THE RELATIONSHIP OF OCCUPATIONAL SAFETY, 
AND HEALTH PROGRAM TO WORKFORCE 
ACCIDENTS: CASE STUDY OF PT. MULIA 
INDUSTRINDO, Tbk.

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The panel of examiners declare that the thesis entitled “THE CORRELATION OF OCCUPATIONAL SAFETY AND HEALTH PROGRAM TO WORKFORCE ACCIDENTS : A CASE STUDY ON PT.MULIA INDUSRTINDO, Tbk ” that was submitted by Vera Zelvia Devi majoring in Human Resources Management from the faculty of Economics was assessed and approved to have passed the Oral Examination on February, 14 2010.

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DECLARATION OF ORIGINALITY

I declare that this thesis entitled “THE RELATIONSHIP OF OCCUPATIONAL SAFETY AND HEALTH PROGRAM TO WORKFORCE ACCIDENTS : A CASE STUDY ON PT.MULIA INDUSRTINDO, Tbk” is, to the best of my knowledge and belief, an original piece of work that has not been submitted, either in whole or in part, to another university to obtain a degree.

Cikarang, Indonesia, February 14, 2011

Vera Zelvia Devi
ABSTRACT

The purpose of this research is to analyze the correlation of occupational safety and health program to workforce accidents on PT. Mulia Industrindo, whether between occupational safety and health program and workforce accidents have strong or weak relationship.

This research was design using quantitative research, which involves analysis of numerical data in attempt to explain the matters observed. This research is using questionnaire to collect the data. The questionnaire was spread to 50 employees of PT. Mulia Industrindo in order to get more precise information to answer the matters observed. Likert scale is use to measure the data, it is by collect entire statement that has connection with investigated problems.

The study has found that there is significance correlation between occupational safety and health program to workforce accidents which use the promoting OSH in workplace, safety program, and health program as the indicator variable. Researcher found that the result of Rank Spearman’s analysis show that the application of occupational safety and health program have positive correlation with the workforce accidents in PT. Mulia Industrindo.

From the research findings, it is suggested for the company to implement the occupational safety and health program consistently and comprehensive. Likewise also to give more training and socialization so employee will tend to have a knowledge and to invent the workforce accidents. For improvement in future research, it is suggested to make long research period to obtain more result that is comprehensive. The future research also can use other factor which affect the workforce accidents, with different respondents and methodology.
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I. INTRODUCTION

1.1. Background of the Study

The progress of science and technology are not only experienced by industrial countries but also by developing countries, moreover in today's era of globalization. In an effort to improve productivity and efficiency, the industrial use of production equipment an increasingly complex and require a healthy workforce, highly skilled and work motivation. In keeping with this, policy development in the health sector aimed at improve awareness, willingness and ability to live a healthy life for every person for public health degree manifested as high, including labor (Depkes RI, 2006).

Need to be noticed, that industrialization can bring a variety of risks which affect the lives of employees and their families, among others possibility of accidents, which will have a direct impact on labor and the company itself, if not done management and control of the potential dangers that exist well (DepnakerTrans RI, 2003). Republic Act Indonesia No 13 of 2003 on Labor Article 86 paragraph 1 states that, "every worker / laborer has the right to obtain protection of occupational safety and health."Occupational Health and Safety is an attempt control against the potential dangers that exist. Lack of control of the place and work environment will impact negative impact on health workers such as occupational disease and accidents.

Suma’mur (1995), a state that, in essence work accident is an unexpected event and not expected by everyone. Accidents in the industry can due to four factors: Tools and materials that are not safe, state of unsafe behavior of workers and supervisors. Of the four factors in above, the cause of the accident can also be grouped into two: conditions and unsafe acts (Budiono, et.al, 2003).

Santoso (2004), states that workplace accidents, among others also caused by lack of occupational safety and health knowledge, less exercise to understand the
buttons or other indications, less training to understand data and wrong understanding of a command. In addition, accidents is caused by physical stress, mental and less labor creative and motivated.

Based on data from the International Labour Office (ILO) as quoted by Ghosh A.K. et.al (2004), occurred about 120 million cases of work accidents worldwide every year among 210000 cases are fatal accidents. In Indonesia the government recorded during 2009 had occurred as many as 54.398 cases of work accidents. The number is experiencing a downward trend since 2007, which had reached 83.714 cases and decline in 2008 that only 58.600 cases and according to ministry data, during the year 2009, there were 18,244 units of Task Force K3, 440 Service Company Safety and Health (PJK3), 5 companies K3 Audit Agency, 1120 companies that apply the Occupational Safety and Health Management System (SMK3), and as many as 2524 companies zero work accidents. (2009, 54.398 Kasus kecelakaan kerja terjadi di Indonesia www.solopos.com/2010). In a publication about safety, injury caused by working conditions not safe (unsafe condition) 15% and injury caused by actions that are not safe (unsafe action) 85% (ILO, 1989).

1.2. Company Profile of PT. Mulia Industrindo

PT.Mulia Industrindo was established on November 5, 1986 and has been listed at the Jakarta Stock Exchange on January 17, 1994. The Company has two operating subsidiaries, namely Muliaglass and Muliakeramik Indahraya and two financial vehicle companies namely Muliaglass Finance Limited and Muliakeramik Finance Limited. Muliaglass produces float glass, glass container, glass block, and safety glass. The total number of employees of PT Muliaglass are approximately 12,000 people at factories and production activities carried out for 24 hours a day. The types of product produced by PT Muliaglass are:

a. Glass sheet with various sizes in accordance with the order. Flat glass is produced for local consumption and for export.
b. Liquor bottles with the customer, among others: PT. ABC, PT. Coca Cola Distribution Indonesia and PT. Sosro.

c. Tempered glass to glass several car brands, For example: Toyota Avanza car side mirror.

On the contrary, glass container products are predominantly sold in the domestic market, catering to the consumer goods and pharmaceutical industries. The total number of employees of PT. Mulia Glass are approximately 12,000 people at factories and production activities carried out for 24 hours a day.

Mulia Keramik Indahraya produces both floor and wall ceramic tile. The total number of employees of PT Mulia Keramik are approximately 10,000 people at factories and production activities carried out for 24 hours a day. The results of factory production Mulia Keramik is the ceramic for floors and for walls, and can be used for kitchen, bathroom, all rooms as well as for outdoor (outdoor). As for product design, the plant Mulia Keramik has issued thousands of designs to date. And for that PT Mulia Keramik has hired several designers to design their products. The quantity of production per day from the factory Mulia Keramik Indah Raya today is more than 150,000 m². The results of production is for local and export markets

1.3. Problems Identified

Based on the existing problems in PT. Mulia Industriindo, a survey by the year 2006 – 2008 from Community Development division under the HR department, researchers have several reports there are several accidents that occurred in the workplace.
Table 1.1
Total Accident data in PT. Mulia Industri years 2006 – 2008

<table>
<thead>
<tr>
<th>Years</th>
<th>Numbers of Accidents</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>9</td>
<td>Wounds and injuries in the feet, head, hands and eyes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wounds on the feet,</td>
</tr>
<tr>
<td>2007</td>
<td>19</td>
<td>fingers, forehead, wrists, nose, palms, lips, face, eyes, and back.</td>
</tr>
<tr>
<td>2008</td>
<td>5</td>
<td>Fingers, feet and hands</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Human Resources department of PT. Mulia Industri 2006 - 2008

From the data above, it appears that the accident rate of employment in the production of PT. Mulia Industri and its subsidiaries are still high. Based on the results of a survey conducted known that the accidents occurred because of the interaction between three factors: human factor, situation factors and environmental factors.

Information on the work accident in PT. Mulia Industri can be seen in Table 1.1 in 2007, an increase in the number of accidents compared to previous years. But in 2008, a decline in the number of workplace accidents in which decreased by more than 100%. Accidents occurred mostly during the production process.

1.4. Statements of Problem

This research is about the relationship of occupational safety and health programs to workforce accidents sharing in PT. Mulia Industri manufacturing company in Cikarang. Because the researcher wants to find out is there any significant relationship of safety and health program on workforce accidents in order to show where knowledge sharing bottlenecks and to recommend practicable solutions of the problem in the company.
1.5. Research Objectives

The main objective in this research is to analyze whether there is relationship between occupational safety, and health program and workforce accidents.

1.6. Significance of the Study

This research is expected to provide the following benefits:

1.6.1. For Academics

This research is expected to add insight science and understanding of the implementation of safety programs and occupational health. As one source of reference for scientific interest in overcome the problem of the same or related future

1.6.2. For Organization

This research is expected to be used as a material consideration for the management of human resources in PT. Mulia Industrindo in helping to identify how the safety and health work will affect the productivity of employees.

1.6.3. For Researcher

Moreover, this study would also extend the personal knowledge of researcher, as it comprise of investigation and exploration of relationship between safety and health programs work on employee productivity

1.7. Theoretical Framework

The framework explains what researcher aims to find out in this study. By using problem of PT. Mulia Industrindo as the background, this study intends to find out the relationship of occupational safety and health program on workforce accidents.

Occupational Safety and health is a series built from the elements that are interrelated and influence each other, while the element or component of safety management systems and occupational health according to OSHA (1999), namely: management leadership and employee involvement, workplace analysis,
prevention and control of hazards, and training, will be used as sub-variables in the research.

1. Safety program, is a concept that aims for every worker be guaranteed safety in physical, social, and psychological, in addition to safety management must also consider any equipment and working equipment to be used as well as possible and as selective as possible.

