YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF MANAGEMENT STUDIES

MBA PROGRAMME

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT PRACTICES OF REGARDS ENGINEERING CO., LTD

SOE HLA OO

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Academic Year (2017-2020)

Supervised by:	**Submitted by:**
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Yangon University of Economics	**2017 - 2020**

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"This thesis is submitted to the Board of Examiners in partial fulfillment of the requirements for the degree of Master of Business Administration"

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ACCEPTANCE

This is to certify that the thesis **entitled "Health, Safety and Environmental Management Practices of Regards Engineering Co.,Ltd**" has been accepted by the Examination Board for awarding Master of Business Administration (MBA) degree.

Board of Examiners

……..

(Chairman)

Dr. Tin Tin Htwe

Rector

Yangon University of Economics

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(Supervisor) **(Examiner)**

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(Examiner) **(Examiner)**

November, 2019

ABSTRACT

The main objectives of the study are to examine the effect of HSE management practices on employee attitude and to analyze the effect of employee attitude on employee commitment of Regards Engineering Co., Ltd. The primary data are collected form 106 respondents. Base on finding, Health, Safety and Environmental policy and objectives, standard operation procedure, emergency response procedure are significant effect on employee attitude. And also, working environment safety training, PPE training, Health Safety Training are significant effect on employee attitude. Attitude to Health, Safety and Environmental Management Practices are significant effect on employee commitment.

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LIST OF ABBREVIATIONS

ALARP	As Low As Reasonably Practicable
CNC	Computer Numerical Control
CPR	Cardiopulmonary Resuscitation
ERP	Emergency Response Procedure
HSE	Health Safety and Environment
HSE MS	Health, Safety and Environmental Management System
HSE TM	Health, Safety and Environmental Training Module
ILO	International Labour Organization
ISO	International Standard Organization
KSA	Kingdom of Saudi Arabia
MSDS	Material Safety Data Sheet
OSH	Occupational Safety and Health
PPE	Personal Protective Equipment
PSV	Pressure Safety Valve
RA	Risk Assessment
RECL	Regards Engineering Co., Ltd
RPN	Risk Prioritization Number
SOP	Standard Operating Procedure
SWP	Safe Work Procedure
WSH	Work Safety and Health

CHAPTER 1

INTRODUCTION

Health, Safety and Environmental Management System (HSE MS) is the most important and essential system to execute hazardous operations effectively and efficiently. HSE MS is a set of written rules for creating a safe and healthy workplace and preventing accidents and illnesses caused by work.. HSE MS is compulsory to implement in different industries such as oil and gas industry, construction industry, marine industry, manufacturing industry and other service industries. Among those industries, the oil and gas industry is the most technologically complex and risky environment. During industrial history, there were several drastic industrial accidents that happened and resulted in loss in workers life and workplaces. Piper Alpha disaster (1988), Bhopal Gas Plant disaster (1984), and BP Deepwater Horizon Oil Spill disaster (2010) are examples of these accidents (Alkhaldi,M. Pathirage,C. and Kulatunga,U. 2017). Occupational Safety and Health Branch Labor Department of Hong Kong Government defines that "safety management means the management functions connected with the carrying of an industrial undertaking that relate to the safety of personnel in the undertaking, including, the planning, developing, organizing and implementing of a safety policy and the measuring, auditing or the reviewing of the performance of those functions"

This thesis is a study on the Health, Safety and Environmental Management practices of locally owned oil and gas engineering service company. From this study, we can explore the health and safety practices of local company and the qualitative and quantitative benefits of both employer and employees. Regards Engineering Co., Ltd is a wholly owned Myanmar Company incorporated under the Myanmar Companies Act.

Regards Engineering Co., Ltd was established in 2011 and provides engineering solutions to local oil and gas operators and international oil and gas operators. The main purpose of this study is to explore the HSE Management practices of Regards Engineering Co., Ltd. This study will explore the employee perception on HSE Management Practices towards employee attitude to safe work practices and to analyze the employee attitude towards employee commitment on HSE Management Practices. Conceptual framework will be throughout the course

of the work. This thesis will help as a reference document to establish a new HSE MS for other small and medium size local companies, who are planning to enter the oil and gas business in Myanmar.

1.1 Rationale of the Study

The operation characteristic of the oil and gas industry is a complicated and high-risk environment. Investment of the oil and gas industry is at very high cost and high potential risk to employees, equipment and environment. According to the Health and Safety Executive (1999), the costs of one accident in the oil and gas industry, such as the Piper Alpha disaster, were over £2 billion, including £76 million in indirect insurance payments, and 167 people were killed, whereas the cost of 7000 accidents occurring each year in the motor vehicle repair industry was £250 million, equating to £5000 per garage. (Alkhaldi,M. Pathirage,C. and Kulatunga,U. 2017). Myanmar oil and gas industry is gradually increasing with local and foreign operators. At the same time, the number of local oil and gas service companies are increasing as well. Negligence of the health and safety system can lead to tragedies. MMRB&H Law office from a US blog website stated that "A September 2015 Bureau of Labor Statistics report confirmed that 2014 average fatal injury rate for all U.S. workers in all sectors remained at 3.3 per 100,000 workers". Refer to Oil and Gas UK Health and Safety Report 2017, summaries of production installation operator safety performance benchmarking Table show that in 2016, there were 1 fatality case, 18 major injuries, 65 over-seven days- injuries and 232 dangerous occurrences happened. Those reports highlighted that the potential of accidents is still present at all times.

An effective HSE Management System can enhance the quantitative benefits and qualitative benefits of an organization. All stakeholders are responsible for their work place safety. A good HSE management practices can promote employee morale, loyalty and retention. It is employer obligations to establish a good and proper HSE Management System and employee obligation is to follow HSE Management System strictly.

International companies' involvement in Myanmar oil and gas industry is gradually growing day by day. Major oil and gas international players in Myanmar

are Total Exploration and Production Myanmar, Petronas Carigali Myanmar Ltd, PTTEP and POSCO Daewoo. International oil and gas companies are operating in Myanmar with high-level HSE standard and contractors, suppliers, vendors and service companies are required to meet their HSE standard. As a local engineering service company, Regards Engineering Co., Ltd has well-established HSE Management System and has been successfully done several engineering services projects for major oil and gas companies.

Therefore, the study of Regards Engineering Co., Ltd HSE Management Practices help as a reference document for establishment of good HSE Management System for other local companies in Myanmar.

1.2 Objectives of the Study

The main objectives of this study are;

- To examine the effect of HSE management practices on employee attitude towards Regards Engineering Co., Ltd.
- To analyze the effect of employee attitude on employee commitment of Regards Engineering Co., Ltd.

1.3 Scope and Method of the Study

This study explores HSE management practices of Regards Engineering including HSE management system and HSE training program provided by the company. Then this study analyzed on employee attitude and employee commitment towards HSE management practices of Regards Engineering Co., Ltd. The descriptive research method used for this study and focused on HSE management practices of Regards Engineering Co., Ltd towards employee commitment for their effective and efficient work outcomes. The primary data were collected from all level of employees and five-point Likert-scales questionnaires were used. The sample size is using Raosoft sample size calculator with 95% of confidence level for the population of 145 employees. Survey questionnaires were distributed to 145 employees and total respondents are 106 employees. The secondary data were collected from recorded data, documented policies, operation procedures, research

papers, published safety and health guidelines websites and HSE Management related documents and recorded data of Regards Engineering Co., Ltd.

1.4 Organization of the Study

This paper is organized into five chapters. Chapter one is introduction of the study and which includes rationale of the study, objectives of the study, literature reviews, scope and method of the study and organization of the study. Chapter two comprises theoretical background of health, safety and environmental management system based on international HSE organizations guidelines and theory. Chapter three includes about the company profile and health, safety and environmental management practices of Regards Engineering Co., Ltd. Chapter four mentions about analysis of employee perception on employee attitude and employee commitment towards health, safety and environmental management practices of Regards Engineering Co., Ltd. Chapter five is the conclusions that contain finding and discussion, suggestion and recommendations, limitations and need for further research.

CHAPTER 2

THEORETICAL BACKGROUND

The aim of theoretical background is to provide this study a theoretical base for the further analysis. This chapter starts with a definition of HSE Management. Secondly, it provides the theory of HSE management system and HSE practices. Then continue with previous study relating with HSE and lastly, provides the conceptual framework of this study.

2.1 Overview of Health, Safety and Environmental Management

In the petroleum business, HSE management entails managing, controlling, and handling all areas of health, safety, and the environment with a focus on major accident risk. According to the website of Exploration Production Services Germany, HSE management is in charge of organizing, carrying out, overseeing, and improving operational procedures in the fields of environmental management, health protection, and workplace safety. For the purpose of identifying workplace dangers, minimizing accidents, and protecting employees from harmful circumstances and chemicals, HSE management established activities and processes. Additionally, it involves instructing staff members in emergency planning, accident response, and the usage of safety gear and apparel.

(a) Occupational Health

Not just the absence of disease or infirmity, health is a condition of total physical, mental, emotional, spiritual, and social well-being. By preventing health problems, managing risks, and adapting work to people and people to their jobs, occupational health is the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations. Because of the nature of the workplace, occupational sickness typically takes time to develop. Examples of such circumstances include being exposed to chemicals, dust, or bacteria and viruses that might cause disease. According to the Canadian Occupational Health and Safety Act, an occupational sickness is a condition that develops as a result of exposure to a physical, chemical, or biological agent at work to the point where it

impairs the worker's health and interferes with their normal physiological processes. (Energy Safety Canada, 2018)

(b) Occupational Safety

Occupational safety is broadly defined as the science of anticipating, recognizing, evaluating, and controlling hazards that may arise in or from the workplace and endanger workers' health and well-being, while also taking into account the potential impact on surrounding communities and the general environment. Employees must be protected from injuries caused by work-related accidents.

(c) Incident, Accident and Near-miss

An incident is a work-related event that caused or could have caused an injury, illness, or death. An accident is an incident that results in injury, illness, or death. A near-miss is an incident that does not result in bodily harm, illness, or death. (Labour Dept HK, 2002)

(d) Hazard Identification and Job Hazard Analysis

A source or circumstance that has the potential to cause harm—such as death, ill health, injury, or a combination of these—is referred to as a hazard. The process of identifying and defining a hazard involves first determining that it is present. A multistep method known as "job hazard analysis" (JHA) is used to examine and analyze a task or work before decomposing it into parts that make it possible to eliminate any associated hazards. (Noe & Mondy, 2005).

(e) Risk Assessment and Risk Control

The likelihood and impact of a certain hazardous event are combined to form risk. Risk assessment is defined by the Code of Practice on Safety Management Hong Kong as the comprehensive process of determining the scope of the risk and its acceptability. It also entails the process of realizing there is a risk and figuring out what it looks like. Additionally, the development, implementation, and maintenance of safety protocols and risk management measures is referred to as the whole process of risk control. Additionally, the risk and safety measures are reviewed. (Labour Dept HK, 2002)

(f) Environmental Management and Policy

The management system used to manage environmental issues, meet compliance requirements, and address risks and opportunities includes environmental management. Environmental policy is the formal expression by top management of an organization's goal and direction in relation to environmental performance. (ISO 14001, 2015)

(g) Environmental Aspect and Impact

Environmental aspect is a component of an organization's operations, products, or services that interact or have the potential to interact with the environment. It also describes environmental impact, which is a change to the environment brought about fully or in part by an organization's environmental policy. (ISO 14001, 2015)

(h) Pollution and Resource Depletion

Environmental deterioration invariably poses a threat to human welfare as well as that of plants and animals. Both pollution and resource depletion pose threats to the ecosystem. When a product is manufactured or used, pollution occurs when the environment is unintentionally and unfavorably contaminated. When limited or precious resources are used up, this is referred to as resource depletion. Because pollution of the air, water, or land reduces their positive attributes, it may be said that pollution is a form of resource depletion. (Velasquez, 2008).

2.2 Health, Safety and Environmental Management Practices

One of the best methods to protect an organization's most precious asset, its employees, is to establish a safety and health program at work. Even a temporary loss of employees due to illness or accident can have a substantial negative impact on the firm, the affected employees, and their families. It can also harm reputation, productivity, turnover, and company morale. Programs for workplace safety and health encourage a proactive approach to "identifying and addressing" hazards before they can result in disease or injury. Management and employees work together to identify and resolve problems before they arise rather than responding to an accident.

Collaboration fosters trust, improves communication, and frequently results in additional corporate growth.

OSHA 3885 October 2016, stated the core elements of the safety and health program recommended practices are-

- Management coordination and leadership
- Employee participation
- Hazard identification and assessment
- Hazard prevention and control
- Education and training
- Program evaluation and improvement
- Cooperation with host employers, contractors and staffing agencies.

