

Implementation of Health, Safety, and Environment (HSE) Practices in Achieving a Zero-Accident Record at PT Perta Arun Gas (PAG)

Final assignment



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Implementation of Health, Safety, and Environment (HSE) Practices in Achieving a Zero-Accident Record at PT Perta Arun Gas (PAG)

FINAL INTERSHIP PROJECT

Prepared and submitted to fulfill the final exam requirements to obtain a Bachelor's degree at Strata-1 level in the Management Study Program, Faculty of Business and Economics, Universitas Islam Indonesia

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DECLARATION OF AUTHENTICITY

Here I declare the originality of the thesis; I have not presented anyone else's work to obtain my university degree, nor have I presented anyone else's words, ideas or expression without acknowledgment. All quotations are cited and listed in the bibliography of the thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, 30 September 2025



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APPROVAL PAGE

Implementation of Health, Safety, and Environment (HSE) Practices in Achieving a Zero-Accident Record at PT Perta Arun Gas (PAG)

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ABSTRACT

The oil and gas industry carries high operational risks, making the implementation of Health, Safety, and Environment (HSE) practices crucial. This study aims to explore the implementation of HSE practices at PT Perta Arun Gas (PAG), an LNG terminal company that has successfully achieved a zero-accident record. This research employs a qualitative approach with a case study method. Data was collected through in-depth interviews with the HRD Manager and HSE Staff, supplemented by analysis of supporting documents. The findings reveal that PAG's success is achieved through the integration of three key factors: (1) Technological innovation via the PEKA DIGI application, which facilitates real-time hazard reporting and active participation from all employees; (2) Communication as Proactive management commitment and leadership demonstrated through programs like Daily Brief, Management Walk Through (MWT), Safety Walk and Talk (SWAT) and HSE Values Socialization; and (3) The visual aspect serves as a highly effective tool for conveying constant and memorable safety messages through HSE Posters. It is concluded that PAG's zero-accident achievement is not the result of a single factor, but rather an outcome of a comprehensive and integrated HSE system where technology, leadership, and culture reinforce each other. This study recommends enhancing PEKA DIGI's predictive analytics capabilities and establishing a more structured feedback mechanism to further strengthen a sustainable safety culture.

Keywords: HSE, Occupational Safety and Health, Oil and Gas, Zero Accident, Case Study, PT Perta Arun Gas.

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CHAPTER I

INTRODUCTION

1.1 Company Profile

- **Company History:**

Perta Arun Gas, is always committed to continuing to contribute to maintaining national energy security. Holding the Trust as part of Pertamina Gas Subholding, PT Pertamina Gas Negara, and as a subsidiary of PT Pertamina Gas, PAG was established on March 18 2013, PT Perta Arun Gas in accordance with provisions No. 22 with Receiving and Regasification Terminal business activities, receiving and re-forming gas, as well as selling production and natural gas resulting from these business activities, as well as carrying out other supporting business activities that directly or indirectly support these business activities.

On October 1 2015, the entire operation of the Arun refinery was handed over from PT Arun NGL to PT Perta Arun Gas and since then the rights and responsibilities for all operational aspects of the refinery, both main and supporting, have been under PT Perta Arun Gas. In line with business development. In line with development. business to become a world class LNG Hub Company.

- **Vision and Mision:**

Company Vision: The company's vision is to become the leading company in Asia by 2035 which operates in the international standard energy business regarding operational, health, safety & security environmental aspects, for business continuity for all energy industry players, and plays an important role in efforts to reduce the rate of global warming.

Company Mission: The company's mission is to provide integrated industrial facilities and services in Asia that meet international operational and environmental safety standards, which play an important role in the business continuity of international energy business players, increasing the country's foreign exchange earnings, as well as supporting the resilience of the national energy supply chain.

- **Product or Service:**

LNG (Liquefied Natural Gas)

- LNG Regasification

As a company operating in the energy sector in the Arun Lhokseumawe SEZ (special economic zone), PAG acts as an LNG receiving terminal and LNG regasification which will become a receiving terminal for LNG needs in the Arun Lhokseumawe SEZ area. Currently PAG operates 3 Onshore Regasification Facilities with a maximum capacity of 405 MMSCFD.

- LNG GUCD

With the aim of becoming an LNG One Stop Service provider, PAG also provides gassing up and cooling down services to support all LNG operational activities required by PAG tenants.

- LNG & FUEL OIL BUNKERING

In the transition phase of using liquid fuel to EBT (new renewable energy), PAG is committed to providing all types of bunkers needed by ships, both fuel oil and LNG

- LNG HUB

To meet market needs regarding LNG storage facilities, PAG currently operates 5 LNG tanks. Currently the LNG tank is intended for national regasification needs for the Sumatra region and the LNG Hub. With a vision to become “Asia's LNG Hub leader in 2030” PAG plans to increase the number of LNG tanks starting in 2023.

- LNG ISOTANK FILLING STATION

In order to support the NET ZERO 2050 program, PAG has taken the role of managing the LNG ISO Tank filling station where ISOTank will be supplied throughout Indonesia.

