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Technical Guidance on Occupational Health and Safety (K3) Standardization as a Manifestation of Risk Awareness Culture at SPBU UII

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A B S T R A C T

The specific objective of this community service activity is to improve the capabilities of employees and staff, especially in the field of work safety and the formation of a Risk Awareness culture. The community service activity method will use the Technical Guidance and Monitoring and Evaluation methods by placing partners as the main actors in this activity. The technical guidance method consists of 3 core stages, namely 1) Observation, 2) K3 Program Training at gas stations, and 3) Periodic Monitoring and Evaluation. Increasing the capabilities of gas station employees and staff is expected to be able to increase the level of performance to be more productive and effective, so that it can achieve company goals without ignoring environmental sustainability.

INTRODUCTION

The UII gas station is a business unit of the UII PYBW, which was formed to develop the UII Waqf Agency business so that income does not rely on UII. In addition, the establishment of the gas station is also intended to meet the needs of the community, especially fuel oil. The first gas station was inaugurated in 2007 and is in Semarang, while the second gas station was inaugurated in 2019 and is located on Jalan Kaliurang km.13, Yogyakarta. Its management is carried out by PT Puri Kencana Rizky Mulia, which was established in 2006 and is actively engaged in the distribution of Fuel Oil and Gas (BBMG). The vision of the UII gas station is to become a quality and superior gas station for customers and partners, while the motto of the UII gas station is Consumers are friends and ready to serve wholeheartedly. n 2019, fuel consumption in Sleman has reached one million liters per day, so that the existence of this gas station is expected to be able to meet the existing shortages. In addition, the establishment of this gas station is also expected to be able to empower residents to become employees or staff, so that the economy around the gas station benefits positively.

Currently, the UII gas station requires Occupational Health and Safety training because, since its establishment, it has never received such training, so it is considered very risky when something happens that has a negative impact and causes losses. In addition to being an effort to mitigate risk, this is also done to build a culture of risk awareness. Nurharyanto (2009) said that the demands for transparency by the community are very large, so this encourages individual organizations to always be aware of risks in every activity and encourages policymakers to be proactive in implementing risk management culture as an implementation of good corporate governance.

Risk Culture is the behavior of all individuals in interacting and perceiving everything related to risk (Anggi, Yolanda, Ritonga, 2023). Effective risk management will greatly impact the risk identification process so that companies can immediately understand the biggest threats and develop risk management steps commonly known as 'Risk Mitigation'. According to Hidayah, et. Al. (2018), risk culture is a set of norms and traditions of individual and group behavior in an organization, which determine how they identify, understand, discuss, and act on the risks faced by the organization and the risks it takes.

Along with the very rapid advancement of technology, currently almost all areas of life are closely related to risk. In relation to this, UII gas stations also have several problems that need to be given an applicative solution, namely the need for K3 training as a standardization of procedures and the formation of a risk-aware culture as one of the efforts to implement risk management at UII gas stations.

Some of the objectives of this community service activity are as follows:

1. Improving employee and staff capabilities related to risk-aware culture.
2. Improving company capabilities and productivity by implementing occupational health and safety standards.

The objective of this activity is to support the operation of gas stations so that the resulting turnover increases. The target participants of this service are employees of UII gas stations. The target of the service activity is specifically following the objectives of the UII RENSTRA, namely Improving the Life of a Civil and Sustainable Society (baldatun thoyibatun wa-robbun ghofur), which is in line with the noble ideals of the founders of UII through the Development of an Islamic Quality of Life Improvement Model. This service activity emphasizes a sense of cooperation in advancing institutions that have fulfilled our living needs as a form of responsibility to Allah and the institution where an individual employee lives.