2. Health and hygiene program, is aims for healthcare workers to obtain the highest degree, whether physical, mental, and social through preventive, curative and rehabilitative in the workplace.

Figure 1.1 Theoretical Framework
Source: OSHA (1999), Adjusted by researcher

1.8. Scope and Limitations of the Study

With the purpose of setting the parameter of the study, the research would only cover specific areas as follow:

1. The research investigates the relationship of safety, and health program applied in PT. Mulia Industrindo.

2. The research investigates the workforce accidents of employees in PT. Mulia Industrindo.

3. The research would be conducted at PT. Mulia Industrindo.

4. The research did not limit the study to specific gender, education level or age categories, however the research gathers data regarding gender, age categories, and educational level for demographic description of the study.
1.9. Hypotheses

Based on the theoretical framework, below are the hypotheses for the research:
1. $H_1$ : There is a relationship between healthy and safety programs and workforce accidents
2. $H_0$ : There is no relationship between healthy and safety programs and workforce accident
II. LITERATURE REVIEW

2.1 Understanding of Occupational Safety and Health Program

Safety and health are concern to the protection accorded to all company employees. For the worker safety in the workforce is a very important thing. They try as much as possible to avoid the accident in carrying out his work. So that occupational safety and health program is closely related to workplace accidents. Occupational safety and health is a thought and effort to ensure the integrity and good physical and spiritual perfection on labor in particular, and humans in general, works and cultures to get to the fair and prosperous society (Mangkunegara, 2002, p. 163).

The meaning of occupational safety and health itself is a condition in a healthy and safe work better for workers, companies and communities and the environment surrounding the company or workplace. Megginson in book of Mangkunegara (2002) states that health and safety includes two terms of safety risks and health risks. In staffing, the two terms are differentiated. Healthy means for workers to do jobs in factories, during the operation of the work in these places do not bring negative impacts on workers either directly or indirectly, which can harm health workers, community and environment. While the definition of safe is during the operation of the factory jobs can minimize or eliminate the possibility of accidents on the workers themselves, damage to goods and equipment and conditions that are harmful to society and environment.

The definition of occupational safety and health program which is formulated by the ILO / WHO Joint Safety and Health Committee, namely:

*Occupational Health and Safety is the promotion and maintenance of the highest degree of physical, mental and social well-being of all occupation; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risk resulting from factors adverse to health; the placing and maintenance of the worker in an occupational*
environment adapted to his physiological and psychological equipment and to summarize the adaptation of work to man and each man to his job.

From the definition above occupational health and safety can be interpreted as:

a. Promotions and maintain the highest degree of all workers both physically, mentally, and social welfare in all occupations.
b. To prevent health impairment caused by health workers conditions of their employment.
c. Protecting workers in every job from risks arising from factors which can damage the health.
d. Placement and maintenance workers in the working environment in accordance to the physiologies and psychological conditions of workers, and to create a fit between job between workers and every person between jobs.

In Indonesia, work safety laws are made on the 12th of January 1970 with the Republic of Indonesia State Gazette of 1970 number 1. The law in its implementation is still supported and linked with other government regulations such as laws no. 4 of 1982 about principal environmental management, etc. This is also reinforced by the existence of labor laws in Indonesia that provides protection for the safety, health, work environment, maintaining morale, and treatment in accordance with human dignity. Law no. 1 of 1970 Article 3 regarding the safety determines the conditions that must be met companies to prevent accidents in the workplace are:

a. Prevent and reduce the accident;
b. Prevent, reduce and extinguish the fire;
c. Prevent and reduce the danger of explosion;
d. Provide an opportunity or a way to save themselves at the time of fire or dangerous occurrences
e. Give help to the accident;
f. Provide the means of self protection on the workers;
g. Prevent and control the extent arising or spreading temperature, humidity, dust, dirt, smoke, steam, gas, wind, weather, light or radiation, sound and vibration;
h. Prevent and control the occurrence of disease due to good work and psychic poisoning, infection and transmission;

i. Obtain sufficient and suitable lighting;

j. Holding temperature and humid air is good;

k. Hold enough air refresher;

l. Maintaining cleanliness, health and order;

m. Obtain harmony between labor, equipment, environment, method and process it works;

n. Secure and facilitate the transport of persons, animals, plants or goods;

o. Securing and maintaining all types of buildings;

p. Secure and facilitate the work of unloading, treatment and storage goods;

q. Prevent exposed to dangerous electrical flow;

r. Adjust and improve safety on the job hazards accident to be getting higher.

2.1.1 Working Environment

Newstrom (1996:469) “Work condition to the scheduling of work-the length of work days and the time of days (or night) during which people work” The purpose of the statement above that the working conditions associated with scheduling of work, duration of work in the day and in conditions work consisting of factors such as physical condition, condition psychological, and temporary condition of the working environment, must be considered for the workers to feel comfortable in working in order to increase labor productivity.

The physical condition of the working environment around the employees considered by the business entity, because it is one way that can be taken to ensure that employee can do the tasks without experiencing interference. Taking into account the physical condition of the working environment of employees in this case means try to create working conditions in accordance with the wishes and needs of its employees as the executor of the work at the workplace. The physical condition of the working environment by Newstrom (1996:469) is "Among the more obvious factors cans That Affect the behavior of workers are
the physical conditions of the work environment including the level of lighting, the usual temperature, the level of noise, the amount and the types of Airborne chemical and pollutants and aesthetic features, such as the color of walls and floors, and the presence (or absence) of art work, music, plants decorative items. 

Can be interpreted that the factors are more real than that other factors may influence the behavior of workers is a physical condition, which is the rate that includes lighting, temperature, noise level, the number and kinds of radiation coming from the air and chemical pollution, aesthetic features such as color of the walls and floors and the level of presence or absence in the work of art, music, plants or things that adorn the workplace.

According to Handoko (1995:84), physical work environment are all located around the state of the workplace, which include temperature, air humidity, air circulation, lighting, noise, mechanical vibration, smells, colors and others that in this case influence on the work of humans. Work environment factors include:

a. Illumination

According to Newstrom (1996:469-478), light or illumination is very beneficial for the employees in order to get the safety and smooth running of work. Basically, the light can be divided into two parts, namely: the light coming from the sun and artificial light of a lamp. Therefore to note the lighting bright but not blinding. With good lighting the employee will be able to work carefully and thoroughly so that his work has a satisfactory quality. Light is less clear (not enough) result is less clear vision, so that the work being slow, many have errors, and ultimately leading to less efficient in carrying out the objectives of the company's job so difficult to achieve.

b. Temperature

According to Newstrom (1996:469-478), working in hot or cold temperatures can cause decreased performance. In general, hot and humid conditions tend to increase the use of physical force are more severe, so that workers will feel very tired and its performance will decline.

c. Noise

According Newstrom (1996:469-478) noise can be defined as undesirable sound, the sound disturbing or annoying noise sound is something avoided by anyone,
much less in executing a job, because the concentration of firms will be subject to interference. With this concentration disruption of the work performed will be many errors occur so that reasonable cause damage or loss.

d. Motion
According Newstrom (1996:469-478) state the general movement is vibration. The vibrations can cause effects bad for performance, especially for activity involving the use of eye and hand movements continuously.

e. Pollution
According to Newstrom (1996:469-478), this contamination can be caused by the usage levels of the chemicals in the workplace and various substances used in various sections in workplaces and jobs that produce furniture or furnishings. Raw materials used in many office buildings can be ascertained contain toxic chemicals. The situation will be very dangerous if the place does not have adequate ventilation.

f. Aesthetic factors
According Newstrom (1996:469-478) factor this beauty include music, colors and smells. Music, color, and pleasant odors can enhance job satisfaction in fulfilling their job.

According to Newstrom (1996:494) “Psychological conditions of the work environment that can affect work performance include feelings of privacy or crowding, the status associated with the amount or location of workspace, and the amount of control over the work environment.

Psychological condition of the working environment can affect performance include personal feeling or group, the status associated with a number of locations and number of supervisory work space or work environment.

Factors from Psychological conditions includes:

a. Feeling of privacy
Privacy of workers can be perceived from the workspace. There is a work space designed for a worker, those that are designed for some people, this is set to monitor the interaction between employees.

b. Sense of status and importance
The lower-level employees more like the design of open space because the member the opportunity for employees to communicate informally. Instead the managers were not satisfied with the design of open space because a lot of distractions and privacy is limited.

According to Newstrom (1996 : 480), “the temporal condition-the time structure of the work day. Some of the more flexible work schedules have developed in effort to give workers a greater sense of control over the planning and timing of their work days” Condition while covering the structure of time on weekdays. The majority of workers work with the schedule of 5-9 hours where the worker or given a period of 1 hour for breaks and lunch. The factors of condition while covering.

a. Shift
Newstrom (1996:481 within one working day shift can be divided into three namely morning shift, afternoon shift and night shift. And according to many studies that the night shift is regarded by many cause problems such as stress, job dissatisfaction and poor performance.

b. Compressed work weeks
Its purpose is to reduce the number of working days in a week, but increase the number of hours worked per day. Reduce working days of the week has a positive impact of employee that employees will feel refreshed in time off work because of the longer and also can reduce the level of employee absenteeism.

c. Flextime
It is a work schedule where employees can decide when to start work and when to end the job for employees to meet the number of working hours set by the enterprise.

