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SAFETY PERMIT EVALUATION IN CONFINED SPACE BASED ON INDONESIAN REGULATION

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Abstract

Working in confined spaces has high risks, such as inhaling hazardous substances, trapped, falling, falling objects, fires, and explosions. One work sector that uses a lot of confined spaces in its production process is the Steam Power Plant. In Indonesia, Paiton Steam Power Plant is one of the largest steam power plants, supplying electricity to the islands of Java and Bali. To reduce the risk of accident in confined spaces, the Indonesia government, through the Ministry of Manpower, has established the latest regulations on confined spaces, which must be implemented in all companies that use confined spaces. This research aims to evaluate the current procedure and regulation about confined spaces in one of the companies that operated Paiton Steam Power Plant with the latest regulations by the Indonesia Ministry of Manpower. By using descriptive qualitative with literature study instrument on documents, observations, and interviews with safety specialist and safety officers. The result is within 56 checklist point evaluation based on Indonesia Regulation, there are 7 points minor inconsistencies, and 1 point is major inconsistencies. The company has implemented the regulation really well and just need to do some adjustment in the future.

Keywords: Confined Spaces, Indonesia Regulation, Evaluation

Introduction

Confined space is one of workplaces with a high risk of work-related accidents (Arifin et al., 2023). Working in a confined space could be life-threatening for the workers (Liu & Yang, 2017). A confined space is an area that is sufficiently large and structured in such a way that an employee can physically enter to carry out their designated tasks. It has limited or restricted access for entry and exit, and it is not intended for continuous occupancy by employees. (29 CFR 1910.146 Permit-Required Confined Space, 1993). In Australia, it found that there were 59 deaths in confined spaces from 2000 to 2012, two of them were caused by rescue attempt (Selman et al., 2017). Pettit et al. (1996) found that from 670 accident occurrences in confined spaces, there were 585 deaths from 1980 to 1989. Based on the U.S. Bureau of Labor Statistics on 2022, there were 1,030 workers deaths from 2011 to 2018, the highest the highest was occurred in 2017 with 166 deaths. OHSA, the agency responsible for developing regulations and standards in occupational safety and health field, has issued regulation and requirement for working in confined spaces.

Steam power plant is one type of business that uses various types of confined spaces, such as generator, boiler, tank, tunnel, silo, etc. In Indonesia, until 2023 there are 253 steam power plant, one of

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which is Paiton steam power plant. Paiton Steam Power Plant is one of the biggest power plants in Indonesia which supplies electricity on Java and Bali. In carrying out the production process or periodic repairs, workers will always be in contact with machines, one of which is a confined space. The large number of production machines that are included in the type of confined space requires the company to implement Occupational Safety and Health regulations in confined spaces.

Indonesian Ministry of Manpower issued the latest regulations of confined spaces, named the Minister of Manpower Number 11 of 2023 about Occupational Safety and Health in Confined Spaces (Peraturan Menteri Ketenagakerjaan Republik Indonesia Nomor 11 Tahun 2023 Tentang Keselamatan Dan Kesehatan Kerja Di Ruang Terbatas, 2023). This regulation replaces the previous regulation, about technical guidance and guidelines for confined spaces with the number of regulation was the Decree of the Director General of Manpower Supervision and Development No. KEP. 113/DJPPK/IX/2006. Thus, companies in Indonesia that have work involving confined spaces are required to implement the latest regulations, including the companies at Paiton Steam Power Plant.

Material and Method

This research used qualitative descriptive method with observational approach. In terms of time, this study is cross-sectional because it was conducted in a certain time period. The research was conducted in July 2024 until August 2024 at PT M, East Java. The prime data was obtained through observation and unstructured interview with Health and Safety Specialist and Health and Safety Officer which have the authority to establish safety procedure or safety permit. While secondary data was obtained from data that had been recorded in the company, such as company profile, work permits in confined spaces, confined space work procedure, and literature review about confined spaces.

In this study, Indonesian Ministry of Manpower Number 11 of 2023 used as a reference in evaluating safety permit in the company. The regulation presented in 56 points checklists. After all the data has been collected, an evaluation is carried out by comparing the data with the list in the checklist. After that, the results obtained were appropriate, inappropriate, both minor and major, and none.

Result

This research is about evaluating the current regulation and procedure about confined space in PT M. There were 56 assessment points based on the Minister of Manpower Regulation Number 11 of 2023. Within 56 points, 7 points are minor inconsistencies, and 1 point is major inconsistencies (Table 1).

According to The Ministry of Manpower Number 11 of 2023, the authorized person to issuing confined space entry permit called “Penanggung Jawab Area”. Meanwhile according to Permit to Work procedure from the company, this assignment is obligated to the Issuing Officer, in accordance with the Job Safety Analysis that has been carried out by the Recipient in Charge. The next is there was no written procedure for checking power supply before entering the confined space. According to the regulation, power source in the confined space must be no more than 50 volts for dry conditions and no more than 25 volts for wet conditions. But on the company’s confined space procedure there is no procedure for checking the power source yet, even though the responsible officer will always check the electrical voltage before work begins. It is recommended that the procedure be added to the current procedure for confined spaces.