Allah SWT says in QS At-Taubah verse 105: "Work, then Allah and His Messenger and the believers will see your work, and you will be returned to (Allah) Who knows the unseen and the real, then He will report to you what you have done." Apart from that, in QS Al Maidah verse 2, "Help each other in doing good deeds and piety. And do not help each other in deeds that are sinful and hostile. Fear Allah SWT. Allah's punishment is very painful." Based on these two verses, there is a correlation that this service activity is following Allah's mandate as stated in the Koran, namely that the service team assists employees and staff at UII gas stations in the form of knowledge regarding work health and safety standards as well as risk mitigation steps in the form of a risk awareness culture to support optimal implementation of Risk Management at UII gas stations.

This community service activity will also act as a step in implementing the UII Yogyakarta IKU, which consists of University Graduates Getting Decent Jobs, Students Getting Experience Outside Campus, Lecturers Doing Activities Outside Campus, Practitioners Teaching Inside Campus, and Lecturers' Work Results Used by the Community.

The following are details of the integration of this community service activity with the university's IKU:

Table 1. Integration of Community Service Activities with IKU

No.	Indicators Description	Information
1.	University graduates get decent jobs.	Through this community service program, students will be involved and are expected to be able to provide outputs in the form of publications.
2.	Students gain experience outside of campus.	Involve students from within the technical implementation of community service.
3.	Lecturers carry out activities outside campus.	The community service team will make partners a place for collaboration between universities and DUDI.
4.	Lecturers' Work Results are Used by the Community.	The service team will conduct Technical Guidance on K3 and Risk Awareness Culture.

Community Service Program (PPM) Technical Guidance for Occupational Health and Safety (K3) Standardization as an Manifestation of Risk Management Culture at UII Gas Stations aims to introduce and improve understanding of the importance of implementing effective K3 standards in gas station environments. Occupational health and safety (K3) is a very important aspect, especially in workplaces with high risk potential, such as gas stations. Therefore, it is necessary to implement K3 standards in accordance with international regulations and standards to create a safe and healthy work environment for employees and customers. To achieve this goal, a good understanding of K3 and its implementation is essential at all levels of the organization.

Definition and Concept of Occupational Health and Safety (OHS)

Occupational health and safety (OHS) is a series of efforts made to protect workers from risks that can endanger their physical and mental health in the workplace. OHS aims to create a work environment that is free from hazards, both physical, chemical, biological, and ergonomic hazards. According to the Regulation of the Minister of Manpower of the Republic of Indonesia No. 5 of 2018 concerning the OHS Management System, the implementation of OHS aims to increase work productivity by reducing accidents and occupational diseases. An in-depth explanation of the definition and basic concepts of OHS can be found in the following references: Ministry of Manpower of the Republic of Indonesia. Occupational Health and Safety (OHS) is very important for maintaining a safe, healthy, and effective workplace, reducing accidents and occupational diseases, and increasing the efficiency and effectiveness of the workplace (Waisapi, J., 2022). According to Khoirunnisa, S., et.al. (2023), Occupational health and safety (K3) protection has a positive impact on employee performance in the workplace by preventing accidents and illnesses, providing refresher training, and using personal protective equipment.

W., Herdiana Dwi Kusuma, et.al. (2024) stated that related to the concept of OHS, a good combination of occupational safety and health management significantly improves employee performance, making it a key business strategy to increase productivity and sustainability. Holistic and comprehensive OHS management is an important key in improving employee performance, where a good combination of occupational safety and health will have a greater impact on employee performance. The implications of this study are important for company management because OHS investment is not only a social responsibility but also a business strategy that can increase company productivity and sustainability. Management needs to prioritize OHS in its business strategy, by paying attention to supporting OHS factors such as a strong safety culture, quality OHS training, and strict monitoring of the work environment, to create a healthy, safe, and productive work environment.