Working conditions are considered to have an important role to comfort, tranquility, and job security. The creation of comfortable working conditions will help employees to work more diligently so that productivity and job satisfaction can be increased. Good working condition is a condition of employment that is free from physical disturbances such as noise, lack of
lighting, from pollution free from interference, which is psychological as well as temporary as these privacy is owned and setting employees' working hours.

2.1.2 Reason why to invent the Occupational Safety and Health

John Ridley (1983) gave three main reasons for the need for implementation of occupational safety and health program at each company. The third reason is as follows:

a. Legal Reasons.
Each State must have a specific that law requires companies to give attention to the safety and health of employees and the surrounding community and environment.

b. For humanitarian Reasons.
This reasoning on the view that free on the basis of it is the duty and responsibility of each person to ensure the health safety and subordinates. This view requires the owner to create a safe working environment and also for all employees.

c. Economic reasons.
The reason is based on the view that every accident that occurs will cause much harm to the company whether it be material or moral loss, such as damage to the company name as well as other losses due to the implementation of safety and health program intended to prevent the losses, to prevent road accidents and occupational disease.

2.1.3 The objectives of occupational safety and health

Occupational safety and health protection of employees' aims to prevent accidents at work or at least reduce the rate of accidents in the workplace, so that production processes can be running properly.

According to Mangkunegara (2002: 165) that the purpose and occupational health and safety are as follows:
a. For each employee get a guarantee of safety and health both physically, socially and psychologically.

b. For each supplies and equipment used his best work as selective as possible.

c. For all the products maintained for the safety.

D. In order to guarantee the maintenance and improvement of nutritional health of employees.

e. Increase for excitement, harmony work, and work participation.

f. To avoid the health problems caused by the environment or working conditions.

g. For every employee to feel safe and protected in the work.

Meanwhile, General Purpose occupational safety and health program in accordance with Law No. 1 year 1970 are:

1. Protecting workers in the workplace in order to always ensure the safety and health so that interchangeable manifested increased production and productivity.

2. Protecting any other person who was at work who always safe and healthy juncture.

3. Protecting materials and production equipment for the accomplished safely and efficiently.

The systems approach to safety management begins by considering the purpose of safety, engineering, and equipment used, process products, and workplace planning. The purpose of safety must be integral part of every management and supervisory work. Similarly, workers very important roles in applying the systems approach to safety firms.
2.2 Workforce Accidents

Here are some definitions of accidents and work accidents according to some experts:

a. Accident definition according to Minister of Labor (Permenaker) No 03/Men/1998 is an event that is not desired and is not suspected initially that can cause loss of life and property.

b. According Forressman, Work Accident is the occurrence of an event due to excessive contact between the energy (agent) is acute with the body that cause damage to tissue/organ or physiological function.

c. The definition put forward by Frank E. Bird Jr. accident is an event that is not desired, could result in loss of life and property damage and usually occurs as a result of contact with sources of energy that exceeds the threshold or structure.

d. Accidents is an event or occurrence that does not want the harm to people, damaging property or loss process (Sugandi, 2003)

e. World Health Organization (WHO) defines accident as an event that cannot be prepared in the previous response, resulting in a real injury

From the above definition can be concluded that the accident is an unplanned event, unpredictable and cause people to get into trouble or harm to himself. The following will be discussed regarding the classification, causes, effects, and techniques of accident prevention work.

2.2.1 Classification of workforce accidents

In general, classification of work accidents divided into two types

a. Industrial Accidents is the accident that occurred in the workplace because of the source of danger or hazard.

b. Accident in transit (Community Accident) is an accident that occurred outside the workplace that relates to the employment relationship

Based on the types of accidents, workplace accidents can be classified in several forms as follows (Silalalhi, 1995)
1. Struck by. This accident is an accident where someone is unexpectedly hit by an object moving. For example: hit by a vehicle, hit by a hammer, a piece of material that goes into the eyes, etc.

2. Struck again. In this accident, someone hit a moving object. Examples: hit with the tip of a sharp object, running or walking towards the vehicle is moving, run or walk and then hit someone else.

3. Caught in, on or Between. Examples of accidents caught in the incident where a worker foot wedged in the holes found on the damaged floors. In the accident caught on, that is where the sleeve of the workers caught in wire fence. However, the example of accident caught on is when between the feet or hands of workers trapped between the rotating gears or moving parts of machinery.

4. Fall from above. It was an accident where someone fell off the floor or a higher place to lower place.

5. Fall at ground level. Included in this accident is a slip or fall to the floor or ground from the same height.

6. Strain or overexertion. This condition occurs at a time when workers carry, push at a draw an object or material beyond the limits of their physical abilities.

7. Electrical contacts. Injury to the accident was caused because of contact between the worker's body with an electric current or with a variety of other electrical equipment.

8. Burn. This is because part of the body touched or exposed to fire, flames or hot surfaces.

While the ILO developed a classification list of accidents, namely:

A. Classification of accidents by type of accident
   1. People fall
   2. Hit objects falling (falling)
   3. Touched or hit objects are not moving (hit)
4. Sandwiched between 2 objects
5. Movement imposed
6. Exposed to temperatures
7. Electric shock
8. Exposed to hazardous substances or radiation
9. Stumble
10. Trapped
11. Stepping on sharp objects

B. The classification of accidents according to body
Calcification of work accidents according to the object, divided into 5:
1. Engine, includes the prime mover, transmission gear machine, cutting machine, bending machine
2. Lifting tool and a means of transport, therein, including machinery and lifting equipment and lifting equipment
3. Other equipment, including power tools, hand power tools, tooling equipment, electrical equipment, ladders and scaffolding
4. Materials, substances and radiation, including powders, gases, chemicals, broken caromed
5. Work environment; outside the building, inside the building, and below ground
6. Etc.; animals and viruses

C. Classification by type of accident injuries
1. Fracture / crack
2. Dislocation
3. Dislocate
4. Brain injuries and other injuries in
5. Amputation
6. As a result of electric current
7. Minor injuries
8. Bruises and broken
9. Burned
10. Acute Poisoning
11. Effect of weather
12. Shortness of breath
13. As a result of radiation

**D. Classification of injury accidents by location**

1. Head
2. Neck
3. Body
4. Hand
5. Leg
6. Other

**2.2.2 Cause of Accidents**

The cause of workplace accidents can be divided into two groups, namely the dangerous actions (unsafe acts) and in a hazardous situation (unsafe condition). A dangerous act is any human action that could allow an accident to himself or to others, whereas danger circumstances is a condition of work environment that can allow the occurrence of accidents.

Domino Theory (seuqence domino theory). Thompkin (1982) give an idea of the domino theory Heinrich, which in essence is the theory of Human Factor (Human Factor Theory), this theory assumes that all incidents of accidents caused by human (Human error). Heinrich's Domino Theory states that accidents result from a chain of sequential events, metaphorically like a line of Dominoes falling over. He illustrated his accident sequences using the analogy of a row dominoes in which each domino represent a single factor. In five dominoes are arranged of their sides, in a fixed sequence, and in such a way that if a domino falls it will strike the next one and cause it to fall over too. Thus the falls of the first domino will precipitate the fall of the entire row.
Heinrich positives five metaphorical dominoes labeled with accident causes. They are Social Environment and Ancestry, Fault of Person, Unsafe Act or Mechanical or Physical Hazard (unsafe condition), Accident, and Injury. Heinrich defines each of these “dominoes” explicitly, and gives advice on minimizing or eliminating their presence in the sequence.

Figure 2.1

Heinrich’s Domino Theory

1. Ancestry and social environment. Recklessness, stubbornness, avariciousness, and other undesirable traits of character may be passed along through inheritance. Environment cause faults of person.

2. Fault of person. Inherited or acquired faults of person such as recklessness, violent temper, nervousness, excitability, inconsiderativeness, ignorance of safe practice, etc. constitute proximate reasons for committing unsafe acts or the existence of mechanical or physical hazards.

3. Unsafe act and/or mechanical or physical hazard. Unsafe performance of persons, such as standing under suspended loads, starting machinery without warning, horseplay, and removal of safeguards, and mechanical or physical hazards, such
as unguarded gears, unguarded point of operation, absence of rail guards, and insufficient light, result directly in accidents.

4. Accident. Events such as falls of persons, striking of persons by flying objects, etc. are typical accidents that cause injury.

5. Injury. Fractures, lacerations, etc. are injuries that result directly from accidents.

The five factors are assumed to occur in a fixed, chronological order which culminates in injury. Thus an injury is invariably caused by an accident, an accident occurs only as the result of an unsafe act and mechanical hazard which, in turn, only exists because of personal fault which are acquired from the social environment or inherited from ancestry.

In line with that Frank Bird of International Loss Control Institute (ILCI) in 1972 put forward the theory of loss causation model which states that a critical factor management is the background of the cause which led to accident. This theory has been modify by Heinrich domino theory with management theory which contains the five factors in an accident sequence (Bird, FE and GL Germain 1989.P22)

1. Lack of control. Control is the fourth function of professional management (planning-organising-leading-controlling). Control involves establishing standards, measuring management performance, evaluating results, and correcting performance. Reasons for inadequate loss control are inadequate program, inadequate program standards, and inadequate compliance to standards.

