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**ANALYSIS OF THE IMPLEMENTATION OF THE MINING SAFETY  
MANAGEMENT SYSTEM BASED ON THE DECISION OF THE  
DIRECTOR GENERAL OF MINERALS AND COAL NUMBER  
185.K/DJB/2019 AT PT X SITE MURUNG RAYA****Prana<sup>1\*</sup>, Maulana Yusuf<sup>2</sup>, M. Taufik Toha<sup>3</sup>**

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**Abstract**

This study aims to understand the extent to which the Mining Safety Management System (SMKP) is implemented, identify differences in its implementation, and analyze factors that influence the effectiveness of the system. The study was conducted at PT X Site in Murung Raya Regency, Central Kalimantan Province. The research method used a descriptive approach that combines quantitative and qualitative. The study population included all employees and company management, and sampling was carried out using the stratified random sampling method. Data collection techniques were carried out by conducting interviews, direct observations in the field, and studying various documents owned by the company. Data analysis was carried out by calculating the percentage of achievement, explaining the actual situation, and comparing it with the standards contained in the Decree of the Director General of Minerals and Coal Number 185.K / DJB / 2019. This study shows that in general the level of SMKP implementation at PT X Site Murung Raya reached 64.20%. The results of this level of achievement indicate that the main problems are in field implementation, personnel availability and competence, and follow-up mechanisms and continuous improvement. Meanwhile, elements of policy, planning, and documentation have been running well. Based on these results, it can be concluded that the SMKP has been implemented with a strong foundation, but it has not yet been implemented effectively. Increased supervision, increased manpower, and system improvements and follow-up are needed to optimally achieve the goals of occupational safety and health protection.

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**Keywords:** Mining, Mining Safety Management System, Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019.

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**INTRODUCTION**

The Mining Safety Management System (SMKP) is part of a company's management system that includes organizational structure, planning, tasks and responsibilities, implementation, procedures, processes, and resources needed to develop, implement, evaluate, and continuously improve mining safety. The implementation of SMKP aims to prevent workplace accidents, occupational diseases, asset damage, and operational obstacles by controlling risks in an integrated manner in all mining activities. In its implementation, SMKP is based on the Plan-Do-Check-Act (PDCA) cycle, so that companies not only have management system documents but also must ensure that implementation, evaluation, and continuous improvement are effective. Research results (Rahmat et al., 2025) show that the implementation of the seven SMKP elements has a significant effect on improving safety performance in mineral exploration drilling service companies, especially in the aspects of policy, implementation, evaluation, and continuous improvement. To strengthen mining safety management, the government issued Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019 concerning Technical Guidelines for the Implementation of Mining Safety, Implementation, Assessment, and Reporting of the Mining Safety Management System. This regulation serves as an official guideline for evaluating how the SMKP is implemented, involving seven elements: policy, planning, organization and personnel, implementation, monitoring, evaluation and follow-up, documentation, and management review and performance improvement. These seven elements consist of several sub-elements that are used as the basis for assessment indicators. Regulations regarding the SMKP have been implemented nationally, although the results of their implementation in mining companies still face various obstacles. In many companies,

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the implementation of the SMKP still focuses on completing administrative documents and fulfilling assessment requirements, but its implementation in the field is not yet consistent enough. According to (Dihartawan et al., 2025), the results of the SMKP internal audit at PT X showed a good level of conformity in most elements, but still found major non-conformities in the implementation elements that require continuous corrective action. These results show that the existence of the system does not fully guarantee the effectiveness of implementation if it is not followed by consistent monitoring, evaluation and follow-up.

Research on the implementation of SMKP has grown in recent years. According to (Wardani et al., 2022), SMKP implementation in mining companies has improved compared to previous audits. However, the implementation element remains the aspect with the lowest level of achievement and therefore requires special attention. Research (Dihartawan et al., 2025) also shows that although most elements received good to very good ratings, major non-conformities in implementation elements were still found based on gap analysis results. Although various studies have provided an overview of SMKP implementation, most of them still focus on internal audit results, descriptive evaluations, or the impact of implementation on safety performance. Research that analyzes the extent to which SMKP is implemented uses clear indicators from the Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019. Furthermore, not many studies have identified the level of differences between each SMKP component as a basis for determining a more structured sequence of improvements. This condition indicates a gap in research, namely the lack of research that analyzes SMKP implementation based on indicators from national regulations comprehensively and produces recommendations for improvement based on the analysis results. One method that can be used to analyze the extent to which the implementation of a management system complies with standards is by using gap analysis.