2.2.1 Health, Safety and Environmental Management System

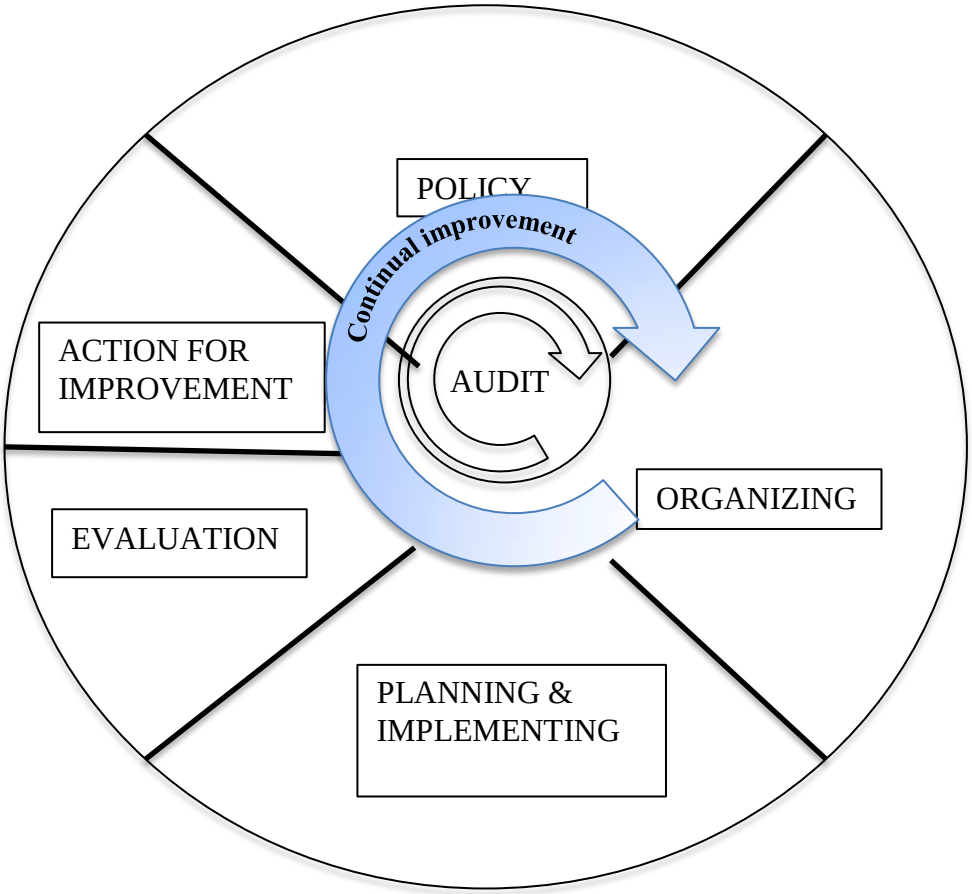
A health and safety management system is a methodical strategy implemented by an employer to reduce the risk of accident and sickness, according to Energy Safety Canada. It entails recognizing, evaluating, and managing worker hazards across all workplace activities. A formal structure with clearly defined features must be the foundation of any HSE MS in order for it to be developed and implemented successfully, effectively, and efficiently. A successful HSE MS includes but is not limited to the following seven demands;

- Support and commitment from management
- Identification and evaluation of hazards
- Hazard mitigation
- Instruction
- Emergency response
- Reporting and investigating incidents
- Communication

In addition to using a methodical strategy, the organization needs to be dedicated to ongoing improvement. According to ILO-OSH 2001, it is the employer's obligation and duty to ensure that employees are subject to occupational safety and health requirements that are in accordance with national laws and regulations. When

it comes to OSH initiatives within the company, the employer should take a proactive leadership role, be fully committed, and make the necessary arrangements for the creation of an OSH management system. The core components of policy, organization, planning, and implementation, as well as assessment and corrective action, should be included in the system.

Figure 2.1 Main Element of OSH Management System



Source: ILO–OSH (2001)

(a) HSE Policy and Objectives

According to the Singapore WSH Council, it is crucial to emphasize safety during new employee orientation and training. Because occupational injuries decline with time on the job, the first few months of employment are sometimes crucial. Developing a psychological environment and staff attitudes that support safety is the first step in any safety program. Accidents decrease when workers consciously or unconsciously consider safety. The operations of the organization must reflect this

mindset, and it is essential to have a solid company policy that emphasizes safety and health. For the organization to have a strong safety-first culture, managerial commitment is crucial. This can be expressed in a formal company policy that outlines the organization's safety and health philosophies and attitudes. It should be carefully documented, put into practice, and shared with all staff members. It should also be examined on a regular basis to make sure it still applies to business activities. For employees and contractors, a set of documented OSH norms and regulations should be established. Additionally, the OSH Act's primary legal requirements must be implemented. These may also act as a reminder of each employee's duties regarding safety and health. Additionally, individual departments may create their own unique set of guidelines.

ILO-OSH 2001 states that the employer should draft an OSH policy after consulting with employees and their representatives. This policy should include the following:

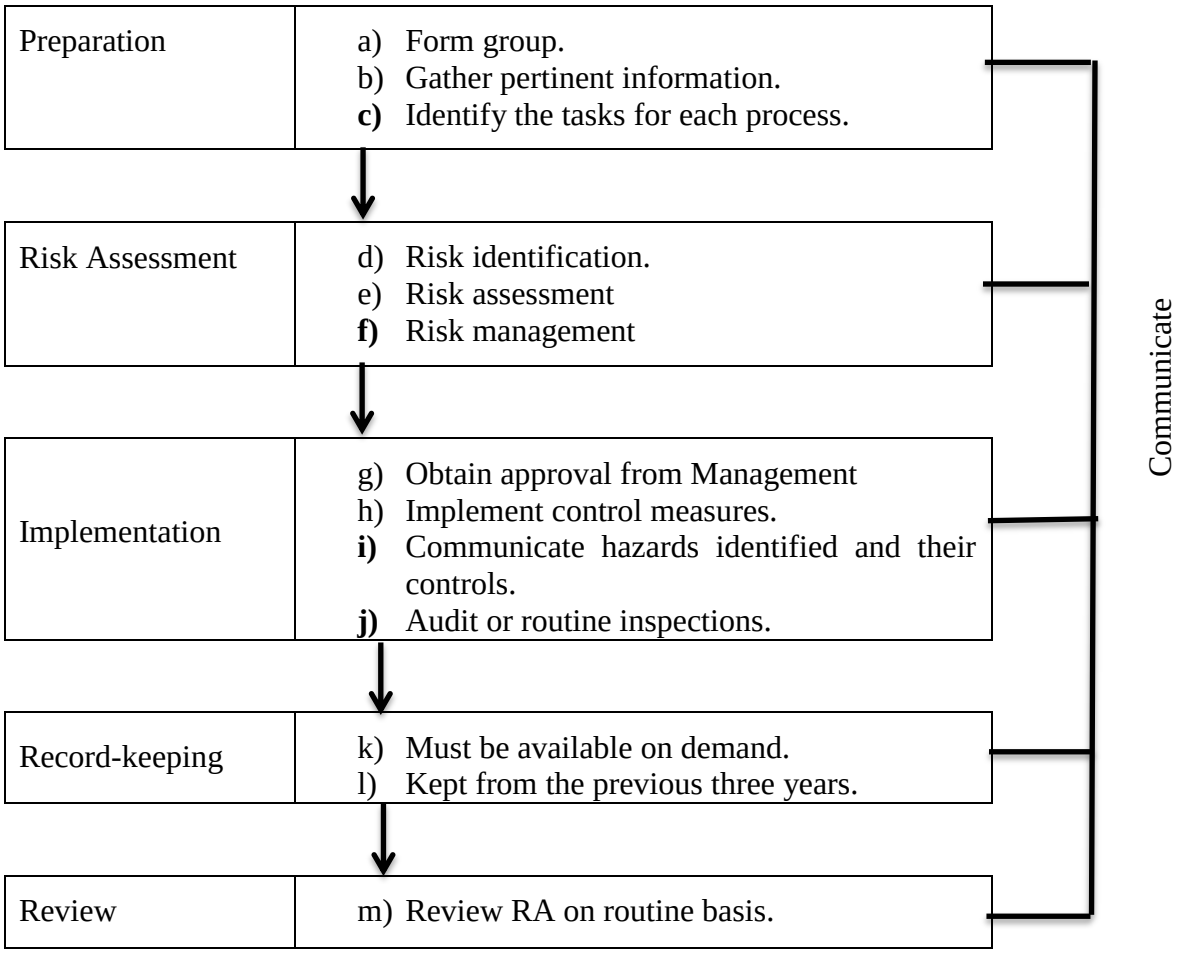
- unique to the organization, suitable for its size, and consistent with the nature of its activities;
- brief, plainly written, dated, and made effective by the employer's or the organization's highest-ranking accountable person's signature or endorsement;
- notified and easily accessible to all people at their place of employment;
- examined to ensure continued appropriateness; and
- made available, as necessary, to pertinent outside parties with an interest**.**

As a minimum, the OSH policy should include the following key principles and objectives to which the organization is committed:

- ensuring the safety and health of all organization members by preventing work-related injuries, illnesses, diseases, and incidents;
- adhering to relevant OSH national laws and regulations, voluntary programs, OSH collective agreements, and other requirements to which the organization adheres;
- making sure that all components of the OSH management system involve active participation from workers and their representatives; and
- the OSH management system's performance must be constantly improved.

The OSH management system should be compatible with or integrated in other management systems in organization.

Figure 2.2 Risk Management Process



Source: WSHC (2017)

(b) Risk Assessment Procedure

Workplace Safety and Health (WSH) Regulations require organizations to conduct Risk Assessment (RA) before beginning work in order to identify, evaluate, and control risks in the work activities and environment. The goal is to reduce workplace accidents and improve the safety, health, and well-being of all employees. Employers should strive to have their RA be as comprehensive and inclusive as possible, covering all aspects of their employees' safety, health, and well-being. On this note, employers should consider implementing measures to mitigate risks for

vulnerable employees, such as pregnant or lactating mothers and minors. Alternatives should be arranged for these employees if the risks cannot be adequately addressed.

According to the Singapore WSH Council, risk assessment (RA) is a three-step process that begins with the formation of a RA team and the definition of the scope. Controlling hazards at the upstream processes should be prioritized, as this will reduce the amount of exposure to those hazards. Hazards are reduced to more acceptable and manageable levels after mitigation, and are referred to as residual risks. (WSHC, 2017)

Step 1: Risk identification

Three factors should be taken into account and compared when identifying dangers. These issues include the actual work space and procedures, work organization, and personal health considerations. Determine as many risks as you can for each action included in the work's scope. It is important to note any potential injuries or illnesses that could arise from these risks. At this stage, it is also determined which person(s) are at risk as a result of exposure to certain dangers.

Step 2: Risk Assessment

Determine the severity and likelihood of each identified hazard by assigning it a number from one to five. To determine the risk prioritization number, multiply the two values (RPN). In order to establish whether the risk is at an acceptable level, consult the 5x5 matrix using RPN. Priority should be given to hazards with greater RPN when adopting control measures.

Step 3: Risk Management

Risk control should be chosen to lower the risk to an acceptable level based on the determined RPN. Taking on risk at its source is the most efficient method to reduce it. According to the Hierarchy of Control, this can be accomplished by removing the risk, followed by substitution and the use of engineering controls. (WSHC, 2017)

(c) Standard Operating Procedure

Employers are urged to create standard operating procedure (SOPs) for all undertaken work tasks. During new employee orientation and at routine refresher

training for current employees, these should be effectively communicated to the entire staff. SOPs should be examined and updated whenever new tools or processes are implemented, as well as if operating practices change. (WHSC, 2017)

(d) Emergency Response Procedure

Emergency response procedure should be designed and maintained, according to ILO-OSH 2001. In addition to addressing the prevention of OSH hazards connected to them, these arrangements should detect the likelihood of accidents and emergency circumstances. The preparations should be created in accordance with the organization's size and type of operation. They should;

- make sure that all persons are protected in the case of an emergency at the workplace by ensuring that the information, internal communication, and coordination are supplied;
- communicate with and provide information to the pertinent competent authorities, as well as the local and emergency response services;
- deal with providing first aid and medical attention, putting out fires, and evacuating everyone from the workplace; and
- Give all members of the organization, at all levels, relevant information and training, such as regular drills in emergency prevention, preparation, and response.

