Operation Excellence” and safety distribution of petroleum products, the Management of Company X had been apply SMKTD at the petroleum products Terminal in Plumpang, North Jakarta, at the beginning of 2012. At the end of 2012 Company X obtained the SMKTD certificate from TUV Rheinland and Appreciation from the Director of Land Transportation, Ministry of Transportation.

Tips for success for the Implementation of SMKTD at Company X was by weekly conducting intensive monitoring and control on the implementation of the SMKTD by the Corporate Occupational Health and Safety Manager of Company X, and the External Audit, which was conducted every 4 months by TUV Rheinland Consultant.

What were the Tips of Company X in the Implementation of SMKTD in order to achieve success in one year?

The objective of this research was to share the experience with observers Occupational Health and Safety from Academician and Practitioner in the implementation of the SMKTD at Company X.

METHODOLOGY

Research Location

The research location was in Company X, Jakarta, Indonesia.

Research Form

The research form was qualitative descriptive method
Source of Data

The source of data used or collected was the secondary data document, result from the field of observation and interviewed with occupational health and safety manager, Head of TUV Rheinland consultant and Coordinator of implementation team SMKTD.

Technique of Data Collection

Interview, Observation and Secondary Data study.

Data Validity

The data validity used the techniques of source triangulation, method triangulation and theory triangulation. The Source Triangulation was the collection of similar types of data from several different sources, field observation, and reference books. The Method Triangulation was the collection of similar types of data by using different techniques or data collections. The Theory Triangulation was used to interpret similar types of data.

Analysis Technique

The analysis technique was carried out with the interactive analysis model (Miles and Huberman, 1984). There were three analysis components in this analysis model, namely data reduction, data presentation, and drawing of conclusion or verification. The activity was carried out in interactive form with the data collection process as a follow up, repeated and continuous process, and thereby forming a cycle [11].

RESULT OF RESEARCH

Based on interview with the Coordinator of the implementation team SMKTD and observation on the secondary data, namely the SMKTD book of 2012, found the guidance of pre preparation for implementation of SMKTD: (1) The Petroleum Products Terminal receives petroleum products from domestic or foreign oil refinery; (2) Petroleum Products from the Petroleum Products Terminal was distributed to the Public Petroleum Products Filling Station (SPBU) for either the industrial or individual need; (3) The supporting equipment to distribute Petroleum Products to the SPBU using tank truck; (4) Accidents often take place during the activities of the petroleum products tank truck in distributing petroleum products from the petroleum products Terminal to the SPBU, such as among others fire, overturned, or crash; (5) In order to minimize petroleum products tank truck accidents, the SMKTD for petroleum products transportation tank truck was implemented.

Based on interview with Occupational Health and safety Manager, referred to guidance of implemented in preparation for implementation of SMKTD: (1) The Occupational Health and Safety Manager presented before the Director, Senior Vice President, Vice President and Manager of Company X that according to the statistics the accidents in 2011 reached thirty six percent, and in this regard the Occupational Health and Safety Manager provided the solution to apply the SMKTD for petroleum products tank truck located at the Petroleum Products Terminal in Plumpang, North Jakarta, at the beginning of 2012; (2) The Director and Management agreed to apply the SMKTD for petroleum products tank truck; (3) The Occupational Health and Safety Manager and staff contacted the TUV Rheinland consultant and SAI Global, and out of those two candidates, TUV Rheinland was the consultant that was able to assist the application of the SMKTD Application at Company X; (4) The cooperation was carried out between Company X and TUV Rheinland in developing the SMKTD for petroleum products tank truck; (5) The SMKTD Application Team was established, consisting of the functions of administration, workshop, warehouse, spare parts, drivers and vehicles. The team prepared the SMKTD procedure and corrected physical weaknesses, such as warehouse, workshop, and rest area for drivers.

