

Implementation of ISO 9001:2015 and ISPS Code in Access Control Procedures at PT XYZ

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Abstract

This article summarizes an independent internship project conducted at PT XYZ during September–December 2025 within the HSSE (Health, Safety, Security, and Environment) function. The focus was evaluating the implementation of ISO 9001:2015 and the International Ship and Port Facility Security (ISPS) Code in the port facility access control procedure, especially at the main gate and restricted areas. Data were collected through on-site observation, document review of access control SOPs, inspection forms, and risk records (HIRADC), and discussions with security, HSSE, and operational personnel. The analysis applied process mapping, risk-based thinking, HIRADC, and gap analysis to compare field practices with standard requirements. Results indicate that access control is implemented through layered controls: identity and permit verification, RFID-based access restrictions, CCTV monitoring, system logging (e.g., CTOS), and routine inspections. Key risks such as unauthorized access, human error during goods checks, and night-shift fatigue are mitigated by administrative controls, supervision, and shift management. Practical issues were found in reporting format differences and mismatches between field conditions and administrative records, requiring periodic verification and data standardization to strengthen audit readiness and continual improvement.

Keywords: *access control, HSSE, IMS, ISPS Code, ISO 9001:2015*

Abstrak

Artikel ini merangkum kegiatan magang mandiri di PT XYZ pada periode September–Desember 2025 di fungsi HSSE (Health, Safety, Security, and Environment). Fokus kajian adalah evaluasi implementasi ISO 9001:2015 dan International Ship and Port Facility Security (ISPS) Code pada prosedur akses kontrol fasilitas pelabuhan, khususnya di area gate utama dan area terbatas. Pengumpulan data dilakukan melalui observasi lapangan, telaah dokumen (SOP akses kontrol, form inspeksi, dan dokumen risiko/HIRADC), serta diskusi dengan personel keamanan, HSSE, dan operasional. Analisis menggunakan pemetaan proses, risk-based thinking, HIRADC, dan gap analysis untuk membandingkan praktik aktual dengan persyaratan standar. Hasil menunjukkan bahwa akses kontrol telah diterapkan melalui pengendalian berlapis: verifikasi identitas dan izin, pembatasan akses berbasis RFID, pemantauan CCTV, pencatatan log sistem (misalnya CTOS), serta inspeksi rutin. Risiko utama seperti akses tidak sah, human error saat pemeriksaan barang, dan kelelahan pada shift malam dimitigasi melalui pengendalian administratif, pengawasan, dan pengaturan shift. Temuan praktis berupa perbedaan format pelaporan dan ketidaksesuaian data administrasi dengan kondisi lapangan menegaskan perlunya verifikasi berkala dan standarisasi data untuk memperkuat kesiapan audit dan perbaikan berkelanjutan.

Kata Kunci: *akses kontrol, hsse, ims, isps code, iso 9001:2015*

1. Introduction

The position or position at PT XYZ is a placement in the HSSE (Health, Safety, Security & Environment) Sub Directorate which is designed to provide comprehensive experience in supporting the safety, security, and environmental management system in the company. Interns will be actively involved in monitoring the implementation of HSSE procedures, including conducting field inspections, verifying the use of PPE, monitoring the condition of work area housekeeping, and identifying potential hazards (hazard identification) that can affect the continuity of operations. In addition, participants are expected to be able to assist in the collection and validation of data related to K3L performance such as accident statistics, results of fire extinguishing inspections, safety equipment conditions, and the implementation of emergency simulations. This task requires high accuracy because the data becomes evaluation material for system improvements and the basis for decision making by HSSE management.

Implementing international security standards at ports is crucial for maintaining national economic stability, with the implementation of the ISPS Code proven to significantly impact global trust and maritime sector revenues [1]. Furthermore, strengthening security at major ports requires the integration of technical procedures and strict oversight to minimize external threats [2].

In carrying out their functions, interns will collaborate with various parties such as operational teams, security, engineering, and field staff to ensure that safety and security standards are consistently implemented. These activities include assistance in safety patrols, high-risk activity compliance checks, security access monitoring, and supporting internal audits related to operational risk management. Interns also have a role in preparing HSSE documentation and administration such as revising SOPs, creating inspection reports, updating safety data in the company system, and preparing socialization materials such as posters, short videos, or safety guides [4]. By participating in various programs such as safety awareness campaigns, fire drills, emergency response training, and waste and environmental quality monitoring activities, interns gain practical experience in integrating safety and environmental aspects into daily operations.