Occupational Health and Safety Regulations in Indonesia

Indonesia has various regulations governing occupational health and safety standards in the workplace, including those applicable to the gas station sector. One of the main regulations is Law No. 1 of 1970 concerning Occupational Safety, which requires companies to provide a safe workplace for employees. In addition, Government Regulation No. 50 of 2012 concerning the Implementation of an Occupational Health and Safety Management System requires companies to implement an integrated occupational health and safety management system. Occupational health and safety management laws in Indonesia focus on ensuring the health and safety of workers to support business sustainability in every workplace. Indonesia does not yet have sufficient capacity to carry out extensive activities in the field of OHS, as in several developed countries. This can be seen from the fact that many industries still pay little attention to the safety of their workers, even though OHS is an important aspect of industrial activities. OHS implementing regulations depend on Regulation No. 1 of 1970 concerning Occupational Welfare, and the Guidelines for the Minister of Manpower of the Republic of Indonesia No. Per-05/MEN/1966 concerning Terms Related to Welfare and the Framework of the Welfare Council, hereinafter referred to as SMK3 (Mugiati, M., & Benyst, B., 2023).

Risk Management and OHS Standardization in the Gas Station Sector

Risk management is an approach used to identify, assess, and manage risks in the workplace to create safe conditions. In the context of OHS, risk management plays an important role in preventing workplace accidents by analyzing potential hazards and determining the necessary mitigation measures. The implementation of effective risk management can reduce the incidence of workplace accidents, increase productivity, and create a strong safety culture in the company. Gas stations have high occupational risks because they involve flammable fuels and chemicals. Therefore, the implementation of OHS standards at gas stations is very important to ensure that workers and consumers are protected from harm. OHS standards at gas stations include safety procedures in handling fuel, use of personal protective equipment (PPE), fire control, and training and socialization regarding existing hazards. Zarei, E., et.al. (2017) stated that the worst-case accident scenario at gas stations is regulator failure, with human error as the most contributing factor.

This highlights the need for a risk management plan that prioritizes the likelihood of major events and their contributing factors. According to Mohsin, M. (2022), chemical and biological risk response schemes have the lowest performance, and need to be prioritized for improvement, and further argue that we can maintain the occupational health of gas station workers through appropriate risk management strategies. This section also outlines the implications, limitations, and future research directions. In addition, Animah, I., & Shafiee, M. (2020) stated that the trend of developing more efficient integrated risk analysis tools (combining techniques) to evaluate complex risks and dynamic assets such as LNG plants continues to grow so that tools must be further developed to apply sensitivity analysis to deal with uncertainties related to risk analysis in the LNG sector.

Workplace Safety Culture and Implementation of OHS Management System at Gas Stations

Workplace safety culture is an important factor that influences the effectiveness of OHS implementation in an organization. The implementation of a good safety culture can increase employee awareness and compliance with OHS procedures. This safety culture includes risk-aware behavior and precautions that must be taken to protect oneself from accidents or injuries. Training programs and technical guidance are essential to building a strong safety culture, which can be implemented at the UII Gas Station. The implementation of an effective OHS management system at a gas station includes various steps, from risk identification, hazard analysis to the implementation of structured safety procedures.

It also includes regular training for employees on emergency procedures and the use of personal protective equipment. Many gas stations have successfully implemented an OHS management system well, but the biggest challenge is ensuring consistency in implementation and active involvement of all employees in maintaining OHS standards. Sitepu, Z., & Tarigan, L. (2024) stated that Occupational Safety and Health is one way to protect workers from work accidents and dangerous risks. OHS is implemented by the company based on applicable company laws and regulations. The implementation of Occupational Safety and Health at Pasar IX Gas Station serves to protect workers from the risk of occupational hazards at gas stations. The implementation of occupational safety and health at PT. Perusahaan Gas Negara Tbk is well organized and complies with regulations, prioritizing the safety and health of workers.