Energy Support

- UTILITIES PROVIDER

Currently PAG manages the former Arun refinery facility which still has utility production excesses. PAG is ready to help and distribute utility needs to all tenants in the Arun Lhok KEK area.

- GAS PROCESSING OPS FOR K3S

With PAG's experience as a terminal operator for an LNG Production Plant, LNG Regasification Plant, Condensate Tank, LPG Production Plant for more than 40 years, PAG is ready to process untreated gas from upstream oil and gas production in the Aceh region and its surroundings.

- COLD ENERGY

To support abundant fish production in the Arun terminal area and Aceh Province as well as the utilization of cold energy originating from LNG, PAG will build the first

fish storage site in Indonesia that utilizes LNG cold energy and other supporting facilities.

Other Business

- **O&M TERMINAL FACILITY**

With PAG's experience as a terminal operator for LNG Production Plants, LNG Regasification Plants, Condensate Tanks, LPG Regasification Plants for more than 40 years, PAG is ready to operate all types of LNG plants.

- **LAND BASE LOGISTIC**

With very large land availability and status as a Bonded Logistics Center in the western region of Indonesia, PAG provides services as a warehousing service provider for all oil and gas business needs in the Arun region

- **PLANT SUPPORT FACILITIES**

With PAG's experience as a terminal operator for the LNG Production Plant, LNG Regasification Plant, Condensate Tank, LPG Regasification Plant for more than 40 years, and to maintain PAG's role as the driving force of the Arun SEZ, PAG is ready to provide the needs of all tenants in the relevant Arun SEZ area Laboratory services and so on.

- **TRAINING CONSULTING**

With PAG's experience as a terminal operator for LNG Production Plant, LNG Regasification Plant, Condensate Tank, LPG Regasification Plant for more than 40 years, PAG is ready to provide training and become a consultant regarding all types of LNG plants.

- **Organization Structure:** PT. Perta Arun Gas is a company that has a very mature organizational structure from all aspects of work, with many departments within it, namely, HRD, Procurement, HSE & QM, Operation, Maintenance, Finance, Technical, Business Development and others.
- **Additional Information:**
 - Number of employees: PT. Perta Arun Gas has more than 800 employees
 - Office location: Head Office located in Patra Jasa Building, 1st Floor, JL. Jendral Gatot Subroto, South Jakarta, while the Plant Site is on Jalan Medan – Banda Aceh, Blang Lancang, Muara Satu District, Lhokseumawe, Aceh.

important achievement:

- Oil and Gas Safety Award 2018 & Socialization of Oil and Gas Safety Online Application Socialization Patra Nirbaya Madya for 10,038,568 safe working hours.
- Award certificate from the Ministry of Finance Republic of Indonesia, General Directorate of Taxation, DJP South Jakarta I Regional Office for major contribution in KPP Pratama Jakarta Setiabudi Empat tax revenues on September 27 on 2017.
- Pertamina Environment Regulation Compliance Assurance (Perca) Award Blue Rating, the awarding of Corporate HSSE Certificate Award, PT Pertamina (Persero) awarded “Pertamina Environment Regulation Compliance Assurance (Perca)” 2018 Blue Rating for PT Perta Arun Gas on December 20, 2018.

1.2 Background

The oil and gas industry operates in a high-risk environment characterized by toxic gas exposure, high-pressure systems, flammable materials, and confined spaces. In this context, Occupational Safety and Health (OHS) serves as a critical framework for protecting workers through systematic hazard identification, risk assessment, and control measures. Research demonstrates that implementing robust OHS strategies, particularly those aligned with international standards such as Occupational Health and Safety Management Systems (OHSMS) and Process Safety Management, significantly reduces accident rates and enhances worker health outcomes (Mexiwel, Wardana, & Zulfikar, 2025; Wardana, Mexiwel, & Zulfikar, 2025). Consequently, OHS is not merely a regulatory requirement but an essential operational strategy for achieving sustainable and safe production.

Despite these recognized standards, major accidents continue to occur in the Indonesian oil and gas sector. For instance, in February 2023, three subcontractor workers at Pertamina Hulu Rokan (PHR) died after falling into a waste container while working without proper Personal Protective Equipment (PPE) in a confined space. This incident, declared an OHS violation by local authorities, was compounded by inadequate emergency response procedures when colleagues attempted rescue without proper protocols (Gunawan, 2023). Similarly, the Pertamina Plumpang fuel depot explosion in March 2023 resulted in 33 fatalities and dozens of injuries, exposing weaknesses in risk management and emergency mitigation in downstream facilities (Febrianna, 2023). These tragedies highlight persistent challenges in effectively implementing safety systems across the industry.

Against this backdrop of recurring safety failures, PT Perta Arun Gas (PAG) presents a compelling case for investigation. As a strategic LNG receiving terminal and regasification facility in Aceh with ambitions to become Asia's LNG Hub Leader by 2030, PAG manages substantial operational risks through its regasification units and extensive storage capacity. Remarkably, the company has maintained a zero-accident record with no recorded workplace fatalities or major environmental incidents to date. This outstanding safety performance distinguishes PAG from industry peers and suggests the potential existence of exemplary HSE practices worthy of detailed examination.