This method compares the actual company conditions with applicable regulations, thus revealing the extent to which the company has achieved the standards, the extent of the gaps, and factors that need to be addressed first. This approach is considered more comprehensive than simply conducting a compliance audit because it can provide a clear and objective basis for designing strategies to continuously improve the implementation of SMKP. PT X Site Murung Raya is a coal mining company that has implemented SMKP in accordance with applicable regulations. However, a comprehensive analysis of the level of implementation compliance based on the indicators in the Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019 has never been conducted. Therefore, this study aims to analyze the level of SMKP implementation at PT X Site Murung Raya based on the seven main elements of SMKP. The novelty of this study lies in the use of analysis indicators that directly refer to the assessment points in the Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019, resulting in a more systematic, objective analysis that is in accordance with national regulations. The research results are expected to be the basis for developing strategies to improve the implementation of SMKP and become a reference for mining companies and supervisory agencies in improving mining safety performance in a sustainable manner.

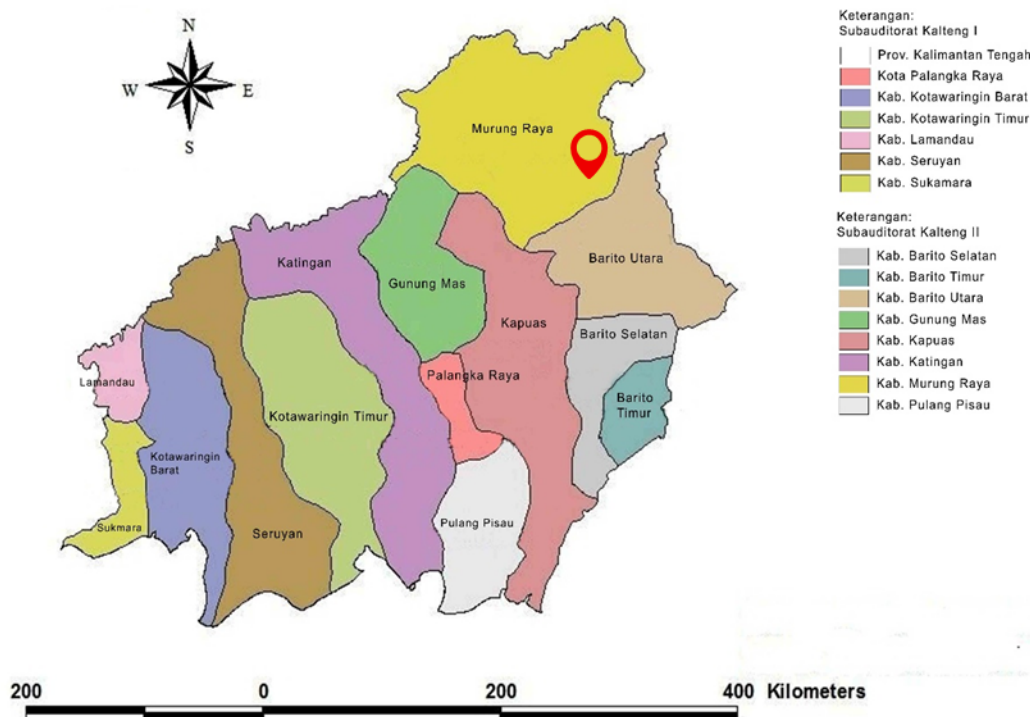
## METHOD

### 1.1 Types of research

This research uses a descriptive analytical approach, which combines quantitative and qualitative methods. The quantitative approach is used to analyze the extent to which SMKP has been implemented. The qualitative approach is used to analyze the factors that trigger disparities in SMKP implementation in companies.

### 1.2 Research Location

The research was conducted at PT X's Coal IUP in Barito Tuhup Raya District, Murung Raya Regency, Central Kalimantan Province.



**Figure 2.1** Administrative Map of Murung Raya Regency

**1.3 Research Population and Sample**

The population was all employees and management in the PT X Site Murung Raya company area that has implemented SMKP. The sample was taken using a *stratified random sampling method* to include representatives from management, K3 officers, and employees who perform the work.

