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Overview of noise measurement results at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan

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Abstract

PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan is the largest and leading agri-food company in the country, specializing in the feed mill industry. In every workplace, there is a potential for hazards, and one of them is noise. Noise levels exceeding the threshold values can lead to hearing impairment and the risk of damage to the ears, both temporary and permanent. Therefore, the objective of this research is to serve as an evaluation to prevent work-related diseases caused by noise exposure. This qualitative research with a descriptive approach aims to illustrate the actual conditions related to the results of noise measurements at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan. Routine noise level measurements in the work environment are conducted once a year with the assistance of PT. Envilab Indonesia. The environmental noise level measurements for the year 2022 were carried out in three work areas, including the pellet mill machine area with a result of 81.5 dB for 2 hours/day, the second-floor production hammer mill area with a result of 85.9 dB for 15 minutes/day, and the production basement hammer mill area with a result of 83.4 dB for 10 minutes/day. The conclusion of this research is that the noise levels in the three areas of PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan are still in accordance with the threshold values specified in the Indonesian Ministry of Manpower Regulation No. 5 of 2018.

Keywords: Noise; Threshold Values; Prevention; Occupational Health and Safety; Work

1. Introduction

In the current era of globalization, Indonesia is faced with the dynamics of growth in various sectors, including the industrial sector. This era opens up vast opportunities for the development of the industrial sector, but it also brings significant challenges. The industrial sector in Indonesia will be compelled to enhance its competitiveness, both in terms of product quality and the human resources it possesses. According to Riznanda and Kusumadewi [3], this is not an easy task, not only because of the numerous competing companies in the same field but also due to the need for effective human resource management. Effective human resource management becomes a critical factor in the sustainability and excellence of a company because human resources are the frontline in executing the vision, mission, and achieving the targets of the company [2].

Every workplace has various risks or potential hazards that can affect the health of workers. While these risks cannot be eliminated entirely, they can be minimized. The increased utilization of technology in the industrial world has a significant impact on optimizing production processes. However, the use of technology also has other consequences for occupational safety and health. Tarwaka [5] points out that the potential for hazards or the emergence of work-related diseases that can affect employee health often arises in the workplace. One health disturbance caused by the potential physical hazard is high-intensity noise. Noise levels exceeding the threshold values can lead to hearing impairments and the risk of damage to the ears, both temporary and permanent.

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According to the World Health Organization (WHO) report, it is known that the prevalence of hearing loss or damage in Indonesia is around 4.2% [6]. Countries worldwide acknowledge that Noise-Induced Hearing Loss (NIHL) is a type of disease that potentially poses a risk of hearing loss. Furthermore, the WHO report states that approximately 16% of adults experience deafness due to noise in the workplace. Based on this, NIHL is one of the issues that requires special attention. In general, workers still lack discipline in using the personal protective equipment (PPE) provided by the company. Additionally, the low understanding of health and safety culture among employees can contribute to increasingly significant problems.

Occupational Health and Safety (OHS) is an effort made to create a safe and comfortable working environment for every employee within it. When workers feel safe and comfortable, they can be more focused, creative, and contribute optimally. Therefore, Occupational Health and Safety (OHS) aims not only to protect workers but also to improve efficiency and productivity in the workplace. Shabani and Jerie [4] state that the Occupational Health and Safety program is crucial for ensuring the well-being of workers in the workplace, where workplace accidents often occur, leading to losses for the workers.

PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan is the largest and leading agri-food company in the country, specializing in the feed mill industry. It is located on Jl. Raya Tebel No.Km 3.8, Sidoarjo Regency, East Java, Indonesia. The company produces various forms of poultry feed, such as pellets, crumbles, and concentrates. Raw materials used for the production process come from supplier companies collaborating with PT. Japfa Comfeed Indonesia, Tbk. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan plays a crucial role in meeting consumer needs, emphasizing the health and safety of its workers. Given the background above, the author is interested in identifying the description of noise level measurements in the workplace at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan. Additionally, the author will provide effective suggestions for prevention and control efforts to ensure the company complies with existing regulations and provisions.