The contrast between PAG's safety record and the broader pattern of accidents in Indonesia's oil and gas sector establishes a clear research gap. While numerous studies have documented safety failures, limited attention has been given to organizations that have successfully prevented accidents in high-risk environments. Understanding how PAG implements its HSE practices particularly the mechanisms, routines, and innovations that contribute to its perfect safety record can provide valuable insights for developing industry best practices. This study therefore addresses the central question: How is the implementation of Health, Safety, and Environment (HSE) practices at PT Perta Arun Gas (PAG) carried out to achieve a zero-accident record?

1.3 Research Question

How is the implementation of Health, Safety, and Environment (HSE) practices at PT Perta Arun Gas (PAG) carried out to achieve a zero-accident record?

1.4 Research Purpose

The aim of this research is expected to provide benefits for PT. Perta Arun Gas in increasing or making employees aware that HSE is everyone's business and everyone must be aware and know that HSE is very important. It is hoped that the research results can be used by companies to provide reminders to employees about the importance of HSE at work.

Specifically, the objectives of this research are:

- Provide good recommendations about how important HSE is in work.
- Identify effective ways to remind workers about the importance of HSE.

1.5 Research Benefit

There were benefits obtained by various parties during the research as follows:

A. For the Students

1. Knowing the application of theory that can be in class and its relevance applied in the world of work
2. As a comparative study between theory and practice obtained by students in lectures with actual reality in the field (world of work)
3. Know and feel what professional attitudes are needed in the world of work.

B. For Oil and Gas Company

Other companies may conduct benchmarking studies with PAG to gain insights into its Health, Safety, and Environment (HSE) implementation strategies, with the objective of replicating its success in achieving a zero-accident workplace.

CHAPTER II

LITERATURE REVIEW

2.1 Oil and Gas Industry in Indonesia

The oil and gas industry are one of the most strategic sectors supporting Indonesia's national economy. As a country rich in natural resources, Indonesia has long depended on the energy sector particularly oil and gas as a major source of state revenue. Activities ranging from exploration, production, transportation, to distribution of oil and gas play a significant role in sustaining national energy security and industrial productivity (Kementerian ESDM, 2023). Historically, the development of Indonesia's oil and gas industry began in the early 20th century with the discovery of oil and gas reserves in Sumatra and Kalimantan. At one point, Indonesia was a member of the Organization of the Petroleum Exporting Countries (OPEC), reflecting its prominent role in the global oil market. However, since the early 2000s, the country has faced a steady decline in oil production while national energy consumption has increased sharply, resulting in Indonesia becoming a net oil importer (SKK Migas, 2022).

Currently, Indonesia's oil and gas sector faces multiple challenges, including declining reserves, regulatory uncertainty, global energy transition pressures, and high operational risks. In this context, the implementation of Health, Safety, and Environment (HSE) principles is essential to ensure that operations prioritize human safety, environmental sustainability, and long-term productivity. The International Association of Oil & Gas Producers (IOGP, 2021) emphasizes that HSE is designed to prevent workplace accidents, occupational diseases, and environmental damage through systematic hazard identification, risk control, and emergency preparedness. In high-risk industries such as oil and gas, inadequate safety management can lead to severe incidents such as explosions, fires, oil spills, or gas leaks, resulting in significant losses for both workers and the environment.

2.2 The Implementation of Health, Safety, and Environment (HSE) in the Oil and Gas Industry especially in PAG

Health, Safety, and Environment (HSE) refers to an integrated management system and a set of policies aimed at ensuring that all operational activities in the oil and gas sector ranging from exploration and production to distribution and processing are conducted safely, healthily, and with minimal environmental impact (George, 1998, Hellyanti, 2009). In the modern industrial context, HSE has evolved into a strategic pillar not only to comply with regulations but also to sustain business performance, reputation, and long-term operational integrity (Reason, 2016).

In the oil and gas sector, companies such as PT. Perta Arun Gas (PAG) implement various initiatives to strengthen HSE awareness and practice. For example, PAG conducts HSE promotions and regular safety inductions during management meetings to refresh employee knowledge (Pertamina, 2024). The company also integrates safety culture into daily routines through leadership involvement, where directors directly observe on-site operational safety practices. This top-down engagement helps institutionalize HSE as a core organizational value rather than a mere procedural obligation (Cooper, 2000; Antara News, 2024). PAG has set ambitious safety targets zero fatalities and zero lost time injuries as tangible proof of its commitment to rigorous and sustainable HSE standards (Pertamina, 2024).