2. Basic causes. Basic causes are the origin of substandard practices and conditions. Basic causes belong to two categories; personal factors and job factors. Personal factors include lack of knowledge or skill, improper motivation, and physical and mental problems. Job factors include inadequate work standards, inadequate purchasing standards, normal wear and tear, and abnormal usage.
3. Immediate cause. The circumstances that immediately precede an incident. There are two main types of immediate cause; substandard practices and substandard conditions. Substandard practices include operating without authority, removing safety device, and improving lifting. Substandard conditions include inadequate guards or barriers, inadequate or improper protective equipment, and defective tools.

4. Incident. An undesired event which could or does cause loss. It involves a contact between a body or structure and a source of energy

5. Loss. The major forms of loss are harm to people, property or process. Other important losses include performance disruption and profit reduction.

### 2.2.3 Impact of accident and occupational disease

Meanwhile, the negative impacts caused by accidents and occupational disease according to Dr. Payaman J. Simanjuntak (1994) among which:

1. Workers or other people died, injured or become disabled.
2. The destruction of the means of production which also meant financial losses for employers
3. Raw materials and other production materials damaged
4. Burning or collapsed buildings
5. Cessation of the production process

Besides the effects above, including some other impacts such as;

a. The existence of certain conditions that are not healthy, can result in workers or other persons suffering from a particular disease in both the short-or long-term (detected only after several years)

b. For workers, the death, injury, disability or unhealthy workers, will cause him not to work again which also means loss of income for her family.

c. For employers still must pay compensation to workers or other people who experienced the negative impact of the company.
2.2.4 Handling of Work Accidents

Given so many negative impacts that occur, it is important to place a prevention effort to avoid accidents and illnesses such work. This must be done by every company, whether large, medium, and small. This business is a responsibility that cannot be avoided by management. To be biased is working well, occupational safety and health program run must have the support and full commitment from management and company owners.

Therefore, every company needs to set up a special agency responsible for the field of safety and health program. The agency will have job responsibilities include:

a. Develop systems and accident prevention of occupational disease is complete.
b. Identify the various causes of accidents and occupational disease
c. Installation of security safeguards
d. Provision of equipment for the workers themselves experience
e. Perform routine checks on the means of production, self protection equipment, security installations and equipment of other companies
f. Considering the conditions and health problems of employees
g. Taking various actions or any other policies deemed necessary, transform and support the creation of working conditions
2.3 Description of similar research

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Title</th>
<th>Objective</th>
<th>Type of Study</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muhammad Ali (2009) Gajah Mada University</td>
<td>Relationship Between Knowledge On Occupational Health, Fatigue And on The Job Accidents Of Workers At production Department on PT. Lontar Papyrus Pulp and Paper Industri (LPPPI) Jambi</td>
<td>The study aimed to identify the relationship between knowledge on occupational health, fatigue of workers at the production department of LPPPI Jambi and on the job accident.</td>
<td>Case Control</td>
<td>There is a very significant relationship between knowledge of occupational safety and health, with work on labor accident. The lower the occupational safety and health knowledge the higher the chances for accidents.</td>
</tr>
<tr>
<td>Kumar Ghosh, et al (2004)</td>
<td>Relationships of working condition and individual characteristic to Occupational Injuries : A case-control study in Coal Miners</td>
<td>This study assessed the relationship of age, poor perception of working condition, poor safety environment, poor management and supervision, risk taking behavior and poor safety performance of workers to occupational injuries</td>
<td>Case Control</td>
<td>No significant interaction was found between these risk factors and the job. It was concluded that older age, poor perception of work conditions, poor work environment, and human behavioral factors played significant roles in occupational injuries.</td>
</tr>
<tr>
<td>Nurmalinda, Yuis West Sumatra University (2008)</td>
<td>Analysis of the influence of occupational safety and health (K3) and the working environment on the productivity of the employees of PT. Sosro Sinar Tanjung Morawa Medan</td>
<td>The cases in this research are how healthy safety work (k3) and environmental work influence the employee’s productivity at PT. Sinar Sosro tanjung Morawa Medan and which factor is the most dominant. The</td>
<td>Case Control</td>
<td>The healthy and safety (K3) and environmental work related highly significant to the employee’s productivity and the application of healthy safety (K3) have a medium correlation with the rule of management.</td>
</tr>
</tbody>
</table>

Table 2.1
<table>
<thead>
<tr>
<th>Source</th>
<th>Title</th>
<th>Methodology</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yunizar (2008)</td>
<td>The Relationship of Health and Safety Knowledge With The Occurrence of Accidents at Workplaces Labor PT. Pertamina (Persero) Jambi Production Exploration Business Unit</td>
<td>Case Control</td>
<td>Workers who do not receive safety training and occupational health (K3) has more risk of an accident at work of labor who have received training of occupational safety and health.</td>
</tr>
<tr>
<td>Gimeno, D, Felknor, S, Burau, K.D, dan Delclos, G.L. 2005.</td>
<td>Organizational and Occupational Risk Factors Associated With Work Related Injuries Among Public Hospital Employees in Costa Rica</td>
<td>Case Control</td>
<td>Workers who do not receive safety training and occupational health (K3) has more risk of an accident at work of labor who have received training of occupational safety and health.</td>
</tr>
</tbody>
</table>
III. RESEARCH METHODOLOGY

3.1 Research Design

In this research, the researcher will explain about the methodology that applied in this research. This research will apply quantitative method; researcher tries to discover effects of safety and health program on workforce accidents. Since that, researcher applies correlation analysis as statistical tool in analyzing the data.

Quantitative method use number to prove or disprove a notion or hypothesis. The process to measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationship (Thesis Guideline, 2010). In quantitative research, concept and variable of the study are being limited by guiding the research to a controlled setting, more systematic and structures in a research design (Kriyantono, 2006:57).

This research measures correlation, and according to Cooper and Schindler (2006), quantitative research is very controlled, exact approach to research. It uses statistical tool, e.g. double regression linear, correlation, etc. to analyze data.

In collecting data, the researcher used primary data by using Likert Scale questionnaire. The consideration of using primary data is the sources of data availability. Researcher can gather information and measure what researcher wish to as well as accuracy and consistency of data.
3.2 Research Framework

The sequences steps of research framework are as follow:

- Research Permission
- Data Collection
- Pre-Test Questionnaire
- Questionnaire Validity & Reliability Testing
  - No → Rejected
  - Yes → Get Primary Data
- SPSS (Statistical Package for Social Science)
- Analysis and Interpretation of Data
- Conclusion

Figure 3.1 Research Frameworks
Source: Adjusted by researcher
3.3 Research Time and Place

This research is a cross-sectional study. Cross-sectional studies are studies in which data are gathered just once, perhaps over a period of days, weeks, or months, in order to answer research questions. The researcher starts the survey in November 2010 for collecting data. The survey was conducted from November 24 - 25, 2010 in PT. Mulia Industrindo Tbk.

3.4 Research Instrument

3.4.1 Data Collection

a. Observation

At the beginning of this research, the researcher found some problems happened in the company. The problem is related to Human Resources Management and the elements that influence human resources. After the problem was found, the researcher does research to analyze the problem and find the solution in the end.

b. Questionnaire

Questionnaire used is Likert Scale questionnaire with scoring 1 – 5. In Cooper & Schindler study (2006, pp 370), the Likert Scale, developed by Rensis Likert, is the most frequently used variation of the summed rating scale. The figure and regulation for the questionnaire is shown below:

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Moderate</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Create by researcher

The research made use of Likert scale due to its simplicity, flexibility, and reliability (Dornyei, 2003). The participants were asked to agree or disagree with each statement. Each response option was assigned a numbering for scoring purposes.
reason using Likert scale is because Likert scale easy to calculated and respondent can simply filing the questionnaire without spent a lot of time. The questionnaire is using Indonesia, in order to ignore the respondent’s misunderstanding.

3.5 Statistical Techniques

Researcher used two kind of the computer software to analysis the data:

a. SPSS (Statistical Package for Social Science) version 16.0

Researcher used the SPSS program to test hypothesis.

b. Microsoft Excel 2007

Researcher used Microsoft Excel to gather the demographic of the respondents and also frequency and percentage answering the questionnaire.

3.6 Sampling Design

3.6.1 Size of the Population

According to Lind D.A, Marchal, W.G & Manson, R.D., 2002 pp. 7, population is a collection of all possible individuals, object, or measurements of interest. Measuring the population is important before start collecting the data because to determine the sample, population must be determine first.

The target population of this study was Non-Production Staff of PT. Mulia Industri. Tbk. The sample for this survey was comprised of respondent who work at Head Office of PT. Mulia Industri. Tbk.

3.6.2 Sample Technique

The technique of determining sample in this research is based on theory stated in Hair et al, 2006, pp. 102.

For sample size:

(1) The sample must have more observation than variables.
The minimum absolute sample size is 70 observations.

According to the theory above, researcher expect the population will be normal hence, the minimum sample determining at least 30 respondents for unknown population.

3.6.3 Characteristic of the respondent
The total of the respondent in this research are 70 Employee staff at PT. Mulia Industri. Tbk. The questionnaire use Indonesia Languages. From 50 questionnaires given in PT. Mulia Industri. Tbk, all of them are successfully fulfilled by respondents and valid. The valid, in here, mean all questions in the questionnaire are answered properly by respondent.

