

## Evaluation of Fire Hazard Management

### ABSTRACT

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Fire is a disaster event that originates from an unwanted fire and can cause losses. Decree of the Minister of Manpower Republic of Indonesia Number. 186 / MEN / 1999 concerning Fire Fighting in the workplace, so that fire hazards can be prevented and avoided as early as possible. This study aims to evaluate the readiness of fire prevention in PT. X through observational with cross sectional approach. The population in this study were all production employees at PT. X as many as 90 people. Data collection is done by using questionnaires, observations and examinations. Data processing is done by descriptive analysis and correlation using the Spearman test. The results of the study the relationship between age and knowledge of employees have a weak relationship ( $\rho_s = -0.340$ ), the relationship between training and knowledge of employees has a moderate relationship ( $\rho_s = 0.350$ ), the relationship between the length of service of respondents with the level of knowledge in fire preparedness in PT. X is in the weak category ( $\rho_s = 0.089$ ), and the relationship between socialization and application of fire prevention procedures and readiness with the knowledge of employees at PT. X is in the weak category ( $\rho_s = -0.127$ ), while the observation results of the inspection of infrastructure obtained APAR (73.3%), fire hydrants, fire alarms, detectors, sprinklers (0%) because the equipment was not installed at PT. X, meeting place (100%), exit signs (50%), emergency stairs and emergency exits (0%). Implementation of fire hazard preparedness in PT. X can work well if all elements of the fire hazard control system are implemented thoroughly.

**Keywords:** Evaluation, Fire, Fire Danger Preparedness, Knowledge

*Received : October 12, 2019*

*Accepted : February 13, 2020*

*Published : May 15, 2020*



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## INTRODUCTION

Fire emergency response system is part of the process of fire management in the preparation of building management in anticipation of a fire emergency in a building. One workplace that has a fire risk is the Coal Company. The risk of fire that occurs in the Coal Company has a high rating, so evaluation is needed in an effort to improve the implementation of fire hazard preparedness in PT. Berau Coal

PT. Berau Coal already has active protection facilities and life-saving facilities, but there has never been a renewal in which fire protection systems are in accordance with NFPA or SNI standards. PT. Berau Coal has an emergency response organization and emergency response procedures in place. With this much risk, PT. Berau Coal has emergency response procedures that are understood by all employees and management, but cannot yet implement a standard fire protection system, so there is a high possibility that if there is a fire hazard, there is no effective and efficient fire protection device. The purpose of this study is to evaluate the implementation of fire hazard preparedness in PT. Berau Coal based on the Decree of the Minister of Manpower No. 186 / MEN / 1999 concerning Fire Fighting in the Workplace

The results of the study the relationship between age and knowledge of employees in the production unit at PT. Berau Coal has a weak relationship ( $\rho_s = 0.084$ ), the relationship between training and knowledge of employees in the production unit at PT. Berau Coal has a moderate relationship ( $\rho_s = 0.350$ ), the relationship between the length of service of the respondent and the level of knowledge in fire hazard preparedness at PT. Berau Coal has a weak relationship ( $\rho_s = 0.089$ ), and the relationship between the socialization and application of procedures and fire preparedness readiness with the knowledge of employees at PT. Berau Coal has a moderate relationship ( $\rho_s = 0.462$ ), while the observation results of the inspection of infrastructure obtained APAR (73.3%), fire hydrants, fire alarms, detectors, sprinklers (0%) because the equipment has not been fully installed at PT. Berau Coal, meeting place (100%), exit signs (50%), emergency stairs and emergency exits (0%).

