

Analysis Of Occupational Safety And Health Risk Using The Hazard And Operational Study (Hazops) Method For Repairman

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Annotation: Knowledge of occupational safety and health is very important for every job, but in practice there are still violations of OHS committed by Repairman such as not using personal protective equipment which is a mandatory requirement to carry out when doing work. By not implementing the OHS program in the workshop, it will have a negative impact in the form of increased incidence of work accidents and occupational diseases. Hazard and Operability Study (HAZOPS) is an attempt to identify the hazards of a process if it deviates from what it should be, hazops is a very systematic, thorough, and complete technique. Based on the results of preliminary studies that have been carried out, it is found that Griya Motor 168 City Market South Tangerang has 6 workers, all workers do not use personal protective equipment, for this reason researchers are interested in examining risks using the HAZOPS method. The general purpose of this research is to analyze occupational safety and health risks using the Hazard and Operability Study (HAZOPS) method at the Griya Motor 168 Pondok Cabe Workshop in South Tangerang. This research is a qualitative research. The techniques used in data collection are field observations and interviews. Data analysis begins with identifying Occupational Safety and Health risks by determining study points (nodes), deviations, causes, consequences and actions. Based on the results of the study, 8 potential hazards were obtained with 2 high categories, 4 medium categories, and 2 low categories. With this research, it is hoped that the company will improve safety for workers to reduce the risk of work accidents, for PPE, it should be emphasized and controlled because there are still workers who are negligent in using PPE.

Keywords: Hazard, Risk, HAZOPS (Hazard and Operability Study), Health and Safety, Work Accidents.

Introduction

Occupational Safety and Health is something that really needs to be paid attention to in work, especially work that can cause danger. The use of K3 is often used to maintain the health and safety of workers themselves, such as work in the construction sector, large projects, workshops and work that poses other dangers (Setiono, 2017). According to data from the International Labor Organization (ILO), it is stated that every day 6,000 fatal work accidents occur in the world (Sunaryo, 2022). In Indonesia, the level of work accidents is increasing every year, as stated by the Director of Supervision of Occupational Safety and Health Norms in 2019, that in 2015 there were 110,285 work accident cases, in 2017 there were 123,041 cases, and in 2018 there were 123,041 cases. 173,105 cases (Abidin, 2019).

Hazard and Operability Study is an effort to identify the dangers of a process unit if it deviates from what it should be, hazops is a very systematic, thorough and complete technique (Ramadhan, 2022). HAZOPS was initially developed only for industry, but can also be used for other activities (Nabila, 2021). To reduce the number of work accidents, work accident prevention programs need to be implemented, namely by implementing risk management to look at the dangers and potential risks found in the workplace. The hazard identification process is one part of risk management (Rosdiana, 2017). Risk assessment includes hazard identification, hazard analysis, risk assessment, risk control, and monitoring and evaluation (Ningsih, 2019). In the process of identifying and carrying out potential hazard analysis, you can use the Hazard and Operability Study (HAZOPS) method. This method implements part of risk management and ensures the direction of the implementation of occupational safety and health within the company (Siregar, 2018).

Griya Motor 168 City Market Pondok Cabe South Tangerang is a company engaged in car maintenance and repair. Griya Motor 168 City Market Pondok Cabe South Tangerang is a company that has been around for quite a long time in the field of car maintenance and repair, because this company was founded in 2010. Based on the results of a preliminary study carried out on Wednesday, November 15 2022, it was found that the Griya Motor 168 workshop City Market South Tangerang has 6 workers, 100% of all workers do not use personal protective equipment. When working, workers only wear t-shirts, trousers and flip-flops. Apart from that, the cleanliness of Repairman while working is very difficult to maintain, there have been many cases of work accidents at the Griya Motor 168 City Market Pondok Cabe, South Tangerang workshop. Work accidents that often occur are inhalation of chemicals, being stabbed by sharp tools, and falls due to messy tools, however, all work accidents are not recorded so it cannot be known for certain how many work accident cases have occurred in the workshop.