3.6.4 Research Variable
Here the brief explanation of each variable in the questionnaire :

a. Variable Independent

Independent variable used in this research is the occupational safety and health program, which indicator are as follows :

a. Promoting OSH workplace
b. Safety Program
c. Health and hygiene program
### Questioner Variable X

#### Table 3.2

<table>
<thead>
<tr>
<th>NO</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>The management of company installed safety and health signs around the work area</td>
</tr>
<tr>
<td>X2</td>
<td>The company held socialization of safety work</td>
</tr>
<tr>
<td>X3</td>
<td>The company provide training on safety and environment for the employees</td>
</tr>
<tr>
<td>X4</td>
<td>The company able to set the safety and health policy</td>
</tr>
<tr>
<td>X5</td>
<td>Safety equipment like fire extinguisher function well and continue to be checked</td>
</tr>
<tr>
<td></td>
<td>HEALTH AND HYGIENE PROGRAM</td>
</tr>
<tr>
<td>X6</td>
<td>The company held a regular employee health checks</td>
</tr>
<tr>
<td>X7</td>
<td>The company held of inspection or monitoring of environmental hygiene work</td>
</tr>
<tr>
<td>X8</td>
<td>The health post/clinic provided by company is quite adequate</td>
</tr>
<tr>
<td>X9</td>
<td>The Company include the employee in the social security program (JAMSOSTEK)</td>
</tr>
<tr>
<td>X10</td>
<td>The company provide emergency equipment of first aid (P3K)</td>
</tr>
</tbody>
</table>
b. Dependent Variable
Dependent variable used in this research is workforce accidents

**Questioner Variable Y**

**Table 3.3**

<table>
<thead>
<tr>
<th>Workforce Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO Questions</td>
</tr>
<tr>
<td>Y1 The accidents caused by not wearing personal protective equipment (APD)</td>
</tr>
<tr>
<td>Y2 The occurrences of workforce accidents is because of an healthy work environment</td>
</tr>
<tr>
<td>Y3 The accidents happen because of unsafe act of employees</td>
</tr>
<tr>
<td>Y4 The accidents that occurred in the company due to a lack of control of company management</td>
</tr>
<tr>
<td>Y5 The maintenance of company facilities is to reduce the occurrence of workforce accidents</td>
</tr>
<tr>
<td>Y6 Safety and health training provided by the company management to reduce accidents</td>
</tr>
<tr>
<td>Y7 The accidents caused by the negligence of company equipment is very low</td>
</tr>
<tr>
<td>Y8 The company always gives an explanation of safety procedures to avoid accidents</td>
</tr>
</tbody>
</table>
3.7. Validity and Reliability

In a study should have called the test instrument in which the researchers will measure the variables that exist to obtain valid data. "By using a valid and reliable instrument in collecting data, it is expected that research results will be valid and reliable." (Sugiyono, 2007: 348). The researchers concluded that the two test instruments will be fulfilled the requirements to obtain the results valid and reliable research. According Singarimbun, (1996: 122) "Validity is the extent to which measuring tool to measure what you want to measure." Added by arikunto (2002: 144), "Validity is a measure that shows the levels of validity or the validity of an instrument." Researchers conclude that validity is a measurement instrument that has a level of precision in its function. If the data in the test in the can not relevant, then the validity of the results will be low. Furthermore, in order to obtain consistent data and can be trusted, the researchers used a measurement tool in the same symptoms so the researchers used a reliability test.

Reliability means to have properties that can be trusted. A measuring instrument is said to reliable when used many times by the same researchers or other researchers who still provide the same results and will provide accurate results for reliable measured unchanged. (Grace, 2007: 17).

Based on the above definition investigators concluded that the reliability is a reliable assessment. If the indicator started again to study the end result is relatively the same. Validity and reliability in the study was conducted using the software SPSS (Statistical Package For Social Science) by using Cronbach's Alpha. According Sugiyono (2007: 216):

Basically coefficient Cronbach's Alpha is the average of all coefficient halved (Split-half) that enables made of a measuring instrument. Seeing the value of $\alpha$ (Alpha) can know the reliability of measuring instruments used. A reliable instrument can be said (Reliable) if it has a reliability coefficient reliability of 0.6 or more. If the value obtained under 0.6 then measuring instrument which is made not reliable.

According Ghozali, (2005: 44), If the value of alpha <60% means there are few respondents answered identify inconsistent and should be viewed one by one
respondent's answer items that are not consistent and should be discarded from the analysis and alpha will increase.

3.7.1. Reliability

Researchers conduct reliability tests to prove whether the variables used in this study are reliable or are invalid. Understanding reliability according Riduwan and Sunarto (2007: 348) "reliability refers to a sense that something can be used as an instrument of data collection tool because the instrument was considered good."

Test reliability in this study will use a method cronbach's alpha. Here are the test results table that has been done with the help of SPSS software version 16 windows.

Based on a pretest questionnaire that was conducted on 15 people reliabilities respondents indicated the following results:

<table>
<thead>
<tr>
<th>Variable Independent( X )</th>
<th>Table 3.4</th>
<th>Ratability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cronbach's Alpha N of Items</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.962 10</td>
</tr>
</tbody>
</table>

Sources: SPSS 16.0 and Primary Data by Researcher

Based on the conclusions that can be taken from the table above, the results of the analysis of reliability based on Cronbach's Alpha is 0.962 indicates that 10 respondents gave consistent answers. So based on these results can be seen that the Cronbach's Alpha 0.962 > of 0.514. This means that patients who answers to the variable X is reliable, these figures show that there is a high reliability.
Based on the conclusions that can be taken from the table above, the results of the analysis of reliability based on Cronbach's Alpha is 0.933 indicates that 10 respondents gave consistent answers. So based on these results can be seen that the Cronbach's Alpha 0.933> of 0.514. This means that the correspondents who answers to the variable Y is reliable. This figure shows that there is a high reliability.

### 3.7.2. Validity

According Riduwan and Sunarto (2007: 348) "validity is a measure that indicates the level of validity and reliability of an instrument." based on the above quotation, the researchers considered that a study is considered valid if the measurement of the concept is done accurately. validity is a proven validity of a variable, something to be assessed correctly gauge when to have a high level of validity. To test the validity of this research will use the software SPSS windows version 16.0. Testing the validity of using the correlation coefficient approach is by correlating the score of the questions with the total score, and if the value of a positive correlation and calculate $r \geq r_{table}$ then the item is declared valid question.

Based on a pretest questionnaire that conducted on 15 respondents show the validity of the results as follows:
Table 3.6

Validities Variable X

<table>
<thead>
<tr>
<th>Variable</th>
<th>Corrected Item-Total Correlation</th>
<th>( r ) table</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>.742</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X2</td>
<td>.931</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X3</td>
<td>.898</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X4</td>
<td>.765</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X5</td>
<td>.931</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X6</td>
<td>.941</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X7</td>
<td>.836</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X8</td>
<td>.742</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X9</td>
<td>.941</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>X10</td>
<td>.742</td>
<td>.514</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Sources: SPSS 16.0 and Primary Data by Researcher

From the result of validity checking from SPSS 16.0 and corrected item – total correlation compare \( r \) table above shows that there is no invalid items, and the 10 (fifteen) variables are can be valid questionnaire to gather primary data.
Table 3.7
Validities Variable Y
Item-Total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
<th>(r_{table})</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>.615</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y2</td>
<td>.882</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y3</td>
<td>.649</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y4</td>
<td>.952</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y5</td>
<td>.694</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y6</td>
<td>.828</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y7</td>
<td>.764</td>
<td>.514</td>
<td>Valid</td>
</tr>
<tr>
<td>Y8</td>
<td>.932</td>
<td>.514</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Sources: SPSS 16.0 and Primary Data by Researcher

From the result of validity checking from SPSS 16.0 and corrected item – total correlation compare \(r\) table above shows that there are no invalid item, Those variables are can be valid questionnaire to gather primary data.

3.8 Method of Processing Data

3.8.1 Data Analysis

In data analysis, Spearman rank correlation analysis was used to determine the relationship existing between the two variables, namely the independent variable and dependent variable. In analyzing the data, the authors define two variables, namely:

1. Occupational safety and health set as independent variables with the notation X
2. Workforce accidents is set as the dependent variable with the notation Y

Each data X and Y are given a ranking according to the score obtained, the smallest amount given rank 1, the second smallest are ranked 2, and so on. Where scores are measured based on the measurement of Likert Scale variables X and Y are measured in ordinal scale, with details as follows:
Furthermore, the average sought from each respondent's answers. To facilitate this research, the class intervals will be determined as a lot of class intervals of 5 (five). The formula used to determine the class intervals according to Riduwan (2003:71), is as follows:

\[
\text{Long Interval Class} = \frac{\text{Range}}{\text{Number of Interval Class}}
\]

Where:
- Range = High Scores – Low Scores
- Number of Interval Class = 5

Based on the formula above, the long interval class is:

\[
\text{Long Interval Class} = \frac{5 - 1}{5} = 0.8
\]

So the interval of occupational safety and health assessment criteria are as follows:

- 1.00 – 1.79 = Very Poor
- 1.80 – 2.59 = Poor
- 2.60 – 3.39 = Moderate
- 3.40 – 4.19 = Good
- 4.20 – 5.00 = Very Good

<table>
<thead>
<tr>
<th>Statement</th>
<th>Assigned Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
</tbody>
</table>
From the above calculation, then we can interpret the assessment of the occupational safety and health that every statement contained in the questionnaire. By finding the average results of each statement, then we interpret the guidelines in accordance with Riduwan (2003:71).