## METHODS

This research has a quantitative research approach. Based on aspects of data collection, this research is a type of observational research because this study only observes without giving treatment. The design of this study is a cross sectional study because the data collected at one time, while carrying out research in the field, the number of samples taken in this study was about 171 people, the sampling technique in this study was cluster random sampling. Cluster random sampling is a sampling technique in groups. Sampling of this type is done based on certain groups / areas (Sugiyono, 2007)

## RESULTS

### Public Data Description

Table 1 Relationship between age and knowledge

No.	Age	Level of Knowledge on Fire Preparedness						Total		$\rho_s$
		Low		Middle		High				
		n	%	n	%	n	%	n	%	
1.	< 25 years	8	61,5	4	30,8	1	7,7	13	100	0,084
2.	25 - 45 years	13	27,7	30	63,8	4	8,5	47	100	
3.	> 45 years	2	6,7	11	36,7	17	56,7	30	100	

Age of employees <25 years turned out to be 8 people with a percentage (61.5%) having low knowledge, age of employees 25-45 years apparently 30 people with a percentage (63.8%) had moderate knowledge and age of employees > 45 years turned out to be 17 people with percentage (56.7%) have high knowledge

Table 2 Relationship between Training and knowledge

No.	Training	Level of Knowledge on Fire Preparedness						Total		$\rho_s$
		Low		Middle		High				
		n	%	N	%	n	%	n	%	
1.	Ever	1	8,3	7	58,3	4	33,3	12	100	0,350
2.	Never	38	48,7	37	47,4	3	3,8	78	100	

Respondents who claimed to have received fire hazard training with a moderate level of knowledge were 7 respondents with a percentage (58.3%) while respondents who had never received fire prevention training with a moderate level of knowledge were 38 respondents with a percentage (48.7%)

Table 3 Relationship between Years of Service and Knowledge

No.	Length of working	Level of Knowledge on Fire Preparedness						Total		$\rho_s$
		Low		Middle		High				
		n	%	n	%	n	%	n	%	
1.	1-5 years	35	55,6	27	42,9	1	1,6	63	100	0,089
2.	6-10 years	3	25	7	58,3	2	16,7	12	100	
3.	11-20 years	2	25	3	37,5	3	37,5	8	100	
4.	>20 years	1	14,3	1	14,3	5	71,4	7	100	

The working period of employees 1-5 years and 6-10 years it turns out that 35 people have a percentage (55.6%) have low knowledge and 7 people with a percentage (58.3%) have a moderate level of knowledge, working period of 11-20 years turns out to be 3 people having the same percentage (37.5%) with medium and high knowledge have the same number and working period > 20 years it turns out 5 people with a percentage (71.4%) have a high level of knowledge

Table 3 Relationship between socialization and application of procedures and preparedness for fire prevention with knowledge

No.	Dissemination and Application of Fire Fighting Readiness Procedures	Level of Knowledge on Fire Preparedness						Total		$\rho_s$
		Low		Middle		High				
		n	%	n	%	n	%	n	%	
1.	Yes	4	13,3	20	66,7	6	20	30	100	0,462
2.	No	34	56,7	25	41,7	1	1,7	60	100	

Socialization and application of procedures and fire preparedness turned out to be 20 people had a percentage (66.7%) with a moderate level of knowledge and employees who claimed to have never been socialized and applied procedures and fire preparedness were 34 people had a percentage (56.7%) with a level low knowledge

## DISCUSSION

### Analysis of the Relationship Between Age and Knowledge of Fire Hazard Management in PT. Berau Coal

The results of this study indicate that age and level of knowledge have a weak relationship because the older the employee's age, the better the level of knowledge. Nevertheless it cannot be denied that the education of employees in PT. Berau Coal is currently still dominated by high school, so it is hoped

that the management will have to conduct training and fire simulations conducted at PT. Berau Coal, where the training activities can improve employee knowledge and skills in fire disaster preparedness at PT. Berau Coal

#### **Analysis of the Relationship between Training and Knowledge of Fire Danger Prevention in PT. Berau Coal**

The results of this study indicate that the relationship between fire hazard management training for employees at PT. Berau Coal has a moderate relationship because employees who have never been trained in fire have a moderate level of knowledge. Based on observations of employees at PT. BERAU COAL who stated that there had never been a training but his level of knowledge was being due to the employee getting information about fire emergency response via the internet and some who worked for 6-10 years said that previously in 2015 there had been training on fire emergency response and some said getting training from another place