2. Material and methods

This research was conducted at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan, which operates in the field of feed mill, located at Jl. Raya Tebel No.Km 3.8, Sidoarjo Regency, East Java, Indonesia. The focus of this research is to identify the results of noise level measurements at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan. The research serves as an evaluation tool to prevent work-related diseases caused by noise exposure. This study falls under the qualitative research type with a descriptive approach to illustrate the actual conditions related to the results of noise level measurements at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan. The research utilizes primary data sources, including field observation results and interviews. Scientific secondary data from various journals are used to support the primary data collected. Data collection techniques in this study consist of observing research results and conducting semi-structured interviews with one of the HSE staff at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan, to provide explanations regarding noise exposure and prevention efforts implemented in the company.

3. Results and discussion

3.1. Results of Noise Level Measurements at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan

Noise in industrial environments always poses a serious challenge to workers' health. Industrial machines often become the primary source of noise in the workplace. The noise generated by these machines can reach disruptive levels and can even have negative impacts on the health of workers. The noise produced by industrial machines originates from various sources, including the movement of machine components, friction, and the production processes themselves. Prolonged exposure to high levels of noise can lead to various health issues, such as hearing impairment, stress, sleep disturbances, and even psychological problems. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan routinely conducts annual environmental noise level measurements, assisted by PT. Envilab Indonesia. In the year 2022, the areas where noise level measurements were conducted include the production tower area, where work activities involve the use of several machines such as pellet mill machines, hammer mill D on the second floor, and the basement hammer mill.

The pellet mill machine is one of the machines used in the livestock feed industry, functioning to mold animal feed (pellets) to the recommended size and intended for livestock. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan routinely conducts annual environmental noise level measurements, assisted by PT. Envilab Indonesia. Based on the noise level measurements in the work environment for the year 2022, it is noted that the noise level in the pellet mill machine area is 81.5 dB with an exposure time of 2 hours per day. Thus, these results are still within the threshold values specified in the Indonesian Ministry of Manpower Regulation No. 5 of 2018.

The hammer mill machine is a tool for reducing the size of materials by continuous pounding between the inserted material and rotating hammers at high speed. The hammer mill machine functions to transform the raw materials for livestock feed production into a finer form as desired. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan routinely conducts annual environmental noise level measurements, assisted by PT. Envilab Indonesia. Based on the noise level measurements in the work environment for the year 2022, it is noted that the noise level in the hammer mill D area on the second floor is 85.9 dB with an exposure time of 15 minutes per day. Thus, these results are still within the threshold values specified in the Indonesian Ministry of Manpower Regulation No. 5 of 2018.

In the production basement area, there is also a hammer mill machine that functions to transform the raw materials for livestock feed production into a finer form as desired. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan routinely conducts annual environmental noise level measurements, assisted by PT. Envilab Indonesia. Based on the noise level measurements in the work environment for the year 2022, it is noted that the noise level in the production basement hammer mill area is 83.4 dB with an exposure time of 10 minutes per day. Thus, these results are still within the threshold values specified in the Indonesian Ministry of Manpower Regulation No. 5 of 2018.

3.2. Implementation of Occupational Health and Safety (K3) at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan to Prevent Workers from Noise Exposure

The implementation of Occupational Health and Safety (OHS) in the industry is a crucial step in preventing exposure to noise. The use of the ABC model (antecedent, behavior, consequence) is an effective way to understand why behavior occurs and how to effectively enhance the desired behavior [1]. In the behavior model, consequences are used to motivate the increase in the frequency of desired behaviors and are useful for designing interventions that can improve behavior at the individual, group, and organizational levels.