In analyzing the relationship of occupational safety and health to workforce accident used Spearman Rank correlation formula, namely:

1. When on quiz results table there are no figures twins.

\[ rs = \frac{6\sum di^2}{n(n-1)} \]

where:

- \( di \) = The Difference between the rank of X and Y
- \( n \) = Number of Respondent
- \( rs \) = Spearman Rank Correlation Coefficient

\( H_a : rs = 0 \) There is no a relationship between healthy and safety programs and workforce accidents

\( H_0 : rs \neq 0 \) There is relationship between healthy and safety programs and workforce accidents

If it used a large sample of the calculation is forwarded by using the formula:

\[ t = \frac{rs \sqrt{n-2}}{\sqrt{1-rs^2}} \]

### 3.8 Limitations

Some problems encountered during the research period are as follows:

1. This research is limited only in PT. Mulia Industri. Tbk

2. The respondents are PT. Mulia Industri. Tbk’s staff Level who work at Head Office.
IV. ANALYSIS OF DATA AND 
INTERPRETATION OF RESULTS

1.1 Respondent Characteristic

In this study the authors distribute 70 copies questionnaires to the employees of PT. Mulia Industrindo. The questionnaire consists of three parts. Part A contains the characteristics of respondents who fill out the questionnaire; part B contains the statements of respondents about the occupational safety and health program at PT. Mulia Industrindo, while section C contains the statements of respondents about the workforce accidents on PT. Mulia Industrindo.

To gain insight about the characteristics of employees who were respondents in this study, the authors classify the characteristics of respondents by gender, age, position, and work period at the PT. Mulia Industrindo

The authors obtained data concerning the characteristics of the respondents were as follows:

Tabel 4.1
Grouping Respondent by Gender

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>20</td>
<td>28.58</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>50</td>
<td>71.42</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary Data

Based on the above table it can be concluded that the total respondents, both men and women is 50 people. Female respondents were 20 people (28.58%) and Male respondents were 50 people (71.42%).
Table 4.2
Grouping Respondent by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20 years old</td>
<td>10</td>
<td>14.28</td>
</tr>
<tr>
<td>21 – 30 years old</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>31 – 40 years old</td>
<td>20</td>
<td>28.57</td>
</tr>
<tr>
<td>&gt; 41 years old</td>
<td>5</td>
<td>7.14</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 4.2 above can be seen that most respondents are at <20 years old are 10 people (14.28), 21-30 year age group, as many as 35 people or 50%, age 31-40 years as many as 20 people or 28.57%, age> 41 years as many as 5 people or by 10%, and age <20 years as many as 2 people or 4%. The majority of respondents aged 21-30 years, this means employees of PT. Mulia Industri including productive age groups and adults. Employee productivity is also strongly influenced by levels of age because at the level of productive age and adult employees that work optimally because of physical conditions that support so that a positive impact on their job and their work.

Table 4.3
Grouping Respondent based on level position

<table>
<thead>
<tr>
<th>Level Position</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff/Worker</td>
<td>58</td>
<td>82.85</td>
</tr>
<tr>
<td>Supervisor</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Manager</td>
<td>5</td>
<td>7.14</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 4.4 above can be seen that most respondents 82.85% have had level position as staff, as many as 7 people or 10%, had level position as
supervisor, and as many as 5 people or 7.14% have had level position as manager.

**Table 4.4**

**Grouping Respondent based on Work Period**

<table>
<thead>
<tr>
<th>Work Period</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 Year</td>
<td>6</td>
<td>8.57</td>
</tr>
<tr>
<td>2 – 5 Years</td>
<td>24</td>
<td>34.28</td>
</tr>
<tr>
<td>6 – 10 Years</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td>&gt;11 Years</td>
<td>12</td>
<td>17.14</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 4.4 above can be seen that most respondents have had years of service for 6-10 years, as many as 28 people or 40%, 2-5 years of as many as 24 people or 34.28%, >11 years as many as 12 people or by 17.14 %, and <1 year as many as 6 people or 8.57%. The majority of respondents had worked long enough in PT. Mulia Industry so that the level of employees working long enough to be more careful in the work to avoid work accidents.
Based on table 4.5 with the indicator statement "The management of company installed safety and health signs around the work area ", the respondents who answered strongly agree is 10 persons (14.28%), 40 people who answered agree (57.14%), answered that the setup was appropriate hazard warning signs in dangerous places. This is indicated by warning signs installed at places where high-voltage so that employees are not allowed to enter or advisable to be careful when passing the area. This aims to avoid the occurrence of high-voltage electric shock. Installed ban use of hand directly in the operation of some production machines, banning smoking in areas prone to fire and guide the use of installed fire extinguishers have been provided at the site of fire-prone who answered neither agree not disagree is 10 people (14.28%), and who answered disagree is 10 people (14.28%) replied that the setup is not appropriate hazard warning signs there are dangerous places. This is indicated by warning signs of danger has not been installed on the moving parts (eg the spindle) for employees.
Table 4.6
The company held socialization of safety work

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.42</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>20</td>
<td>28.5</td>
<td>60</td>
</tr>
<tr>
<td>Agree</td>
<td>35</td>
<td>50</td>
<td>140</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>7.14</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>255</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 2

Based on table 4.6 with the indicator statement "The company held socialization of safety work", the respondents who answered strongly agree is 5 people (7.14%), who answered agree 35 people (50%), who answered neither agree nor disagree is 20 people (28.5%), and the answer is 15 people disagree (21.42%). From the statement this companies develop and implement safety programs to promote safety programs for the safety of their employees.

Table 4.7
The company provide training on safety and environment for the employee

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>2.8</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>19</td>
<td>27.14</td>
<td>57</td>
</tr>
<tr>
<td>Agree</td>
<td>31</td>
<td>44.2</td>
<td>124</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>11.42</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>225</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 3
Based on table 4.7 with indicator statement "The company provide training on safety and environment for the employees". Respondents who answered strongly agree are 8 people (11.42%), 31 people who answered agree (31%), who answered neither agree not disagree is 19 people (27.14%), and who answered disagree is 2 people (2.8%). From the statement about can be assume that based on the answers to most of the correspondents said the company provide safety training program for employees do their jobs safely.

**Table 4.8**

<table>
<thead>
<tr>
<th>The company able to set the safety and health policy</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>11.42</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.14</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>42.85</td>
<td>120</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>223</td>
</tr>
</tbody>
</table>

Mean 3.18

Source: Questionnaire Statement Number 4

Based on table 4.8 with the indicator statement "The company able to set the safety and health policy", respondents who answered strongly agree set are 10 people (20%), 32 people who answered agree (68%), and who answered neither agree not disagree is 8 people (16%). From the statement about management in PT.Mulia Industrindo is able to apply health and safety policies well.
Table 4.9
Safety equipment like fire extinguisher function well and continue to be checked

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.4</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>6</td>
<td>8.57</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>51.42</td>
<td>144</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>8.57</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>229</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 5

Based on table 4.9 with the indicator statement "Safety equipment like fire extinguisher function well and continue to be checked". Respondents who answered strongly agree are 6 people (8.57%), 36 people who answered agree (51.42%), who answered neither agree not disagree is 6 people (8.57%), who answered disagree is 15 people (21.4%) and who answered strongly disagree is 6 people (8.57%). From the statement above can be shown that the respondent mostly answered agree it can be conclude that the company always check the safety equipment.
Table 4.10
Table Analysis of Data on Safety Program (Variable X)

<table>
<thead>
<tr>
<th>Number</th>
<th>Table Title</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 4.5</td>
<td>The management of company installed safety and health signs around the work area</td>
<td>3.71</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>The company held socialization of safety work</td>
<td>3.71</td>
</tr>
<tr>
<td>Table 4.7</td>
<td>The company provide training on safety and environment for the employees</td>
<td>3.21</td>
</tr>
<tr>
<td>Table 4.8</td>
<td>The company able to set the safety and health policy</td>
<td>3.18</td>
</tr>
<tr>
<td>Table 4.9</td>
<td>Safety equipment like fire extinguisher function well and continue to be checked</td>
<td>3.27</td>
</tr>
<tr>
<td>Total Mean</td>
<td>17.08</td>
<td></td>
</tr>
<tr>
<td>Number of Independent Variable Statement</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Final Result of Mean Value</td>
<td>3.41</td>
<td></td>
</tr>
</tbody>
</table>

Guidelines to determine the mean value category

Based on the analysis of data on safety program variable (X) values obtained at 3.41, so it can be concluded that the safety program used in the company is good. This is evident from the answer that most correspondents know safety programs given company. With these employees can work with feeling safe and know more about the function of safety programs that have been provided by the company.
4.3. Response Statement Regarding Respondents About Health and Hygiene Program (Variable X)

Table 4.11
The company held a regular employee health checks

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.4</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>6</td>
<td>8.57</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>51.42</td>
<td>144</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>8.57</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>229</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 6

Based on table 4.11 with indicators of the statement “The company held a regular employee health checks", the respondents who answered strongly agree is 6 people (8.57%), 36 people who answered agree (51.42%), which is always carried out periodic health checks for employees answered neither agree not disagree is 6 people (8.57%), who answered disagree 15 people (21.4) and who answered strongly disagree is 6 people (8.57%). From the mostly respondents answer to the question is show that the company already held a regular employee health checks.
Table 4.12
The company held of inspection or monitoring of environmental hygiene work

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>4.28</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>40</td>
<td>57.14</td>
<td>160</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>14.28</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>255</td>
</tr>
</tbody>
</table>