Next is there was no the list of names of first aid officers and confined space rescue OHS officers, although the company already has parties who are responsible and have the authority to carry out rescue

and evacuation actions in the event of an emergency. It is better for the company to immediately appoint the first aid officer and OHS rescue officer for confined spaces, so their list of names can be attached on the company's confined spaces procedure. Another one is there is no emergency response plan for confined spaces on the safety permit yet. The company should update the procedure and attach the emergency response plan to the confined space entry permit. The emergency response plan must be included in both confined space procedures and emergency installation procedures. There are so many high and extreme level of risk in confined space, such as oxygen deficiency or enrichment, toxic gases, flammable atmospheres, engulfment, temperature extremes, falls, slips, electrical hazards, lack of communication, rescuer fatalities, etc (Botti et al., 2015; Buffington & Mc Burnett, 2005; Chiu et al., 2020; Damjanović Dešić & Šarić, 2017; Fithri et al., 2020; Ibbetson, 2005; Neitzel & Jo, 2018; "Permit-Required Confined Spaces: When It All Goes Wrong," 2006; Selman et al., 2018). That is why integrated emergency response management matters for confined spaces work.

Based on the Table 1, the next point is appointing OHS confined space personnel. As explained above, the company already has the one who responsible and authorized as stated in the Regulation of the Minister of Manpower Number 11 of 2023, but there has been no legal appointment of these workers. All these workers must also well certificated, for example, all of confined spaces' workers must have OHS certificate. As explained above, most workers who work in confined spaces already have a confined space K3 technician license. However, the officer responsible for conducting gas testing does not have the relevant certificate. It is advisable for the company to make adjustments in accordance with the current regulation.

Furthermore, the responsible gas detection technicians who have the authority to provide recommendations from gas measurement results, does not yet have such authority for giving such a recommendation and are not licensed for occupational safety and health. One of the hazards in confined spaces is hazardous and toxic gases. The presence of toxic gases such as hydrogen sulfide, carbon monoxide, and methane can be fatal (Chiu et al., 2020; Selman et al., 2018). These gases are often colorless, odorless, and tasteless, making them difficult to detect without proper equipment (Buffington & Mc Burnett, 2005). The company should engage these workers for carrying out certification gas testing so that they can provide recommendations, if necessary, when carrying out hazardous gas testing in confined spaces.

The next point is about occupational safety and health officers of confined space rescue. Based on the interview, the company already has a Core Team assisted by Emergency Response Team to carry out rescue and evacuation actions in all emergency conditions that occur at the plant. But there is no a specific emergency response team for confined spaces' emergency condition. As describe above, there are so many high and extreme hazards level in confined spaces, so it is appropriate if the company could fulfill this point.

Tabel 1. Evaluation of Confined Spaces' Safety Permit Checklist based on Indonesia Minister of Manpower Regulation Number 11 of 2023

Statements	Inconsistent	
	Minor	Major
Confined space entry permits are issued by an authorized person called "Penanggung Jawab Area"	✓	
Power supply with no more than 50 volts for dry condition and no more than 25 volts for wet condition	✓	
List of names of first aid officers and confined space rescuers	✓	
Inform all confined space workers about the emergency response plan, attach it to the entry permit, and evaluate it based on situation and requirement	✓	
The company have confined space occupational safety and health personnel consist of confined space occupational safety and health technician, confined space gas detection technician, and confined space occupational safety and health rescuer.	✓	
Confined space occupational safety and health personnel must have an occupational safety and health license		✓
Confined Space Gas Detection Technicians are obligated to identify potential confined space hazards and are authorized to measure hazardous atmospheric gases and provide recommendations based on the results of these measurements.	✓	
The Confined Space Rescue Occupational Safety and Health Officer is obligated to identify potential confined space hazards, is responsible for the rescue plan, and has the authority to carry out rescue actions for workers working in confined spaces and provide recommendations for rescue actions.	✓	

Conclusion

Confined spaces are enclosed or partially enclosed areas not designed for continuous worker occupancy. They have limited openings for entry and exit and may contain hazardous atmospheres. Confined spaces are used in many industries, including steam power plant. There are so many hazards in confined spaces, such as toxic atmospheres, oxygen deficiency or enrichment, flammable or explosive atmospheres, flowing liquids, solid, or gases, and excessive heat. That is why Indonesia government, through Ministry of Manpower, issued new regulations for confined spaces and must be implemented in all Indonesia companies that use confined spaces for their production processes. It is called the Minister of Manpower Number 11 of 2023 about Occupational Safety and Health in Confined Spaces.

The results of this study state that PT M, as one of the companies operating a steam-powered power plant, has implemented this regulation well. Within 56 checklist points, 7 points are minor inconsistencies, and 1 point is major inconsistencies. There are confined space entry permits are issued by an authorized person called "Penanggung Jawab Area"; power supply with no more than 50 volts for dry condition and no more than 25 volts for wet condition; list of names of first aid officers and confined space rescuers; inform all confined space workers about the emergency response plan, attach it to the entry permit, and evaluate it based on situation and requirement; the company have confined space occupational safety and health personnel consist of confined space occupational safety and health technician, confined space gas detection technician, and confined space occupational safety and health rescuer; confined space occupational safety and health personnel must have an occupational safety and health license; Confined Space Gas Detection Technicians are obligated to identify potential confined space hazards and are authorized to measure hazardous atmospheric gases and provide recommendations based on the results of

these measurements; and Confined Space Rescue Occupational Safety and Health Officer is obligated to identify potential confined space hazards, is responsible for the rescue plan, and has the authority to carry out rescue actions for workers working in confined spaces and provide recommendations for rescue actions.

The suggestion that can be given is that the company should immediately implement this latest regulation as a whole. The risks in confined spaces are very high. Therefore, the Indonesian government issued the latest confined space regulations to minimize the existing risks. The company's confined space procedures must be updated and adjusted to the latest regulations and the official appointment of confined space OHS personnel.

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