In addition to conventional safety management systems, the global oil and gas industry is increasingly adopting digital safety management approaches that integrate technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and digital twins to monitor hazards and predict safety risks in real time (Agusdei, Colucci, & Limongelli,

2021; Al-Ahmari et al., 2022). These systems enhance HSE performance by enabling data-driven decision-making and continuous improvement. For instance, digital dashboards can track near-miss incidents and environmental parameters, allowing for rapid interventions and reducing the likelihood of major accidents (Manca & Brambilla, 2020). While PAG has not yet fully integrated a digital twin-based HSE system, the growing global shift toward digitalized safety platforms provides a relevant framework for its future development.

To foster a strong safety culture, companies must balance technological advancement with behavioral and organizational strategies. According to Cooper (2000), safety culture represents the shared values, beliefs, and practices that shape safety behavior across an organization, while Reason's (2016) model emphasizes the importance of creating a "just culture" where employees can report safety issues without fear of punishment. PAG's initiatives such as Safety Stand Down activities, OHS training with PPSDM Migas, and public health campaigns align with these frameworks by promoting proactive engagement and continuous learning (BPSDM ESDM, 2021; PertaArunGas.Pertamina.com, 2023).

In 2023, PAG participated in the National OHS Month with the theme "Strengthening HSSE Culture and Asset Integrity", successfully recording 21,531,648 safe working hours without incidents (PertaArunGas.Pertamina.com, 2023). As external recognition of its achievements, PAG received the 2024 Occupational Safety and Health Award from the Aceh Provincial Department of Manpower (Pertamina, 2024). Additionally, during the COVID-19 pandemic, the company earned the 2021 COVID-19 Prevention Program Award from the Ministry of Manpower for its consistent implementation of the 5M health protocols (Pertamina, 2021). These milestones illustrate how an integrated HSE system supported by leadership, workforce participation, and emerging digital tools can build a resilient and sustainable safety culture in the oil and gas industry.

THEORETICAL FRAMEWORK



CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Approach

This study employs a qualitative case study approach, which is considered appropriate to explore employees' awareness and perceptions of Health, Safety, and Environment (HSE) at PT Perta Arun Gas (PAG). The qualitative method was chosen to obtain an in-depth understanding of the meanings, perspectives, and subjective experiences of employees concerning the importance of HSE in their daily work.

According to Creswell (2014), qualitative research is suitable when the aim is to explore a complex social or human phenomenon that has not yet been clearly understood. This approach allows researchers to interpret subjective realities and uncover participants' lived experiences. Similarly, Denzin and Lincoln (2011) emphasize that qualitative research uses an interpretive and naturalistic approach, meaning that researchers study phenomena in their natural settings and seek to understand the meanings people attach to them.

The use of a case study approach aligns with the objectives of this research to gain insights into how HSE awareness can be strengthened as a shared responsibility among all employees. Following Yin (2018), a case study is appropriate when researchers intend to investigate a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly defined.

This research focuses on PT Perta Arun Gas (PAG), an oil and gas company that has successfully achieved a zero-accident safety record a remarkable milestone in a high-risk industry (International Labour Organization, 2015). Through this case, the researcher seeks to understand the organizational, managerial, and behavioral factors that contributed to this achievement, including HSE management systems, leadership commitment, employee engagement, and technological innovation (Geller, 2001). The insights from this study are expected to serve as a benchmark for other companies seeking to strengthen their safety culture (Stake, 1995).

3.2 Unit of Analysis

The unit of analysis in this research is the organization PT Perta Arun Gas (PAG). The rationale for selecting the company as the unit of analysis lies in the fact that the achievement of a zero-accident record is the result of collective organizational effort, rather than individual actions. Management, HSE staff, and employees at all levels are interdependent in creating and maintaining a culture of safety through compliance, active participation, and reporting of unsafe acts or conditions. Thus, the organization as a whole represents the appropriate level of analysis to capture the integrated nature of HSE implementation.

3.3 Data Collection

The data were collected through in-depth interviews with two key informants from PT Perta Arun Gas:

1. HRD Manager, with 18 years of experience, representing the strategic and policy-making perspective in HSE implementation.
2. HSE Staff, with 8 years of experience, representing the technical and operational perspective of HSE practices in the field.

This selection follows the purposive sampling technique commonly used in qualitative research, where participants are deliberately chosen based on their relevance, expertise, and experience related to the studied phenomenon (Palinkas et al., 2015). Although only two participants were interviewed, both hold strategic roles that are essential to understanding the phenomenon from both managerial and operational viewpoints.

The number of participants was determined using the principle of data saturation, which occurs when no new information or insights emerge from additional interviews (Guest, Bunce, & Johnson, 2006). Since both informants provided comprehensive and complementary insights, additional participants were deemed unnecessary. As Creswell (2013) emphasizes, the richness and depth of qualitative data depend more on the quality of exploration than the number of participants.

Prior to conducting the interviews, two agreements were made: (1) the interview sessions would be audio-recorded with participants' consent to ensure accuracy in

transcription, and (2) the main topic of discussion would focus on “The Role of HRD in Increasing Employee Awareness about Occupational Safety and Health.” Each interview lasted approximately one hour and thirty minutes and was conducted twice with each participant to validate and deepen the understanding of key themes.