Interview with Coordinator of the implementation team SMKTD regarding the implementation of SMKTD activities: The SMKTD Application initial study was carried out in order to see to what extent Company X had applied the SMKTD for petroleum products tank truck. The initial study used the checklist with 118 questions consisting of the Driver Management, Travel Risk Management, Vehicle and Equipment Management, Health Safety Environment (HSE) Management System, and Contractor Management. The scoring criteria for those 118 questions were 0 to 4. The assessed functions were the functions of administration, workshop, spare parts warehouse, driver and vehicle. Based on the result of study, the category of minus was obtained for the SMKTD performance.

Interview with Occupational Health and Safety Manager on implementation of SMKTD activities: (1) The Occupational Health and Safety Manager held a meeting with the SMKTD Application Team and provided a briefing on the reason of applying the SMKTD, namely in order to reduce petroleum products tank truck accident and to improve the SMKTD performance, and provided the understanding on SMKTD as well as the target intended to be achieved during the running one year, namely 2012; (2) The Occupational Health and Safety Manager and staff including the Consultant checked the procedure aspect, physical condition in the field and briefed the SMKTD Application team.

Interview with Coordinator implementation team of SMKTD on implementation of SMKTD’S activities: (1) The SMKTD Application Team provided training to tank truck drivers in cooperation with the training center of Company X with internal instructors of Company X, who have the theoretical capacity as well as field practice. The training that was provided was among others concerning Basic Fire Safety, Defensive Driving Course, and MSDS (Material Safety Data Sheet).

