Workshop And Certification Of Oil And Gas Occupational Safety And Health Operators As An Implementation Of Safety Culture Among High School Students In Dumai City

Budi Sulistiyo Nugroho[1*], Farid Alfalaki Hamid[2], Annasit[3], Agus Setiyono[4], Susilo Handoko[5], Erdila Indriani[6], Astrie Kusuma Dewi[7], Hanifa Akrom[8], Sri Wahyu Warningsih[9], Diah Sekarwati[10]

[1,2,3,4,5,6,7] Refinery Engineering Study Program, Polytechnic of Energy and Minerals Ministry of Energy and Mineral Resources, Cepu, Blora, Central Java 58315, Indonesia.
[8] Integrated Terminal Manager Dumai, S&D North Sumatra Region PT Pertamina Patra Niaga, Dumai, Riau 28826, Indonesia.
[9,10] Vocational High School (SMK) 5 Dumai Ministry of Education and Culture, West Dumai, Riau 28826, Indonesia
* Corresponding Author:
Email: nbudi.nugroho@gmail.com

Abstract.

Oil and Gas Occupational Safety and Health (OSH) has strict requirements in its application to support the safety of workers, including standardisation of equipment, personnel, general oil and gas installation policies and work procedures so that oil and gas agencies or companies can operate reliably and safely. A small mistake or negligence is a failure to comply with safety requirements, which can be fatal and cause severe disasters to the company and the surrounding community. The main factor of work accidents that often occur is human or worker negligence or carelessness due to lack of knowledge. Dumai City became a 'pearl' on the East Coast of Sumatra and earned the nickname 'Oil City' which produces various raw materials such as petroleum, natural gas, palm oil, and coconut oil; knowledge of OSH behaviour should be instilled from childhood so that the Workshop and Certification of Oil and Gas OSH Operators to SMA / K Students as the First Step in Implementing OHS Culture in the Dumai City School Environment to equip people with knowledge and expertise in the field of Oil and Gas OSH. Prevent work accidents and support and improve the K3 culture. The workshop was held from 1 to 5 March 2024, while the Oil and Gas OSH Certification exam for operator level was in collaboration with LSP PPSDM Migas for the STTK exam on 27-28 August 2024. Fifty participants attended the certification, and 31 participants were declared competent.

Keywords: *Oil and Gas Occupational Safety, Dumai, Behaviour and Culture.*

I. INTRODUCTION

Occupational safety and health (OSH) is a critical component of petroleum and natural gas sector, from exploration to production, processing, distribution, and transportation. In its production, processing, and transportation processes, occupational safety and health (OSH) is a critical component of the petroleum and natural gas sector , exposed to significant potential hazards, including the risk of occupational accidents and fires. Strict oil and gas OSH requirements are implemented to support the safety of workers, including general guidelines for the balance of oil and gas installations, equipment and human resources, and work procedures so that oil and gas agencies or companies can operate reliably and safely. The history of oil and gas accidents teaches lessons throughout the industry. A small mistake or lack of safety precautions can cause serious injuries, lead to severe disasters and impact the company and the surrounding community. Faced with this reality, the government, businesses, and industries must work with formal and informal training institutions to develop national standards of excellence, particularly within petroleum and natural gas sector .Production, processing and transport activities within petroleum and natural gas sector have a high risk of loss, including the risk of work accidents and fires. Based on statistical data on work accidents in the upstream and downstream sectors in 2016-2021 shows that these risks are not negligible. To manage oil and gas wealth professionally requires competent and reliable human resources.

(Kementerian ESDM RI, 2017) The importance of qualified and skilled human resources within the petroleum and natural gas sector is fundamental, especially considering the challenges of the era of competition and free trade faced by the Indonesian nation. Standardisation and competency certification are vital to improving human resources' quality, ensuring work safety and security and meeting national standards, especially within the petroleum and natural gas sector . (Direktorat Jenderal Migas, 2021).