3.4 Data Analysis

The collected qualitative data were analyzed using thematic analysis, a systematic method for identifying, organizing, and interpreting patterns of meaning (themes) within qualitative data (Braun & Clarke, 2006). The analysis followed six steps:

1. Familiarization with data: All interview recordings were transcribed verbatim and repeatedly read to grasp overall meaning and context.
2. Generating initial codes: Relevant phrases and statements were labeled to capture essential features of the data.
3. Searching for themes: Codes were grouped into broader categories representing key aspects of HSE awareness and organizational culture.
4. Reviewing themes: Themes were refined to ensure coherence and consistency with the data.
5. Defining and naming themes: Each theme was clearly described, defined, and linked to theoretical frameworks.
6. Producing the report: The final stage involved synthesizing results into a coherent narrative supported by direct quotations from the informants.

To ensure trustworthiness, this study applied four dimensions of qualitative rigor: credibility, transferability, dependability, and confirmability (Ahmed, 2024). Several validation strategies were used to reinforce these principles:

- Data triangulation, by obtaining information from two informants representing different roles (managerial and operational), reduced potential bias and improved accuracy.
- Member checking, by summarizing interview data and confirming the interpretations with participants, ensured validity (Creswell & Creswell, 2017).
- Reflexivity, maintained through a reflexive journal that documented assumptions, analytical

decisions, and reflections throughout the study (Olmos-Vega et al., 2022).

- Peer debriefing, involving discussion with an external peer to review interpretations and challenge assumptions (Spall, 1998).
- Prolonged engagement, through extended interaction with informants to gain contextual depth and build trust.

These combined strategies enhanced the credibility and rigor of the study, ensuring that the findings accurately represent the lived experiences and organizational context of PT Perta Arun Gas.

CHAPTER IV

FINDINGS AND DISCUSSIONS

4.1 Findings

In an effort to enhance the effectiveness of monitoring and reporting safe working conditions, PT Perta Arun Gas (PAG) has implemented a digital-based application called PEKA DIGI (Digital Safety Observation). This system functions as a real-time reporting platform for unsafe acts and unsafe conditions, accessible through Android devices and the web. PEKA DIGI enables every worker to report potential hazards encountered in the field, allowing the HSE team to respond more rapidly and accurately. The application replaced the manual reporting system previously used, creating a paperless, efficient, and traceable mechanism for data management and documentation.

This is reinforced by a statement from PAG's HRD Manager, who emphasized that: *...and when we conduct patrols from HSE, ultimately everyone has the right to submit what is called PEKA, namely the resource form (application). This means that whenever someone finds something unsafe, they can report it and it will then be followed up by HSE or the relevant function. So, the patrols are carried out by HSE, whereas the resource form can be reported by everyone. The more people report, the more potential hazards can be detected.*

PEKA DIGI was developed with an Agile approach using a relational database that supports data tracking and periodic trend analysis. The innovation has been recognized through awards such as the Gold Certificate at Pertamina's Continuous Improvement Program (CIP) in

October 2019 and an award at the Pertamina Upstream Forum the same year, demonstrating PAG's commitment to digital transformation in occupational safety.

The application includes several key modules:

1. Incident and Near-Miss Reporting, which records unsafe acts, unsafe conditions, and near-misses in real time;
2. HSE Inspection and Audit Checklists, which digitize field audits for greater transparency;
3. Risk Assessment (HIRA) Matrix, aiding hazard identification and risk control; and
4. Data Visualization Dashboard, enabling real-time tracking of safety KPIs and corrective actions.

Together, these features promote participation, transparency, and continuous improvement in OHS management at PAG.

PAG also conducts daily safety briefings before work begins. These briefings serve as communication platforms between supervisors and workers to discuss daily tasks, identify hazards, and emphasize compliance with safety procedures. This routine fosters a sense of shared responsibility and early risk anticipation.

Management's involvement in safety culture is further reflected through the Management Walk Through (MWT) program direct visits by management and directors to operational sites. MWT allows leadership to monitor compliance and demonstrate commitment to safety values. Similarly, the Safety Walk and Talk (SWAT) program provides an interactive space for management, supervisors, and workers to discuss workplace safety openly. Unlike MWT's supervisory nature, SWAT emphasizes dialogue and collaboration, reinforcing mutual

accountability for safety.

This is reinforced by a statement from PAG's HSE Staff, who emphasized that:

“Several routine activities are carried out from the management level up to the board of directors, such as Management Walk Through (MWT), Safety Walk and Talk (SWAT), and the socialization of HSE culture. These activities are specifically designed to ensure that all elements of the company, from top leadership to field workers, share the same level of awareness and commitment toward workplace safety.”

To strengthen safety awareness, PAG regularly conducts HSE value socialization, including training, seminars, and internal campaigns. Visual communication tools such as HSE posters are also used across work areas as constant reminders to maintain vigilance and prioritize safety.

