GROSTLOG 2019
Global Research on Sustainable Transport & Logistics

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Improvement of Services To The Customer With Port Facilities For Support Liquid Cargo, Dry Bulk Cargo and Roro Operation in Marunda Center Terminal

Sigit Prayogo[1], Fahdi Maulana[2*], Veronica Parhusip[3], Muhammad Iqbal Firdaus[4]
[1,2,3,4] Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia
[*]Corresponding author: fahdi.maulana@yahoo.com

Abstract. Marunda Center Terminal (MCT) is a deep-water, common user, multipurpose public terminal in Bekasi, located within Marunda Center Industrial Estate, only 9km to the east of Tanjung Priok port. MCT is owned and operated by PT.Pelabuhan Tegar Indonesia (PTI), a Port Business Entity i.e. Badan Usaha Pelabuhan (BUP). PTI is a joint venture company between Jurong Port Pte. Ltd. and Indonesian partners i.e. Marunda Center Industrial Estate. Marunda Center Terminal has the state of the art facilities which meets international standards and high safety & security procedures to fulfill customer requirements and needs. The commitment of Marunda Center Terminal to present a qualified multipurpose terminal in order to increase trading flow and business growth of customers supported by the best network and port partners who have experiences with international standards. Marunda Center Terminal has the state of the art facilities which meets international standards and high safety & security procedures to fulfill customer requirements and needs. Customer is the valuable assist. Marunda Center Terminal is built to be an international class terminal with supporting facilities that make easy operational and benefits for customers' business. Marunda Center Terimal's customers come from various industrial backgrounds from local, multinational and more.

Keywords: transportation, access, infrastructure, facilities

1. INTRODUCTION

About Marunda Center Terminal (MCT) is a deep-water, common user, multipurpose public terminal in Bekasi, located within Marunda Center Industrial Estate, only 9km to the east of Tanjung Priok port. MCT is owned and operated by PT. Pelabuhan Tegar Indonesia (PTI), a Port Business Entity i.e. Badan Usaha Pelabuhan (BUP). PTI is a joint venture company between Jurong Port Pte. Ltd. and Indonesian partners i.e. Marunda Center Industrial Estate. Any communication that occurs within the Marunda Center Terminal should be clearly communicated and with a clear perception. It means that all information should be shared with relevant people in order to achieve customer expectations regarding the services provided. It is expected that there will be a common meaning and comprehensive understanding of the all people in the company.

Marunda Center Terminal is a part of customer and customer is part of Marunda Center Terminal. In every operational activity, Marunda Center Terminal ensures that all services provided are proper and even exceed customer expectations. Marunda Center Terminal listens, analyzes, provides and controls the work. Marunda Center Terminal has trusted resources that are always optimistic that Marunda Center Terminal can provide professional and high quality services to customers. The service commitment given by Marunda Center Terminal is very meaningful for customers. Marunda Center Terminal always keeps professional commitment as an added value for customers. Marunda Center Terminal develops mutual trust among team members, collaborates proactively as well as be able to provide more added values through teamwork. Marunda Center Terminal prioritizes safety at working environment with mutual protection as a whole.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Marunda Center Terminal is built with vision, belief as well as high dedication and strengthened by Board of Directors who has high competency and experience in the field along with a full support from Shareholder. Marunda Center Terminal has human resources asset who own skills and experiences in the industry of port starting with port service to goods service, supported also by International Multipurpose Jurong Port Singapore, an expert in the industry. Marunda Center Terminal is a company that operates in the business of loading unloading cargo non-container and service for loading unloading dry bulk, liquid bulk and general cargo/ break bulk. PT Pelabuhan Tegar Indonesia integrated with Marunda Industrial Centre Area which can be used for logistics, distribution and storage purposes. To support the activities of the loading / unloading, PT Pelabuhan Tegar Indonesia has two berths which can operate simultaneously in the same time. Terminal 1A east side is used for dry bulk / general cargo transfer with berthing capacity 10.000 DWT and west side for liquid bulk transfer. Terminal 1B area have berthing capacity up to 40,000 DWT, at the time while assessment this terminal has been under construction.

Description Operation

PT Pelabuhan Tegar Indonesia is a company that operates in the business of loading unloading cargo non-container and service for loading unloading dry bulk, liquid bulk and general cargo/ break bulk. PT Pelabuhan Tegar Indonesia integrated with Marunda Industrial Centre Area which can be used for logistics, distribution and storage purposes. To support the activities of the loading / unloading, PT Pelabuhan Tegar Indonesia has two berths which can operate simultaneously in the same time. Terminal 1A east side is used for dry bulk / general cargo transfer with berthing capacity 10.000 DWT and west side for liquid bulk transfer. Terminal 1B area have berthing capacity up to 40,000 DWT, at the time while assessment this terminal has been under construction.

