

RISK MANAGEMENT OF CDC (CARGO DISTRIBUTION CENTER) WAREHOUSE OPERATIONAL ACTIVITIES AT PT MULTI TERMINAL INDONESIA

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Abstract: This research aims to analyze the implementation of risk management in the distribution center warehouse of PT Multi Terminal Indonesia in 2023. This research uses a qualitative approach with descriptive methods. Data was collected from in-depth interviews, observations and document studies, involving six informants who were experts and decision makers. The results of this research found that although there is no unit designated as a risk management unit, risk management has been implemented well by the Health, Safety, Security, environment (HSSE) unit. The biggest risk is damage or fire due to incorrect storage of goods (Dangerous Goods). To mitigate this, it is necessary to carefully check the handling of dangerous goods to find out the classification of the goods and to have complete fire extinguishing facilities.

Keywords: *operational risk, warehouse, HSSE, cargo distribution centre, port*

I. Introduction

According to Indonesian Government Regulation no. 69 of 2001 concerning Ports, a port is a place consisting of land and surrounding waters with certain boundaries as a place for government activities and economic activities which are used as a place for ships to dock, anchor, board or disembark passengers or load and unload goods—equipped with shipping safety facilities and port supporting activities as well as a place for intra- and inter-mode transfers.(Saleh, n.d.)

Tanjung Priok Port is the busiest port in Indonesia. One of Indonesia's leading ports, the gateway to national and international economic connectivity, is Tanjung Priok.(Id & Romadhon, 2018) Its strategic location and modern technology make this port a barometer of the Indonesian economy. PT Multi Terminal Indonesia (MTI) is a subsidiary of PT Pelindo Solusi Logistik, which is one of the sub-holdings of PT Pelabuhan Indonesia (Persero) in the logistics & Hinterland Development business cluster, which was established on September 29, 2021. (Purnomo et al., n.d.)

The structure of the CDC warehouse space is made in such a way as to minimize damage to goods and support the effectiveness of activities carried out in the warehouse. The CDC warehouse has a total area (14 doors) of 6,160 M2 and an effective area (11 doors) used for stacking goods of 3,328 M2.(Saleh, n.d.) CDC Banda is a warehouse designated as a Temporary Storage Place (TPS) for imported goods arriving in Indonesia, especially for the cargo category, sending goods using Less Than Container Load (LCL), which means sending goods with minor parties. They were carried out from the shipper's warehouse to the Consigne warehouse. (Priyono & Evianti, n.d.) Some include producing raw materials, personal goods, spare parts, machines, and dangerous goods. In its operational activities, the CDC Banda warehouse follows the goods flow process generally applied in other types of warehouses. This process includes receiving, putting away, order picking, and delivery. Thus, CDC Banda ensures the smooth and safe flow of imported goods in Indonesia. Risk is the potential loss due to the occurrence of a

particular event. Various types of work risks can be identified through risk identification and assessment, and then various control efforts can be carried out to reduce these risks so that accidents do not occur. (Triswandana & Armaeni, n.d.) PT MTI has an HSSE program in K3 risk management; the HSSE function also includes preparing and implementing corporate emergency response plans two, identifying hazard aspects, carrying out impact risk assessments, and preventing work incidents or accidents. (Putri Mahanani & Febiana Christanti, n.d.)

Operational Risk is a risk that arises because the internal system in place does not work as it should, human error, or system failure. The highest source of operational Risk can come from operational activities and accounting services, information technology systems, management systems, or human resource management systems. (Nixon & Tampubolon, 2019)

II. Literature Review

Fasilitas yang dimiliki PT. Multi Terminal Indonesia (MTI)

A TPS is a building field or other place used to store exported or imported goods while waiting for the goods to be released. Based on Minister of Finance regulation number 109 /PMK.04/2020 concerning customs areas and temporary storage areas, CHAPTER 3 Article 12 reads: Buildings and/or fields or other equivalent places used to store imported or exported goods must be designated as a TPS. As in paragraph (1), TPS can be a stockpiling yard, container, stockpiling warehouse, or storage tank. (MENTER! KEUANGAN REPUBLIK INDONESIA, n.d.)