Table 4.1 Research Findings

1.	PEKA DIGI	PEKA DIGI is application serves as a real-time reporting tool for unsafe acts and unsafe conditions.
2.	Daily Brief	The daily briefing serves as a direct communication forum between supervisors and workers to discuss daily work plans, identify potential hazards, and reinforce compliance with safety standards.

3.	MWT (Management Walk Through)	This activity is routinely conducted by management and directors through direct visits to the workplace.
4.	SWAT (Safety Walk and Talk)	An interactive activity between management, supervisors, and workers that focuses on discussions related to workplace safety conditions. Unlike MWT, which is more oriented toward supervision, SWAT emphasizes two-way communication, where workers are encouraged to actively share perspectives, experiences, and suggestions for improvement regarding HSE practices.
5.	HSE Values Socialization	This includes training sessions, seminars, and internal campaigns designed to instill awareness that health, safety, and environmental aspects are integral parts of every work activity.
6.	HSE Poster	The use of visual media such as safety posters across work areas serves as an effective reminder.

4.2 Discussion

The findings indicate that PAG has successfully integrated digitalization and participatory communication as part of its safety management transformation. The adoption of PEKA DIGI aligns with the global shift toward HSE 4.0, where digital tools enhance transparency, responsiveness, and organizational learning (Akyildiz, 2023; Adikwu et al., 2024).

Digital reporting systems like PEKA DIGI enable faster incident notifications and better trend analysis, consistent with Elliott et al. (2014), who found that electronic safety reporting improved timeliness and user satisfaction. The system also enhances traceability and accountability, addressing long-standing documentation issues in paper-based systems.

However, digitalization introduces challenges such as technological literacy and data consistency, particularly among workers unfamiliar with digital tools (Jabin et al., 2023). Nonetheless, the benefits improved responsiveness, data-driven decisions, and a participatory culture outweigh the limitations. The system embodies modern OHS principles, combining technology with inclusive participation.

The participatory approach observed in PEKA DIGI confirms prior research that employee involvement is essential in sustaining a strong safety culture (Ahmad et al., 2025). This aligns with the argument that safety culture thrives when management and employees share accountability (Rocha et al., 2024). Moreover, such initiatives embody the non-technical innovation aspect highlighted by Jilcha et al. (2016), where procedural innovations in reporting and communication significantly enhance workplace safety outcomes.

The daily safety briefing mechanism reinforces risk awareness and supports a proactive safety culture. Evidence from high-risk industries shows that structured briefings reduce accidents and enhance hazard identification (Ryan et al., 2019; Ghosh, 2014). The system ensures consistent knowledge transfer and cultivates open communication between supervisors and workers an essential factor for continuous safety improvement (Nielsen, 2013).

Meanwhile, MWT exemplifies leadership engagement in OHS. Its effectiveness stems from

management's active problem-solving rather than symbolic presence (Tucker & Singer, 2014). The Malaysian oil and gas sector study by Ajmal et al. (2022) supports this, demonstrating that direct managerial involvement reduces incidents through stronger enforcement and motivation.

The SWAT initiative further strengthens communication by fostering a two-way dialogue that builds mutual trust and responsibility. Research supports that enacted (not merely espoused) safety priorities have a stronger influence on safety reporting and compliance (Van Dyck et al., 2013). This participatory communication resonates with Rost and Alvero's (2018) view that integrating behavioral safety and participatory ergonomics enhances program effectiveness.

PAG's ongoing HSE value socialization ensures knowledge continuity and compliance. Safety education research confirms that awareness significantly influences behavioral performance (Qin & Manly, 2024; Ricci et al., 2016). Meanwhile, the use of HSE posters strengthens visual communication, with studies showing well-designed safety signs significantly improve compliance (Harianto et al., 2019) while misinterpretation can reduce effectiveness (Davoudian Talab et al., 2013).

Overall, PAG's initiatives digital innovation, structured communication, and continuous training reflect an integrated safety culture model emphasizing technology, participation, and leadership. These efforts collectively contribute to the organization's journey toward a zero-accident culture, consistent with modern HSE frameworks that promote safety as both a technological and behavioral commitment (Jasiulewicz-Kaczmarek et al., 2022).

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The implementation of HSE practices at PT Perta Arun Gas (PAG) represents a comprehensive, multi-layered, and integrated system that has been instrumental in achieving and maintaining a zero-accident record. This success is not attributable to a single factor but results from a synergistic combination of technological innovation, proactive leadership, and a deeply ingrained participatory culture.

First, the digital transformation initiated through the PEKA DIGI application has revolutionized safety management. It democratizes safety reporting by enabling all employees to participate in hazard identification in real time, fostering a sense of shared responsibility. This tool has shifted the HSE paradigm from a reactive, compliance-based function to a proactive, data-driven system focused on continuous improvement and predictive risk mitigation.

Second, the effectiveness of this technological tool is amplified by consistent and visible leadership commitment. Programs such as Management Walk Through (MWT) and Safety Walk and Talk (SWAT) are not merely ceremonial; they function as critical mechanisms through which management demonstrates an enacted priority of safety. These activities build trust, reinforce organizational safety values, and motivate employees to maintain compliance and vigilance in daily operations.