Guidelines from the Singapore WSH Council say that procedures for preventing, preparing for, and responding to emergencies should be made in collaboration with external emergency services and other bodies, if necessary. A plan for what to do in an emergency is a must if you want to save lives and limit damage. There should be an emergency team with clear roles and responsibilities for each member. The management should make sure that every employee knows what to do in an emergency. This can be done through regular drills and exercises. The company should look at how well each drill went to figure out how to improve its emergency plan. Emergency response procedure should minimally include the following:

- procedure for raising alarm;
- procedures for evacuation and rescues;
- means to save and provide first aid; and

- lines of communication with applicable government authorities and responding agencies. (WSHC, 2017)

2.2.2 HSE Training Program

The training and orientation of new personnel, with a focus on safety, is crucial. Typically, the first few months of employment are crucial since workplace injuries decline with duration of service. Creating a safety-promoting psychological environment and staff attitudes is the first step in a safety program. Accidents diminish when workers consciously or subconsciously consider safety. Education and training are essential tools for informing workers and management about workplace risks and controls, allowing for safer and more productive work environments. However, another function of education and training is to give workers and managers with a deeper understanding of the safety and health program so that they can contribute to its design and implementation. Important safety training equips employees with the knowledge and skills need to perform safely. Safety training can be incorporated into employee operating training and delivered on the job by train supervisors or externally contracted trainers. Such training documentation should be maintained and periodically revised. When there are changes to the company's operations, training should also be evaluated. Singapore WSH Council guided that the training should cover;

- All potential risks associated with the job
- Organization HSE policy
- Safety measures
- Standard Safe Operating Procedures and
- Correct use of personal protective equipment (PPE)

Training should conduct;

- During new hire orientation
- Routine for all existing staff;
- When new equipment or processes are introduced; and
- When there is a transfer of staff between departments.

(a) Working Environment Safety Training

It is the process to provide our workplace with knowledge and skills to perform the work in a way that is safe for us and our team. An effective working environment safety training includes instructions and guide lines to identify hazards, report them and deal with incidents. Working environment safety training is as vital as working environment safety itself. It enables the management to ensure a safe and health work environment. It helps the employees to identify hazards and able to reduce and eliminate them. It enables employees to understand best safety practices and improve commitment. (ILO, 2001)

(b) PPE Training

It is a training for proper use of personal protective equipment, which protect the health and safety of employees. It provides standard instruction for proper use of PPE. Typical PPE training includes type of PPE requirement based on different kind of tasks, the proper way to put on and take off PPE, the procedure for care, maintain and dispose PPE, the effective safe period of PPE and the instruction to inspect PPE for damage or wear. (ILO, 2001)

(c) Fire Safety Training

The purpose of fire safety training is to identify fire hazards, and handle emergency situation when fire incident occurs. Fire safety training educate employees potential situation of fire hazards, how to identify fire hazards, distinguish type of fire hazards and how to eliminate fire hazards. Fire safety training includes the communication and reporting procedure, company emergency evacuation plan, safe location of gathering points in fire emergencies and procedure of leaving work places. The most important part of fire safety training is educated employees to understand different types of fire extinguishers and various types of firefighting methods. (ILO, 2001)

(d) Health Safety Training

Health safety training is concerning about employee health hazards related to working environment and type of materials using at work places. Health safety training provide information of different type of hazardous materials, chemicals and solutions. Training also provides what kind of PPE require, how to handle hazardous

materials and first aids procedure. Health safety training program includes First Aids Training and Cardiopulmonary Resuscitation (CPR) training. (ILO, 2001)

2.3 Employee Attitude

Perception is the cognitive process through which humans make sense of their surroundings by selecting, organizing, and interpreting environmental information. Due to individual variances in attitudes, personality, values, and interests, etc., people frequently perceive the same item differently. According to behavioral scientists, attitudes consist of three elements: cognitions (thoughts), affect (emotions), and conduct. The cognitive component of an attitude consists of a person's beliefs, ideas, and knowledge regarding the topic of the attitude, such as knowledge of a job's responsibilities and opinions about one's own talents. The affective component consists of the individual's emotions or sentiments regarding the attitude's object, such as enjoying or disliking a job. The behavioral component of an attitude is the person's purpose to behave in a particular manner toward the target of the attitude. Employee conduct also influences safety culture. The behavior or attitude of an employee toward safety is typically correlated with his value expectation for safety.

The behavior and attitude of employees toward safety are also influenced by their own feelings regarding various things. Which would be representative of his or her personality? These factors influence an individual's actions and behavior. A worker may anticipate either favorable or negative results in regard to his or her desired actions. Such behavior-influencing intents are subjective and related with a person's evaluation. Nonetheless, the subjective values of an intention might motivate a person to express particular activities in regard to behavior based on the expected consequence. A person's strength is derived from his attitude and action, which primarily involves a behavioral aim and an evaluation of the likely outcome. Individual attitude indicators are frequently designed to reveal how a person feels about hazards in the workplace, the use of safety instruments, their dedication to safety, their views on safety legislation, intentional violations, as well as unintentional errors or accidents. Employee attitude is acknowledged as a component of the safety climate and a significant predictor of future actions or behavior. An employee's attitude and behavior are strongly influenced by group or organizational norms,

particularly management's safety attitudes. Therefore, an employee's behavior and attitude toward safety have a direct bearing on their intention or willingness to comply with safety standards. Where employee behavior and attitude are welcome and compliant with workplace safety regulations and policies. Workplace accidents and injuries can be avoided.

2.4 Employee Commitment

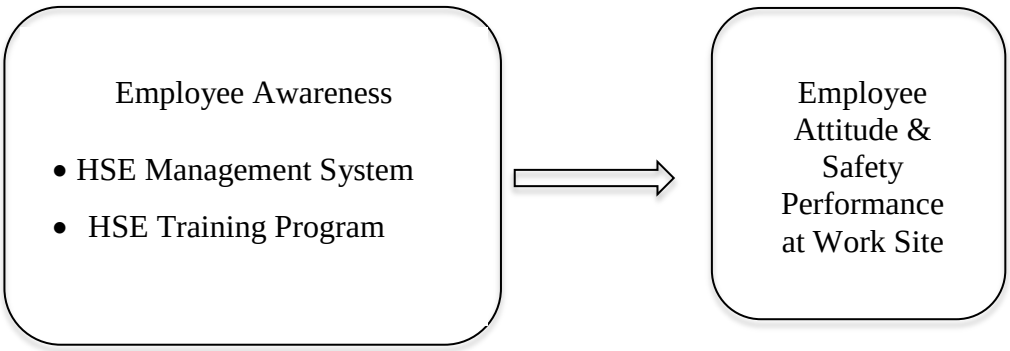
Organizational commitment is an employee's allegiance and involvement with the organization. When discussing the company, a person with a high level of organizational commitment is inclined to use the pronoun "we." This individual enjoys being a member of the organization and strives to contribute to its success. The level of excitement a person has for the responsibilities assigned at work can be described as commitment. In other words, commitment is a person's sense of responsibility toward the goals, mission, and vision of the organization with which he or she is affiliated. John Meyer and Natalie Allen developed and published their Three Model of Commitment in the Human Resource Management Review in 1991. The three elements include affective commitment, continuation commitment, and normative commitment. It was mentioned that affective commitment relates to the emotional attachment, affiliation, and involvement of the employee with the organization. Employees with a strong commitment to the organization stay to work there because they want to. Continuity commitment refers to a consciousness of the costs associated with quitting an organization. Employees whose major connection to the organization is based on their pledge to stay are required to do so. And normative commitment is a sense of obligation to remain employed. Employees with a high level of normative commitment believe they should continue working for the firm. The commitment of HSE management is to offer appropriate training and PPE, as well as continual monitoring and review of near-miss occurrences and accidents. Employee commitment to HSE entails accepting responsibility for all job performed.

2.5 Previous Studies Relating with HSE Management

Several studies about HSE management system were done in different ways. The main concept is all about occupational safety, health and environmental

management and some studied about implications of HSE in their organization, some studied about managing HSE risks and health and safety culture in their organization.

Figure 2.3 Conceptual Framework of Nayef Saad

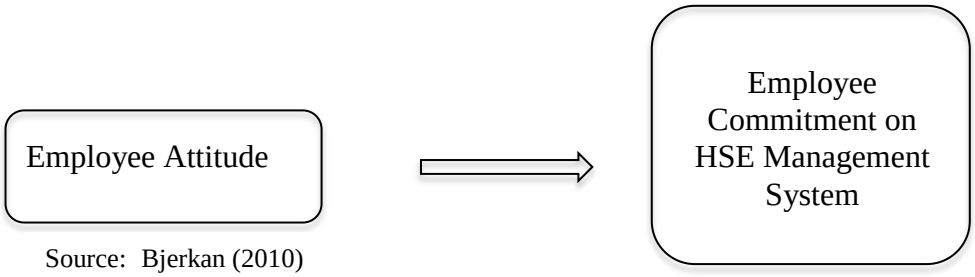


Source: Saad (2016)

The paper written by Saad (2016), was "The Influence of Safety Culture on Safety Performance in Saudi Arabian Construction Industry. UK : University of Salford" discussed the employee awareness on health, safety and environmental management system and training program related to employee attitude and safety performance at work site in the Saudi construction industry. The sample size is 156 respondents. The study discovered that the quality of HSE management system and HSE training is directly related to employee attitude and employee safety performance quality at work. As a result, the good quality HSE management system and HSE training program enhance the employee attitude on safe work performance and poor-quality of HSE management system and training leading to several incidents, accidents and loss of properties and workers life. Figure 2.3 shows conceptual frame work of Nayef Saad research.

Bjerkan, (2010), did "Work, Health and Safety Culture/Climate a study of employees in the Norwegian Oil and Gas Industry**."** The objective of the study is the about impact of employee attitude on employee commitment towards HSE management system from the collected data of sample in 120 respondents. The result of employee attitude was measured by how employees felt about their own health, their work environment, and the safety climate at work.

Figure 2.4 Conceptual Framework of Anne Mette Bjerkan



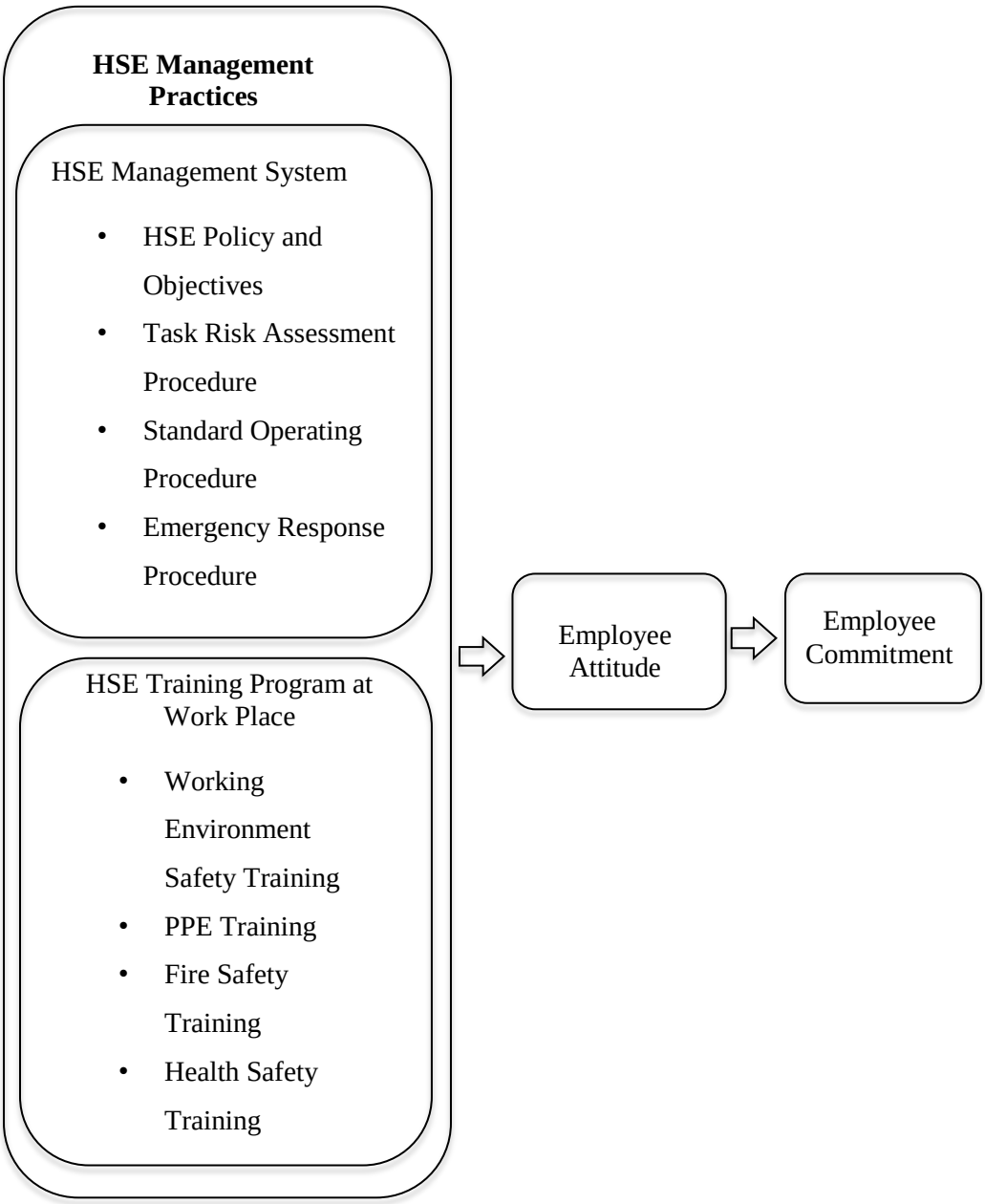
Source: Bjerkan (2010)

The study found that there was a stronger link between employee attitude and employee commitment on HSE management system. The results of research prove that employee good attitude increase the employee commitment on HSE management system. Figure 2.4 shows conceptual frame work of Anne Mette Bjerkan research.