Goods stockpiled in TPS are differentiated based on the type of goods and status of the goods as stated in Minister of Finance regulation number 109 /PMK.04/2020 concerning customs areas and temporary storage places. CHAPTER 3, third part, Article 15 states that one, Stockpiling of goods in TPS. Must be separated between imported goods, export goods, and goods originating from the Customs Area, which are transported to other places within the Customs Area via outside the Customs Area. Two, Dangerous goods, which have the property of damaging or affecting other goods or goods that require particular installation or handling, must be stored in a special place provided for this purpose. Three empty containers must be stored in a particular place provided for this purpose. (MENTER! KEUANGAN REPUBLIK INDONESIA, n.d.)

Health Safety Security Safety Enviroment Implementation

Implementing Occupational Safety and Occupational Health Management is crucial for operational effectiveness. Implementing K3 is to create a positive, comfortable, and safe work environment and avoid the risk of causing accidents. The Banda CDC warehouse has activities related to heavy and dangerous Dengersgood (DG) equipment, so it is very vulnerable to undesirable things happening. PT Multi Terminal Indonesia (MTI) has a Health Safety Security Environment (HSSE) to minimize the risk of work accidents, has K3 Management System (SMK3) certification in implementing the Safety and Health Management system and ISO 9001: 2005 from sucofindo in implementing the quality management system. K3 is a healthy and safe work condition for workers, companies, society, and the environment. K3 is an effort to prevent any unsafe acts or conditions which could result in accidents. The legal basis as a reference regarding K3 includes: 1. Law no. 1 of 1970, Concerning Work Safety2. PP. No. 50 of 2012 concerning implementing K3 Management Systems (SMK3) stipulates that every company, as mentioned below, must implement SMK3 in companies including a. Companies that employ at least 100 (one hundred) people; b. Companies that have a high level of potential

danger. Implementing SMK3 considers the provisions of laws and regulations and international conventions or standards. (Supartini et al., 2021a)

By identifying risks regarding service quality and risk analysis of possible risks, prevention can be carried out so as not to cause risks that ultimately harm the company. (Nisa Alif Wardatun & Wessiani Naning Aranti, n.d.) Every accident causes suffering for the victim and their family and, of course, the company where the victim works because they have lost the time of workers who impact the company. The risk is quite significant for accidents that occur in the form of human suffering and constitute an economic waste. Therefore, preventing accidents in the workplace is an essential aspect. (Irwansyah & Umyati, n.d.)

Occupational Safety and Health (K3) is necessary for everyone to carry out work and daily activities. Undisciplined worker behavior, inappropriate work methods, and equipment are the causes of work accidents. (Jati Raihan Winata, n.d.) Human resources, as one of the resources in an organization, play an important role in achieving organizational goals. (Samsuni, n.d.) There is a danger of causing accidents that harm humans, equipment, materials, and the environment. Risk describes potential dangers and risks that must be immediately handled and controlled with excellent and correct K3 management. K3 management is closely related to risk management. (Henri Prasetyo et al., 2018) The availability of work safety facilities can reduce the possibility of work accidents. For this reason, companies must commit to implementing K3 and providing adequate K3 facilities and outreach to company workers. (Supartini et al., 2021b) K3 itu sendiri yaitu merupakan An essential aspect in efforts to improve employee welfare. If work safety is high, then accidents that cause illness, disability, and death can be reduced to a minimum. (Permadi et al., n.d.)

Referring to the Minister of Finance's regulation number 109 /PMK.04/2020 concerning customs areas and temporary storage places, CHAPTER 3, part three, Article 8 states that Goods other than imported goods or export goods are prohibited from entering or being stockpiled in the Customs Area, except for Onward transportation purposes, operational activities in the Customs Area; or, other purposes based on the consideration of the head of the customs office that supervises the customs area. (*MENTER! KEUANGAN REPUBLIK INDONESIA*, n.d.)

III. Research Method

Descriptive qualitative research is a research method that aims to understand and describe the characteristics or nature of a phenomenon or research object without using numbers or statistics. Qualitative research needs to be conducted after a problem has been researched quantitatively, but the solution has yet to be revealed. If you are not satisfied and want to know more deeply about a problem, even though you cannot guess or find it difficult to make assumptions, then qualitative research is suitable to be carried out. (Rusli, n.d.) This method collects and analyzes data in words, images, or other non-numerical materials. The main goal is to provide an in-depth and detailed description of the observed phenomena.