**1.4 Data Types and Sources**

This study uses primary and secondary data. Primary data consists of interviews and field observations, while secondary data consists of company SMKP documents.

**1.5 Data Analysis Techniques**

In the field of mining safety, quantitative and qualitative analyses are used to measure the extent to which SMKP implementation in mining companies complies with SMKP standards set by the government. The standard used as a reference in this research analysis is the Decree of the Director General of Mineral and Coal No. 185.K/37.04/DJB/2019, which explains the technical implementation of mining safety, assessment, and reporting of mining safety management systems for minerals and coal.

The maximum assessment standard provisions for SMKP elements are:

1. Policy Element 10%
2. Planning Elements 15%
3. Organizational and personal elements 17%
4. Implementation Element 35%
5. Evaluation and follow-up elements 15%
6. Documentation Elements 3%
7. Management Review Element 5%

$$Total\ Element\ Value = Sub\ Element\ Value + Sub - Sub\ Element\ Value$$

$$Level\ of\ SMKP\ Implementation = \frac{Total\ Element\ Value}{Sub\ Element\ Value} \times Elemen\ Value\ (\%)$$

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**RESULTS AND DISCUSSION**

PT X Site Murung Raya is a coal mining company in Central Kalimantan, using open pit mining methods. Its primary activities include *overburden removal*, *coal gathering*, *hauling*, heavy equipment *maintenance*, and other supporting activities. Mining operations carry high risks, particularly when using heavy equipment, unstable ground conditions, and material transportation.

The analysis was conducted by combining quantitative and qualitative data to obtain a more complete picture and comprehensive understanding. Based on calculations that have been carried out on the SMKPA achievement criteria at PT X Site Murung Raya, it is 64.20% with 31 conformities, 30 major nonconformities and 34 minor nonconformities.

**Table 3.1 Assessment Criteria for SMKPA**

CRITERIA		Element Value %	Sub Element Value	Sub-sub Element Values	Mark			
					Sub Element Value	Sub-sub Element Values	Total Element Value	Percentage of Element Values
I	<b>POLICY</b>	<b>10%</b>	<b>19</b>			<b>16</b>	<b>8.42%</b>	
	Mining Safety Commitment is written in the form of a written policy							
	I.1	Policy Formulation		4	4			
	I.2	Policy Information		4	4			
	I.3	Policy Determination		3	3			
	I.4	Policy Communication		4	4			
	I.5	Policy Review		4	1			
II	<b>PLANNING</b>	<b>15%</b>	<b>29</b>			<b>26</b>	<b>13.45%</b>	
	II.1	Initial Review		4	4			
	II.2	Risk Management			15	14		
		II.2.1	Risk communication and consultation		4	4		
		II.2.2	Establishing the risk context		3	2		
		II.2.3	Hazard identification		2	2		
		II.2.4	Risk assessment and control		3	3		
	II.2.5	Monitoring and review		3	3			
	II.3	Identification and Compliance with Statutory Provisions and Other Related Requirements			3	2		
	II.4	Setting Goals, Targets, and Programs			4	3		
II.5	Mining Safety Work Plan and Budget			3	3			
III	<b>ORGANIZATION AND PERSONNEL</b>	<b>17%</b>	<b>64</b>			<b>41</b>	<b>10.89%</b>	

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III.1	Preparation and Determination of Organizational Structure, Duties, Responsibilities, and Authorities		4		3			
III.2	Appointment of KTT, Head of Underground Mine, and/or Head of Dredger for Mining Companies		2		2			
III.2.1	Summit Appointment			2	2			
III.2.2	Appointment of Head of Underground Mine			N/A	N/A			
III.2.3	Appointment of Head of Dredger			N/A	N/A			
III.3	Appointment of PJO for Mining Services Companies		2		1			
III.4	Formation and Establishment of Mining K3 Section and Mining KO		4		3			
III.5	Appointment of Operational Supervisor and Technical Supervisor		4		2			
III.6	Appointment of Special Mining Technical Personnel		4		1			
III.7	Formation and Establishment of the Mining Safety Committee		4		2			
III.8	Appointment of Emergency Response Team		4		1			
III.9	Personnel Selection and Placement		4		4			
III.10	Organization and Implementation of Education and Training and Work Competencies		8		3			
III.10.1	Education and training of mine workers			4	1			
III.10.2	Work Competencies			4	2			
III.11	Preparation, Determination, and Implementation of Mining Safety Communications		4		3			
III.12	Mining Safety Administration Management		16		14			
III.12.1	Mining book			4	4			
III.12.2	Mining accident register book			3	3			
III.12.3	Mining Safety Management Reporting			3	3			