2.6 Conceptual Framework of the Study

The purpose of the study is to explore health, safety and environmental (HSE) management practices of Regards Engineering Co., Ltd. The conceptual framework of the study is illustrated in Figure 2.5.

Figure 2.5 Conceptual Framework of the Study



Source: Own Compilation (2019)

In this study, Regards Engineering Co., Ltd HSE management system, HSE policy, procedures and reporting system, training and development system are explored first. Secondly, based on recorded documents and management system review, examined the employee perception on HSE management practices. Thirdly, analyzed the relations between employee perceptions, employee attitude and employee commitment on HSE management practices.

CHAPTER 3

HEALTH SAFETY AND ENVIRONMENTAL MANAGEMENT PRACTICES OF REGARDS ENGINEERING CO., LTD

This chapter present the HSE management practices of Regards Engineering Co., Ltd (RECL), follow by the company profile and organization structure. The main focus of this chapter is to explore the HSE management practices of Regards Engineering and examine the employee perception on HSE management system of Regards Engineering. Descriptive data of respondents, research design and reliability analysis are stated in later part of this chapter.

3.1 Profile of Regards Engineering Co., Ltd

Regards Engineering Co., Ltd is wholly owned Myanmar Company incorporate under the Myanmar Companies Act and it was established in 2011. Regards Engineering is providing engineering solutions to local oil and gas operators and international oil and gas operators. Regards Engineering specializes in engineering solutions for fabrication, component repair, and overhauling for offshore marine, oil and gas, power plant, and a wide variety of other industries. The core businesses of Regards Engineering are engineering design and fabrication, mechanical and electrical services, valve and other related services, manpower and equipment supply services and manufacturing of mini backhoes and hydraulic machineries.

Engineering design and fabrication services provide piping fabrication, tank fabrication, steel structure fabrication, installation of piping and structure, and high pressure testing. Steel structure fabrications include warehouses, industrial buildings, flyover bridges and river bridges. Regards Engineering provides complete piping system including engineering design, procurement and construction for oil and gas industries. Regards Engineering is fully equipped with facilities to repair for any types and sizes of industrial valves. The valves service including safety valves repair and recondition, complete overhaul, actuator refurbishment and onsite calibration services. Regards Engineering is specialized in pressure safety valve (PSV) testing

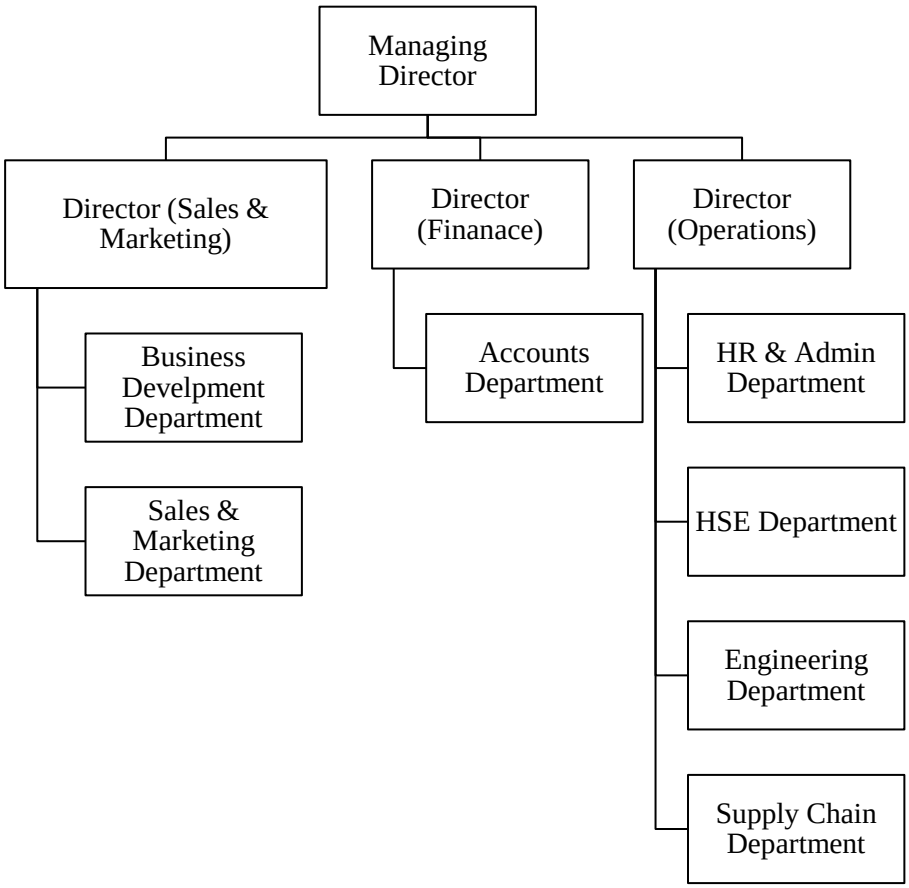
and calibration works, PSV are final defense equipment for process safety in oil and gas operations.

Mechanical and electrical services work are equipment repairing, CNC precision machining, thermal spray coating, mechanical seal refurbishment and dynamic balancing for rotating equipment.

3.1.1 Organization Structure of Regards Engineering Co., Ltd.

Regards Engineering organization structure is characterized by a functional structure. With a functional structure, all human knowledge and abilities about specific operations are integrated, giving the company a valuable depth of expertise. This structure is most effective when in-depth expertise is essential for achieving organizational goals, when the organization must be directed and coordinated via a vertical hierarchy, and when efficiency is a priority. The organization structure of Regards Engineering is shown in Figure 3.1.

Figure 3.1 Organizational Structure of Regards Engineering Co., Ltd



Source: Regards Engineering (2019)

Regards Engineering is operating with mainly seven departments as shown in Figure 3.1. They are; Business Development Department, Sales Department, Accounts Department, HR and Admin Department, HSE Department, Engineering Department and Supply Chain Department.

Business development department responsibilities are strategic planning, controlling, and monitoring for company growth and sustainability. Sales and marketing department is undertaking to meet the targeted sales objectives according to business development department strategies plan. Accounts department responsibilities are managing the cash flow, controlling the expenses, monitoring credit control and collection of receivables from clients and business partners.

Table 3.1 Numbers of Employees by Department

Department	Managerial Level	Non-Managerial Level	Total Employees
Business Development Department	1	2	3
Sales and Marketing Department	2	3	5
Account Department	2	4	6
HR and Admin Department	1	2	3
HSE Department	2	4	6
Engineering Department	22	96	118
Supply Chain Department	1	3	4
Total	31	114	145

Source: Regards Engineering (2019)

HR department is taking care of resource planning, personal improvement program, recruiting new employees and welfare of employees. HSE department is dealing with all other departments to ensure everyone is safe at work. HSE department is responsible for overall safety of employees and equipment. Engineering department is responsible for piping and steel structure fabrication, workshop operations, valve services, electrical and mechanical services, manpower supply and

manufacturing. Supply chain department is responsible for procurement activities and logistics operation. Total numbers of employees who work permanently are 145 in Regards Engineering. Table 3.1 shows number of employees by different departments.

3.2 Overview of Health, Safety and Environmental Management Practices of Regards Engineering Co., Ltd

As an engineering service provider for oil and gas industry, Regards Engineering has well-established HSE management system. Top management offers the direction, foresight, and funding necessary to put in place an efficient safety and health program. For both development and implementation of successful HSE management practices, Regards Engineering has systematically focusing on following areas;

(a) HSE Management System

- HSE Policy and Objectives
- Risk Assessment and Hazard Identification Procedure
- Standard Operating Procedure
- Emergency Response Procedure

(b) HSE Training Program at Workplace

- Personal Protective Equipment Training
- Firefighting Training
- Task Risk Assessment Training
- Basic First Aid Training

3.2.1 HSE Management System

To establish a strong safety-first culture in Regards Engineering, management has written policies and those policies are properly documented, implemented and communicated to all employees. All policies are reviewed annually and updated whenever required. Policies are specific to the organization and appropriate to its size and nature of its activities. The policies are protecting the safety of all members of the organization by preventing work-related injuries, ill health, diseases and incidents.

(a) HSE Policies and Objectives

Regards Engineering management has provided HSE Policy, Drugs, Alcohol and Smoking Policies and Environmental Policy. The managing director, who is the person in charge of setting HSE policies at Regards Engineering Co., Ltd., has approved them and made them effective. All policies are clearly explained and available to everyone at their place of employment. Regards Engineering HSE policy clearly stated that "Forster a culture, where incidents, accidents and near misses are reported investigated and the lessons learned are shared through the organization." Every member in the organizations has properly trained to report incidents, accidents and near misses. Any incidents, accidents and near misses are informed and documented for further action. The HSE objectives are to ensure safe work environment at all time, to prevent incident, accident, loss of life and damage of properties, and to prevent environmental impact of waste, pollution, biodiversity.

(b) Risk Assessment and Hazard Identification Procedure

One of the underlying causes of workplace injuries, illnesses, and incidents is the failure to identify or recognize present or predictable hazards. Regards Engineering has systematically implemented the risk assessment and hazard identification procedure. In order to ascertain what kinds of dangers might be present and which workers may be exposed or potentially exposed, the HSE team has gathered, organized, and reviewed information with the workforce. Chemical hazards information are collected from manufacturers Material Safety Data Sheets (MSDS) and other hazards are collected from patterns of frequently occurring injuries and illnesses. Regards Engineering collected other hazards information from outside sources such as trade associations, safety and health consultants and client organizations. Over Regards Engineering HSE team and workers are identifying chemical hazards by reviewing MSDS and product label. Any exposure to extreme noise, increased heat, or a radiation source is a physical hazard. Examining occupational activities that require heavy lifting, work above shoulder height, and repetitive motion helps uncover ergonomic risk concerns. Regards Engineering has documented the risk assessment and identified hazards from all area and activities as shown in Table 3.2.

Table 3.2 Risk Assessment and Hazards Identification

No.	Location	Activities	Forms and Type of Hazards	Risks
1	Office/ Warehouse/ Storeroom	- Office Work - Lifting - Cleaning	- Health Hazards - Physical Hazards - Chemical Hazards - Ergonomic Hazards - Electrical Hazards	- Chronic Diseases - Slip, Trip, Fall - Long time disabilities - Fire, Electrocution - Properties Damages - Personal Injuries
2	Workshop	- Piping Fabrication - Steel Structure Fabrication -Testing and Inspection	- Health Hazards - Physical Hazards - Chemical Hazards -Ergonomic Hazards - Electrical Hazards - Fire Hazards	- Chronic Diseases - Slip, Trip, Fall - Long time disabilities - Fire, Electrocution - Properties Damages - Personal Injuries
3	Worksite	- Piping Installation - Structure Installation - Testing, Commissioning, Inspection	- Health Hazards - Physical Hazards - Chemical Hazards - Ergonomic Hazards - Electrical Hazards	- Chronic Diseases - Slip, Trip, Fall - Long time disabilities - Fire, Electrocution - Properties Damages - Personal Injuries
4	Transportation	- Transferring Materials - Transferring Worker	- Traffic Hazards - Physical Hazards - Fire Hazards - Health Hazards	- Road Accidents - Personal Injuries - Slip, Trip, Fall - Properties Damages

Source: Regards Engineering (2019)

Regards Engineering utilizes a "hierarchy of controls" to identify and assess control alternatives for dangers. Regarding Engineering, a hazard control plan is used to guide the selection and execution of controls, and controls are implemented in accordance with the plan. Regarding Engineering, strategies with procedures to protect personnel during emergencies and non-routine tasks are developed. Regards Engineering assesses the effectiveness of existing controls to see if they continue to provide protection or if alternative controls might be more successful. Regarding Engineering, keep an eye out for new technologies that have the potential to be more protective, more reliable, or less expensive. There is a lot of information available to assist companies in investigating strategies for controlling identified dangers. When Regards Engineering identify potential control measure, they review on industry consensus, manufacturer literature, and engineering reports. Regards Engineering is always receiving information from employees who can make suggestions based on their expertise of the facility, equipment, and work process. Regards Engineering looks at the effectiveness of control methods in other workplaces to see if they might work there. Regards Engineering chose the controls for dangers that are the most practical, efficient, and long-lasting.

Regards Engineering control or get rid of all serious hazards right away with engineering solutions, and then choose controls that focus on engineering solutions, safe work practices, administrative controls, and personal protective equipment (PPE). Regarding Engineering, always avoid risks control that may introduce new dangers, either directly or indirectly. Regarding Engineering, continue to analyze and discuss control solutions with employees to verify that controls are realistic and effective. When no single measure properly protects workers, Regards Engineering employs a variety of control options. Regarding Engineering hazard control plan specifies how the selected control will be executed, and it prioritizes important dangers.