In addition to practical aspects, this position also provides an in-depth understanding of national and international regulations and standards that form the basis for HSSE implementation in the company. Interns will be guided to understand government regulations related to OHS, environmental protection, critical facility security, hazardous waste management, and external audit requirements. This role requires analytical skills to help process incident data, support initial accident investigations using methods such as root cause analysis, and develop improvement recommendations based on field findings. Participants are also expected to have strong communication skills in conveying findings, supporting safety briefings, and playing a role in building a safety-conscious culture at all levels of the organization [5]. Thus, the HSSE internship not only provides technical experience but also develops a comprehensive understanding of the importance of integrating safety, security, and environmental aspects as part of the company's operational sustainability.

2. Materials and Method

The methodology for completing internship assignments at PT XYZ is based on the implementation of the ISO 9001:2015 quality management system, International Ship and Port Facility Security (ISPS) Code, and its integration into an Integrated Management System (IMS) reinforced by Health, Safety, Security, and Environment (HSSE) principles. This approach is used to ensure that access control procedures in restricted areas and critical operational areas are implemented in a standardized, documented, and consistent manner to support port security, occupational safety, and the quality of operational services. [2].

Data collection was conducted through direct observation in gate areas, restricted areas, and critical operational areas, documentation studies in the form of access control SOPs, permit forms, and security reports, and discussions with relevant personnel, such as security officers, HSSE, and operations. This technique is commonly used in the implementation of the ISPS Code and quality management systems at ports because it can identify potential security risks and procedural non-compliances in real time [3]. The main focus of the analysis was directed at the access control process for personnel, vehicles, and goods, including identity checks, entry permit validation, access card use, and supervision in restricted areas. Furthermore, the analysis also covered the implementation of HSSE aspects, such as compliance with personal protective equipment (PPE), emergency preparedness, and efforts to prevent workplace accidents and security disturbances. The implementation of the HSSE approach has proven to be instrumental in supporting the Zero Accident target and improving port operational safety [8].

3. Results and Discussion

The implementation of ISO 9001:2015 in access control is evident through documented SOPs, the appointment of responsible parties, the availability of resources (security personnel, CCTV), and performance evaluation through internal inspections and audits. A risk-based thinking approach is used to anticipate process inconsistencies at critical points such as identity verification, permit validation, and goods inspection. The synergy between the ISO 9001:2015 quality standard and the ISPS Code protocol creates a solid framework to minimize security gaps in goods entry and exit procedures [13].

Table 1. Implementation of ISO:2015 and ISPS Code

Standard	Clauses / Elements	Implementation in PT XYZ
ISO 9001:2015	Clauses 4 – Context of Organization	Identify internal and external contexts that influence operational quality and safety.
ISO 9001:2015	Clauses 5 – Leadership	Management commitment through HSSE policies and the appointment of those responsible for access.
ISO 9001:2015	Clauses 6 – Planning	Application of risk-based thinking in controlling quality and safety risks.
ISO 9001:2015	Clauses 8 – Operation	Implementation of SOP for access control of personnel, vehicles and goods.
ISPS Code	PFSA & PFSP	Threat assessment and implementation of port facility security plans.
ISPS Code	Access Control & Drill	Identity checks, access cards, CCTV and security training.

Source: Analysis Results (2025)

Table 2. Implementation ISPS Code

ISPS Code elements	Implementation	Proof	Year
Access Control	Personnel & vehicle inspection	SOP	2025
Restricted Area	Limited area restrictions	CCTV & RFID	2025
Monitoring	Area surveillance	CCTV	2025

Source: Analysis Results (2025)

The use of digital technology such as CCTV and RFID integration not only functions as a monitoring tool, but also increases the efficiency of data verification in port access control in real-time [15].

Table 3. Implementation of ISPS CODE in Access Control Procedures

Clauses ISO	requirements	Implementasi	Proof	Year
4.4	Process system	Access control SOP	Access control SOP	2025
6.1	Risk management	HIRADC gate	HIRADC Document	2025
7.1	Resource	CCTV and officers	Facility logs	2025
8.1	Operational control	Access check	Inspection form	2025
9.1	Performance evaluation	Internal audit	Audit report	2025

Source: Analysis Results (2025)

The integration of the ISO 9001:2015 standard with port security protocols creates synergy in improving operational performance and stakeholder satisfaction through continuous improvement [11].

Table 4. Implementation of ISPS CODE in Access Control Procedures

ISPS Code elements	Implementation in the Field	Evidence of Implementation	Year
Access Control	Checking the identity of personnel and vehicles entering the port area	Access Control SOP, Inspection Form	2025
Restricted Area	Restricting access to restricted areas using identity cards	RFID Card, CCTV	2025
Monitoring and Surveillance	Real-time monitoring of activity at gates and restricted areas	CCTV	2025
Security Communication	Coordination between security officers and supervisors	Activity Report	2025
Documentation and Records	Logging of access activities and inspection results	Inspection form, System log	2025

Source: Analysis Results (2025)

The application of the ISPS Code to access control procedures is implemented through several main elements related to securing port facilities. The ISPS Code emphasizes access control, restricted area designation, surveillance systems, and emergency preparedness. [5] in several Indonesian ports also showed that compliance with access control procedures is a key factor in the successful implementation of the ISPS Code [4].