In General, the activities carried out by PT Pelabuhan Tegar Indonesia related to oil spill risk scenario are, Unloading of the liquid cargo at Terminal 1A using flexible hose, then transferring of the fuel oil to the on land storage tank using pipeline. Unloading of the dry/bulk cargo at Terminal 1B using crane, then transferring of the dry cargo to the truck. Transferring of the liquid cargo (CPO) from on land storage tank using pipeline, then loading of the fuel oil to ship at Terminal 1A using flexible hose. Transferring of the liquid cargo (CPO) to the tank truck at the Truck Loading Bay Terminal 1A.

Berth Capacity

	No of Berth	**Berth Length**	**Berth Capacity (Max D.W.T)**	**Draft**
Phase 1A (Total length 600 meters)				
Liquid Bulk (Pipe line)	2	200m	10,000	-.65m CD
Liquid Bulk (Liquid Transfer Terminal)	1	100m		
General & Bulk Cargo	3	300		
Phase 1B (Total Length 1,020 meters)				
Liquid Bulk (Pipe line)	-	-	40,000	-9.5m CD
Liquid Bulk (Portable Transfer Terminal)	4	400m		
General & Bulk Cargo	9	620m		

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

	Jetty 1A	Jetty 1B
Restricted Draft	6.0 M LWS (Tidal Range 0.8m)	9.0 M LWS (Tidal Range 0.8)
Type	Fixed / permanent platform on piles (Concrete Structure)	Fixed / permanent platform on piles (Concrete Structure)
Length Width	300 meters 28.00 meters	310 meters / 200meters 28.00 meters / 40.00 meters
Distance to Shore	700 meters	1000 meters
Distance between Bollards	16.00 meters	16.00 meters
Fender Type	Frontal Fender with Cone Rubber	Frontal Fender with Cone Rubber

Port Facilities

Marunda Center Terminal is a company that operates in the business of loading unloading cargo non-container and service for loading unloading dry bulk, liquid bulk and general cargo/ break bulk. PT Pelabuhan Tegar Indonesia integrated with Marunda Industrial Centre Area which can be used for logistics, distribution and storage purposes. To support the activities of the loading / unloading, PT Pelabuhan Tegar Indonesia has two berths which can operate simultaneously in the same time. Terminal 1A east side is used for dry bulk / general cargo transfer with berthing capacity 10.000 DWT and west side for liquid bulk transfer. Terminal 1B area have berthing capacity up to 40,000 DWT, at the time while assessment this terminal has been under construction. MCT has the capacity to handle an extensive range of dry bulk. We handle both edible products such as sugar and non-edible products like soda ash, sand, coal and cement. Apart from edible products like crude palm oil (CPO) and vegetable oil, we also handle industrial oils, lubricants and chemicals such as gasoline and chemical liquid. To safely unload liquid bulk cargo directly to the customer's existing facilities on the mainland, our port uses a double deck pipe rack, which supports the different pipes needed for the unloading process.

MCT's strategic location plays a significant role in serving all points in the region. With a maximum berth draft of 9.5m, our modern facilities are able to accommodate different types of vessels and handle a wide range of general cargoes including steel, metals and heavy machineries. Our dedicated and experienced teams are on standby to ensure that your cargo is handled efficiently and safely at MCT. Our ro/ ro facility allows efficient loading and unloading operations as cargoes can be quickly rolled on and off board, which results in shorter turnaround. This service is available for a wide range of cargoes including heavy equipment, perishable goods and time-sensitive deliveries. Marunda Center Terminal has land available for open storage and warehousing activities. Additional storage and warehousing space can also be found in Marunda Center Industrial Estate.

In accordance with the Company's practice and the legislation provision of the Republic of Indonesia on pollution control, the establishment of this Oil Spill Contingency Plan is necessary for the operations of PT Pelabuhan Tegar Indonesia. It provides a mechanism for coordinating responses and actions to releases of oil during the operations including spills from