The overall purpose of Regards Engineering hazard control is to assure long-term hazard control. Regards Engineering's hazard control plans protect employees during non-routine activities and foreseen situations. Depending on the work environment, the hazard control plan may include fires, explosions, hazardous material spills, unscheduled equipment shutdowns, and infrequent maintenance tasks. Prior to beginning non-routine or non-standard jobs, the Task Risk Assessment

(TRA) processes were reviewed. Table 3.3 shows sample of task risk assessment with hazard identification and hazard control method.

Table 3.3 Task Risk Assessment Form

Regards Engineering Task Risk Assessment Form									TRA No: 01/2019
Revision No: 00/19			Prepared By: Supervisor						Date: 2nd Jan 2019
Date Issue: 4th Jan 2019			Approved By: Project Manager						Date: 3rd Jan 2019
Job Description:			Piping Installation Work						
Location:			Puma Energy Thilawa Tank Firm						
Process	Hazard	Risk Rating			Hazard Control Measures	Revise Risk Rating			Responsible Person
		C	L	R		C	L	R	
Pipes and spools installation	Slip, Trip Fall Hand Injury, Lifting Hazard	2	C	M	Toolbox talk, Use proper PPE, Use correct tools Safety Harness Barricade work area Housekeeping	2	A	L	All Personnel
Pipe and spools welding	Noise, Welding Fume, Slip, Trip, Fall, Hand Injury, Heat Stroke, Fire Hazard	2	C	M	Toolbox talk, Use proper PPE, Use correct tool, Fire extinguisher stand by, Safety harness, Housekeeping	2	A	L	All Personnel
Attendees									
Name		Designation				Date			
U Aung Kyi Htay		Safety Officer				4th Jan 2019			
Ko Tin Tun Aung		Pipe Fitter				4th Jan 2019			
Ko Pyae Sone Shwe		Welder				4th Jan 2019			
Ko Shu Maung Latt		Helper				4th Jan 2019			
Ko Naing Htoo		Helper				4th Jan 2019			
U Kyin Win		Foreman				4th Jan 2019			

Source: Regards Engineering (2019)

Refer to Table 3.3 TRA form, which has done for piping installation work, the form mentioned the consequences, likelihood and risk level with alphabets and

numbers. Relations of severity of consequences and likelihood of hazard will cause an incident are explained in Table 3.4.

Table 3.4 TRA Consequences and Likelihood Relation

Task Risk Analysis							
Risk Matrix			Determine the Consequence I				
			1	2	3	4	5
Injury			Short recovery – minor short-term health effects.	Short-term acute health effects.	Lost Time Injury or short/ medium term health issues.	Extensive injuries or chronic health issues.	Fatality or permanent disability.
Environment			Limited Damage to minimal area	Minor effects on biological or physical	Moderate short-term no impact eco-system	Serious medium-term effects	Very serious long-term impact on eco-system
Property or Process Damage			Low Financial Loss (<$20K)	Medium Financial Loss ($20K-$200K)	High Financial Loss ($200K-$2M)	Major Financial Loss ($2M-$20M)	Extreme Financial Loss (>$20M)
Determine the Likelihood	E	Almost certain	Medium	High	Very High	Very High	Very High
	D	Probable	Medium	Medium	High	Very High	Very High
	C	Possible	Low	Medium	Medium	High	Very High
	B	Unlikely	Low	Low	Medium	Medium	High
	A	Very unlikely	Low	Low	Low	Medium	Medium
Step 1 Determine the severity of the consequence Step 2 Determine the likelihood that the hazard will cause an incident			Step 3 Analyze the TRUE RISK (Very High, High, Medium, Low Step 4 Develop control measures, using hierarchy of control		Step 5 Determine RESIDUAL RISK (Steps 1-3 above) Note: Significant risks are those determined as being Very High or High		

Source: Regards Engineering (2019)

There are four kind of risk level based on the severity of consequences and likelihood relations. Detail of risk level interpretation is mentioned in Table 3.5.

Table 3.5 Risk Level and Action Interpretations

Risk Level	Action
Very High	Very High: Risks are too great. At this degree of risk, stop immediately. Put control procedures in place to guarantee that the risk level is lowered.
High	High risk: Risk is unwanted. Verify and, if possible, quantify the precision and assurance of the current risk level. Implement control measures to guarantee that the risk level is decreased to or confirmed to be as low as is practically possible (ALARP).
Medium	Medium risk: Only tolerated if examination demonstrates they are ALARP. Implement management plans to prevent the occurrence and keep track of any alterations. If the benefits outweigh the costs, risk can be reduced to Low.
Low	Low risk: Are acceptable.

Source: Regards Engineering (2019)

Refer to the survey data of Regards Engineering TRA system, Regards Engineering is implemented a systematic risk identification and control system, which preventing all possible condition of causing incidents.

(c) Standard Operating Procedure

In order to create safe working environment and promote the safety culture of organization, Regards Engineering established standard operating procedures for complex routine operations. Several types of operating procedures are prepared according to severity of operations. Standard operating procedures are systematically compiled by competent professionals. Standard operating procedures are reviewed and approved by management team. To execute the operation safely and efficiently, it is mandatory to strictly follow the standard operating procedures. Whenever standard operating procedure found discrepancy from site situation or any other conditions, the

management team and competent professionals review the standard operating procedure together with site personnel.

(d) Emergency Response Procedure

Regards Engineering has well established and maintained emergency response procedure and emergency response plan for all potential accidents and emergency situations. Regards Engineering emergency procedures and emergency plans provide the required information, internal communication, and coordination to protect all people at the worksite in the case of an emergency. Regards Engineering's emergency response program informs and communicates with the appropriate authorities, such as the township fire station and the nearest medical center or hospital. Regards Engineering provides essential knowledge and conducts training for all organization members.

3.2.2 HSE Training Program at Workplace

Training is a valuable tool for training employees about workplace risks and controls, allowing them to perform more safely and productively. However, another function of training is to equip employees with a better grasp of the safety and health program itself, allowing them to contribute to its development and implementation. Regards Engineering training program provides their employees with;

- The knowledge and abilities required to do their duties safely and avoid creating dangers that could endanger themselves or others.
- Knowledge of occupational dangers, including how to spot, report, and manage them.
- Specialized training, if the hazards of their job are unusual.

Regards Engineering HSE training cover all members of organization. Regards Engineering provides basic safety orientation training to all new employees at the first day of their employment. The training program included company HSE policies, goals, and procedures. The proper way to report dangers, illnesses, injuries, and near-misses has been taught to the workforce. The processes for dealing with various emergencies were explained to the staff, along with what to do in emergency scenarios. Furthermore, all employees required attending safety training periodically

based on their scopes of works. Different types of training, such as personal protective equipment training, basic first aids training, basic firefighting training, hazards identification and assessment training, and other job-related trainings are required to attend periodic basis. Table 3.6 shows the Regards Engineering training matrix for fiscal year 2019.

Table 3.6 Training Matrix for 2019

Sr. No	Training Code	Descriptions	Fiscal Year 2019											
			J	F	M	A	M	J	J	A	S	O	N	D
1	HSE TM 01	PPE Training	√			√			√			√		
2	HSE TM 02	Permit to Work		√			√			√			√	
3	HSE TM 03	TRA training			√			√			√			√
4	HSE TM 04	Basic First Aids Training	√			√			√			√		
5	HSE TM 05	Basic Fire Fighting Training		√			√			√			√	
6	HSE TM 06	Defensive Driving (Eng;)			√			√			√			√
7	HSE TM 07	Defensive Driving (Myan;)	√			√			√			√		
8	HSE TM 08	Confined space entry training		√			√			√			√	
9	HSE TM 09	Work at Height Training			√			√			√			√
10	HSE TM 10	Emergency Response Training	√			√			√			√		
11	HSE TM 11	Workplace Housekeeping Training		√			√			√			√	
12	HSE TM 12	Environmental Awareness Training			√			√			√			√
13	HSE TM 13	Safe Work Practice Training	√			√			√			√		

Source: Regards Engineering (2019)

Table 3.6 explained about different types of training conducted annually by Regards Engineering HSE team. Each training program conducted quarterly. Regards Engineering has well prepared training matrix for management team and all employees on annual basis.

Table 3.7 Employee Annual Training Matrix 2019

Sr. No	Designation	Training Modules												
		HSE TM 01	HSE TM 02	HSE TM 03	HSE TM 04	HSE TM 05	HSE TM 06	HSE TM 07	HSE TM 08	HSE TM 09	HSE TM 10	HSE TM 11	HSE TM 12	HSE TM 13
1	Senior Managers	Jan		Mar	Apr	May	Jun				Oct	Nov	Dec	Jul
2	Department Head	Jan		Mar	Apr	May	Jun				Oct		Dec	
3	Managers	Jan	Feb	Mar	Apr	May	Jun				Oct	Nov	Dec	Jul
4	HSE Representatives	Jan	Feb	Mar	Apr	May	Jun		Aug	Sept	Oct	Nov	Dec	Jul
5	Office Staff	Jan	Feb		Apr	May	Jun				Oct	Nov	Dec	Jul
6	Supervisors / Engineers	Jan	Feb	Mar	Apr	May	Jun		Aug	Sept	Oct	Nov	Dec	Jul
7	New Employees	Jan	Feb	Mar	Apr	May	Jun		Aug	Sept	Oct	Nov	Dec	Jul
8	Drivers	Jan	Feb	Mar	Apr	May		Jul	Aug	Sept	Oct	Nov	Dec	Jul
9	Security	Jan	Feb		Apr	May					Oct	Nov	Dec	Jul
10	Welders / Fitters	Jan	Feb	Mar	Apr	May			Aug	Sept	Oct	Nov	Dec	Jul
11	Painters	Jan	Feb	Mar	Apr	May			Aug	Sept	Oct	Nov	Dec	Jul
12	Cleaners	Jan	Feb	Mar	Apr	May				Sept	Oct	Nov	Dec	Jul

Source: Regards Engineering (2019)

Table 3.7 shows type of training vs different level of work force. Regards Engineering HSE training program is conducted according to type of employees and their scope of works. The matrix explains the job level and related training program on annual basis. Senior Managers and department head of the annual training are held

at Jan, Mar, Apr, Jun, July, Oct, Nov, Dec and these months trained as PPE training, TRA training, basic first aids training, basic firefighting training, defensive driving, emergency response training, workplace housekeeping training, environmental awareness training and safe work practice training respectively. And also, mangers and HSE representatives of the annual training are opened Jan, Feb, Mar, Apr, Jun, July, Oct, Nov, Dec and the present month opened as same with senior manager training and extra attended to permit to work training. supervisors, new employees and drivers of annual training are trained at Jan, Mar, Apr, Jun, July, Oct, Nov, Dec and the training as PPE training, permit to work training, TRA training, basic first aids training, basic firefighting training, defensive driving, emergency response training, workplace housekeeping training, environmental awareness training and safe work practice training respectively. And then, security, welders or fitters, painters and cleaners of annual training are held at Jan, Feb, Mar, Apr, May, Aug, Sept, Oct, Nov, Dec and July as PPE training, permit to work training, TRA training, basic first aids training, basic firefighting training, defensive driving, emergency response training, workplace housekeeping training, environmental awareness training and safe work practice training respectively. The types of training are depended on the level of designation and organization natures.

(a) Task Risk Assessment Training

As per Regards Engineering risk assessment and hazard identification procedure, Regards Engineering management has organized the proper risk assessment training for all employees. The main purpose of risk assessment training is to understand the various kind of hazards, able to identify task related risks and control the risks effectively. First step of training is how to identify hazards based on physical work environment, work organization and health factors. The employee who involves in the operation require to identify the scope of operation, then related hazards such as physical hazard, health hazard, environmental hazard, ergonomic hazard, electrical hazard, chemical hazard and so on. Regarding to type of hazards, the second step of training is to identify the related type of risks such as personal risk, properties risk and environmental risk. The third step of training is to analyzed the risk levels and find out the solutions to reduce hazards and risk level till the task is safe to execute.

(b) Personal Protective Equipment (PPE) Training

The proper use of personal protective equipment can reduce more risks. Inadequate selection of personal protective equipment can cause incidents and accidents. To ensure the correct use of PPE, Regards Engineering has plan and provide PPE training to all employees. The mandatory PPE are hard hat, safety goggle, hand gloves, safety boots and proper clothing. Regards Engineering management has systematically prepared and provide the basic PPE training to all employees. PPE training program identify the different type of potential hazard at work place, identify several types of protective equipment and educate the proper use of protective equipment. Regards Engineering PPE training program include respiratory protection equipment training, eye protection equipment training, hearing protection equipment training, hand protection equipment training, Foot protection equipment training, head protection equipment training and working from height protection equipment training.