Based on the background of the problem description, this research aims to identify work safety risks using the hazard and operability study (HAZOPS) method for Griya Motor 168 City Market Pondok Cabe South Tangerang.

Method

This research uses a qualitative descriptive approach, namely describing the results of occupational safety and health risk analysis using the Hazard and Operability Study approach for workers at the Griya Motor 168 City Market Pondok Cabe South Tangerang workshop. The population of this research is all Repairman at Griya Motor 168 City Market Pondok Cabe South Tangerang with details of 1 workshop owner and 5 Repairman, sampling was carried out using the Total Sampling technique.

The data collection instruments in this research consisted of observation instruments, interview instruments, and documentation instruments using tools in the form of HAZOPS worksheets, interview guides, recording equipment, writing instruments, and cameras. In this research, triangulation of data sources is used, where the workshop owner is the key source in this research. This triangulation directs the research so that when collecting data, it is mandatory to use existing data.

Triangulation utilizes different types of data sources to multiply similar data. Thus, what is obtained from one source can be tested when compared with similar data obtained from other, different sources. The qualitative data analysis technique used is an interactive analysis technique adopted from Miles and Huberman by reducing data, presenting data and drawing conclusions.

Result

Based on the results of identifying occupational safety and health risks in four activity processes in the workshop, namely lifting cars using carlifts, car repairs, changing oil and changing battery water, the following results of risk identification and assessment of existing hazard risks based on field observations can be seen in Table 1.

Table 1. Risk Assessment for Repairman

No	Process	Nodes	Deviation	Cause	Consequences	Action	L	C	S	RM
1	Carlift	Hold the jack using your hands	Pinched and crushed while holding the car	The position of the carlift/jack bolt is loose	Broken hand and bruised fingers	Accuracy	1	5	5	Low
		Lift the car using a jack	Hit by a car while getting under the car	The position of the carlift/jack is not appropriate to	Death Injury	Accuracy	1	5	5	Low Low

No	Process	Nodes	Deviation	Cause	Consequences	Action	L	C	S	RM
2	Car Repair			support the car						
		Clean the air filter	Hand exposed to hot air filter	When removing the air filter, do not wear gloves or a cloth	Scratched or blistered hands	Gloves or rags	3	3	9	Medium
		Check the spark plug or spark plug cable	Hand exposed to hot spark plug	When removing the spark plug, don't wear gloves	Blistered hands	Gloves	3	3	9	Medium
		Check the car engine	Exposure to noise	Engine sound from car	Hearing disorders	Earplugs	4	5	20	High
		Repair machine	Pinched	Pinched when repairing narrow areas	Injury or bruising to the hand	Gloves	5	2	10	Medium
3	Oil Change	Unscrew the oil tap bolt under the engine	Got oil splashed	When changing the oil, don't use gloves or goggles	Skin irritation Visual impairment	Gloves, and long clothing Glasses	4	2	8	Medium
		Remove the old oil is transferred to the used oil collection drum	Slip/fell	Slippery floor	Sprains and bruises on parts of the body	Safety boots	3	4	12	Medium
		Fill new oil into the engine	Got oil on it	Hands get oil when putting oil into the engine	Skin irritation	Gloves	3	2	6	Medium
		Unscrew the battery cover bolt	Was hit by a splash of battery water	When opening the battery bolt, don't use gloves	Skin irritation	Rubber gloves	4	4	16	high
		Pouring the battery water	Exposed to battery water	When pouring battery water, do not use gloves	Skin irritation	Rubber gloves	4	4	16	high

High ■ Medium ■ Low ■

Based on table 1, it can be seen that there are only three sources of danger, namely sources of danger that are classified as low (low), medium (medium) and sources of danger that are classified as high (high). The most common sources of danger found are sources of danger that are classified as moderate. Sources of danger that are classified as moderate are often found in the car repair and oil change department, while in the car repair department there are types of danger sources for hands being hit by hot air filters, hands being hit by hot spark plugs, exposure to noise, and being pinched.