Therefore, occupational safety and health are always a top priority in the company's activities, with the hope that no incidents or accidents occur during the implementation of process activities. The main factor that often happens in work accidents is the negligence or carelessness of humans or workers due to their lack of knowledge.Occupational safety and health (OSH) has now become commonplace and attracted the attention of many people. Not only large companies today are required to implement OSH, but educational institutions such as academic institutions, schools and universities also need to implement OSH. This OSH workshop aims to educate school members about hazards dan,gers, and injuries that can occur during school activities. The purpose of OSH in the school environment is to improve students' ability to prevent and overcome accidents or diseases. Implementing the improvement will be influenced by a sound OSH system and students' attention to learning, safety, and a healthy and clean school environment. Schools' occupational safety and health (OSH) management system must be well planned to be fully implemented. OSH culture is one of the company's core values because safety comes first.The city of Dumai is a ‘pearl’ on the East Coast of Sumatra. It is nicknamed the ‘Oil City’ because it produces many raw materials, including natural gas, palm oil, coconut oil and petroleum.

Dumai is located directly across the Strait of Malacca, Asia's most in-demand and economically valuable ‘motorway’. The exact position places Dumai City as the closest port city to Malaysia and Singapore, after Batam. Dumai City has a vision: ‘The realisation of Dumai as a Superior Port and Industrial City based on Malay Culture’. Moreover, Dumai is known as an Industrial City; this is indicated by the many industrial accidents that have occurred recently both inside and outside the workplace in Dumai City, especially accidents that cause illness, moral and material losses, and environmental pollution that affect workers, employers and the business world.The momentum of this OSH workshop is very appropriate and strategic. All groups can be encouraged to participate in OSH plantations in Indonesia. Therefore, the researcher would like to conduct an oil and gas OSH workshop and certification for high school students as the initial stage of using OSH methods in the Dumai City school environment to complement the knowledge and expertise of the community in the oil and gas OSH field. Knowledge of OHS behaviour should be instilled since childhood because it can prevent work accidents, foster an OSH culture, and increase a sense of occupational safety and health (OSH). This work is very useful to enrich the experience and knowledge of the phenomenon of HSE, especially those close to our environment, as a way to increase the knowledge and understanding of Dumai city students and instil in them the importance of HSE characteristics to make them successful. Able to be a representative to spread change in the family, school, and community and benefit society. Safety culture is important because an organisation's culture forms the basis for developing future safety management strategies. Awareness is a function of safety culture and is important in achieving all safety activities.

II. RESULT AND DISCUSSION

2.1 Place and Time of Implementation

The implementation of community service activities for workshops and oil and gas OSH certification at the operator level for senior high school/vocational Dumai students at the SMK 5 hall in Dumai City, Riau Province, with the organiser of Polytechnic Energy and Mineral Akamigas (PEM Akamigas) in collaboration with the LSP Oil and Gas Human Resource Development Center (PPSDM Migas) for the special technical personnel certification exam (STTK). The workshop will be held from 1 to 5 March 2024, while the STTK certification exam will be held from 27 to 28 August 2024. The STTK exam is based on the Permen of ESDM No. 05 of 2015 concerning implementing the National Work Competency Standard in the Field of Oil and Gas Business Activities.

2.2 Purpose of Implementation

The objectives in conducting community service activities in Dumai City include:

- General Purpose

  We are providing understanding to the entire community, teachers and employees, as well as school security regarding knowledge and expertise within the field of Oil and Gas OSH properly and correctly

- Special Purpose
  1. A means of increasing knowledge and awareness among high school students in the city of Dumai;
  2. Being an agent of change, spreading a sense of security at home, school and community and pursuing personal benefits;
  3. Educate the school community on the risks, hazards and diseases that may arise from industrial activities;
  4. Instilling awareness of OHS cultural behaviour to prevent workplace accidents;
  5. Improve knowledge and skills in accident prevention and mitigation at school for all teachers and employees;
  6. Know the conditions and measures for accident prevention in their respective work areas;
  7. Able to secure accident prevention sites.