The Role of Technical Guidance in the Implementation of OHS, Evaluation, and Continuous Improvement in OHS

Technical guidance is one of the effective methods to transfer knowledge and skills in the implementation of OHS standards. The technical guidance program aims to provide participants with a deep understanding of OHS procedures, as well as provide practical skills in identifying and managing potential hazards. Periodic technical guidance will increase safety awareness and reduce incidents of accidents in the workplace. This technical guidance is very much needed in the gas station sector to ensure effective and sustainable implementation of OHS. Continuous evaluation and improvement are important steps in ensuring that the implemented OHS standards run well.

The evaluation process is carried out to assess whether existing safety procedures are adequate, as well as to identify areas that need improvement. Routine evaluations can help companies improve and update OHS procedures based on the latest technological developments and regulations. This is important to do at gas stations to maintain the sustainability of OHS implementation and address emerging risks.

The main role of Technical Guidance, according to Harvey, G., & Lynch, E. (2017), is a facilitator who plays an important role in implementing continuous improvement in the quality of health services by assessing and adjusting the implementation approach to contextual barriers and supporting factors. According to Alfa Reza, A., & Susilawati, S. (2024), implementing a comprehensive OHS management system in SMEs can reduce work accidents by up to 25% and increase awareness. Still, challenges such as limited resources, lack of management support, and loose regulations remain.

IMPLEMENTATION AND METHODS

The service method that will be used in implementing the activity is an intensive mentoring method that includes the following activities:

1. Observation
   The first stage in this service activity is Observation. This activity aims to observe various conditions and situations in the field. This is related to the collection of specific data related to the condition of the gas station, including gas station operational activities, equipment used, knowledge to use equipment properly and correctly, and problems surrounding the UII gas station.
2. Interview
   The second stage of community service activities is the Interview. In the interview activity, an initial confirmation will be made regarding the number of staff and employees, including daily administrators, shift schedules, descriptions of the main and supporting tasks of all UII gas station employees, as well as the opportunities, challenges, and shortcomings of the UII gas station in existing conditions. In addition, the interview also explores insights from UII gas station employees.
3. Socialization of the K3 Program
   The third stage of community service activities is to socialize the K3 gas station programs by referring to the Pertamina SOP document.
4. Technical Guidance for the K3 Program and Risk Awareness Culture
   The fourth stage of community service activities is to conduct simulations and form risk-aware habits at gas stations.

RESULTS AND DISCUSSION

Observation Phase

The first stage in implementing this community service program is observation, which aims to understand the initial conditions related to the implementation of Occupational Health and Safety (K3) at the UII gas station. At this stage, the community service team analyzed the facilities, standard operating procedures, and employee behavior in implementing safety protocols at the gas station. This observation was carried out to identify potential hazards, such as the risk of fire or exposure to chemicals, and to measure the level of employee awareness of the importance of occupational safety. With the data collected from the observation, the team can design a program that is more targeted and follows the field conditions at the UII gas station, namely K3 Socialization and Technical Guidance for the K3 Program and Risk Awareness Culture.

Interview Phase

After the observation stage, interviews were conducted with related parties at the UII gas station, including operational managers, K3 officers, and gas station employees. The purpose of this interview was to dig deeper into their understanding of the existing K3 program, the obstacles faced, and the factors that influence their level of awareness of K3. This interview also provided an opportunity to assess the extent to which existing policies and procedures had been implemented properly, as well as to hear employees' opinions regarding potential improvements in the K3 system at the gas station. The results of this interview became material for compiling socialization materials and technical guidance that were more relevant to the needs of the gas station.

Socialization Stage of the Occupational Health and Safety (K3) Program

After the observation and interview stages, the next stage is the socialization of the Occupational Health and Safety (K3) program for all employees of the UII gas station. This socialization aims to introduce the applicable K3 regulations, explain the safety procedures that must be followed, and educate about the importance of implementing K3 in managing existing risks. At this stage, information about safety regulations, potential hazards at gas stations, and individual responsibilities in maintaining safety are explained in an easy-to-understand manner. This socialization also includes interactive discussions and questions, and answers so that participants can better understand and ask questions about things that are unclear. This socialization is expected to foster collective awareness of the importance of a safety culture in the workplace.