According to HIRADC, the dominant risks include unauthorized vehicle access, human error during goods inspections, and officer fatigue on night shifts. Mitigation is carried out through ID verification, inspection checklists, CCTV surveillance, personnel rotation, shift management, safety briefings, and mandatory PPE for activities related to operational areas. The implementation of a strict security management system also supports the green port concept by ensuring that every operational activity is monitored and does not pollute the surrounding environment [14].

Table 5. Mitigation Risk

Risk	Sources of Risk	Potential Impact	Mitigation Implemented
Unauthorized access	Access control is not optimal	Security breach	Access card, CCTV, gate guard
Work accident	Heavy equipment activity	Injuries and downtime	Mandatory PPE, safety briefing
SOP Non-conformity	Lack of understanding	Decreased quality	Socialization of SOP, internal audit
Security breach	Critical areas open	Asset threats	Patrol and emergency simulation

Source: Analysis Results (2025)

The implemented risk mitigation demonstrates a layered control approach encompassing administrative, technical, and operational controls. Key risks, such as workplace accidents and unauthorized access, are addressed preventively in accordance with ISO 9001:2015 and the ISPS Code. With this mitigation, the company is able to minimize potential operational disruptions and support the achievement of occupational safety and security [7].

Table 6. Risk Mitigation Access Control (HIRADC)

Activity	Danger	Risk	Mitigation Actions	Year
Vehicle access	Unlicensed vehicle	Gangguan keamanan	ID Verification and CCTV	2025
Goods inspection	Human error	Dangerous goods escape	Inspection checklist	2025
Night shift	Officer fatigue	Verification error	Rotation and shift settings	2025

Source: Analysis Results (2025)

Risk mitigation activities are carried out based on the results of hazard identification using the HIRADC method. In managing operational risks, the HIRADC (Hazard Identification, Risk Assessment, and Determining Control) method is effectively used to identify potential hazards in port logistics and warehousing areas, so that preventive measures can be taken before work accidents occur [10].

Table 7. Analysis used

Analysis Module	Objective	Penerapan
HIRADC	Risk identification and control	Hazard analysis in operational areas
Risk-Based Thinking	Anticipate non-conformity	Risk control planning
Gap Analysis	Evaluation of conformity to standards	Comparing actual conditions with ISO & ISPS
Root Cause Analysis	Identify the cause	Continuous improvement

Source: Analysis Results (2025)

The use of the analysis module demonstrates that the evaluation of ISO 9001:2015 and ISPS Code implementation was conducted systematically and risk-based. HIRADC and risk-based thinking assist in hazard control from the planning stage, while gap analysis and root cause analysis support continuous improvement. This demonstrates that the implemented management system supports operational effectiveness and compliance with international standards [9].

Table 8. Analysis Module

Analysis Module	Analysis Function	Reference
Process mapping	Identify access control workflows	ISO 9001:2015
Risk-based thinking	Identify operational risks	ISO 9001:2015 Clause 6.1
HIRADC	Hazard identification and risk mitigation	HSSE Guidelines
Evaluation of suitability	Process conformity assessment	ISO 9001:2015

Source: Analysis Results (2025)

The analysis is carried out using several analysis modules relevant to quality management system and risk control standards.

Table 9. Tools and Systems Used

Activity	Tools	Fungsi	Year
Access registration	CTOS	Data input and validation	2025
Personnel control	RFID Card	Area access restrictions	2025
Area monitoring	CCTV	Activity monitoring	2025
Pelaporan	Inspection form	Activity documentation	2025

Source: Analysis Results (2025)

4. Conclusion

Based on the evaluation and analysis results during the internship at PT XYZ, it can be concluded that the implementation of ISO 9001:2015 and the International Ship and Port Facility Security (ISPS) Code in access control procedures has been running effectively and integrated into the company's management system. The implementation of access control is carried out through a layered approach that includes personnel and vehicle identity verification, the use of RFID technology for restricted area restrictions, real-time CCTV monitoring, and digitalization of records through the CTOS system. Through the HIRADC method and risk-based thinking, operational risks such as the potential for unauthorized access, inspection failures due to officer fatigue, and work accidents have been mitigated preventively through shift rotation arrangements, routine inspections, and enforcement of discipline in the use of PPE in critical areas. Although the system has met international standard requirements as evidenced by the existence of consistent SOP documents and audit reports, this study identified the need for standardization of reporting formats and synchronization of field data to minimize administrative discrepancies. Overall, the integration of safety, security, and quality aspects through the HSSE function is a crucial foundation in maintaining the sustainability of port operations and achieving the Zero Accident target.

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