This understanding means that researchers use observations, interviews, or text analysis to describe the qualitative characteristics of the phenomenon carefully. *Qualitative research* is defined as a research method that focuses on obtaining data through open communication and conversation. (Hasan et al., n.d.) Qualitative research methods emerged because of a paradigm shift in viewing reality/phenomena/symptoms. This paradigm sees social reality as holistic/whole, complex, dynamic, and meaningful. (Abdussamad, n.d.) The results of this descriptive qualitative research often take the form of narratives or in-depth descriptions of specific themes or topics.

This method is often used in social sciences, psychology, anthropology, and other fields where researchers want to understand and explain complex phenomena more deeply.

IV. Result and Discussion



Result

This research involves collecting data through direct observation, interviews with various related parties, and an in-depth review of relevant library sources. The data collected was then analyzed carefully using a descriptive approach to evaluate the quality of services provided in the warehousing sector, mainly focusing on the operational activities of the CDC Warehouse at PT Multi Terminal Indonesia. PT MTI's services consist of 4 main activities. First, freight forwarding provides various services, including transportation, document handling, and insurance, which allow goods to be delivered smoothly. (Tianglangi & Sasabone, 2023) Second, warehousing functions as a place to store production materials and results. (Herdianzah et al., n.d.) Third, open storage is an open field used to store container goods or cargo, consisting of domestic and bonded areas. Fourth, halal logistics and cold storage, namely services for sending halal-certified goods, and cold storage is a refrigerated room used to store goods that require low temperatures. Halal logistics. It manages the material and information flow throughout the supply chain, following halal standards. Material flows include transportation, storage, container, and terminal operations. Information flow includes data management in the supply chain, such as product information, requested data, and halal logistics codes. Halal includes slaughter, storage, display, preparation, sanitation, and cleanliness. (Rangga Pradipta et al., n.d.)

Goods receiving service flow at LCL CDC Banda Warehouse

Stage 1;

1. PBM submits the PLP, Manifest, and Master BL letters to the Warehouse administration.
2. If approved, the warehouse administration verifies the documents, prints an application letter sent to the terminal and customs, then books in the manifest and makes inbound planning.
3. After receiving the application letter, the terminal and customs authorities will process the BPRP invoice and BC terminal stamp, print the terminal receipt, get a pass, and then submit it to the trucking administration.
4. After getting the delivery letter and the terminal gets the pass, the trucking party gets a transporter job order and terminal gate pass. When picking up the container, the truck must carry an E-Seal, and at this stage, the truck will get a Banda CDC Warehouse Gate Pass.

Stage 2;

1. After the container is picked up, the truck goes to the CDC Banda warehouse and performs a tap to get a pass.
2. After entering the truck, go to the striping area and make an entry striping request by taking a photo of the seal and container, which is then sent to customs.
3. The excise department agrees that striping is carried out. The striping process is carried out by removing the container seal. After that, the goods are unloaded from the container. Then, the cargo is labeled and photographed according to house BL. Then, the operator puts it away using HHT.

Goods that have been stockpiled at TPS have a maximum stockpiling period of 30 days from the date of stockpiling. Imported goods stockpiled beyond the 30 days will be designated as uncontrolled goods and stored in customs storage areas. (*MENTER! KEUANGAN REPUBLIK INDONESIA*, n.d.)

In delivery activities, PT Multi Terminal Indonesia Banda's CAGO distribution center unit prepares requirements involving the management and shippers of goods whose goods are stored in PT Multi Terminal Indonesia's Banda CDC Warehouse. (Purnomo et al., n.d.) Goods delivery service at LCL CDC Banda Warehouse (non BC 2.0):

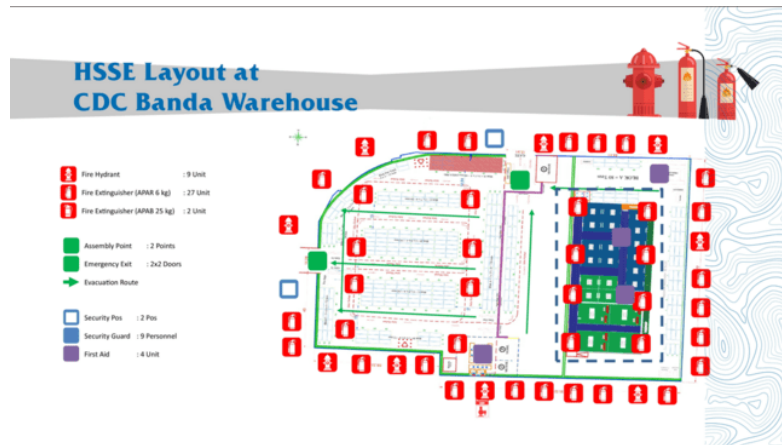
- a. The MKL/freight forwarder submits the original DO, photocopy of SPPB, Invoice, photocopy of KTP and PPJK, then sends to the CFS or container freight station to carry out the billing process and will get a payment receipt and get a pass.
- b. After that, the truck goes to get in and document administration. The document administration party verifies the completeness of the documents. If they are complete, they will get a loading permit stamp; if not, they will be directed to correct the documents.
- c. After the documents are complete, the freight forwarder goes to the warehouse, and the warehouse checks the delivery order, then issues a transporter job slip, and then picks up a photo of the brand and goods, after which the goods are loaded into the car or truck.
- d. After loading the goods, go to customs to stamp the SPPB letter and get a customs seal sticker. Customs will make an SP 2 letter, and then the truck will tap, get passed out, and complete the process.