Handling of Spill, Leakage and Emergency Situation, Personal Hygiene, Health Promotion (HIV & AIDS), Work Nutrition, Traffic Law, and Application of Traffic Safety by the Director of Traffic of the North Jakarta Resort Police; (2) The SMKTD Application Team reorganized the supporting facilities consisting of: a) Comfortable office facilities, such as the Site Manager Room, representative Visitor Room, Meeting Room, Office Room, Validation and Administration Room, clean Bathroom, and Waiting Room; b) Guesthouse to rest for tank truck drivers and helpers in order to become fit to continue their activities. Fifty bed units, twenty bathrooms, three clean and comfortable urinal units, place to change clothes completed with thirty locker units, were available in this guesthouse; c) The Validation Waiting Room was comfortable, so that this room may become a means for
communication among the drivers and helpers when waiting for the validation of their assignments; d) Praying Room for those who were Moslems and clean, cool and comfortable wudhu place, so that the worship activity can be calmly performed and the personal life of the drivers and helpers were spiritually and physically balanced; e) A Special Smoking Area was provided for drivers and helpers intended to rest before continuing the task; f) Shoe polish facilities and attendants were available to assist the workers, so that their shoes look neat, clean and shiny; (3) The SMKTD Application Team conducted the travel risk management by way of arranging the travel routes, and monitoring the hazards and obstacles during the travel. The identification of hazards and obstacles during the travel was carried out by using the method of observing the road to be passed by tank trucks to the SPBU. The identified hazards, risks, and obstacles during the travel were collected and analyzed and the solutions were sought in order to cope with those hazards and obstacles viewed from the HSE, effectiveness, efficiency and security points of view. The coordination was further on made with the police, hospital, and fire department in case of accidents at the highway. In order to control the behavior and travel discipline, the tank truck was equipped with the two directions Global Positioning System (GPS), so that the monitoring process was able to be carried out through the communication with the tank truck driver. Such monitoring covers the driving speed, traffic jam and accident; (4) The SMKTD Application Team reorganizes the aspects of tank trucks and equipments, consisting of: a) Administration. The checking was carried out at the administration phase on the vehicle documents covering the STNK (Vehicle Registration), KEUR (Vehicle Test), Terra, Entrance Permit for Vehicle into the Depot, Emission Test Certificate, Pressure Vessel Test Certificate, and control on the validity term of those licenses; b) Physic. The checking was physically carried out on the vehicle condition by using the checklist, which was filled in at the time the vehicle was to be used. The Tire Management System (TMS) was applied for the physical maintenance process in order to control and check the performance of the tank truck tires. The TMS ensures the implementation of control and checking on the tires, availability of tires, supporting equipments as well as the placement or disposal of used or damaged tires. The TMS application were supported by vendors, tire stock warehouse, overhaul garage, complete supporting equipments as well as workers who were experts in their field. Meanwhile, the Maintenance Management System (MMS) was applied in order to guarantee the prima tank truck condition at any time. The application of MMS includes the vehicle condition documentation process, so that the record maintenance was drawn up as well as the vehicle condition track records for early detection of risks that may possibly occurred. In addition, the MMS application also included the changing of oil, engine filters, and other supporting spare parts, as well as the repair of damaged tank truck at the place of accident and pulling back the vehicle to the workshop location; c) Non Physic. The maintenance was non-physically carried out by applying the KPI (Key Performance Indicator) on TMS and MMS vendors in order to guarantee the maximum service and product quality; d) Maintenance of Safety equipments and Tank Truck Supporting Equipments. The safety equipments and supporting equipments, such as CO₂ dry chemical fire extinguishers at the tank truck was regularly maintained so as to always be ready for use in case of accidents at any time. The maintenance process was carried out in cooperation with certified vendors or tank truck manufacturers in order to ensure the availability of spare parts and to save the repair time. The checking was carried out by the tank truck driver and immediately followed up by attendants and experts in their field; (5) The Application Team prepares the emergency response system: a) Emergency Response System, An emergency response system was needed in the efforts to minimize losses and casualties at an accident, oil spill and fire, which includes trained workers, composition of the emergency situation handling team, procedure and equipments. In this context, the emergency situation may be understood as the occurrence of a large scale operation obstacle on the petroleum products tank truck or fatal accident or large scale of environmental damage, which were possible to be observed and the discussed by media. In order to achieve such objective, each worker who was engaged in the petroleum products distribution process, particularly drivers, were trained to encounter emergency situations and simultaneously respond to and carry out the risk study on the accident that may possibly occurred. Such response including the provision of protection or security to the team members and other personnel members as well as the community who were engaged, prevented the escalation of accident, minimized the environmental damage, reduced the handling process costs, carried out the recovery phase and communication strategy with the media, police and hospital: a) Relationship with Media: The media provided in general attention to the existing accidents, either the large scale or small scale. The media always tried to quickly and correctly obtained data in order to inform the wide public. The company appointed the Public Relation Manager or Operation Manager as spokesperson in order to respond to questions from the media. The appointment of the spokesperson in emergency situations was carried out to avoid the confusion of information; b) Post Accident Recovery: 1) Recovery Area, The recovery operation was carried out after the emergency situation was declared as ended by the emergency situation controller in order to quickly return to the normal condition. The petroleum products spill was cleaned and not left over in the area; 2) Vehicle Recovery. The emergency situation handling team prevents the occurrence of a following emergency situation during the tank truck evacuation process. Therefore, the emergency situation handling team should provide adequate directions or instructions to the evacuation process workers. The recovery of the tank truck condition, which was involved in the accident, was further on carried out; 3) List of Contacts and Important Information, The SMKTD Application Team prepares the list of contacts of parties that were authorized in handling emergency situations. Such list was periodicaly and constantly renewed and tested so as to ensure that the parties related to the handling of emergency were able to be contacted at any time. The internal contact list of Company X includes the Transportation Manager and all supervisors, all emergency situation team members, workers of the HSE function, Public Relation Manager, technical workers of the distribution function, petroleum product workers, all drivers, and all vehicle maintenance workers. Meanwhile, the contact list of external parties related to the handling of emergency situations includes among others the police office, fire department, Ambulance of the nearest hospital, and local heavy equipments rental agent (for example: crane). [12].
Interview with Occupational Health and Safety Manager: In case the Occupational Health and Safety Manager found out that the procedure was physically or non-physica not yet showing a significant performance improvement, then the Occupational Health and Safety Manager sent a letter to the Head of the SMKTD Application Team, through the Director, informing that the SMKTD Application performance needed to be improved.

Interview with TUV Rheinland Consultant: The Consultant carried out the audit at the fourth month with the checklist in accordance with the initial study checklist. The obtained result was the improvement of the SMKTD Application performance with the average category.