Discussion

In the process of lifting a car using a carlift/jack, workers have worked according to work instructions and work implementation methods, but there are still workers who do not use personal protective equipment (PPE) when carrying out the work. work, workers also only wear sandals to carry out activities. This is in accordance with the research results of Porawouw (2020) in the title "Analysis of the Implementation of the Job Safety Analysis (JSA) Method in the Mechanical Maintenance Section at PT. Meares Sopotan Mining (MSM) Likupang" showed that the results of identifying potential physical dangers contained 3 potential dangers in the process of lifting a car using a carlift/jack, namely being crushed, pinched and electrocuted.

The risk assessment (Risk Level) in the carlift process is the risk of death if it is hit directly under the car while carrying out repairs under the car, therefore workers need to be careful when lifting the car so that it doesn't fall. This risk assessment is categorized as low because the probability level is at number 1 and the severity level is at number 5 with a risk assessment result of 5. Then the risk of injury is also possible when lifting the car uses a carlift/jack, this risk assessment is categorized as low because the probability level is at number 2 and the severity level is at number 2 with a risk assessment result of 4.

Based on the results of observations, when workers carry out car repair work, workers do not use personal protective equipment, floors filled with oil cause workers to fall, items and tools that are untidy. This is in accordance with the results of Efvandi's research (2022) in the title "Analysis of Potential Hazards in the Dwi Jaya Motor Car Workshop Using the Job Safety Analysis Method." electric car. The results of this research show that most workers do not understand the importance of understanding accident prevention while working and the importance of using a first aid kit.

Risk assessment in the car repair process, namely the risk of hands getting scratched or scalded when cleaning the car's air filter and checking the spark plugs or spark plug cables, it was found that several workers did not wear gloves or rags when repairing cars so that the risk assessment was categorized as medium with a probability level of 3 and a severity level of 3 with a risk assessment result of 9. In the oil change process there are three activities that can cause The risks are when opening the oil tap bolt under the engine, transferring the old oil to the used oil collection drum and when filling new oil into the engine. The activity of changing oil has the potential to cause injury because it is not uncommon for oil to spill on the floor which can cause slipping (Arnold, 2020). According to research by Efvandi (2022), when changing oil you must use gloves and goggles because oil is a chemical which if it comes into contact with the skin continuously will have an impact on health. When changing oil you must also be careful because the work floor is usually slippery which can cause workers to injury or exposure to hot oil due to slipping.

The risk assessment in the oil change process is that when you open the used oil tap bolt, there can be a risk of skin irritation because several are found Workers do not wear gloves or long-sleeved clothing to avoid oil splashes when opening the oil tap bolt under the machine so the risk assessment is categorized as medium with a probability level of 4 and a severity level of 2 with a risk assessment result of 8. Then the risk of eyes being exposed to oil splashes is It can cause vision problems for workers if they do not use protective glasses when carrying out the oil change process, so this risk assessment is categorized as medium with a probability level of 3 and a severity level of 3 with a risk assessment result of 9.

Based on observations, when workers carried out battery water replacement work they did not find the personal protective equipment provided by the workshop owner. Based on research by Efvandi (2022), it was found that many workers do not use tools personal protection when working in the workshop. They don't care about the dangers that might occur when personal protective equipment is not used while working, this happens because they feel uncomfortable and hot when using personal protective equipment. Workers must always be focused and careful when carrying out work, this is to increase the safety of the worker.

During the water change process, I found that several workers did not use rubber gloves when carrying out the battery replacement process. Gloves are very necessary when carrying out this process because battery water is a chemical that is dangerous for the skin. can cause irritation that is severe enough so that the risk assessment is categorized as high with a probability level of 4 and a severity level of 4 with a risk assessment result of 16.

Conclusion

Occupational Safety And Health Risk risk analysis using the HAZOPS approach concluded that there were risks such as being pinched and crushed when holding the car, being hit by a car while getting under the car, hands being hit by hot air filters, hands being hit by hot spark plugs, being exposed to noise, being hit by oil splashes, slipping or falling, getting hit by oil, getting hit by battery water and being splashed with battery water. The results of research observations showed that from the risk assessment there were 11 work risks from 4 work processes consisting of 3 risks in the high category, 6 risks in the medium category, and 2 risks in the low category.

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