(c) Firefighting Training

Regards Engineering provided fire safety and firefighting training to all new staff. The refresher training is given once a year for old staff. Firefighting training is undertaken by a competent person from local fire brigade department. Some staff has to send oversea training center for advance training according to client requirement. The goal of firefighting training is to equip staff with the abilities to recognize the conditions that can start a fire, know how to use a fire extinguisher, know how to select the best extinguisher for each type of fire, and become familiar with an emergency response plan. Regards Engineering firefighting training programs explain how fires start, the different types of fires, the different types of fire extinguishers, how to use them, and other basic firefighting ideas. At the end of the training, all the participants require to answer assessment questions to verify the effectiveness of training program.

(d) Basic First Aid Training

As an oil and gas engineering Service Company, all employees require attending and completing basic first aid training. Regards Engineering has established a basic first aid training program as mandatory for all employees. Training program is conducted by competent medical professions from third party organization such as Myanmar Red Cross organization and other medical service providers. Employees are

required to complete the cardio pulmonary resuscitation (CPR) training, head, chest and spinal injuries training, management of fracture training, shack, burns and scalds training, fainting and unconsciousness training, recognition and management of bleeding training. Employees need to pass both practical and theory to successfully complete the course. Every year, each employee has to go for refresher training as per Regards Engineering HSE policy.

3.3 Research Design

The aim of the study is to explore the employee perception on the Regards Engineering HSE management practices. Study includes to examine the effects of HSE management practices on employee attitude. The study also to analyze the effects of employee commitment towards HSE management practices of Regards Engineering. To achieve these objectives, both primary and secondary data were used in this study. Secondary data were obtained from textbooks, international standard and guide lines for HSE management system, previous research papers, internets and web sites. To get the primary data, 106 respondents were surveyed with systematic survey questions. The sample size was determined by Raosoft sample size calculator with 95% confident level.

Survey questionnaires were distributed to 145 employees and results were received from 106 respondents. Total 106 respondents between the age group of 20 to over 49 years old who have been engaged in various oil and gas projects for several years. The descriptive and analytical method was used in this study. Descriptive method aims to describe the employee perception on Regards Engineering HSE management system practices, the method measures how well employees understand the HSE management system and how they had changed their attitude based on their understanding level of HSE management system. The analytical method was used to analyzed the relationship between the employee attitude on HSE management system practices and their commitment on HSE management system practices. The questionnaires used for this research consist of three major parts. The first part questionnaire is to explore the employee perception on Regards Engineering HSE management system practices. The structure of questionnaires for second part is to examine the employee attitude based on their perception of Regards Engineering HSE management system practices. The last part questionnaires were designed to find out

employee commitment on Regards Engineering HSE management system practices. All questionnaires are measured with a five-point Likert Scale method (1 = Strongly Disagree to 5 = Strongly Agree). In this chapter, the first part of questionnaires will be discussed.

3.4 Reliability Analysis

Reliability analysis was done to see how well the variables in the questionnaire agreed with each other. Cronbach's alpha is a way to measure how similar the items in a set are to each other as a whole. It is used to measure how reliable a scale is. Cronbach's alpha is a way to check the reliability of multiple-question Likert scale surveys. These questions measure latent variables-hidden or unobservable variables like: a person conscientiousness, or openness. Cronbach's alpha will show if the test is measuring the important variable correctly.

Table 3.8 Reliability Analysis

Category		**Cronbach Alpha**	**No of items**	**Interpretation**
Employee perception	HSE Management System	0.874	15	Good
	HSE Training	0.857	18	Good
Employee attitude	Employee Attitude on HSE Management Practices	0.855	16	Good
Employee commitment	Employee Commitment on HSE Management Practices	0.883	16	Good

Source: Survey Data (2019)

The result showed that Cronbach Alpha Coefficient for factors affecting employee perception on Regards Engineering HSE management practices, Cronbach Alpha Coefficient for factors affecting employee attitude on HSE management system practices and for the employee commitment on HSE management system practices are average more than 0.85. The result can interpret that the data is considered reliable and valid.

3.5 Demographic Profile of Respondents

Referring to the survey data, the respondent demographic profiles are categorized into five factors such as gender, age, educational qualification, length of services and job level. All of the factors are summarized as Table 3.9. According to the Table 3.9 profile of respondents, there are total 106 respondents who were surveyed with structural questionnaire. The majority of respondents are male with 91.5% of the total respondents. It shows that the working environment is male dominant and high-risk environment. The majority of respondents are age between 20 to 39 years old. 45.3% of respondents are age between 20 to 29 and 38.7% of respondents are from 30 to 39 years old. It shows that Regards Engineering major workforce is driven by middle age group.

Table 3.9 Profile of Respondents

Particulars		**No. of Respondents**	**Percentage (%)**
Total		106	100
Gender	Male	97	91.5
	Female	9	8.5
Age	20-29 Years	48	45.3
	30-39 Years	41	38.7
	40-49 Years	10	9.4
	Above 49 Years	7	6.6
Education	Vocational Certificates	2	1.9
	High School	60	56.6
	Diploma	15	14.2
	Degree	26	24.5
	Post Graduate	3	2.8
Length of Service	Less than 1 Year	8	7.55
	1 – 5 Years	88	83.1
	6 – 10 Years	5	4.72
	Above 10 Years	5	4.72
Job Level	Management	3	2.8
	Office Staff	7	6.6
	Engineer	14	13.2
	Foreman	11	10.4
	Supervisor	15	14.2
	Technician	22	20.8
	Skill Worker	31	29.2
	General Worker	3	2.8

Source: Survey Data (2019)

High school education level respondent population is distinctly high in the Regards Engineering Co., Ltd. Business nature of Regards Engineering requires more skilled personal than highly educated professions.

Majority of respondents are within one to five years length of services in Regards Engineering. Referring to the length of services data, majority of employees have strong enough length of service to commit the good HSE management system practices. Different job levels of respondents are participated to answer the survey questions. Skilled workers and technician level respondent's ratio is higher in total respondents' population. Respondents of management level and general workers level are low. The results of survey data are strong and reliable due to multi job levels of respondents are involved.

CHAPTER 4

ANALYSIS ON EMPLOYEE ATTITUDE AND EMPLOYEE COMMITMENT TOWARDS HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT PRACTICES

In this chapter, firstly express the analysis on the effect of employee perception on HSE management practices to employee attitude towards HSE management practices. Secondly, continued with analysis on the effect of employee attitude on the HSE management practices to employee commitment towards HSE management practices of Regards Engineering Co., Ltd.

4.1 Employee Perception on HSE Management Practices

In this survey total of 106 respondents answered the questions with Likert scale. (1= strongly disagree and 5= strongly agree). If the mean value is 3 and above, there is a positive attitude by respondents. The survey questions were composed with 15 questions for Employee Perception of HSE Management System and 18 questions for Employee Perception of HSE Training at Workplace. Total 16 questions for Employee Attitude on HSE Management System Practices and 16 questions for Employee Commitment on HSE Management System Practices.

4.1.1 Employees Perception on HSE Management System

The survey of employee perception on HSE management practices include two section, the first section is employee perception on HSE management system and the results of survey questions are shown in Table 4.1.

Based on Table 4.1, employee perception on HSE policy and objectives are strong. Employees are strongly agreed that all objectives are clearly defines and employees are clearly understood the company HSE policy and objectives. Respondents are strongly agreed with HSE policy and objectives are available on work locations. It can be concluded that, due to company HSE policy is clearly define and available at all work locations, employee perception is relatively high.

Table 4.1 Employee Perception on HSE Management System

Description		Mean	SD
I. HSE Policy and Objectives			
1	Policy and objectives are available	4.25	.633
2	Policy is clearly defined	4.34	.584
3	Understood the policy and objectives.	4.38	.543
4	Objectives are clearly defined	4.39	.579
Overall Mean		4.34	
II. Task Risk Assessment (TRA) Procedure			
5	Procedures are clearly defined	4.26	.540
6	Concerning person involve in meeting.	4.40	.529
7	Able to identify potential risk	4.41	.582
8	Risks must identify, control and eliminate	4.44	.570
Overall Mean		4.38	
III. Standard Operating Procedure (SOP)			
9	SOP are available for each job.	4.22	.617
10	SOP are systematically compiled	4.39	.656
11	Understand each steps of SOP	4.31	.638
12	SOP are regularly review and updated.	4.42	.601
Overall Mean		4.33	
IV. Emergency Response Procedure (ERP)			
13	Procedures are well prepared	4.34	.550
14	Procedures are regularly review and update.	4.43	.535
15	Clearly understand the type of emergencies	4.43	.552
Overall Mean		4.40	

Source: Survey Data (2019)

Respondents are strongly agreed that all work-related risks must identify, control and eliminate prior any task. Each employee can identify potential risks. It can say that overall employee perception on task risk assessment procedure is positively high and enhancing safe work attitude. Employees are strongly agreed that standard operating procedures are regularly review and updated. The survey result shows standard operating procedures are systematically compiled and employees are clearly understanding every single step of procedure.

Company standard operating procedures are available for each job and enhance the employee perception. From Table 4.1, the mean value for employee perception on emergency response procedure is positively high. The survey result

shows employees are clearly understand the different types of emergencies and they strongly agreed that emergency procedures are regularly review and updated. Employees are positively agreed that company emergency procedures are well prepared. Overall means value of employee perception on company HSE management system is positively high. The survey data proved that employees are strongly aware of company policy and strictly follow the procedures.

4.1.2 Employee Perception on HSE Training Program at Work Place

The second section of the employee perception on HSE management practices survey is employee perception on HSE training program at work place. Table 4.2 shows the survey results of employee perception on HSE training program at work place with mean values and standard deviation. HSE training at work place questionnaires are surveyed under four different categories such as working environment safety and training, personal protective equipment training, fire safety training and health safety training.

Refer to Table 4.2, the result of employee perception on working environment safety training express with seven statements. Employees are strongly agreed with all statements. Respondents are strongly agreed that good working environment with adequate facilities are provided. Due to effective basic safety induction training, employees can easily identify escapes way and mustering points in case of emergency situation occurs. Employees positively agreed that HSE training program is well established and effectively implement. Employees are pleased to work with the machines and tools equipped with safe guard and protection system.

Training programs are effective and employees are easily able to interpret different kinds of safety signs. It can says that overall employees satisfaction on training working environment training program is relatively high and employees are happy with clean and hygienic offices, canteen and rest rooms.

Based on the Table 4.2, results of employee perception on personal protective equipment training are positively high and employees are strongly agreed that PPE training program is effective. Due to effective PPE training, employees are able to identify correct PPE suitable with type of job. PPE training enhances the ability of proper maintenance of protective equipment.

Table 4.2 Employee Perception on HSE Training Program at Work Place

Description		Mean	SD
I. Working Environment Safety Training			
16	Training program has well established	4.24	.610
17	Safety induction training provided	4.35	.553
18	Signs are posted	4.33	.564
19	Lighting and ventilation facilities equipped	4.43	.586
20	Machines are safe to operate.	4.37	.591
21	Escape ways are identified	4.37	.574
22	Clean and hygienic toilets available	4.22	.690
Overall Mean		4.32	
II. Personal Protective Equipment (PPE) Training			
23	Trainings are provided effectively.	4.22	.617
24	Task related (PPE) are provided.	4.39	.656
25	PPE are complied with safety requirement.	4.31	.638
26	PPE used are regularly maintained	4.42	.601
Overall Mean		4.33	
III. Fire Safety Training			
27	Training is well organized.	4.26	.540
28	Adequate equipment are available.	4.40	.529
29	Fire alarm system has installed.	4.41	.582
30	Mustering points are identified.	4.44	.570
Overall Mean		4.38	
IV. Health Safety Training			
31	First aid training provided.	4.31	.623
32	MSDS are available.	4.25	.715
33	First aids kits are available.	4.36	.605
Overall Mean		4.35	

Source: Survey Data (2019)

Refer to the survey result of fire safety training at Table 4.2, employees are able to identify and locate the different types of firefighting equipment at work site. Employees are strongly understood how to raise fire alarm and where to go, when fire emergency occurs. The result shows employees are positively agreed that training and training materials are adequate. Overall mean value for employee perception on fire safety training is positively high and the result can be said that employees are fully understand the fire safety training, and employees are positively agreed with effectiveness of fire safety training.

From the Table 4.2 perception on health safety training survey, employees are fully aware of first aid kits locations and regular inspection of drugs and accessories inside first aid kit. Employees know material safety data sheet locations and understand how to identify require proper PPE and first aid information. Overall mean value of employee perception on health safety training is high and it can interpret that employee have positive attitude on perception of health safety training program. The overall mean value for employee perception on HSE training program at work place is positively high and the result can say that, employees have positive attitude on training program at work place.

4.2 Effect of HSE Management Practices on Employee Attitude

This section analyzed the effect of HSE management practices on employee attitude. First, study on the survey result of employee attitude to HSE management practices as per Table 4.3. Afterwards, analyzed the effect of employee perception on HSE management practices to the employee attitudes. The regression analysis data for the effect of employee perception on HSE management practices to employee attitude is shown in Table 4.4 and Table 4.5.