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		III.12.4	Documentation of Dangerous Events, incidents resulting from occupational diseases and occupational diseases			3		3		
		III.12.5	Documents and Reports on Competency Fulfillment and Other Requirements			3		1		
	III.13		Preparation, Implementation, and Documentation of Participation, Consultation, Motivation, and Awareness Procedures for the Implementation of SMK P Minerba		4		2			
<b>IV</b>	<b>IMPLEMENTATION</b>			<b>35%</b>	<b>124</b>				<b>64</b>	<b>18.06%</b>
	IV.1	Implementation of Operational Management			11		7			
	IV.1.1	Preparation, Establishment, Implementation, Documentation, and Evaluation of Operational / Work Procedures				4		2		
	IV.1.2	Preparation, Determination, Implementation, Documentation, and Evaluation of Special Work Permits				3		2		
	IV.1.3	Preparation, Determination, Implementation, Documentation, and Evaluation of Operational / Work Procedures for Personal Protective Equipment and Safety Equipment				4		3		
	IV.2	Implementation of Work Environment Management			40		12			
	IV.2.1	Implementation of Dust Hazard Management				4		1		

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	IV.2.2	Implementation of Noise Hazard Management			4		1		
	IV.2.3	Implementation of Vibration Hazard Management			4		1		
	IV.2.4	Implementation of Lighting Hazard Management			4		1		
	IV.2.5	Implementation of Work Air Quantity and Quality Management			4		1		
	IV.2.6	Implementation of Work Climate Management			4		1		
	IV.2.7	Implementation of Radiation Hazard Management			4		1		
	IV.2.8	Implementation of Chemical Factor Management			4		1		
	IV.2.9	Implementation of Biological Factor Management			4		1		
	IV.2.10	Implementation of Work Environment Cleanliness			4		3		
	IV.3	Implementation of Occupational Health Management		28		24			
	IV.3.1	Medical examination			4		4		
	IV.3.2	Occupational Health Services			2		2		
	IV.3.3	First aid			2		2		
	IV.3.4	Work Fatigue Management			3		2		
	IV.3.5	Worker Management in High Health Risk Places			2		2		
	IV.3.6	Occupational Health Data Records Management			4		4		
	IV.3.7	Hygiene and Sanitation Management			2		2		
	IV.3.8	Ergonomics Management			3		2		

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	IV.3.9	Management of Food, Beverages and Worker Nutrition			2		2		
	IV.3.10	Diagnosis and Examination of Occupational Diseases			4		2		
	IV.4	Implementation of Mining KO Management		20		8			
	IV.4.1	Systems and implementation of maintenance/care for mining facilities, infrastructure, installations and equipment			4		2		
	IV.4.2	Installation security			4		2		
	IV.4.3	Eligibility of mining facilities, infrastructure, installations and equipment			4		2		
	IV.4.4	Competence of technical personnel			4		0		
	IV.4.5	Evaluation of Mining Technical Study Results Report			4		2		
	IV.5	Implementation of Explosives and Blasting Management		N/A		N/A			
	IV.5.1	Explosives warehouse			N/A		N/A		
	IV.5.2	Storage of explosives			N/A		N/A		
	IV.5.3	Transport of explosives			N/A		N/A		
	IV.5.4	Blasting work			N/A		N/A		
	IV.6	Determination of Design and Engineering Systems		6		4			
	IV.6.1	Design and engineering			3		2		
	IV.6.2	Change			3		2		
	IV.7	Determination of Purchasing System		4		1			
	IV.8	Monitoring and Management of Mining Services Companies		6		3			
	IV.8.1	Requirements, selection and determination of mining service companies			2		1		

