

# Factors Affecting Safety Action in JOB Pertamina-Medco E&P Tomori Sulawesi

*Meddy Harjanto<sup>1</sup>, Zulkifli Djunaidi<sup>1</sup>*

*<sup>1</sup>Department of Occupational Health and Safety, Faculty of Public Health, Universitas  
Indonesia*

*Corresponding author: zul@ui.ac.id*

## **Abstract**

Increasing oil and gas production is one of the main concerns for companies engaged in oil and gas mining. Human behavior related to safety is an approach to analyze what is needed to make the safe action more possible and reduce risky behavior. Therefore, research is conducted on the factors that influence safe behavior so that these factors can be more optimized. This research is a quantitative study with a cross-sectional design. The population in this study amounted to 291 people. Data retrieval is done randomly with a sample of 130 respondents conducted using the simple random sampling method. Bivariate analysis was carried out by the chi-square test. Based on the results of the study, it was found that 63.8% of workers behaved safely, and 36.2% of workers behaved unsafely. Factors that do not affect safe behavior are knowledge, attitude, perception, motivation, age, length of work, availability of PPE, safety regulations, safety promotion, and training. Whereas, the factors that are proven to influence safe behavior are the supervisory role and the role of co-workers. Therefore, the researcher suggested that supervisors play an active role and be monitored regularly and consistently. In addition, care for co-worker needs to be improved through the Safety Observation program.

**Keywords: Workers, Oil and Gas Mining, Safe Action, Supervision**

## **Introduction**

Increasing oil and gas production is one of the main concerns for companies engaged in oil and gas mining. In order to fulfill the government request through the Special Task Force for Oil and Gas Business Activities (SKK Migas), one effort to increase oil and gas production is by drilling new wells that are considered potential to be produced.

Occupational health and safety are prevention efforts from accidents and protect workers from machines, and work equipment that can cause traumatic injury (Suma'mur, 2012).

Incidents are the culmination of risks that are often not addressed because of a faulty monitoring mechanism (HSE, 2006). The Esso Longford gas explosion and accident at BP Texas City are events

where the death and injury rates are given more attention than the process safety indicators, which causes failure to track important deviations from the parameters associated with the process. Likewise, the zero lost time injury (LTI) at Longford makes the wrong perception that the main hazards in the facility are well managed, which leads to the supervision of clear process hazards (Øien et al., 2011).

Based on the Malaysian HSE research in Borg, the incidence ratio of accidents with a ratio of 1:12:60, where every 60 near miss can result in 12 minor injuries or 1 serious injury (Bernard, 2012).

As we have seen, unsafe acts and unsafe conditions have a greater

influence on the occurrence of accidents. The careful and safe behavior of workers is needed to avoid accidents due to unsafe acts because the approach to workers can be made if the machine is difficult to control. In addition, Galler (2010) estimates that 85% of accidents are the result of unsafe act contributions. This study aims to identify factors related to safe action in JOB Pertamina Medco E & P Tomori Sulawesi.

### Method

This type of research is observational analytic. The type of

design used is Cross-sectional. This research was conducted at JOB Pertamina Medco E & P Tomori Sulawesi and carried out in April 2018. The population of this study was 291 field workers. The sample used totaled 130 people.

In this study used observation sheets and questionnaire data collection instruments to measure the factors that influence safety action in the oil and gas industry. The analysis in this study uses the logistic regression test method.

### Result

#### A. Internal Factors

**Table 1 The Distribution of respondent based on internal factors**

No	Internal Factors	Safety Action				Total N	P-Value
		Unsafe N	Safe %	n	%		
1 Knowledge							
	Low	37	64	21	36	58	0.00001
	High	10	14	62	86	72	
2 Attitude							
	Negative	27	42	37	48	64	0.158
	Positive	20	30	46	70	66	
3 Perception							
	Negative	40	70	17	30	57	0.00014
	Positive	7	10	66	90	73	
4 Motivation							
	Low	39	81	9	19	48	0.0001
	High	8	10	74	90	82	
5 Age							
	≤30.9 yrs	30	38	48	62	78	0.5023
	>30.9 yrs	17	33	35	67	52	
6 Length of work							
	≤ 5 yrs	20	30	47	70	67	0.1229
	> 5 yrs	27	43	36	57	63	

## B. External Factors

**Table 2 The Distribution of respondent based on external factors**

No External Factors	Safety Action				Total N	%	P-Value
	Unsafe		Safe				
	n	%	n	%			
<b>1 Availability of PPE</b>							
Unavailable	24	42	33	58	57	100	0.2120
Available	23	31	50	69	73	100	
<b>2 Safety Regulations</b>							
Unavailable	28	62	17	38	45	100	0.000
Available	19	22	66	78	85	100	
<b>3 Safety Training</b>							
Rare	25	43	32	57	57	100	0.1061
Often	22	30	51	70	73	100	
<b>4 Health Promotion</b>							
Rare	36	64	20	36	56	100	0.0001
Often	11	15	63	85	74	100	
<b>5. Role of Supervisor</b>							
Unsupportive	34	69	15	31	49	100	0.000
Supportive	13	16	58	84	81	100	
<b>6. The role of co-workers</b>							
Unsupportive	37	64	21	36	58	100	0.000
Supportive	10	14	62	96	72	100	

## Discussion

The study result found internal factors related to the safety action are factors of knowledge, perception, and motivation. Whereas attitude, age, and duration of work are not factors related to the safety action. Education is the result of knowing occurs after people carry out the sensing process of the object being observed. Positive behavior affects the amount of information used as a result of sensing certain objects. In addition, the level of behavior affects a person cognitive domain in terms of remembering, understanding, and applying information that is mastered. It also effects in processing, synthesis, and development of objects (Notoatmojo, 2010).