4.2.1 Employee Attitude

Employee attitude to HSE management practices is mainly focus on two categories, the HSE management system and HSE training program at work place. Under the HSE management system category, systematic survey questionnaires are prepared for HSE policy and objectives, task risk assessment procedure, standard operating procedure and emergency response procedure. The other survey questionnaires are focus on training program at work place such as working environment safety training, PPE training and fire safety training. Table 4.3 shows the survey results of Employee Attitude on HSE Management Practices.

Refer to Table 4.3 employee attitude to HSE management practices; employees strongly believed that well established HSE management system can protect them from potential hazards. Employees feel working environment is safe by following HSE policy and objectives. Employees strongly agreed that Task Risk Assessment (TRA) must complete prior to start work and everyone must participate

and discuss in TRA process. To execute safe operation, employees strongly agree that the Standard Operating Procedures (SOP) are essential

Table 4.3 Employee Attitude

	Descriptions	Mean	SD
1	HSE MS protect employees.	4.23	.590
2	Following policies and objectives is safe.	4.37	.540
3	TRA is analysis of potential hazards	4.42	.585
4	TRA is essential process.	4.48	.556
5	SOP are mandatory guide lines.	4.29	.661
6	No SOP, no operation.	4.22	.647
7	Emergency procedures save lives.	4.35	.586
8	Response immediately at emergency.	4.34	.631
9	Mandatory to attend HSE training	4.19	.619
10	Respect and follow warning signs.	4.39	.626
11	Keep working environment clean and tidy.	4.35	.570
12	Machines need to inspect regularly.	4.41	.565
13	Understand and willing to wear PPE	4.47	.556
14	Check and ensure PPE are defects free.	4.47	.538
15	Firefighting training is compulsory	4.26	.557
16	Adequate firefighting equipment make feel safe	4.38	.577
Overall Mean		4.35	

Source: Survey Data (2019)

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Employees positively agree that SOP is mandatory guide line and without SOP, operation cannot be carried out effectively and efficiently. Table 4.3 results stated that employees understand and strongly believed, the more employee aware of the emergency procedure, everyone can response emergency situation immediately and save more lives. The survey results express that employees are strongly agree to attend HSE training and all warning signs must strictly follow as per instruction. The survey results show that employees are willing to maintain work area clean and tidy all the time in order to execute the jobs safely. The result stated employees agree to

inspect machines and tools regularly prior to the operation. Table 4.3 results says that employees are willing to wear PPE and ensure that PPE are always clear from defects. Overall mean value of employee attitude to HSE management practices can be said that Regards Engineering HSE management practices are adequately implement and enhance the employees good practice attitude.

4.2.2 Effect of HSE Management System on Employee Attitude

In this study, linear regression model is conducted to test the relationship between employee perception on HSE management system and employee attitude to HSE management practices. Independent variables are HSE policy and objective, task risk assessment procedure, standard operating procedures, and emergency response procedure. Dependent variable is employee attitude to HSE management practices. The results are shown in Table 4.4. Reference to Table 4.4, the specified model can explain some degree about the variation of employee attitude to Regards Engineering HSE management practices from employee perception on HSE management system. According to model summary Table, can conclude that the overall regression model is statistically significant and the model is valid. There is no auto correlation between samples. All the VIF value shows that there is no multicollinearity problem in this case.

Referring to the result from Table 4.4, the regression shows that three of independent variables are significant and positive in their relationship with employee attitude to HSE management practices. The result of HSE policy and objectives are available at work places and clearly defined and explained employee perception on HSE policy and objectives are positively high. Consequently, employee attitude on following the policy and objectives are relatively high and employee can create safe working environment. Among of all independent variables, employee perception on task risk assessment procedure significant coefficient level shows negative relationship with the dependent variable. It shows that the relationships between employee perception on task risk assessment procedure and employee attitude to HSE management practices is weak.

Table 4.4 Effect of HSE Management System on Employee Attitude

Independent Variables	Unstandardized Coefficient		Standard Coefficient	t	Sig.	VIF
	B	Std. Error	Beta			
Constant	1.326	.260		5.102	.000	
HSE Policy and Objectives	.292***	.062	.387	4.688	.000	1.857
Task Risk Assessment Procedure	-.015	.064	-.081	-.238	.812	1.581
Standard Operating Procedure	.212***	.058	.202	3.626	.000	1.881
Emergency Response Procedure	.205***	.058	.268	3.553	.001	1.542
R	.793					
R Square	.629					
Adjusted R Square	.614					
Durbin-Watson	1.833					
F Value	42.748***					

Source: Survey Data (2019)

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

According to table 4.4 result, it can be concluded that employee can reach out to standard operating procedures easily and ensure that SOP can understand clearly. Due to SOPs are systematically compiled, review, approve by management team and regularly updated, employee can execute operations safely and effectively. The strong relation shows that the more employee understands the standard operating procedure, employee can execute their task safely and their attitude to HSE management practices are stronger.Refer to Table 4.4, due to emergency response procedure is well prepared, regularly update and employee can access easily, employee attitude on emergency response is efficient and able to save lives. Increasing of employee perception level on emergency response procedure also increase the employee response attitude level, when emergency situations are occurred.

Table 4.4 regression results shows that there is negative relationship between employee perception on TRA and employee attitude on TRA. The regression result can express that even though employee agree that TRA are clearly define, and able to identify the risk of the job it is not positively related to employee involvement in TRA process.

4.2.3 Effect of HSE Training Program on Employee Attitude

In this section, linear regression model is applied to analyze relationships between the employee perception on HSE training program at work place and employee attitude to HSE management practices. Independent variables are working environment safety training, personal protective equipment (PPE) training, fire safety training and health safety training. Dependent variable is employee attitude to HSE management practices. The results are shown in Table 4.5.

Table 4.5 Effect of HSE Training Program on Employee Attitude

Independent Variables	**Unstandardized Coefficient**		**Standard Coefficient**	**t**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
Constant	1.393	.308		4.529	.000	
Working Environment Safety Training	.157**	.080	.178	1.957	.053	1.821
PPE training	.328***	.060	.466	5.487	.000	1.595
Fire Safety Training	.078	.069	.092	1.131	.261	1.477
Health Safety Training	.121**	.059	.185	2.029	.045	1.829
R	.737					
R Square	.543					
Adjusted R Square	.525					
Durbin-Watson	1.736					
F Value	30.037***					

Source: Survey Data (2019)

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

From Table 4.5 among four predictors, personal protective equipment (PPE) training has strong relation with employee attitude to HSE management practices. Understanding and selecting of proper personal protective equipment at work place is vitally important and with systematically organized training program, employee can enhance their attitude to the HSE management practices. Because of PPE training material and training program are provided effectively to the employee, employee attitude on PPE awareness is high and employee are willing to wear PPE all the time. Employee perception on PPE regular maintenance increase the employee attitude to ensure the PPE are free from defects prior to use.

For the working environment safety training in Table 4.5, we can say that the relation between predictor and employee attitude to HSE management practices is positive and valid. Working environment safety training is essential for employees, in order to create their work place sound safe at all time. Working environment safety training provide the good practices of maintaining the tools and equipment, machines protective devices, and then clean and tidiness of working area. Employee perception on working environment increase the employee attitude increase on inspection of machines and tools regularly.

According to Table 4.5, the relationships between health safety training program predictor and employee attitude to HSE management practices is significant. It can conclude that due to well organized HSE management system and training program, employees are satisfying with the HSE management practices and positively improve employee attitude.

Refer to table 4.5 regression result, it shows that relation between employee perception on fire safety training is weak. Fire safety training perception increase the employee confident level to put out fire on fire emergency case. Employee perception on fire alarm system and fire fighting equipment increase the employee attitude level to prevent fire accident.

4.3 Effect of Employee Attitude on Employee Commitment of Regards Engineering Co., Ltd

This section analyzes the effect of employee attitude to HSE management practices toward employee commitment to HSE management practices. The survey

results of employee commitment to HSE management practices will review first. The survey results of employee commitment to HSE management practices are shown in Table 4.6. In second part, the effect of employee attitude to HSE management practices towards employee commitment will analyze.

4.3.1 Employee Commitment

The survey questionnaires for employee commitment to HSE management practices are mainly focused on HSE management system and HSE training program at work place of Regards Engineering Co., Ltd. In this survey total of 106 respondents answered the questions with Likert scale. (1= strongly disagree and 5= strongly agree). If the mean value is 3 and above, there is a positive attitude by respondents. The survey questions were composed with 16 questions focus on employee commitment to Regards Engineering HSE management practices. The survey results mean value are shown in Table 4.6.

Table 4.6 Employee Commitment

Description		**Mean**	**SD**
1	Strictly follow HSE policy.	4.25	.645
2	Responsible to report anomaly.	4.33	.597
3	Responsible to raise potential risks.	4.39	.545
4	Responsible to read TRA.	4.39	.595
5	Must learn and understand SOP	4.26	.540
6	Responsible to follow procedure.	4.40	.529
7	Must follow ERP.	4.41	.582
8	Responsible to raise alarm.	4.44	.570
9	Responsible to follow signs.	4.22	.617
10	Responsible to maintained machine safe.	4.39	.656
11	Responsible to use PPE.	4.31	.638
12	Eliminate potential fire hazards.	4.42	.601
13	No permit no work.	4.34	.550
14	Responsible to follow instructions.	4.43	.535
15	Assist any injury case.	4.43	.552
16	Report all medical treatment case.	4.29	.617
Overall Mean		4.36	

Source: Survey Data (2019)

Refer to the results from Table 4.6, the average mean value for the employee commitment is positively high. The result table explain that employee are fully aware of their responsible to response any emergency situations. Employees are positively committed to follow safety instructions and eager to participate in any emergency situations management. The survey result shows the high positive attitude of employee commitment on following the safety warning signs and prohibition sign at work place. Employees are strongly agreed to maintain safe work practices and willing to wear PPE at all time. The overall mean value for employee commitment on HSE management practices is highly positive and it can be interpreting that employees are willing to participate and contribute in safe work practices.

In this section, linear regression model is conducted to analyze the relationships between employee attitude to HSE management practices and employee commitment to HSE management practices. Independent variable is employee attitude to HSE management practices and dependent variable is employee commitment to HSE management practices. The regression analysis data are shown in Table 4.7.

Table 4.7 Effect of Employee Attitude on Employee Commitment

Independent Variables	**Unstandardized Coefficient**		**Standard Coefficient**	**t**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
Constant	.801	.295		2.713	.008	
Attitude to HSE Management Practices	.817***	.068	.764	12.074	.000	1.000
R	.764					
R Square	.584					
Adjusted R Square	.580					
Durbin-Watson	1.512					
F Value	145.786***					

Source: Survey Data (2019)

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

According to Table 4.7, regression model can explain some amount about the variation of employee commitment to HSE management practices from employee attitude to HSE management practices of Regards Engineering Co., Ltd. Refer to the model summary Table and ANOVA Table, it can be said that overall regression model is statistically significant. We can say that there is no auto correlation between samples. The VIF value explained there is no multicollinearity problem in this analysis.

It can be concluded that, Regards Engineering Co., Ltd HSE management practices have systematic and well-organized procedures and standard operating system. Company provided sufficient training program to employees and employees are satisfy with HSE management practices. Company HSE management practices change employees' attitude towards safe working environment and safety mindset. Therefore, employee attitude to HSE management practices is positively related on employee commitment to HSE management practices.

CHAPTER 5

CONCLUSION

This chapter is conclusion for the research and summarize the findings and discussion of employee perception on HSE management practices, effect of HSE management practices to employee attitude and effect of employee attitude on employee commitment towards HSE management practices of Regards Engineering Co., Ltd. After that, making suggestion and recommendation for the research and identify the needs for further research.

5.1 Findings and Discussions

It is found that, Regards Engineering Co., Ltd has prepared and well organized the HSE management system and training program to employees. Based on the demographic profile data, majority of respondents are male respondents and it can be concluded that males are more favorable in oil and gas operations. Majority of workforces are age between middle age and it can be concluded that the working environment is preferable on middle age group. Based on respondents list, highest percentage of respondents are at high school level follow by degree holder level which is second largest respondent level and found that Regards Engineering business nature is highly depend on skilled personal than well-educated staff.

The study of employee perception on HSE management system found that overall result is more than average level and employees are well understanding about the HSE policy and objectives, task risk assessment procedures, standard operating procedures and emergency response procedures. The survey was done under two categories for HSE management practices, HSE management system and HSE training at work place.

Under HSE management system, it is found that Regards Engineering HSE management system is systematically established compliance with international HSE organizations requirement. It is found that Regards Engineering HSE management system was adopted according to local authority and international oil and gas operator’s requirement. Regards Engineering has established the smoking policy, drug and alcohol policy, corruption and bribery policy, and waste management policy.