this is based on the results of interviews conducted with informant O / (Ocha) as an employee PT Multi Terminal Indonesia That is:

Every item entering / leaving the CDC Banda Warehouse must be in accordance with the required documents, if there is a mismatch, it cannot be stockpiled / released before obtaining approval from Customs. CDC Banda Warehouse area is 10,000 M3 and is divided into 4 core businesses, namely TPB Red Line, Export, Import and TPB Green Line (interview, 19 October 2023).

Discussion

PICTURE 1



Source (Company profile MTI 2023)

The HSSE system owned by PT Multi Terminal Indonesia (PT MTI) has six indicators for measuring security in the Banda CDC Warehouse, starting from Physical Security with seven security elements, Access Control Security with three security elements, Personnel Security with two security elements, Procedural Security with three security elements, Information Security with three security elements and Security Training with two security elements to maintain service quality and security. By prioritizing HSSE, companies can create a safe, healthy, and sustainable work environment, increasing employee productivity, minimizing risks, and improving the company's image. It also ensures that the company complies with government health, safety, security, and environmental protection regulations. K3 is also helpful for increasing the health and safety of workers in the company. A K3 system in the company will minimize budget costs due to work accidents. (Permadi et al., n.d.)

PICTURE 2



Source (Company profile MTI 2023)

The HSSE facilities owned by PT Multi Terminal Indonesia (MTI) are following the potential risks from goods and human negligence. To extinguish fires, there are nine units of Fire Hydrants, twenty-seven units of six kilogram Light Fire Extinguishers (APAR), and two units of Heavy Fire Extinguishers. (APAB) twenty-five kilograms spread across several points in the CDC Banda Warehouse. For personal protection, employees are equipped with Safety Helmets, Safety Vest, Safety Shoes, and Safety Fire Clothes for every worker in the warehouse area. HSSE aims to create a safe and healthy work environment, protect organizational assets and resources, and minimize negative impacts on the natural environment. This is especially important in various industries, such as manufacturing, construction, energy, and transportation, where health, safety, security, and environmental risks can be very high. By implementing HSSE principles, organizations strive to achieve optimal safety, regulatory compliance, and environmental responsibility.

No	Sub Area	Activity/process	Danger	Potential Impact	Initial Risk			Risk Category
					L	S	RFN	
1	Stripping Warehouse	Unload goods from container	Hit/run over by a forklift	Fractures, injuries, bruises, sprains	2	3	6	Moderate
2	Stripping Warehouse	Unload goods from container	Forklift fumes, dusty items	ISP, Shortness of breath, lung disease, eye pain/skin disease, cough	4	2	8	Moderate
3	Storage Warehouse	Placement of goods on floor/shelves	Got hit, neck ache from looking up too often	Fractures, injuries, sprains, bruises	2	3	6	Moderate
4	Storage Warehouse	Placement of goods on floor/shelves	Run over by a forklift	Fractures, bone fractures	2	3	6	Moderate
5	Storage Warehouse	Placement of goods on floor/shelves	Stuff spilled from the top of the shelves	Injuries/Wounds, concussion, death	2	4	8	Moderate
6	Storage Warehouse	Placement of dangerous goods	Explosion, toxic, dangerous chemical leak, corrosive, fire	Burns, blisters, poisoning, irritation	2	5	10	Substantial
7	Delivery Warehouse	Load goods from warehouse into box car	Hit by a forklift, hit by a box truck	Broken bones, cracks, bruises, coughs, wounds	3	2	6	Moderate
8	Delivery Warehouse	Load goods from warehouse into box car	Forklift fumes, dusty items, exposure to sunlight	ISP, Shortness of breath, lung disease, eye pain/skin disease, cough	4	2	8	Moderate

Table1.Tabel of HIRA CDC BANDA WAREHOUSE

Based on Table 1 above, there are potential risks. In the warehouse stripping area, there are several activities/processes of unloading and removing goods from containers, so the danger that arises is being crushed/run over by a forklift; the potential impacts that will occur on humans are broken bones, sprains, bruises, and injuries. Injuries, forklift fumes, and dusty items.