Third, PAG has successfully cultivated a robust participatory safety culture through routine

activities and continuous socialization. The daily briefings, HSE training, seminars, and strategic use of safety posters work together to keep safety at the forefront of every employee's mindset. This ongoing effort ensures that HSE principles are internalized and consistently applied in day-to-day operations, transforming knowledge into safe behavior.

In conclusion, PAG's achievement of a zero-accident record is the result of a strategic integration of digital innovation, authentic leadership engagement, and a strong participatory culture. The company serves as a compelling benchmark within the high-risk oil and gas industry, demonstrating that a fatal accident-free workplace is attainable through systematic and culturally embedded HSE practices.

5.2 Recommendation

Based on the findings of this study, several practical recommendations are proposed to further enhance the HSE performance of PT Perta Arun Gas (PAG). The company is encouraged to strengthen the PEKA DIGI application by integrating more advanced data analytics and artificial intelligence capabilities. This enhancement would allow for predictive risk identification and a more sophisticated analysis of incident trends, supporting a proactive rather than reactive approach to safety management. In addition, establishing a more structured feedback mechanism for employees who report hazards through PEKA DIGI would reinforce participation and trust, as they can see tangible follow-ups and corrective actions derived from their reports. Moreover, while the current use of HSE posters and training has proven effective, developing more task-specific visual aids and briefings for high-risk activities would help address variations in safety sign comprehension among employees. Finally, PAG should consider formalizing its successful safety initiatives into a comprehensive best-practice guide, which could serve as a model for other subsidiaries within the Pertamina Group, thus expanding the organization's positive safety culture beyond its immediate operations.

In terms of future research, this study highlights several promising directions. A longitudinal study examining the sustainability of PAG's safety culture over time would provide valuable insights into how safety practices evolve amid leadership transitions and workforce changes. Further

quantitative research could assess the specific impact of individual HSE interventions such as PEKA DIGI, Management Walk Through (MWT), and Safety Walk and Talk (SWAT) on measurable safety outcomes, allowing for better resource prioritization. Comparative studies involving other oil and gas companies could help identify universal success factors and distinguish them from those unique to PAG's context. Lastly, an extensive employee perception survey could deepen understanding of the psychological and cultural factors underpinning safety engagement, thereby contributing to both academic knowledge and practical improvement in the field of occupational safety and health.

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ATTACHMENT

Interview Transcript: The Role of HRD in Supporting HSE at PT Perta Arun Gas (PAG)

1. How do you define Occupational Health and Safety (OHS/HSE) and explain why it is important for a gas industry like PAG?

In the oil and gas industry at PAG, OHS is absolute and non-negotiable, similar to the aviation industry where accuracy and precision are paramount. In oil and gas, safety is mandatory. So, in HRD, we must work together to support the achievement of these OHS goals. We must support the principle that safety is important.

2. How is OHS upheld or implemented, and what are its indicators?

For the indicators, we must first measure that everyone has the same awareness—they must also agree that OHS is absolute and non-negotiable. Furthermore, a key indicator is the absence of accidents or incidents during work hours. What is calculated is the number of safe work hours; that is an indicator that the OHS system is still functioning well.

3. What are the main hazards faced by workers at PAG and how can OHS help minimize these risks?

So, the potential hazards at PAG include, firstly, fire because there are many flammable/explosive materials. But even in the office, there are risks of accidents like electrocution while fixing lights or AC, slipping, falling from heights, being hit by falling objects, or even exposure to toxic gas radiation. So, it's not just about the plant; hazards exist in the office too. With OHS, people are informed from the start during briefings; they become more careful. The potential for danger exists, but by knowing about it, we can anticipate/avoid it. If an accident still occurs after all precautions, it's considered fate or a misfortune. But if we have used complete Personal Protective Equipment (PPE) and obeyed the regulations, and an unwanted event still happens, then it is definitively a misfortune.

4. How do you assess the role of HRD in ensuring the effective implementation of OHS at PAG?

We in HRD measure it by conducting assessments to determine if employees understand OHS. This also includes tracking the number of violations reported to HRD for follow-up, which is another indicator. So far, there haven't been major incidents, but there are records of people smoking [in prohibited areas] or similar, which are immediately acted upon/punished.

5. Describe your experience in implementing OHS programs in the company, specifically at PAG.

From HRD, we support the HSE department by running campaigns with posters. Then, in every meeting, we have a policy to deliver a safety induction or safety briefing to refresh everyone's knowledge about OHS. Posters are also used as a visual reminder about OHS.

6. How do you ensure that all employees at PAG understand and comply with OHS regulations?

First, we provide orientation for new employees, which includes socialization. Then we run campaigns, use visual aids, and give reminders at every event, meeting, or gathering. Furthermore, there are patrols by the HSE team. Finally, everyone has the right to submit a PEKA form (a reporting application). PEKA means that if someone finds an unsafe condition, they can report it, and it will be followed up by HSE or the relevant function. So, the patrols are done by HSE, but the PEKA form can be submitted by anyone. The more people report, the more potential hazards are detected.