2.3 Objectives

The target of this workshop is a senior high school/vocational students in Dumai city with 50 workshop participants with facilitators are PEM Akamigas lecturers and special technical personnel certification (STTK) in collaboration with LSP Migas Human Resource Development Centre (PPSDM Migas).

2.4 Implementation Method

For three days, they implemented the OSH Oil and Gas workshop at the operator level for 50 high school students in Dumai city based on SP3 No. 005/SP3/Pengabdian/DIPA2024/PEM Akamigas. Four lecturers from the Refinery Engineering Study Programme and three student representatives from the Oil and Gas Processing Engineering Study Programme of Polytechnic of Energy and Mineral Resources Akamigas (PEM Akamigas). Four lecturers from Polytechnic Energy and Mineral Akamigas Lecturers were responsible for delivering workshop materials, which included theory for 2 days and practice for 1 day. The workshop material is based on Permen of ESDM No. 05 of 2015 regarding the implementation of the National Work Competency Standards in the field of oil and gas business activities, and the Decree of the Minister of Manpower No. 118 of 2024 concerning the Determination of the Indonesian National Work Competency Standards for the Mining and Quarrying Category of the Main Group of Mining Support Services Activities in the Field of Occupational Safety and Health in the Petroleum and natural gas sector .

The workshop material, according to the competency unit, there are nine competencies the petroleum and natural gas sector , including (1) OSH rules, (2) Application of OSH workplace, (3) Use of personal protective equipment (PPE), (4) Fire fighting, (5) The role of firefighters, (6) the use of self-contained breathing apparatus (SCBA), (7) the role of gas testing equipment, (8) the role of the use of sound level meters (9) First Aid to Victims of Work Accidents. After completing the training and passing, all 50 high school students in Dumai City registered to take the Oil and Gas OHS operator certification exam through the PPSDM Migas portal.High school students who pass the Oil and Gas OSH operator certification exam will receive an official certificate as proof of recognition of the participant's competence in carrying out their petroleum and natural gas sector duties by complying with Occupational Safety and Health standards. Participants can proceed to the next steps in their careers. The Oil and Gas OSH Operator Certificate is valid for 3 years and can be extended by retaking the exam. The process includes well-coordinated steps to ensure the training and certification are efficient and effective for all students involved.

2.5 Discussion

The implementation of the Oil and Gas OSH workshop at the operator level for 50 high school students from 1 to 5 March 2024 in the hall of SMK 5 Dumai, as shown in Figure 1. This training activity explained the nine Oil and Gas OHS competencies at the operator level by Permen ESDM No. 05 of 2015 and Decree of the Minister of Manpower SKKNI No. 118 of 2024. This training activity also provides opportunities for questions and discussions with resource persons and the community. Senior high school/vocational students as participants in the OSH Oil and Gas workshop at the operator level were very serious based on the number of participants who asked questions and the enthusiasm of the results of the discussion of senior high school/vocational students to carry out the planned programme.

Fig 1. Implementation of Oil and Gas OSH Workshop at Operator Level in Dumai

Fig 2. Seriousness of Oil and Gas OHS Workshop Participants at Operator Level

The workshop was conducted using a lecture approach with a whiteboard and markers to present the material visually and facilitate discussion, while the LCD Projector was for visual presentation and presentation of material more interactively, as shown in Figure 3. Practice with props like sound level meters, multi-gas detectors and self-contained breathing apparatus (SCBA), as shown in Figure 4. The equipment received loan assistance from the Integrated Terminal Manager Supply & Demand PT Pertamina Patra Niaga Dumai. High school students practised using self-contained breathing apparatus (SCBA) props, as shown in Figure 5.