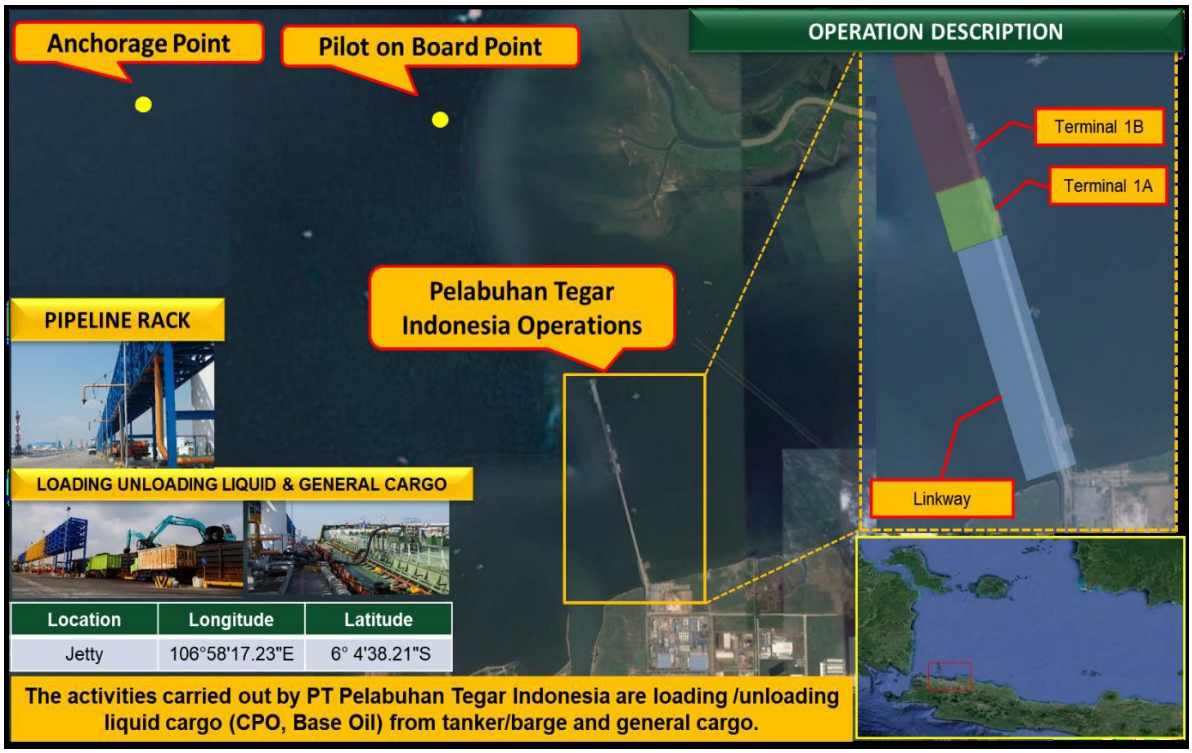
ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

loading / unloading activities. To ensure this management strategy is implemented in a coordinated manner, the Oil Spill Contingency Plan, hereafter referred as the OSCP, is designed to provide overall guidance to the Emergency Response Team concerning how they would respond to an oil spill incident or emergency that occurs during the operations. This plan outlines an organized and unified capability for a timely, coordinated response by the Emergency Response Teams and the assistance that will be rendered by other emergency support agencies and government authorities. In developing this OSCP, close reference has been made to the guidelines stipulated in the "Regulation of the Minister of Transportation No. 58 Year 2013" and "Emergency Preparedness and Response Plan" of PT Pelabuhan Tegar Indonesia, as well as International Maritime Organization (IMO) and International Petroleum Industry Environmental Conservation Association (IPIECA) recommendation.

Scope

This Oil Spill Contingency Plan (OSCP) is developed from the Emergency Preparedness and Response Plan to ensure the key priorities in spill response. This plan also following PT Pelabuhan Tegar Indonesia commitment to safeguarding health, safety, and the environment. This plan is a part of our emergency management system and focus on oil spill response. Through the implementation of this plan, the company will ensure that any potential oil spill will be managed in a systematic manner with the objective of minimizing the environmental, health and safety impacts.

Scope of this plan covers all activities carried out in the operation area of Marunda Center Terminal ("MCT") a seaport which is managed and operated by PT Pelabuhan Tegar Indonesia. MCT is located at Marunda, Bekasi in coordinates of 6°4'38.21" S; 106°5'17.23" E for the jetty, anchorage point 6°03'2.00" S; 106°55'60.00" E, and POB point 6°03'6.00" S; 106°57'27.00" E. The activities carried out in MCT are loading and unloading of general, liquid bulk and dry bulk cargoes at the jetty, transferring of liquid bulk from jetty to its customers tanks located at their plants.



ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Considering potential oil spill risk from activities mentioned above, planning an oil spill emergency response to mitigate potential damage to human health and the environment is essential. Hence, the OSCP which ensuring timely and coordinated response has to be made. This OSCP applies to any hydrocarbon spills resulting from the loading and unloading activities, storage activities and supporting vessel. The purpose of this OSCP is to provide a detailed organizational responsibility, actions, reporting requirements and resources available to ensure effective and timely management of oil spills resulting from activity of oil transfer through the pipeline, oil storage tank, and the process of loading and unloading vessel operating at MCT. This OSCP is developed to provide Oil Spill Response (OSR) preparedness. The primary objective of this plan is to set in motion the necessary actions to contain and recover any discharge of oil and to mitigate the negative effects relating to activities of MCT. All action in this plan are governed by the following principles:

1) Ensure the health and safety of all personnel.
2) Minimize environmental impact through timely and effective response.
3) Minimize disruption to work activities.
4) Ensure that local regulations are adhered to Oil Spill Contingency Plan.

This OSCP is written in accordance with the recommended format by the International Petroleum Industry Environmental Conservation Association (IPIECA) and complies with Indonesia regulations, as stipulated in the Regulation of the Minister of Transportation No. 58 Year 2013 pertaining to Pollution Response on Water and Port. The plan is divided into three section:

Oil Spill Contingency Plan Format

This Oil Spill Contingency Plan follows the IPIECA Standard Format and comprises three parts as explained below:

1. **Strategy Section**, Contains information on operations, identification of oil spill risks and analysis, and highlights the main strategies for combating an oil spill in the area of operations. The focus of this section is on planning policy and administration which describes the scope of the plan, including: geographical coverage, perceived risk, and roles/responsibilities of those charged with implementing the proposed response strategy.
2. **Action and Operation Section,** Forms the core of the plan. Actions are provided in the shape of tables, figures and checklists, with cross-references as required to the Strategy and Data sections. The focus of this section is on operational considerations which set out the emergency procedures that will allow rapid assessment of the spill and the mobilization of appropriate response resources.
3. **Data Directory Section**, Contains supporting data with the relevant maps, resource lists and data sheets required to support an oil spill response effort and conduct the response in accordance with agreed strategies.

General Roles And Responsibilities

An Emergency Response Team (ERT) will be activated and established in the event of an oil spill. The structure of ERT of PT Pelabuhan Tegar Indonesia is flexible and can be expanded or contracted depending on the scale of the oil spill. Refer to the Emergency Response Team of PT Pelabuhan Tegar Indonesia and to comply with the Regulation of the Minister of Transportation No. 58 Year 2013. The Tiered response structure allows potential oil spill incidents to be categorized in terms of their potential severity and the capabilities that need to be in place to respond. The following tiered response guidelines can be applied to any potential oil spill. The guidelines are comply with Republic of Indonesia Presidential Decree No.109/2006 pertaining to Emergency of Oil Spill Response Situation, and the Regulation of the Minister of Transportation No. 58 Year 2013 pertaining to Pollution Response on Water and Port.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Tier 1 is the categorization of handling the emergency oil spill situation that occurred inside or outside DLKP and DLKR Port, or unit operation of oil and gas or units of other activities unit that can be handled by the facilities, infrastructure, and personnel available at the port or unit operation of oil and gas or other activity unit.

Tier 2 is the categorization of handling the emergency oil spill situation that occurred inside or outside DLKP and DLKR Port, or unit operation of oil and gas or units of other activities unit that cannot be handled by the facilities, infrastructure, and personnel available at the port or unit operation of oil and gas or other activity unit based on Tier 1 response.

Tier 3 is the categorization of handling the emergency oil spill situation that occurred inside or outside DLKP and DLKR Port, or unit operation of oil and gas or units of other activities unit that cannot be handled by the facilities, infrastructure, and personnel available at the port or unit operation of oil and gas or other activity unit based on Tier 2 response, or spreading across the border of Indonesia Territory.

Tier shall means the oil spill spread conditions categorized as the basis emergency handling operation based on the area of responsibility and handling capacity.

- The tiered category will trigger the necessary actions for response.
- The Site Incident Commander will make the initial spill size, tiered classification assessment, and supervise the response operation at the incident location.
- The On-Scene Commander in coordination with Mission Coordinator, will responsible for activation and mobilization of the response team, tiered escalation, and further response.

Monitoring And Evaluation

Oil is a naturally occurring product and over time will dissipate or evaporate by itself. With lighter oils that have a greater risk of explosion or release of toxic gases, if the oil is not going to impact any sensitive resources, it must be recognized that sometimes the safest and most efficient response will be to let the oil naturally dissipate. This will require regular monitoring to track the spill and ensure that other actions are taken in a timely manner if it looks likely to impact environmentally sensitive resources, such as the coastline. Monitoring oil spills is best carried out from a helicopter or small plane with a trained observer.