Policies are clearly identified and employees are strictly following the policies. Regards Engineering has very good waste management system and observed that waste segregation practice was control by waste management procedure. The wastes are segregate into hazardous and non-hazardous waste and observed that wastes are disposed to Yangon City Development Committee waste management department and third-party waste management organization. It was discovered that HSE objectives are setting for annually and everyone in Regards Engineering Co., Ltd fully aware of HSE objectives and target goals.

\The study observed that safety warning sign, escape route identifications, mandatory signs are properly posted at concerning areas. The risk assessment procedures are well organized and clearly identify and found that employees are able to identify the potential risk at pre-job meeting. Refer to regression table, it was discovered that task risk assessment procedure has negative relation with employee attitude. Non-routine and complex operations are strictly controlled by standard operation procedures and observed that standard operating procedures are continuously review and make amendment whenever required.

Regards Engineering management team has strictly controlled all standard operating procedures and it was found that standard operating procedures are not valid without management approval. Regards Engineering has established emergency response procedures for all potential emergency situations. It was discovered that Regards Engineering fire emergency response preparedness is excellent with firefighting equipment, fire alarm system, and emergency mustering points. Routine emergency drill exercises were done every alternative week and it was found that employee's response was effective and efficient.

The study found that Regards Engineering Co., Ltd has conducted well organized HSE training program for new and old employees. HSE orientation training is mandatory for every employee and observed that every employee must completed in house HSE training before commencing any activities. It was found that some training programs were conducted by third party organizations and HSE department from client organizations.

5.2 Suggestion and Recommendation

The study has listed the findings and has stated the employee attitude and commitment towards the HSE management practices of Regards Engineering Co., Ltd. Referring to the numbers of employee lists, the HSE department has appointed two managerial level employees and four non-managerial level employees. According to the nature of operations, Regards Engineering should reinforce more safety personnel, in order to maintain good HSE management practices. The HSE department should recruit at least one more managerial level employee and two more non-managerial level employees. Some employees who are assigned for project supervision level should have attended safety supervisor course from a third-party training organization.

The study found that employee attitude on Regards Engineering HSE management system is positively high. Hard copies of policies are available at work places, in order to reduce paper usage and protect the environment, Regards Engineering should provide HSE management system mobile application which can be easily reached by all employees at all time. Warning sign boards and HSE mandatory signs are adequately posted at all relevant areas, but all faded signs should be replaced immediately.

Regards Engineering waste management system is well established and employee attitude on waste management system found positively high and employees committed best practices on waste disposal method. However, some waste bins should be provided with more secure lids. Regards Engineering has provided necessary training program to all employees; however, some training programs should standardize on their own format. Work Permit Training is provided by the client HSE department based on their HSE requirement. Regards Engineering should set up their own work permit training program which comply with client HSE requirement. Firefighting training program is adequately provided but Regards Engineering should install more fire alarm equipment such as smoke detectors at the canteen area.

In summary, the study found that employee perception on HSE management practices is positively high. The high level of employee attitude on HSE management practices lead to strong commitment on HSE management practices.

5.3 Needs for Further Research

This study covers only Health, Safety and Environmental Management practices of Regards Engineering Co., Ltd. The study only looks into specific local oil and gas engineering service company HSE management practices. Other related HSE management practices should be studied in different industries such as construction industry and manufacturing industry. This study was only focus on HSE management practices of company and effect of management practices on employee attitude and commitment. If possible, should observe on human resource management system related to HSE management practices. Furthermore, other related areas such as sustainable development and security should be observed. HSE management practices should make bench mark observation on other well-known international oil and gas organizations.

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APPENDIX A

Employee Attitude and Commitment Survey Questionnaires on Health Safety and Environment Practices of Regards Engineering Co., Ltd

Part A: Personal Information

This questionnaire is only for purpose of MBA thesis fulfillment. Thank you for your participating and valuable time. Please complete all questions.

1. Gender
   - ☐ Male
   - ☐ Female

2. Age
   - ☐ 20 – 29 Years
   - ☐ 30 – 39 Years
   - ☐ 40 – 49 Years
   - ☐ Above 49 Years

3. Educational Qualifications
   - ☐ Vocational Certificates
   - ☐ Secondary School
   - ☐ High School
   - ☐ Diploma
   - ☐ Degree
   - ☐ Post Graduate

4. Length of Service
   - ☐ Less than 1 Year
   - ☐ 1 – 5 Years
   - ☐ 6 – 10 Years
   - ☐ Above 10 Years

5. Job Level
   - ☐ Management
   - ☐ Office Staff
   - ☐ Engineer
   - ☐ Foreman
   - ☐ Supervisor
   - ☐ Technician
   - ☐ Skill Worker
   - ☐ General Worker

Please select the only one number on the right side of each statement.
Please state the level of acceptability on the following statement by providing the most relevant number.

1= Strongly Disagree 2= Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Employees' Perception on Health Safety and Environment (HSE) Management Practices

No	Particulars	1	2	3	4	5
HSE Policy and Objectives						
1	HSE policy and objectives are available at work place.					
2	Company HSE policy is clearly defined and explained.					
3	I am clearly understand the HSE policy and objectives.					
4	HSE objectives are clearly defined and setting goal are achievable.					
Task Risk Assessment (TRA) Procedure						
5	Task risk assessment procedure are clearly define and trained.					
6	Every task concerning person must involve in TRA meeting.					
7	I understand and able to identify potential risk of my task.					
8	Every potential hazards and risks must identify, control and eliminate before start work.					
Standard Operating Procedure (SOP)						
9	Standard operating procedures are available for each job.					
10	Standard operating procedures are systematically compiled by well experienced team and approved by management team.					
11	We read the standard operating procedure and ensure we understand each steps of procedure prior to start work.					
12	Standard operating procedure are regularly review and updated.					

Emergency Response Procedure						
13	Emergency response procedure are well prepared and available at work place.					
14	Emergency response procedures are regularly review and update.					
15	We clearly understand the type of emergencies and we know what to do exactly, in case of emergency situations.					
Working Environment Safety and Training						
16	HSE training programme has well established and effectively implemented.					
17	Basic safety induction training is provided effectively.					
18	Safety warning signs, mandatory signs and prohibition signs are posted at all working area.					
19	Office, workshop and all working area are equipped with adequate lighting and ventilation facilities.					
20	Machines and tools are safe to operate with adequate guards and protection system.					
21	Emergency escape ways and exits are clearly identify and free from obstacles.					
22	Offices and working area are facilitate with clean and hygienic toilets in sufficient amount.					
PPE Training						
23	Personal Protective Equipment (PPE) training material and trainings are provided effectively.					
24	Task related personal protective equipment (PPE) are provided accordingly.					
25	PPE provided are complied with job safety requirement.					
26	All PPE used are regularly maintained in clean condition and ready to be used.					
Fire Safety Training						
27	Basic firefighting training is well organized with sufficient training material.					
28	Adequate firefighting equipment and facilities are available at work site.					
29	Fire alarm system has installed at office and work site.					
30	Designated mustering points are clearly identify.					
Health Safety Training						
31	Basic first aid training has provided effectively.					
32	Material safety data sheets are available at work site.					
33	First aids kits are available at work site and inspected regularly.					

Employees' Attitude on Health Safety and Environment (HSE) Management Practices

No	Particulars	1	2	3	4	5
1	An organization with well-established HSE management system can protect employees from potential hazards.					
2	By following HSE policies and objectives, we feel our working environment is safe.					
3	TRA is analysis of potential hazards for everyone involved in operation.					
4	TRA is essential process, which we have to do at job planning stage.					
5	SOP are mandatory guide lines to execute the operation safely and by following SOP, it makes us feeling safe and confident.					
6	Without SOP, we cannot carry out operation effectively and efficiently.					
7	Well understanding of emergency procedures can save people lives.					
8	It is everyone responsibility to response immediately when emergency situation is occurred.					
9	It is mandatory for every employee to attend HSE training and it makes us feeling safe to execute the job.					
10	We must pay respect and follow the warning signs accordingly.					
11	In order to maintain safe working area it is our responsibility to keep our working environment clean and tidy.					
12	All machines and tools are need to inspect regularly.					
13	We understand the type of proper PPE and we are willing to wear proper PPE for our safety.					
14	We must check and ensure our PPE are free from any defects.					
15	Basic firefighting training is compulsory to attend for everyone and it make us confident to put out fire.					
16	With adequate amount of firefighting equipment and facilities we feel safe at working area.					

Employees' Commitment on Health Safety and Environment (HSE) Management Practices

No	Particulars	1	2	3	4	5
1	I always strictly follow company HSE policy.					
2	I am responsible to report any anomaly, which will negatively affect HSE objectives.					
3	I am responsible to raise any potential risks related to my task.					
4	It is my responsible to read TRA carefully, prior to start work.					
5	I must learn and understand the related standard operating procedure prior to commence job.					
6	I am responsible to strictly follow all steps of operating procedure.					
7	I must strictly follow emergency response procedure; in case of emergency situation occur in work place.					
8	I am fully responsible to raise alarm if I found any emergency situations. I am responsible to follow all mandatory signs, warning signs and prohibition signs at working place.					
9	I am responsible to maintained tools and machine with safe work practice manners.					
10	I am responsible to use proper PPE for specific assigned jobs. I am responsible to eliminate all potential fire hazards.					
11	I must not start any work without proper valid work permit. I am responsible to strictly follow all instructions stated in standard operating procedure.					
12	I have responsible to assist any injury case before medical professionals arrive.					
13	I am responsible to report any type of medical treatment case, even small cut occurred.					
14	We must check and ensure our PPE are free from any defects.					
15	Basic firefighting training is compulsory to attend for everyone and it make us confident to put out fire.					
16	With adequate amount of firefighting equipment and facilities we feel safe at working area.					

APPENDIX B

Effect of HSE Management System on Employees Attitude

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					R Square Change	F Change	
1	.793[a]	.629	.614	.20545	.629	42.748	1.833

a. Predictors: (Constant), mean value of Perception on Emergency Response Procedure, mean value of Perception on TRA Procedure, mean value of Perception on HSE Procedure & Objectives, mean value of Perception on SO Procedure

b. Dependent Variable: overall mean value of Attitude on HSE Management Practices.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.218	4	1.804	42.748	.000[b]
	Residual	4.263	101	.042		
	Total	11.481	105			

a. Dependent Variable: overall mean value of Attitude on HSE Management Practices

b. Predictors: (Constant), mean value of Perception on Emergency Response Procedure, mean value of Perception on TRA Procedure, mean value of Perception on HSE Procedure & Objectives, mean value of Perception on Standard Operating Procedure.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.326	.260		5.102	.000		
	HSE Procedure	.292	.062	.387	4.688	.000	.539	1.857
	TRA Procedure	-.015	.064	-.018	-.238	.812	.632	1.581
	SO Procedure	.212	.058	.302	3.626	.000	.532	1.881
	ER Procedure	.205	.058	.268	3.553	.001	.648	1.542

a. Dependent Variable: overall mean value of Attitude on HSE Management Practices

Effect of HSE Training Program on Employees Attitude

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					R Square Change	F Change	
1	.737[a]	.543	.525	.22785	.543	30.037	1.736

a. Predictors: (Constant), mean value of Perception on PPE Training, mean value of Perception on Working Environment Safety Training, mean value of Perception on Fire Safety Training, mean value of Perception on Health Safety Training

b. Dependent Variable: overall mean value of Attitude on HSE Management Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.238	4	1.559	30.037	.000[b]
	Residual	5.243	101	.052		
	Total	11.481	105			

a. Dependent Variable: overall mean value of Attitude on HSE Management Practices

b. Predictors: (Constant), mean value of Perception on PPE Training, mean value of Perception on Working Environment Safety Training, mean value of Perception on Fire Safety Training, mean value of Perception on Health Safety Training

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.393	.308		4.529	.000		
Working Environment Safety Training	.157	.080	.178	1.957	.053	.549	1.821
Health Safety Training	.121	.059	.185	2.029	.045	.547	1.829
Fire Safety Training	.078	.069	.092	1.131	.261	.677	1.477
PPE Training	.328	.060	.466	5.487	.000	.627	1.595

a. Dependent Variable: overall mean value of Attitude on HSE Management Practices

Effect of Employee Attitude on Employee Commitment

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					R Square Change	F Change	
1	.764[a]	.584	.580	.22931	.584	145.786	1.512

a. Predictors: (Constant), overall mean value of Attitude on HSE Management Practices
b. Dependent Variable: overall mean value of Commitment on HSE Management Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.666	1	7.666	145.786	.000[b]
	Residual	5.468	104	.053		
	Total	13.134	105			

a. Dependent Variable: overall mean value of Commitment on HSE Management Practice
b. Predictors: (Constant), overall mean value of Attitude on HSE Management Practices

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.801	.295		2.713	.008		
	Attitude on HSE Management Practices	.817	.068	.764	12.074	.000	1.000	1.000

a. Dependent Variable: overall mean value of Commitment on HSE Management Practices