The use of the ABC model at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan in efforts to prevent workers from noise exposure is outlined as follows:

- Antecedent

Antecedent refers to something that triggers or precedes behavior. Antecedents related to noise exposure at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan include safety procedures, safety equipment, safety information, and supervision. Workers hired at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan are informed about the Standard Operating Procedures (SOP) that must be followed while working in the company. SOP aims to ensure consistency, safety, and efficiency in the execution of specific activities. Safety equipment or personal protective equipment (PPE) available in the company is sufficiently comprehensive, but it needs to be maintained for cleanliness, and if it becomes unsuitable, it needs to be replaced with new ones. In various areas with the potential hazard of noise exposure, safety information in the form of signs is displayed, indicating high noise level areas, mandatory use of PPE, and others. In terms of worker supervision in the company, each type of job is overseen by supervisors and HSE personnel who conduct safety patrols several times to ensure that workers prioritize Occupational Health and Safety (OHS) and avoid the risk of accidents.

- Behavior

Behavior related to noise exposure include the use of personal protective equipment (PPE), equipment operation behavior, and communication among workers. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan provides PPE for different types of jobs, including those with the risk of noise exposure. However, during field observations, it was found that some workers were not compliant with the use of PPE. The company uses various types of equipment with different functions for the work processes, and it was observed that heavy machinery generating high levels of noise is utilized. Workers are trained to operate these machines according to established procedures, ensuring smooth workflow. Effective communication among workers and between management and workers is evident at PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan on a daily basis. Therefore, when issues arise, they can be promptly addressed, and workers remind each other of safety rules. However, activities like safety morning talks before starting work are not yet in place, indicating that awareness of safe behavior and building a culture of Occupational Health and Safety (OHS) still needs improvement.

- Consequence

Consequences related to noise exposure include rewards and penalties. At PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan, it is known that they have not yet awarded employees who consistently work safely and adhere to

Occupational Health and Safety (OHS) regulations. Introducing occasional awards could boost the motivation of workers to always work safely and comply with OHS regulations. However, for workers who do not comply with OHS regulations and work unsafely, they receive penalties in the form of Warning Letters. PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan has already implemented this. Imposing penalties in the form of Warning Letters is not only a means of punishing workers but also aims to control the work environment, ensuring that workers are protected from incidents or accidents, and their health is maintained, thus preventing a decline in work productivity.

3.3. Improvement Recommendations

Based on the analysis using the ABC model (antecedent, behavior, consequence), it is indicated that the company needs to undertake the following actions:

- Monitoring noise level measurements to ensure they do not exceed the specified threshold values (NAB).
- Maintaining the cleanliness and quality of personal protective equipment (PPE); if any PPE is found to be unsuitable, it should be promptly replaced with new ones.
- Conducting safety morning talks before starting work to enhance worker's awareness of safe behavior and promote the culture of Occupational Health and Safety (OHS).
- Providing positive reinforcement through awards given to workers who consistently work safely and adhere to Occupational Health and Safety (OHS) regulations every 3 months, 6 months, or annually, to boost the motivation of workers to always work safely and comply with OHS regulations.

4. Conclusion

PT. Japfa Comfeed Indonesia, Tbk Plant Gedangan routinely conducts annual workplace noise level measurements with the assistance of PT. Envilab Indonesia. In 2022, noise level measurements were performed in three work areas: the pellet mill machine area, the second-floor production hammer mill area, and the production hammer mill basement area. In the pellet mill machine area, the noise level was measured at 81.5 dB with a daily exposure time of 2 hours. In the second-floor production hammer mill area, the noise level was measured at 85.9 dB with a daily exposure time of 15 minutes. In the production hammer mill basement area, the noise level was measured at 83.4 dB with a daily exposure time of 10 minutes. These results are still within the threshold values specified in the Minister of Manpower Regulation No. 5 of 2018. Based on the implementation of Occupational Health and Safety (OHS) using the ABC model (antecedent, behavior, consequence), it is evident that there are still areas for improvement, as recommended by the author.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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