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		IV.8.2	Responsibilities, monitoring and reporting of mining service companies			2		1		
		IV.8.3	Evaluation of mining service companies			2		1		
		IV.9	Emergency Management		3		2			
		IV.10	Provision and Preparation of First Aid Kits		3		2			
		IV.11	Implementation of safety outside of work ( <i>off the job safety</i> )		3		1			
<b>V</b>	<b>MONITORING, EVALUATION AND FOLLOW-UP</b>			<b>15%</b>	<b>56</b>				<b>32</b>	<b>8.57%</b>
	V.1	Performance monitoring and measurement			16		7			
		V.1.1	Monitoring and Measuring the Achievement of Mining Safety Goals, Targets and Programs			4		2		
		V.1.2	Monitoring and Measurement of Work Environment Management Performance			4		1		
		V.1.3	Monitoring and Measurement of Occupational Health Management Performance			4		3		
		V.1.4	Monitoring and Measurement of Mining Operation Safety Management Performance			4		1		
		V.1.5	Monitoring and Measurement of Explosives and Blasting Management Performance			N/A		N/A		
	V.2	Mining Safety Implementation Inspection			4		2			
	V.3	Evaluation of Compliance with Statutory Provisions and Other Related Requirements			4		2			
	V.4	Investigation of Accidents, Dangerous Occurrences, and Occupational Diseases			4		3			

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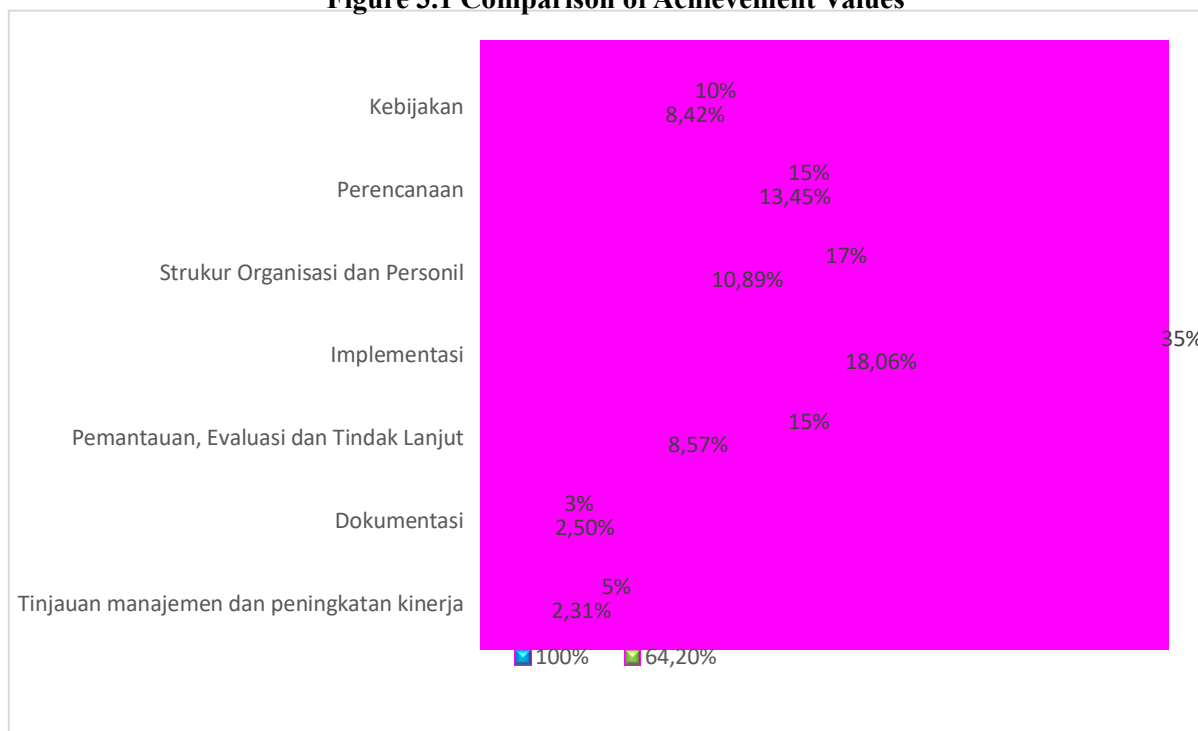
	V.5	Evaluation of Mining Safety Administration Management		20		11			
	V.5.1	Mining book			4		2		
	V.5.2	Mining accident register book			4		4		
	V.5.3	Mining safety management reporting			4		2		
	V.5.4	Documentation of Dangerous Events, incidents resulting from occupational diseases and occupational diseases			4		2		
	V.5.5	Documentation and Reports on Competency Fulfillment and Other Requirements			4		1		
	V.6	Internal Audit of the Implementation of SMKP Minerba or Special SMKP for processing and/or refining		4		4			
V.7	Improvement and Follow-up Plan		4		3				
<b>VI</b>	<b>DOCUMENTATION</b>		<b>3%</b>	<b>12</b>			<b>10</b>	<b>2.50%</b>	
VI.1	Preparation of Manual Determination and Documentation of Minerba SMKP or Special SMKP for Processing and/or Refining		4		4				
VI.2	Preparation of Determination, Implementation and Documentation of Mining Safety Document Control Procedures		3		2				
VI.3	Preparation of Determination, Implementation and Documentation of Mining Safety Record Control Procedures		3		2				
VI.4	Determination of Document and Record Types		2		2				
<b>VII</b>	<b>MANAGEMENT REVIEW AND PERFORMANCE IMPROVEMENT</b>		<b>5%</b>	<b>13</b>			<b>6</b>	<b>2.31%</b>	
VII.1	Implementation of Management Review of the Application of SMKP Minerba or Special SMKP in processing and/or refining by		4		1				