Mean 3.64

Source: Questionnaire Statement Number 7

Based on table 4.12 with the indicator statement "The company held of inspection or monitoring of environmental hygiene work", the respondents who answered strongly agree were 10 people (14.22%), 40 people who answered agree (57.14%), who answered neither agree not disagree is 10 people (14.28%), who answered disagree is 7 people (10%) and who answered disagree is 3 people (4.28%). From the statement about found that the average value of good in this statement, therefore the authors assume that the company always held of inspection or monitoring of environmental hygiene.
Table 4.13
The health post/clinic provided by company is quite adequate

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>11.42</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.14</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>42.85</td>
<td>120</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>223</td>
</tr>
</tbody>
</table>

Mean: 3.18

Source: Questionnaire Statement Number 8

Based on table 4.13 with the indicator statement "The health post/clinic provided by company is quite adequate", respondents who answered strongly agree is 7 people (10%), 30 people who answered agree (66%), respondent who replied that the condition of the clinic or clinics provided by the company's already good enough. This is because the clinic room very clean, tidy and have adequate lighting and ventilation are quite wide. Clinic is equipped with a bed and some chairs to rest for a while for employees who have an accident or illness while working. The company also provides the company doctor at 7:00 to 16:00 and 16:00 to 22:00 at medical personnel and facilities for company cars if the employee had an accident and should be immediately taken to nearby hospitals. who answered neither agree not disagree is 10 (14.28% ), who answered disagree is 15 people (21.14%) and who answered strongly disagree is 7 people (10%). This is because the location of the clinic building is very close to production workspace building is very noisy so that employees who have less pain when resting in peace hall treatment. Based on the answers to correspondents from the statement above can be assumed to health clinics that provided for the company's complete enough.
Table 4.14
The Company include the employee in the social security program
(JAMSOSTEK)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>11.42</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>2.85</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>5</td>
<td>7.14</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>42.85</td>
<td>120</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>25</td>
<td>35.7</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>223</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 9

Based on table 4.14 with the indicator statement "The Company include the employee in the social security program (JAMSOSTEK)", the respondents who answered strongly agree is 25 (35.7%), who answered agree 30 people (42.85%), who answered neither agree not disagree is 5 people (7.14%), who answered disagree is 2 people (2.85) and who answered strongly disagree is 8 people (11.42%). From the statement above found, that the average value of good in this statement, therefore the authors assume that the company protect their employees with include them in the social security program (JAMSOSTEK).
Table 4.15
The company provides emergency equipment of first aid (P3K)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.4</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>6</td>
<td>8.57</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>51.42</td>
<td>144</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>8.57</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>229</td>
</tr>
</tbody>
</table>

Mean: 3.27

Source: Questionnaire Statement Number 10

Based on table 4.15 with the indicator statement of "The company provide emergency equipment of first aid (P3K)" , the respondents who answered strongly agree is 6 people (8.57%), who answered agree 36 people (51.42%), respondents who expressed the opinion that the facilities are complete enough first aid in workplace accidents (P3K) which provided by the company is enough to overcome some of the complaints that are often experienced by employees of the production. first-aid work (P3K) provided mostly just to overcome some minor complaints such as headache, cough, and wounds due to pinched or scratched by objects. Who answered neither agree nor disagree is 6 people (8.57%), who answered disagree 15 people (21.4) and who answered strongly disagree is 7 people (10%). Instead of respondents who expressed a complete lack of the opinion that many drugs are actually needed by the employee but is not available in the box first aid (P3K) as ear drops are often needed due to the noise level. Researchers found the average value of good in this statement, therefore the author assume That The company provide emergency equipment in case of accidents that happen suddenly and unexpectedly.
Table 4.16
Table Analysis of Data on Health and Hygiene Program (Variable X)

<table>
<thead>
<tr>
<th>Number</th>
<th>Table Title</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 4.11</td>
<td>The company held a regular employee health checks</td>
<td>3.27</td>
</tr>
<tr>
<td>Table 4.12</td>
<td>The company held of inspection or monitoring of environmental hygiene work</td>
<td>3.64</td>
</tr>
<tr>
<td>Table 4.13</td>
<td>The health post/clinic provided by company is quite adequate</td>
<td>3.18</td>
</tr>
<tr>
<td>Table 4.14</td>
<td>The Company include the employee in the social security program (JAMSOSTEK)</td>
<td>3.94</td>
</tr>
<tr>
<td>Table 4.15</td>
<td>The company provide emergency equipment of first aid (P3K)</td>
<td>3.27</td>
</tr>
<tr>
<td>Total Mean</td>
<td></td>
<td>17.3</td>
</tr>
<tr>
<td>Number of Independent Variable Statement</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Final Result of Mean Value</td>
<td></td>
<td>3.46</td>
</tr>
</tbody>
</table>

Guidelines to determine the mean value category

Based on the analysis of data on variable message content health and hygiene program (X) obtained a value of 3.46, so it can be concluded that in PT. Mulia Industrindo health and hygiene program is good. This can be proved by the answers correspondents understood by the average health program that has been provided by the company.
4.4. Response Statement Regarding Respondents Workforce Accidents (Variable Y)

Table 4.17
The accidents caused by not wearing personal protective equipment (APD)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.4</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>6</td>
<td>8.57</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>51.42</td>
<td>144</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>8.57</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>229</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 11

Based on table 4.17 with the indicator statement "The accidents caused by not wearing personal protective equipment (APD)", the respondents who answered strongly agree are 6 people (8.57%), who answered agree 36 people (51.42%), who answered neither agree not disagree is 6 people (8.57%), who answered disagree is 15 people (21.4%), and who answered strongly disagree is 7 (10%). From the statement about found that the average value of good in this statement, therefore the authors assume the respondent understand that the accidents will occurs caused by not wearing personal protective equipment (APD).
<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>4.28</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>40</td>
<td>57.14</td>
<td>160</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>14.28</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>255</td>
</tr>
</tbody>
</table>

Mean: 3.64

Source: Questionnaire Statement Number 12

Based on table 4.18 with the indicator statement of "The occurrences of workforce accidents is because of an healthy work environment", the respondents who answered strongly agree is 10 people (14.28%), who answered agree 40 people (57.14%), who answered neither agree not disagree is 10 people (14.28%), who answered disagree is 7 people (10%) and who answered strongly disagree is 3 people (4.28%). From the statement about found that the average value of good in this statement, therefore the authors assume that the many respondent understand that the accident can be occur because of an healthy work environment.
Table 4.19

The accidents happen because of unsafe act of employees

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>11.42</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.14</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>42.85</td>
<td>120</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>223</td>
</tr>
</tbody>
</table>

Mean 3.18

Source: Questionnaire Statement Number 13

Based on table 4.24 with the indicator statement "The accidents happen because of unsafe act of employees", the respondents strongly agree that answer is 7 (10%), 30 people who responded agree (42.8%), who answer neither agree not disagree is 15 people (21.14%), who answered disagree is 15 (21.14) and who answered strongly disagree is 8 people (11.42%). The authors assume that many employees understand that the accidents happen because of unsafe act of people.

Table 4.20

The accidents that occurred in the company due to lack of control of company management

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>2.8</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>19</td>
<td>27.14</td>
<td>57</td>
</tr>
<tr>
<td>Agree</td>
<td>31</td>
<td>44.2</td>
<td>124</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>11.42</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>225</td>
</tr>
</tbody>
</table>

Mean 3.21

Source: Questionnaire Statement Number 14
According to the table 4.20 with the indicator statement of "The accidents that occurred in the company due to a lack of control of company management ", the respondents who answered strongly agree is 8 persons (11.42%), which agree to answer is 31 persons (44.2%), which answered neither agree not disagree is 19 people (27.14%), who answered disagree is 2 people (2.8%), and who answered strongly disagree is 8 people (11.42%). From the statement about found that the average value of good in this statement, therefore the authors assume that many employee know the accidents can occur due to lack of control of company management.

Table 4.21

**The maintenance of company facilities is to reduce the occurrence of workforce accidents**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>4.28</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>40</td>
<td>57.14</td>
<td>160</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>14.28</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>255</td>
</tr>
</tbody>
</table>

Mean: 3.64

Source: Questionnaire Statement Number 15

Based on table 4.26 with indicator statement of “The maintenance of company facilities is to reduce the occurrence of workforce accidents”, the respondents who answered strongly agree are 10 people (14.28%), which agree to answer 40 people (57.14%), and who answered neither agree not disagree is 10 people (7%), who answered disagree is 7 people (10%) and who answered strongly disagree is 3 people (4.28%). From the statement about found that the average value of good in this statement, therefore the authors assume that many employees know that the maintenance of company is very important to reduce the accidents happens.
Table 4.22
Safety training provided by the management to reduce accidents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>10</td>
<td>14.28</td>
<td>10</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Moderate</td>
<td>13</td>
<td>18.57</td>
<td>39</td>
</tr>
<tr>
<td>Agree</td>
<td>35</td>
<td>50</td>
<td>140</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>7.14</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>253</td>
</tr>
</tbody>
</table>

Mean: 3.61

Source: Questionnaire Statement Number 16

Based on table 4.22 with the indicator statement "Safety and health training provided by the management to reduce accidents", the respondents who answered strongly agree are 10 people (14.28%), which agree to answer 35 people (50%), and who answered neither agree not disagree is 13 people (18.57%), who answered disagree is 7 people (10%) and who answered strongly disagree is 10 people (14.28%). From the statement above found that the average value of good in this statement, therefore the authors assume that safety and health training is important to gain the knowledge about workforce accident for the employees.
Table 4.23