Fig 3. Exposure with the Use of Learning Aids

Fig 4. Use of the SCBA Props

Fig 5. Participation of High School Students Using SCBA Props

2.6 Certification Results

The certification exam for special technical personnel (STTK) of high school students as participants in the Oil and Gas OSH workshop at the operator level for 50 people on 27 to 28 August 2024 at the Hall of the Mayor of Dumai City. LSP assessors from the Oil and Gas Human Resources Development Centre (PPSDM Migas) numbered three people, as shown in Figure 6. The atmosphere of the special technical personnel certification exam (STTK) is shown in Figure 7. The announcement of the special technical personnel certification exam (STTK) results can be downloaded on the website https://portal.ppsdmmigas.id/sertifikasi/pengumuman. 31 out of 50 high school students took the STTK certification exam and were declared competent. Pass participants will receive a certificate of competence in Oil and Gas Occupational Safety and Health (OSH Oil and Gas)

Fig 5. Participation of High School Students Using SCBA Props

Fig 6. Atmosphere of Specialized Engineering Personnel Certification Examination

2.7 Monitoring and Evaluation

It is hoped that high school students who have graduated and received certification can become agents of change and pioneers of OSH in their work environment. Monitoring the implementation of oil and gas OSH knowledge in each participant's work environment. Conduct periodic evaluations to ensure that the understanding and application of Oil and Gas OSH remains optimal. By implementing this solution, students are expected to become reliable human resources, understand potential risks, and be ready to face challenges within the petroleum and natural gas sector. That way, OSH can be maintained, and oil and gas companies can operate reliably and safely for all workers.Contribute to creating a strong safety culture and collective awareness of OSH aspects in the petroleum and natural gas sector . It is hoped that through this series of activities, the service results can positively impact participants, the work environment, and the petroleum and natural gas sector as a whole. Improved safety, health, and work quality will be a long-term investment for companies and the Indonesian nation in facing the petroleum and natural gas sector dynamics. SMA/K

students are more aware of the importance of Oil and Gas OSH in maintaining safety and health in the work environment. Increased understanding of equipment standards, general guidelines for oil and gas installations, and work procedures required for reliable operations.

III. CONCLUSION

As a result of an in-depth analysis of the challenges and needs in the petroleum and natural gas sector , as well as the implementation of the Oil and Gas Occupational Safety and Health (OSH) training programme in Dumai, several points of conclusion include:

- Safety and Health Challenges within the Petroleum and natural gas sector
  The petroleum and natural gas sector faces major potential hazards, especially in the production, processing, and transport processes, which indicate a high risk of occupational accidents and fires.
- The Importance of Qualified and Competent Human Resources
  The success of overcoming risks within the petroleum and natural gas sector depends on the qualifications and competence of the Human Resources (HR) involved. Systematic preparation and design through training and support systems are key to producing reliable human resources.
- National Standards and the Era of Global Competition
  Competency standardisation and certification play a key role in increasing the quality of human resources within the petroleum and natural gas sector. This is not only to ensure work safety and security but also to meet national standards and compete in the era of free trade.
- The Vital Role of OHS Certification from BNSP
  Occupational Safety and Health (OSH) certification issued by the National Professional Certification Agency (BNSP) is a written proof of competence and a crucial step in improving an individual's understanding of OSH.
- Contribution of OHS Training to Safety and Wellbeing
  Oil and Gas OHS training, both in theory and practice, is implemented as a crucial step to protect company assets, prevent accidents, and improve employee welfare.
  Some suggestions for further development and improvement include:
- Strengthening Stakeholder Cooperation
  Strengthen cooperation between government, business/industry and formal and informal training institutions to develop national standards of excellence, particularly within the petroleum and natural gas sector .
- Expansion of Training Coverage
  Expand the scope of oil and gas OHS training to include more students and related industry sectors to increase the number of competent human resources in this field.
- Continuous Monitoring and Evaluation
  Improve the monitoring and evaluation system for training and certification examinations to ensure the quality and effectiveness of the programme on an ongoing basis.
- Integration of OSH Materials in the Curriculum
  Integrate Oil and Gas Occupational Safety and Health material into the education curriculum to provide a deeper understanding from an early age.
- OSH Awareness Advocacy
  Conduct advocacy programmes and OHS awareness campaigns in the community and industry to increase understanding of the importance of OHS in oil and gas.

With the implementation of these suggestions, It is hoped that it would increase awareness, quality of human resources, and work safety within the petroleum and natural gas sector , This positively contributes to the industry's sustainability and the welfare of the Indonesian people..

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