2. METHOD

(Manual Method, Trajectory)

- Obtain information on tides and direction/speed of currents and winds.
- Using the information on currents and winds, predict the trajectory and speed of movement of the spill:
- Draw the slick on a chart (map) with coordinates, showing the current position and predicted movement of the oil.
- Request a helicopter or fixed wing aircraft to provide aerial observation. Aerial surveillance will allow you to observe the spill and record the size and location of the slick. Over-flights should be carried out at least twice a day. The first at dawn, the last before dusk.
- Once the size and movement of the spill are known, it is possible for the Offshore Oil Spill Incident Commander to assess the potential danger to people and nearby sensitivities, and if necessary, to set up safety exclusion zones.
- It is important that the predicted movement of the slick is known so that responders and oil spill response equipment can be guided to the right locations for oil spill response operations to commence as soon as possible.

3. DISCUSSION AND RESULT

During the flight, careful attention should be made of all of the locations where contamination could possibly occur. This is also a good time to look at places that could be protected before the impact of oil, such as marinas, fish farms and other sensitive areas. Pertinent characteristics should be recorded in order to make the response possible with

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

confidence in the flight report information. The efforts of response are concentrated on the most significant areas of the spill. It is important to record the denser concentrations of oil. The GPS equipment of the aircraft also permits the definition of the location of oil slicks. Dedicated remote sensing aircraft frequently they have built-in photographic equipment linked to a GPS in order to accurately determine geographic coordinates though these aircraft are not found in many parts of the world, sadly oil spills are.

4. CONCLUSION

The individual training requirements will be depend on the role and experience of the person involved. This would include aspects such as organization of logistics, PPE, equipment, food etc. On the other hand, the oil spill response team will not need to be concerned with crisis management issues, liability, finances or business continuity. Their duty and purpose is to prepare Oil Spill Response Equipment and vessels, monitor spill movement and deploy equipment for the clean-up operation. For the purpose of this operational phase, exercises will be included in the training. Developed by an international group of experts from government and industry based on over 30 years' experience in oil spill preparedness and response. The IMO courses address specific purposes and needs and provide guidance to those countries developing an oil spill framework:

LEVEL 1: Provides training on practical aspects of oil properties, response techniques, health and safety, boom and skimmer deployment, dispersant application, use of sorbents, shoreline clean up, debris / waste handling and disposal and wildlife casualties.

LEVEL 2: Provides detailed training in oil spill behavior, fate and effects, spill assessment, operations planning, containment, protection and recovery, dispersant use, shoreline clean up, site safety, storage and disposal of waste, media relations, record keeping, command and control management, communications and information, liability and compensation, response termination and post incident review / briefing.

LEVEL 3: Provides an overview of the roles and responsibilities of senior personnel in the management of incidents, cause and effect of oil spills, response policy and strategies, contingency planning, crisis management, public affairs and media relations, administration and finance and liability and compensation.

EXERCISE: Oil spill response exercise must be conducted regularly to ensure and improve the readiness of personnel, equipment, and as the evaluation of existing procedure. Table 5.3 Oil Spill Response Exercise below is the type of exercise and minimum requirement to be conducted based on PERMENHUB No.58/2013.

REFERENCES

This OSCP is made in accordance with PT Pelabuhan Tegar Indonesia policies and complies with the following Indonesian and International Laws and Regulations:

1. Law No.32/2009 pertaining to Environmental Management –The Living Environment Management.

2. Government Regulation No.18/1999 jo No.85/1999 pertaining to Hazardous Waste Management.

3. Government Regulation No.19/1999 pertaining to Pollution Control and Sea Destruction.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

4. Government Regulation No.51/2011 pertaining to Special Terminal and Terminal for Private use.

5. Republic of Indonesia Presidential Decree No.46/1986 pertaining to "International Convention for the Prevention of Pollution from Ship, 1973 and the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78).

6. Republic of Indonesia Presidential Decree No.65/1986 pertaining to "Safety of Life at Sea" (SOLAS) 1974.

7. Republic of Indonesia Presidential Decree No.109/2006 pertaining to Emergency of Oil Spill Response Situation.

8. Transportation Minister Decree No. KM 83 AL.506/Phb-83 year 1983 pertaining to Pollution liability insurance for vessel owners in damages caused by oil pollution of sea in boat accident.

9. Transportation Minister Decree No.KM 215/AL.506/Phb-87 year 1987 pertaining to Procurement of waste storage facilities of the ship.

International Regulations and Standards
Laws relating to oil spills determine the legal framework in which oil spill contingency planning and response operations must be carried out, thus they must be considered as part of the contingency planning process. Indonesia has ratified the following international conventions.