7. What steps would you take to enhance the OHS culture at PAG?

From HRD, we can hold mass socialization events, for example, during blood donor drives or sports events, we insert OHS refreshers. The key is continuous campaigning.

8. How would you handle a situation where an employee ignores established OHS procedures?

In principle, the company has rules. It's already regulated whether a violation is considered minor or major. We just need to implement them because the rules exist; we just apply them. Likewise, if someone submits many PEKA reports or frequently reports unsafe conditions, we give them a reward. So, we continuously provide both rewards and consequences.

9. What would you do if a work accident occurred at PAG?

The main point is we must handle the victim, regardless of the severity—whether it's an illness, permanent disability, or a fatality. There are steps for each. We also must coordinate with government institutions like BPJS Ketenagakerjaan (the social security agency), and also handle matters with the victim's family. There are step-by-step procedures. For example, in case of a fatality, we assist with the funeral; if they are sick, we assist with hospitalization and continuously monitor the situation.

10. What is your vision and mission in building a strong OHS culture at PAG?

The vision and mission are for everyone to have the mindset that HSE is everyone's business. Safety is not just HSE's responsibility; OHS is everyone's concern. The mission is to continuously increase awareness, conduct training, and provide refreshers on OHS. The training is tiered; for example, new employees get basic safety training, and after they have several years of experience, there is intermediate-level training. So, we formally organize this training.

11. How will you collaborate with other teams/functions to ensure comprehensive OHS implementation at PAG?

Our primary collaboration is with the HSE function. Then, in meetings, we communicate this to other functions so they also feel that OHS is everyone's business. It can't be that if we remind someone, they say, "Oh, that's not my department's responsibility." That's not acceptable; everyone must care about it.

12. How will you keep up with the latest developments in OHS regulations and standards?

Actually, at PAG, as a subsidiary, we receive updates from the parent company at the headquarters. They update whenever there are new government regulations. For example, during COVID, the central office had the updates. Even before the central office disseminates directives to subsidiaries, they sometimes ask for our input or suggestions. Once the policy or regulation is set, we at the subsidiary level just ensure its implementation.

13. Do you have any certifications or have you attended any specific training in the field of OHS?

I recently attended Advanced HSE Leadership training, which is among the highest mandatory training for HSE level. I have also attended incident investigation process training.

14. How will you ensure that the company's OHS program remains relevant and effective in the long term?

So, from HRD, we continue to ask for feedback or input from other functions regarding any perceived shortcomings. This doesn't have to be through formal feedback; sometimes during management meetings, if they have suggestions, we take notes to update and continuously improve the program. This also includes input from the parent company; if they provide suggestions, we revise our programs accordingly.

Interview Transcript: Perspectives on HSE at PT Perta Arun Gas (PAG)

1. How would you describe Occupational Health and Safety (HSE) and explain why it is important in the oil and gas industry like PAG?

HSE is an effort to create a healthy and safe workplace for employees, thereby controlling work risks and reducing the possibility of accidents. At PAG, HSE is a golden rule (Comply, Intervene, and Care) in every company activity, especially since the managed business carries

significant risks that impact its workers and the environment.

2. What are the main hazards faced by workers at PAG and how can HSE help minimize these risks?

The main hazards faced by workers are essentially Unsafe Conditions and Unsafe Actions. These two elements are the foundation of the risk control hierarchy used to reduce the incident pyramid.

3. How do you assess the role of management in supporting the effective implementation of HSE at PAG?

The role of PAG's management is very active. This is evident from the implementation of mandatory job identification reporting and several routine activities from the management level up to the directorate level, such as MWT (Management Walk Through), SWAT (Safety Walk And Talk), and the socialization of the HSSE Culture Aspect Survey.

4. How can you collaborate with management and related departments/functions to ensure that HSE policies are implemented consistently across the company?

This is discussed in weekly meetings such as the Site Management Meeting, Production Meeting, and the HSSE Committee Meeting, which are directly led by the company's leadership. This ensures coordination between functions runs consistently and is evaluated.

5. How do you ensure that all employees understand and comply with the applicable HSE regulations?

This is ensured through routine activities such as regular raids, routine inspections, and the mandatory reporting of job identifications, as well as collecting routine reports related to HSSE aspects.

6. How do you handle cases of HSE violations by employees and ensure the consequences are fair and educational?

PAG has a Work System regulated in the Organizational Work Guidelines concerning rewards and consequences. This system governs the giving of appreciation for employee successes and achievements, as well as violations that occur.

7. What is your opinion on the direction from management regarding HSE, is it clear?

The direction from management is clear and evaluated periodically.

8. How do you ensure that the sanctions given to employees who violate HSE regulations are fair and consistent?

The Work System regulated in the Organizational Work Guidelines concerning rewards and consequences governs the imposition of sanctions for violations according to company regulations, with levels corresponding to the severity. This work system has been reviewed and evaluated.