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	the Company's Top Management							
VII.2	Documentation of Management Review Results Notes		2		1			
VII.3	Outputs from the Mining Safety Management Review		2		1			
VII.4	Recording, Documenting, and Reporting Management Review Results		2		1			
VII.5	Implementation of Performance Improvement		1		1			
VII.6	Use of Review Results from Follow-up Improvement Plans in Policy Determination		2		1			
TOTAL		100%	317				195	<b>64.20%</b>

**Figure 3.1 Comparison of Achievement Values**



**CONCLUSION**

The overall implementation of SMKP at PT X Site Murung Raya has reached 64.20% with 31 conformities, 30 major non-conformities and 34 minor non-conformities, meaning that the implementation has been running well but has not reached the maximum level. The system foundation is quite strong, but the biggest weakness lies in the way it is implemented in the field and the continuous improvement process. To improve the results of SMKP, attention to improvement should be focused on elements that are still lacking in achievement, namely Implementation, as well as strengthening the monitoring system and performance improvement.

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**REFERENCES**

- Audit Board of the Republic of Indonesia, Central Kalimantan Representative Office. (n.d.). Administrative map. Retrieved July 3, 2026, from <https://kalteng.bpk.go.id/peta-administrasi/>
- Dihartawan, A., et al. (2025). Internal audit of the Mining Safety Management System based on Decree of the Director General of Mineral and Coal Number 185.K/DJB/2019. *Environmental Occupational Health and Safety Journal*, 5(2), 115–126.
- Ministry of Energy and Mineral Resources of the Republic of Indonesia. (2018). Regulation of the Minister of Energy and Mineral Resources Number 26 K/30/MEM/2018 concerning the Implementation of Good Mining Principles and Supervision of Mineral and Coal Mining.
- Ministry of Energy and Mineral Resources of the Republic of Indonesia. (2018). Decree of the Minister of Energy and Mineral Resources Number 1827 K/30/MEM/2018 concerning Guidelines for the Implementation of Good Mining Engineering Principles.
- Ministry of Energy and Mineral Resources of the Republic of Indonesia. (2019). Decree of the Director General of Minerals and Coal Number 185.K/DJB/2019 concerning Technical Instructions for the Implementation of Mining Safety, Implementation, Assessment, and Reporting of the Mining Safety Management System.
- Rahmat, SB, et al. (2025). Analysis of the Effect of Coal and Mineral Mining Safety Management System (SMKP Minerba) Implementation on the Mineral Exploration Drilling Company's Safety Mining Performance at PT. BMS. *Revista de Gestão Social e Ambiental*, 18(7).
- Wardani, R., et al. (2022). Evaluation of the implementation of the Mining Safety Management System in coal companies in Indonesia. *Indonesian Journal of Environmental Health*, 21(3), 220–232.