The accidents caused by the negligence of company equipment is very low

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>5</td>
<td>7.14</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>8.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>19</td>
<td>27.14</td>
</tr>
<tr>
<td>Agree</td>
<td>29</td>
<td>44.2</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>11</td>
<td>15.71</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 17

Based on table 4.23 with the indicator statement "The accidents caused by the negligence of company equipment is very low or does not occurred the respondents who answered strongly agree is 11 persons (15.71%), which agree to answer is 29 persons (44.2%), which answered neither agree nor disagree is 19 people (27.14%), who answered disagree is 6 people (8.5%), and who answered strongly disagree is 11 people (15.71%). From the statement above found that the employees know that the accidents is caused by the negligence of company is low.
Table 4.24
The company always gives an explanation of safety procedures to avoid Accidents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>5</td>
<td>7.14</td>
<td>5</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>21.4</td>
<td>30</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>14.28</td>
<td>30</td>
</tr>
<tr>
<td>Agree</td>
<td>25</td>
<td>35.71</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>15</td>
<td>21.4</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: Questionnaire Statement Number 18

Based on table 4.24 with the indicator statement " the respondents who answered strongly agree are 15 people (21.4%), which agree to answer 25 people (35.71%), and who answered neither agree not disagree is 10 people (14.28%), who answered disagree is 15 people (21.4%) and who answered strongly disagree is 5 people (7.14%). From the statement above found that the average value of good in this statement, therefore the authors assume that it was found that many respondent who answered agree it show that the employees know the company always gives an explanation of safety procedures to avoid accidents.
Table 4.29
Table Analysis of Data on Workforce Accidents (Variable Y)

<table>
<thead>
<tr>
<th>Number</th>
<th>Statements</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 4.21</td>
<td>The accidents caused by not wearing personal protective equipment (APD)</td>
<td>3.27</td>
</tr>
<tr>
<td>Table 4.22</td>
<td>The occurrences of workforce accidents is because of an healthy work environment</td>
<td>3.64</td>
</tr>
<tr>
<td>Table 4.23</td>
<td>The accidents happen because of unsafe act of employees</td>
<td>3.18</td>
</tr>
<tr>
<td>Table 4.24</td>
<td>The accidents that occurred in the company due to a lack of control of company management</td>
<td>3.21</td>
</tr>
<tr>
<td>Table 4.25</td>
<td>The maintenance of company facilities is to reduce the occurrence of workforce accidents</td>
<td>3.64</td>
</tr>
<tr>
<td>Table 4.26</td>
<td>Safety and health training provided by the management to reduce accidents</td>
<td>3.61</td>
</tr>
<tr>
<td>Table 4.27</td>
<td>The accidents caused by the negligence of company equipment is very low</td>
<td>3.5</td>
</tr>
<tr>
<td>Table 4.28</td>
<td>The company always gives an explanation of safety procedures to avoid accidents</td>
<td>2.14</td>
</tr>
<tr>
<td>Total Mean</td>
<td></td>
<td>22.69</td>
</tr>
<tr>
<td>Number of Independent Variable Statement</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Final Result of Mean Value</td>
<td></td>
<td>2.8</td>
</tr>
</tbody>
</table>
Guidelines to determine the mean value category

Based on the analysis of data on variable workforce accident \((Y)\) obtained a value of 2.8, so it can be concluded that the employees have enough knowledge about workforce accidents.

### 4.6 Rank Spearman Correlation Coefficient Correlation

Here the author discusses how much the relationship between occupational safety and health and workforce accidents of employees of PT. Mulia Industrindo. The authors obtained data by distributing questionnaires to employees at PT. Mulia Industrindo. The contents of the questionnaires include 18 questions about occupational safety and health (variable \(X\)) and 8 questions about workforce accidents (variable \(Y\)).

Results of questionnaires that have been collected, processed and analyzed by using Spearman Rank correlation, that is the way each answer given a value and then summed in order to obtain the number of variables \(X\) and \(Y\). The purpose of rank correlation is to find out how much the relationship of occupational safety and health and workforce accidents. For more details can be seen in the following table:
### Table 4.31
**Rank Spearman correlations**

<table>
<thead>
<tr>
<th></th>
<th>Safety Program (X1)</th>
<th>Health Program (X2)</th>
<th>Workforce Accidents (Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman's rho</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>1.000</td>
<td>.877**</td>
<td>-.124</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.310</td>
</tr>
<tr>
<td>N</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Health program (X2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.877**</td>
<td>1.000</td>
<td>-.115</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.346</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Workforce Accidents (Y)</td>
<td>-.124</td>
<td>-.115</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.310</td>
<td>.346</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

From the hypotheses testing:

**H0**: $r=0$ (there is no relationship between occupational safety and health to workforce accidents)

**H1**: $r\neq0$ (there is relationship between occupational safety and health to workforce accidents)

Based on the spearman correlation about **H0** rejected if $p$ value $<0.05$ the result of $p$ value in this research is -0.124, which is **H0**, rejected and it can be conclude that there is relationship between occupational safety and health program to workforce accidents. If the result is negative it show that the increase of variable X (OSH program) will decrease the variable Y (workforce accidents) in opposite that if the result is positive it show that the decrease of variable X (OSH program) will increase the variable Y (workforce accidents).
4.6 Interpretation of Result

The result of the acquisition of calculation is known of the relationship towards the implementation of occupational health and safety by accident. This is evidenced by the Spearman correlation between the occupational safety and health program (variable X) with workplace accidents (variable Y) showed the presence of positive relationship between variables X (safety and health program) and variable Y (workforce accident) at PT. Mulia Industriindo.

Compare with the related study based Muhammad Ali from Gajah Mada University (2009) state that occupational safety and health knowledge of workers allegedly associated with work accident in the workforce, the results of chi-square statistical test values obtained can be conclude there are differences proportion of work accidents among low-knowledge and occupational safety and health. If occupational safety and health in high knowledge in other words it can be concluded there highly significant relationship between occupational safety and health with work accident on the workers produced by PT. LPPPI Jambi. As expressed in a similar thesis research by Yunizar (2008) on the relationship of occupational safety and health knowledge with the occurrence of accidents at workplaces labor PT. Pertamina (Persero) Jambi Production Exploration Business Unit. Another study conducted Gimeno D. et.al (2005), concluded that workers who do not get their knowledege about OSH and the safety and health training more had a risk of an accident at work than workers who have received safety training and occupational health.

Heinrich, H.W. et.al (1980) says that, humans have the potential to have an accident, if that potential is not pressed then the behaviour that appears likely in the form of unsafe acts which are the main causes of accident occurrence. Another opinion says the basic causes of accidents due to factors such as labor itself, such as lack of knowledge, skills, motivation, physical and mental problems (Suardi 2005).
According to Woodside and Kocurek (1997), factors that cause accidents such as labor's own mistakes such as doing work that is not fully understood, it is because training is carried out do not qualify. Based on the results of research show that 80-85% of the accidents caused by human factors. The elements according to the book "Management Losses on The Causes and Effects of Losses" in Santoso (2004), among others, is the lack of knowledge of occupational health and safety, less training to understand the buttons or other indications; less training to understand the data and wrong understanding of a command. In addition, accidents occur because the company had less training, field practice and less creative labour.

Some of the opinions and research results above it is clear that the main cause of accidents is due to lack of knowledge about occupational safety and health. This situation causes labour to do the work tended to behave, to be leading to unsafe actions.
BAB V
CONCLUSIONS AND RECOMMENDATION

5.1 Conclusion
As noted problems that want to note in this study is "the relationship of occupational safety and health program on workforce accidents"

Based on the results of data analysis, the authors conclude as follows:
1. From the result of the questionnaire responses that have been given to the respondent known that the safety program is going well, it can be seen from the mean value of the safety program is 3.40 and mean value of the health program is 3.46 that is mean the respondents understood about the occupational safety program which has been provided by the company. From the result of the questioner of workforce accidents show that the mean value is 2.8 which show that the respondents has enough knowledge about accidents happen.

2. Based on the value of statistical hypothesis testing results of Spearman Rank Correlation Coefficient between these two variables is -0.124, which means that there are relationships between the variables of occupational safety and health and workforce accidents.

5.2 Recommendation
Based on the above conclusions, the suggestions that can given are:
1. For PT. Mulia Industrindo. It should be the company's commitment to implement the occupational safety and health program consistently and comprehensive.

2. Implement a training and socialization continuously to all line positions and labor.

3. Creating place and working environment comfortable and healthy, trying to reduce the noise level by doing technical control of noise sources.
4. Improving the work shift, so that the workforce becomes more prosperous, by among others, to work two consecutive nights should be given a holiday at least for 24 hours or more to recovery, change of work shift rotation becomes and after work 4 (four) consecutive hours for given a rest for at least half an hour.

5. Recommendation for labor; attempting to know the potential dangers that exist in places work. Utilizing a break with the best possible sleep quite eight hours a day, and balanced nutrition. Always follow proper work procedures and to comply with regulations on occupational safety and health.

6. For the next researcher. Researching on other factors such as attitude, levels of noise, vibration, temperature, lighting related with workplace accidents and causes of job burnout on PT. Mulia Industri
List of References

Books


Simanjuntak, Payaman J. Manajemen Keselamatan Kerja. Himpunan Pembina Sumber Daya Manusia Indonesia, 1994


Journals


Journal of Occupational and Environmental Medicine 2003;60(Supplement 1):i10-i15