Several high-risk incidents have occurred at UII gas stations, both those located on Jalan Kaliurang-Yogyakarta and those in Salatiga. One of them was an incident where a hose that was still attached to the gas tank broke because it was carried away by a customer's car. This was due to missed communication between the gas station operator and the car owner, who was not focused at that time. The following is the implementation of the Delivery of Socialization Material for the K3 and Risk Management Program.

Figure 2. The Implementation of the Delivery of Socialization Material for the K3 and Risk Management Program

The material was delivered by Mr. Muhammad Zainudin Ma'rifa, who is a certified K3 Field Instructor from BNSP. Participants were very enthusiastic during the discussion of the operational risk matrix. It is explained that the matrix is a tool for measuring risks and potential impacts at gas stations. Here is the matrix:

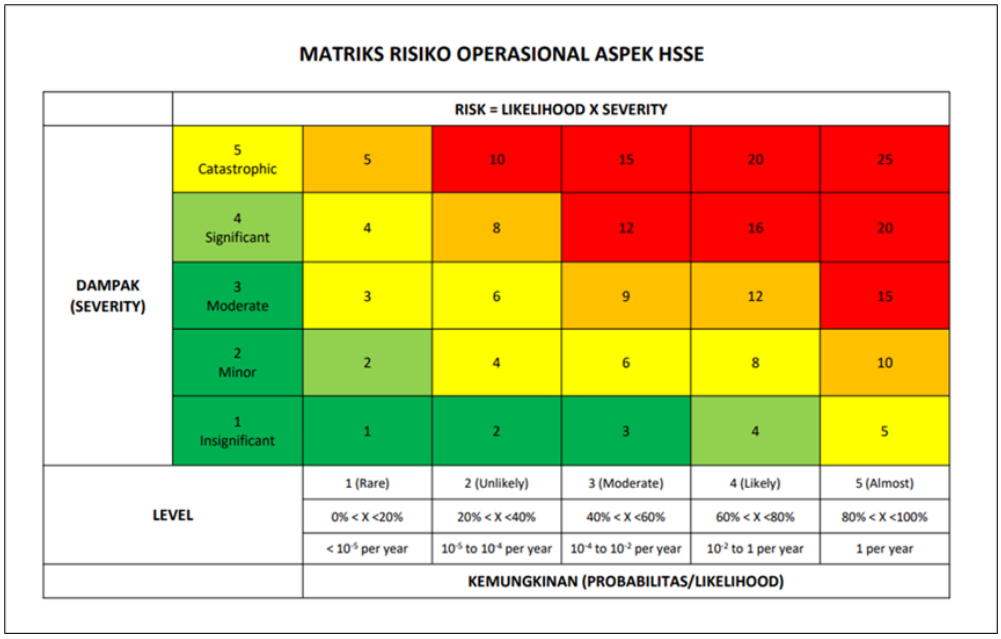

Figure 3. UII Gas Station Risk Matrix

The use of the Risk Matrix above is also accompanied by the completion of the HIRAC (Hazard Identification, Risk Assessment, & Control) Form by field officers with monitoring from the gas station manager, namely Mr. Kembar Winarno for the Salatiga Gas Station Location and Mr. Purwanto for the Yogyakarta Gas Station Location.

Technical Guidance Stage of K3 Program and Risk Awareness Culture

After the socialization, the next stage is technical guidance on the K3 program in more depth, as well as the formation of a risk awareness culture at the UII gas station. At this stage, participants are given practical training on safety procedures that must be implemented at gas stations, including how to use personal protective equipment (PPE), fire risk mitigation techniques, and steps to take in emergencies. This technical guidance also focuses on the formation of a risk awareness culture, namely, educating employees to always be aware of potential hazards and behave preventively in every work activity. With this guidance, it is hoped that employees will not only understand K3 theory but also be able to apply safety procedures with discipline in their daily work lives. To support daily activities, the service team submitted the Technical Guidelines and Lessons Learned from Incidents compiled by the Independent Oil and Gas Safety Control Team – Ministry of Energy and Mineral Resources, Directorate General of Oil and Gas:

Figure 4. Submission of the SPBU Technical Guidelines from the Ministry of Oil and Gas

This Guidelines is expected to support the performance of UII SPBUs in Yogyakarta and Salatiga in dealing with unexpected events that have the potential to cause risks in the SPBU area.