#### **Analysis of the Relationship Between Work Periods and Knowledge of Fire Danger Preparation Knowledge at PT. Berau Coal**

The results of this study indicate that the relationship between the length of service of respondents and the level of knowledge in fire hazard preparedness at PT. BERAU COAL has a weak relationship because the longer a person's working period, the level of knowledge is good. Employees who have 1-5 years of service have low knowledge, it is likely that in these 1-5 years of service many employees have graduated from elementary school so that their knowledge of fire hazard preparedness does not understand, compared to > 20 years of service most employees have high knowledge, it is likely that most high school graduates in the > 20 year working group respondent are productive age groups where they are more active and easier to access information through mass media or the internet than those who have 1-5 years of service who tend to have a less sense of responsibility and tend to be more lazy and less curiosity and lazy to find the latest information about fire hazard emergency response.

#### **Analysis of the Relationship Between Dissemination and Application of Fire Danger Preparedness Procedures with Knowledge of Fire Danger Preparedness in PT. Berau Coal**

The results of this study indicate that the relationship between socialization and application of procedures and fire prevention readiness with the knowledge of employees at PT. Berau Coal has a moderate relationship because employees who have never received socialization have a low level of knowledge. The results of the study explained that the majority of respondents stated that socialization and fire hazard preparation preparedness procedures have not been carried out. Berau Coal. From the results of interviews with management and employees stated that there had never been any socialization about fire preparedness and document review also stated that PT. Berau Coal does not yet have fire preparedness procedures in all rooms so that if there is a fire the employees will be less responsive to fires and the company will suffer significant losses.

### **CONCLUSION**

Based on the results of research on the evaluation of fire hazard preparedness in PT. Berau Coal, the conclusions of this study are:

The fire hazard prevention organization has not been formed in accordance with the requirements of the Indonesian Minister of Manpower Decree No. 186 / MEN / 1999

Guidelines on fire preparedness have not yet been prepared, in accordance with the requirements of the Indonesian Minister of Manpower Decree No.186 / MEN / 1999

K3 human resources are not yet available so they do not meet the requirements of the Minister of Manpower Decree No. 186 / MEN / 1999

The fire hazard prevention team has not been formed in accordance with the requirements of the Indonesian Minister of Manpower Decree No. 186 / MEN / 1999

Active and passive fire equipment infrastructure

a. Active infrastructure, Active fire protection system in buildings in the production area of PT. Berau Coal is not good because there are some components that do not meet the standards. In alarms,

detectors, sprinklers, hydrants are still not available at PT. Berau Coal. In the APAR component, only the name label component of officers who maintain the card or APAR label is not yet available, and there are several rusty and poorly maintained APARs, the rest are in accordance with the standards of the Minister of Public Works Number: 26 / PRT / M / 2008 concerning System Technical Requirements Fire Protection in Buildings and Environment.

b. Passive infrastructure, Passive fire protection system at PT. Berau Coal is not suitable yet, namely that there are no fire-resistant doors available.

Relationship between age and knowledge of employees in the production unit at PT. Berau Coal has a weak relationship because the older the employee is, the better the level of knowledge. The relationship between training and employee knowledge in the production unit at PT. Berau Coal has a moderate relationship because employees who have never been trained in fire have a low level of knowledge. The relationship between the length of service of respondents with the level of knowledge in fire hazard preparedness in PT. BERAU COAL has a weak relationship because the longer the person's working period, the better the level of knowledge. The relationship between socialization and application of procedures and fire preparedness readiness with the knowledge of employees at PT. Berau Coal has a moderate relationship because employees who have never been socialized have a low level of knowledge

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