In warehouse storage, there are several activities/processes of placing goods on floor and shelves. Dangers that might occur are being hit and neck pain due to frequently looking up, being run over by a forklift, and being hit by goods from above the shelves. If activities/processes in the warehouse or goods area are dangerous, then dangers that may occur include explosions, toxic goods, dangerous chemical leaks, corrosives, and fires. The potential impacts that will occur in the Dangerous goods Warehouse risk area are burns, blisters, poisoning, and irritation.

In activities/processes in the delivery warehouse area, there are several risky activities/processes such as being hit by a forklift, being hit by a box truck, forklift fumes, dusty goods, and exposure to sunlight. Potential impacts that occur from these activities/processes are broken bones or cracks, coughing, injuries, respiratory infections, shortness of breath, lung disease, eye pain, and skin irritation.

Rank	Description	Information
5	Regular/Almost Certain	An event will occur under all condition, for example it occurs repeatedly every year
4	Probable	An event may occur in almost all conditions, for example within a year to 3 years
3	Possible	An event will occur under certain condition, for example within 5 years
2	Likely	An event may occur under certain conditions, but the probability of it <u>occurring</u> is small, for example within 10 years
1	Unlikely	An incident may occur under special/extraordinary conditions/after many years, for example once in the lifetime of the factory

Table 2.Table of Risk Assesment

No	Risk Sub Area	K3 Control	Residual Risk			Risk Category	Assesment Date
			L	S	RFN		
1	Stripping Warehouse	Using PPE, installing K3 signs, working according to SOP, routine safety talks, forklift maintenance	2	2	4	Acceptable	August 29, 2023
2	Stripping Warehouse	Use appropriate PPE, see container manifest, work according SOP	2	2	4	Acceptable	August 29, 2023
3	Storage Warehouse	Use PPE, work according to SOP, install K3 sign, hazard lights on forklifts, safety talk	2	2	4	Acceptable	August 29, 2023
4	Storage Warehouse	Use PPE, work according to SOP, install K3 sign, hazard lights on forklifts, safety talk	2	2	4	Acceptable	August 29, 2023
5	Storage Warehouse	Use PPE, work according to SOP, install K3 sign, hazard lights on forklifts, safety talk	2	2	4	Acceptable	August 29, 2023
6	Storage Warehouse	Install area fence (restriction area), K3 sign, work permit, personnel training & education, safety talk, prepare emergency response equipment, use PPE	1	5	5	Acceptable	August 29, 2023
7	Delivery Warehouse	Use PPE work according to SOP	2	2	4	Acceptable	August 29, 2023
8	Delivery Warehouse	Use PPE work according to SOP	3	1	1	Acceptable	August 29, 2023

Table 3.Scale of Likelihood of Risk Analysis Matrix PT MTI Multi SCM

Rank	Finance (X US\$)	Reputation	K3
1	<100	Minor intrusion. Doesn't really affect the company's reputation	Minor injury/illness, has little impact on K3, requires first aid but the worker can return to work. No lost time injuries
2	100<X<500	The disturbance is moderate and getting attention from management/corporate/regional.	Moderate injury/illness, requires medical treatment. Workers can return to work but there is a decline in <u>performance</u> . No lost time injuries
3	500<X<5.000	Serious intrusions, getting attention from the public/NGOs/local media, can be detrimental to business, possibly resulting in lawsuits.	Injuries/illnesses that require special treatment resulting in lost work time
4	5.000<X<10.000	The disruption was very serious, impacting company operations and sales. Attracted national media attention. Legal proceedings are almost certain	Death or permanent physical disability due to work