Post-Implementation Stage

a. Evaluation and Follow-up

After the technical guidance is completed, the final stage is evaluation and follow-up. At this stage, an assessment is made of the effectiveness of the K3 program that has been socialized and implemented through direct observation and follow-up interviews with employees. The evaluation aims to determine the extent to which occupational safety knowledge and behavior have changed. In addition, follow-up in the form of routine monitoring and further training will be carried out to ensure the sustainability of K3 implementation at the UII gas station. If there are gaps or problems in the implementation, the community service team will provide recommendations for improvement and strengthen training according to existing needs. Thus, this program not only has a positive impact in the short term but can also form a sustainable safety culture in the UII gas station environment.

b. Preparation of Reports
The reporting stage of the implementation of the community service program with the theme of socialization of the K3 program and technical guidance of the K3 program, and risk awareness culture will be systematically compiled to be used as an output of the community service journal. This report will cover all stages of implementation, starting from initial observations at the location, interviews with related parties, to the implementation of socialization and technical guidance to employees of the UII gas station. In addition, this report will also present an evaluation of the results of these activities, including changes in employee behavior and understanding regarding the implementation of K3 and the importance of a risk awareness culture in the workplace. The data obtained will be analyzed to provide recommendations and follow-up to ensure the sustainability of the K3 program at the UII gas station, as well as its contribution to creating a safer and healthier work environment. This report will later be published as part of the output of the community service journal that focuses on the development of a culture of safety and risk management in industry.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results and discussions that have been presented previously, the following conclusions can be drawn:

1. The implementation of community service with the theme of socialization of the Occupational Health and Safety (K3) program at the UII gas station has succeeded in increasing the understanding and awareness of gas station employees about the importance of implementing K3 standards in the work environment. This socialization not only provides information related to safety regulations and procedures but also instills a very important safety culture, considering the potential risks at gas stations. Employees are now more aware of the importance of preventive measures and preparedness in dealing with dangers, be it fire, fuel spills, or other health risks. The implementation of the socialization that has been carried out is expected to create a safer work environment and reduce the possibility of accidents or incidents that can endanger the safety of workers and visitors at the UII gas station.
2. Technical guidance for the Occupational Health and Safety (OHS) and Risk Awareness Culture Program has succeeded in increasing participants' understanding of the importance of implementing the Occupational Health and Safety (OHS) program and fostering a risk-aware culture in the work environment. Through this technical guidance, participants are given an in-depth understanding of identifying potential hazards, safety procedures that must be followed, and the importance of self-awareness in managing risks. Increasing a risk-aware culture is expected to create a safer and healthier work environment, as well as reduce incidents or accidents that can occur due to a lack of awareness of potential hazards.

Some suggestions that can be made as follows are as follows:

1. As a follow-up, it is recommended to conduct more in-depth practical training on safety procedures and emergency handling, such as fire simulations or other accidents that may occur at gas stations. This will help employees to be more prepared to face risks that may occur in the field. In addition, the K3 socialization program should be carried out periodically and involve all employees at various levels to ensure that the K3 culture is maintained and implemented consistently. Routine evaluation and monitoring also need to be carried out to ensure that the socialized K3 standards can be implemented properly and have a positive impact in creating a safer work environment.
2. Follow-up efforts for this K3 technical guidance program can be held routinely and include emergency simulations involving all employees to ensure that they are ready and able to face risks that may arise in the field. This program also needs to be expanded by involving management to ensure full support for the implementation of K3 and a risk-aware culture at all levels of the organization. Periodic evaluation of the implementation of K3 and strengthening of a risk-aware culture is also important to identify areas that need improvement and ensure the sustainability of effective K3 implementation in the workplace.