The study result shows that the higher the knowledge, the higher the

responsibility of the respondent, and the lower one knowledge, the less it is for respondents to behave safely. This also shows that the narrow level of knowledge in the production section affects safe behavior.

This is a way of identifying individuals or interpreting things, perceptions that occur where individuals regulate and impart their meaning in their environment while giving them to behave as they feel. (Notoamojo, 2010). Motivation is a process in which a person needs to carry out activities that lead to achieving certain goals (Munandar, 2001).

Work motivation is carried out by each individual and greatly affects the quality of work. If adequate facilities, organization, and good management, good work procedures, without high

work motivation, it is difficult to produce good results. Motivation to do work in accordance with the processes needed to fit the company goals and to guarantee for the workers themselves.

## **B. External Factors**

From the results of the study, it was found that external factors related to the safety process are safety regulations, health promotion, supervisory roles, and the role of coworkers. At the same time, the availability of PPE and training is not a factor related to the safety process.

Regulations are written documents that document standards, norms, and policies for expected behavior (Geller, 2010).

In general, HFACS (Human Factor analysis and Classification system) classifies unsafe acts into Errors and violations. Mistakes are representations of a persons' mental and physical activities that fail to achieve something desired. Violations, on the other hand, refer to the intention to ignore the prescribed guidelines or rules for carrying out certain tasks (Wiegman *et al.*, 2017).

Nonetheless, regulations are a form of writing so that in its implementation regular and consistent supervision is needed so that compliance with regulations can increase throughout the workforce

According to Kondarus (2012). Safety promotions or K3 promotions are a form of the effort carried out to encourage and strengthen awareness of workers and behavior about K3 so that they can protect workers, property, and the environment. OHS promotion programs are effective if there are changes in attitudes and behavior towards workers.

Observation in the field, there are several media used to communicate work safety, including pocketbooks that contain the dangers that exist in the work area and behavior that should be to

maintain the safety of himself and others, safety signs that can help improve safety and health and use to reduce the bad habits that are often found, and safety promotion is also done by communicating the dangers carried out by supervisors, namely the head of each subsection of the line to workers before work, this is done to remind workers of the importance of maintaining safety and behaving safely as well as obeying the rules that are supposed to be; also, it communicates accidents that occur so as not to happen again

Geller (2010) mentions the existence of the role of a manager in work behavior. Both are directly related to ongoing individual targets. The supervisor (supervisor) has a crucial position in influencing the knowledge, attitude, and habits of each employee in an area of responsibility. The supervisors know better than others about the attention of individuals, leave notes, work habits, deeds, work skills. Supervisors also monitor worker performance, which is important for the success of the program.

In supervising workers, a supervisor has responsibilities and authority, such as fostering and motivating workers to carry out their duties properly and completed on time to increase the productivity of the company and, of course, without neglecting the aspect of safety.

All members involved in the organization must be able to provide oversight of the operations of the company. If this supervisory function is not implemented, the basic causes of an incident will arise, which can disrupt the activities of the company. Therefore, the role of co-workers is important in maintaining and supervising safety in its work area. Often workers behave unsafely because other colleagues also behave in this way (Germain, 2010).

The involvement of all workers is also needed to improve the

implementation and supervision of safe behavior. The researcher also suggested that awards or rewards be held as an award to exemplary workers in behaving safely. As previously explained, appreciation is a positive consequence given to individuals or groups to develop, support, and maintaining expected behavior.

### **Conclusion**

This study concludes that Internal factors related to safety action are knowledge, perception, and motivation. Whereas attitude, age, and length of work are not factors related to the safety action. At the same time, external factors related to safety action are safety regulations, health promotion, supervisory roles, and the role of co-workers. In contrast, the availability of PPE and training is not a factor related to the safety action.

### **References**

- Borg, Bernard. (2012). *Predictive Safety from Near Miss and Hazard Reporting*.
- Geller, E Scoot. (2010). *The Psychology Of Safety Handbook*. USA: Lewis Publisher
- Germain, George L, et al. (2010). *Safety Health Environmental Management "Practitioners Guide"*. International Risk Management Institute Inc
- Kondarus, Danggur. (2012). *Keselamatan Kesehatan Kerja "Membangun SDM Pekerja Yang Sehat, Produktif, dan Kompetitif"*. Jakarta: Litbang Danggur & Partners
- Munandar, Sunyoto Ashar. (2001). *Psikologi Industri dan Organisasi*. Jakarta.: UI Press.
- Notoadmodjo, S. (2013). *Pendidikan dan Perilaku Kesehatan*. Jakarta : PT. Rineka Cipta
- Suma'mur (2012). *Keselamatan Kerja dan pencegahan Kecelakaan*. Jakarta : PT Toko Gunung Agung

Wiegman, Douglas A, et al. (2017). *Human Error and General activation accident: A Comprehensive, Fine-Grained Analysis using HFACS*. USA: Butterworth Heinemann