Table 4.Scale of Severity of Risk Analysis Matrix PT MTI Multi SCM

Risk category	RFN	Action required
Trivial	1-2	No action required.
Acceptable	3-5	No additional action is required. Requires monitoring (patrols) to ensure existing controls are maintained.
Moderate	6-9	Must take action to reduce the level of risk. Risk reduction measures must be implemented within a specified time period (12 months).
Substantial	10-15	Must take action to reduce the level of risk. Risk reduction measures must be implemented within a certain time period (6 months)
Unacceptable	16-25	Work should not be carried out until the risk level is reduced. The use of resources can be considered to be allocated to reduce risk. When risks involve work in progress, immediate action needs to be taken. If the risk cannot be reduced even with unlimited resources, work is stopped and must not be carried out (within 7 days, minimum administrative controls must be implemented)

Table 5.Scale of Risk Category of Risk Analysis Matrix PT MTI Multi SCM

A risk assessment matrix can calculate job risks precisely and quickly. With these calculations, the impact and losses due to work accidents can be minimized. (Nurmala et al., n.d.) The risk matrix is a matrix used to determine the level of risk by accumulating opportunities for consequences/impacts. Based on Table 1, the identification of hazards and risks containing potential work accident risks, and table 2, risk assessment containing Likelihood (L), Severity (S), and Risk Frequency Number (RFN) on initial and post-control risks which have been assessed by the company on August 29, 2023.

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Rank	Impact of Risk				
	1	2	3	4	5
1	T	T	A	A	A
2	T	A	M	M	S
3	A	M	M	S	S
4	A	M	S	U	U
5	A	S	S	U	U

Table 1.Table of of Risk Rating

In the Storage Warehouse in the Dangerous goods area, with dangerous of explosion, poisoning, toxic chemical leaks, corrosiveness, and fire, routine conditions (R) are at levels L2, S5, and RFN 10 with a Moderate risk level. After K3 control, the risk level decreased at levels L1, S5, and RFN 5 with the acceptable risk category.

In the delivery warehouse, the danger of being hit by a forklift and being hit by a truck is in routine conditions (R) at levels L3, S2, and RFN 6 with a Moderate risk level. After carrying out K3 control, the risk level decreased and was at levels L2, S2, and RFN 4 with the acceptable risk category.

Based on Table 2, the initial risk figure is classified as a rank that potentially impacts the risk category. What PT MTI has done in the Banda CDC Warehouse area is to create a K3 control system that makes the initial risk number change status to residual risk. This also influences changes in risk categories.

V. Conclusion

Based on the conclusions and results of the previous discussion, several conclusions and determinations can be drawn:

- a. PT. Multi Terminal Indonesia (MTI) has performed good risk management, using the Health, Safety, Security, Environment (HSSE) system and carrying out K3 control.
- b. With the data from Table 1 to Table 3, PT Multi Terminal Indonesia (MTI) has reviewed the identification of Hazards and Risks and then assessed these risks, proving that PT Multi Terminal Indonesia (PT MTI) cares about risks that may occur in the future.
- c. Overall, PT Multi Terminal Indonesia has done what must be done for a national company from a PT Pelabuhan Indonesia (Pelindo) subsidiary by describing the previously discussed data. As a result, PT Multi Terminal Indonesia (MTI) has studied more deeply for Hazard and Risk Identification.

VI. Implication

The meaning of implication in Indonesian is the effect that will occur in the future or the impact that is felt when doing something. (Wahyudiyono, 2019) The results of this research regarding K3 risk management of CDC Banda PT Warehouse activities. Multi Terminal Indonesia. Based on the research results, it is known that K3 risk control carried out by PT Multi Terminal Indonesia can significantly reduce the level of work accident risk.

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- a. PT MTI leaders, especially the K3 Risk Management division, must control the field periodically.
- b. Leaders must continue to carry out outreach and training related to occupational health and safety (K3) to all warehouse staff.
- c. To reduce the level of risk significantly, the division responsible for K3 must carry out routine maintenance on facilities that have an essential role in preventing work accidents.

VII. Research Limitation

- a. Time Limitation: we had limited time in this research with the issuance of the research permission letter only a few days before the deadline and the short duration of the research; we were given only two days to make observations in the field, this time was too short to follow all the activities carried out, and Warehouse conditions were not busy when we made observations.
- b. Data Limitations: In processing the data, we had difficulty getting detailed data because some of the supporting data was Confidential data, and when we conducted the interview, the building we visited suddenly had to be empty because there was demolition activity on the empty building next to it. Which has the potential to pose a safety risk.

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