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REFERENCES

Alfa Reza, A., & Susilawati, S. (2024). Analisis Literatur Efektivitas Sistem Manajemen K3 di Perusahaan Kecil dan Menengah (UKM). Jurnal Riset Ilmu Kesehatan Umum dan Farmasi (JRIKUF). https://doi.org/10.57213/jrikuf.v2i3.269.

Animah, I., & Shafiee, M. (2020). Application of risk analysis in the liquefied natural gas (LNG) sector: An overview. Journal of Loss Prevention in The Process Industries, 63, 103980. https://doi.org/10.1016/j.jlp.2019.103980.

Anggie Yolanda Ritonga. (2023). Peran Audit Internal Dalam Penerapan Manajemen Risiko Perusahaan. Owner: Riset & Jurnal Akuntansi, 7(3), 2348–2357. https://doi.org/10.33395/owner.v7i3.1454.

Harvey, G., & Lynch, E. (2017). Enabling Continuous Quality Improvement in Practice: The Role and Contribution of Facilitation. Frontiers in Public Health, 5. https://doi.org/10.3389/fpubh.2017.00027.

Hidayah, R., Suryandari, D., & Rahayu Jurusan Akuntansi, R. (2018a). Peran Auditor Internal dalam Implementasi Manajemen Risiko pada Perguruan Tinggi. In Journal of Applied Accounting and Taxation Article History (Vol. 3, Issue 2).

Khoirunnisa, S., Vanchapo, A., Tusi, J., Lewar, E., Jayadi, A., Xie, G., & Jiao, D. (2023). The Relationship of Occupational Health and Safety K3 to Employee Performance in the Workplace Systematic Review Prospective cohort study. Journal of World Future Medicine, Health and Nursing. https://doi.org/10.55849/health.v1i2.451.

Mohsin, M., Yin, H., Huang, W., Zhang, S., Zhang, L., & Mehak, A. (2022). Evaluation of Occupational Health Risk Management and Performance in China: A Case Study of Gas Station Workers. International Journal of Environmental Research and Public Health, 19. https://doi.org/10.3390/ijerph19073762.

Mugiati, M., & Benyst, B. (2023). Juridical Analysis of the Legal Role of Occupational Health and Safety Management. Proceedings of the 3rd Multidisciplinary International Conference, MIC 2023, 28 October 2023, Jakarta, Indonesia. https://doi.org/10.4108/eai.28-10-2023.2341719.

Sitepu, Z., & Tarigan, L. (2024). Penerapan keselamatan dan kesehatan kerja sebagai upaya pencegahan kecelakaan kerja di PT. Perusahaan Gas Negara (Persero) Tbk tahun 2023. Tropical Public Health Journal. https://doi.org/10.32734/trophico.v4i1.16081.

W, H., Zahiraa, T., M, T., & Radianto, D. (2024). Pengaruh Tingkat Keselamatan dan Kesehatan Kerja di Perusahaan Terhadap Kinerja Karyawan. Journal of Educational Innovation and Public Health. https://doi.org/10.55606/innovation.v2i2.2848.

Waisapi, J. (2022). Keselamatan dan Kesehatan Kerja dan Lingkungan. Formosa Journal of Social Sciences (FJSS). https://doi.org/10.55927/fjss.v1i3.1286.

Zarei, E., Azadeh, A., Khakzad, N., Aliabadi, M., & Mohammadfam, I. (2017). Dynamic safety assessment of natural gas stations using Bayesian network. Journal of hazardous materials, 321, 830-840. https://doi.org/10.1016/j.jhazmat.2016.09.074.