Interview with Occupational Health and Safety Manager: After observing the improved results, the Occupational Health and Safety Manager then re-briefed the SMKTD Application Team in order to correct the shortages resulted from the audit by the TUV Rheinland Consultant. Interview with TUV Rheinland Consultant: The TUV Rheinland Consultant re-audited the performance at the eighth month and the result was the good category.

Interview with Occupational Health and Safety Manager: The Occupational Health and Safety Manager briefed the SMKTD Application Team that the result was good but the still existing shortages should immediately be corrected.

Secondary Data Observation: X Company proposed the SMKTD certification to the Certification Board of TUV Rheinland. Company X had obtained the SMKTD certificate from the Certification Board of TUV Rheinland and appreciation from the Ministry of Transportation: (1) The Certification Board of TUV Rheinland conducted the SMKTD certification audit with the result that Company X was worthy to obtain the SMKTD certificate; (2) The Occupational Health and Safety Manager and staff reported the success of Company X on the SMKTD Application to the Director of Land Transportation, Ministry of Transportation; (3) The Director of Land Transportation attended the awarding of the SMKTD certificate by TUV Rheinland and also awarded the appreciation on the success of the SMKTD Application to Company X; (4) The Director of the SMKTD Application Team obtained the appreciation from the President Director of Company X for the success of the SMKTD Application.

RESULT AND DISCUSSION

The Petroleum Products Terminal received petroleum products from domestic as well as foreign refineries. The petroleum products from the Petroleum Products Terminal was distributed to the Public Petroleum Products Filling Station (SPBU) and the Industry. The distribution of petroleum products to the SPBU and the Industry used petroleum products tank truck. The petroleum products distribution activity by using tank truck often experiences accidents of overthrown, on fire, and crash, and according to the statistics in 2011, the accidents reached thirty six percent due to tank truck accidents. In this regard the SMKTD was applied. The SMKTD was applied during one year, namely from the beginning of 2012 until the end of 2012 by using the TUV Rheinland Consultant. At the end of 2012, after being audited by the Certification Board of TUV Rheinland, Company X was considered as worthy to obtain the SMKTD certificate and appreciation from the Director of Land Transportation, Ministry of Transportation.

Observing the success full of Company X in applying the SMKTD during one year with the pre-preparation, preparation, and application phases and the success by using the checklist supporting tool and the measures carried out in accordance with the measures drawn up by Willey in his book Implementation Process Safety Management, first and second edition, one of the such success factors was the support from the Occupational Health and Safety Manager who very intensively carried out tight monitoring on the SMKTD Application and carried out strong control on the SMKTD Application Team, either from the field aspect as well as administrative aspect as well as the worker, in order to remain focus on the work program that had been drawn up from the beginning of 2012 until the end of 2012. [13]

This success factor was very good to be studied further on by other researchers so that it may be observed from various aspects, one of which was concerning the leadership of the Occupational Health and Safety Manager in managing SMKTD.

CONCLUSION

The application of SMKTD by Company X during one year, from the beginning of 2012 until the end of 2012, had SMKTD application measures consisting of pre-preparation, preparation, application and success. The supporting tool that was used in monitoring and controlling the SMKTD application was the SMKTD checklist. In addition to the tight work program, the factor of success in applying SMKTD was also the strong Occupational Health and Safety Manager leadership in performing the monitoring and control on the SMKTD application, assisted by the intensive activity of the TUV Rheinland consultant and commitment of the SMKTD Application Team.

SUGGESTION

The successful of Company X in applying the SMKTD by obtaining the SMKTD certificate from the Certification Board of TUV Rheinland as well as the appreciation from the Director of Land Transportation, Ministry of Transportation were a Strong effort needed from all functions related to the SMKTD application in order to maintain or improve the sustainable performance of SMKTD by carrying out the monitoring and internal audit as well as correction of existing weaknesses. Thereby, the quality of the SMKTD application remained to be maintained.

REFERENCES


