

**THE ACTUAL APPLICATION OF THE OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM ACCORDING ISO 45001, 2018 IN THE IRAQI STATION**

**Akhlas Adnan khalil<sup>1</sup> and Islam Talib Mohammed Salih Aljabi<sup>2</sup>**

<sup>1</sup>Middle Technical University, Baghdad, Iraq

<sup>2</sup>Middle Technical University, Baghdad, Iraq

<http://doi.org/10.35409/IJBMER.2022.3381>

**ABSTRACT**

This study aims to reveal the extent of application of the requirements of the occupational health and safety management system (ISO45001:2018) in the thermal station. The problem is reflected in the weak interest of the thermal station in occupational health and safety, which workers should have a safe working environment free from occupational risks and diseases through the application of an efficient system for occupational health and safety management, which leads to an increase in the efficiency and productivity of workers. To reach the scientific facts, I adopted the case study approach, which includes observation, field coexistence, and direct meetings, in addition to the checklist prepared by the British Standards Organization (BSI). The results of the study show that there is a gap between the actual reality of the occupational health and safety management system in the thermal station and the requirements of the occupational health and safety management system (ISO45001:2018). The evaluation results showed a total gap of (34.8%). Occupational health and safety is heading towards the permanence of the work of secondary stations for energy production and distribution networks, and the provision of services to citizens.

**Keyword:** Occupational health and safety management; ISO45001:2018; OHSAS18001; PDCA.

**1. INTRODUCTION**

Each organization has a responsibility to ensure the safety of its employees in the workplace and to reduce the risk of damage to other parties that may be affected by the organization. Organizations that do not bear this responsibility for the safety of their employees and do not provide a safe work environment will face many problems such as serious accidents that lead to diseases, injuries and loss of life. Organizations' interest in the health and safety of their employees has increased with the passage of time and since the industrial revolution, that interest has increased. Recent global trends have emerged towards developing occupational health and safety management systems that are compatible with quality and environmental management systems. And in response to urgent requests from customers and companies to develop specifications for occupational safety and health systems, the most prominent of which was the specification (ISO 45001:2018). Alcocer & Alvarado (2019) indicated in a study conducted at Jordan Electric Company that it is necessary to design the health and safety management system at work in accordance with the requirements of (ISO 45001:2018) because most of the reasons for non-compliance stem from the lack of identification of risks; internal audits; performance evaluation; Senior management reviews and failure to maintain documented information on the occupational health and safety management system. As (Forsman & Hermansson, 2019) indicated in a study

---

conducted on three transformational companies that the work environment that is characterized by lack of standardization and lacks clear definition and measurement values is due to the difficulties of companies to use indicators in the systematic work in the work environment. While (Anzola, 2020) indicated in a study conducted on a series of extractive companies in the hydrocarbon sector in Colombia that the standard (26000), which works to achieve increasing requirements in terms of transparency, ethical, friendly to stakeholders and environmentally friendly, and by providing a methodology around this standard helped to Bridging the gap in the systematic use of (ISO 26000:2010) as a management system. They also indicated (Neag & Draghici., 2020) in a study conducted on a group of organizations located in the western region of Romania that a new approach should be defined and that consideration of the quality safety and culture program (training and consulting activities) is mandatory.

The importance of the study is highlighted in an attempt to employ the research results in knowing the gap to reduce it between the actual reality in the thermal station and the requirements of the International Standard (ISO 45001:2018). To ensure that work accidents are reduced and a suitable work environment is created for workers. The importance of the study derives from the importance of occupational health and safety and its workforce. The current study contributes to preparing for the implementation of the international standard (ISO 45001:2018) and supporting the culture of health and safety in the stations, enhancing the role of workers and providing the appropriate conditions to maintain the health and safety of workers in the workplace and make it more sustainable.

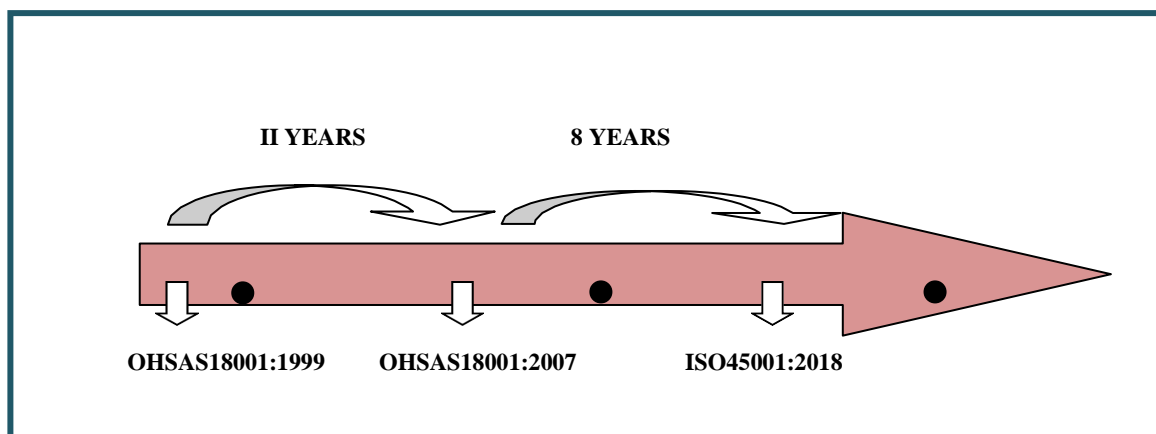
## **2.OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT**

The interest in occupational health and safety management stems from its humanitarian concept, which seeks to protect the individual from the accidents and risks of the profession he practices (Suhaila, 2015). Previously, the concept of occupational health and safety referred to the health care of workers in organizations. With the development of organizations and means of production, the concept of health and safety evolved and became more comprehensive. Occupational health and safety refers to all technical and health precautions and preventive measures aimed at providing a safe work environment free of all types of occupational hazards, accidents and diseases that may threaten the life and health of workers in organizations. Safety is intended to protect the human resource from harm and damage that may be caused by various expected or potential accidents in the workplace (Aqili, 2005). Akaner (2003) defines occupational health and safety management as managing a work environment that has the necessary conditions to provide occupational safety and health for workers. While (Kaynak, 2018) defined it as a combination of elements that work in an integrated way to improve the performance of the occupational health and safety system and ensure the effective use of internal communication networks in the organization to reduce accidents and ensure that workers adhere to safety instructions. Min ( 2019) defines it as the new direction of technology Which can be employed to create a safe working environment by excluding workers from high-risk workplaces (the application of an algorithm by security cameras to monitor chemical leakage or worker accidents faster). Widhiawati et al.,( 2021` ) define occupational health and safety management as a multidisciplinary science that is applied, to maintain safe working conditions on an ongoing basis, to improve the work environment, and to prevent prior occupational accidents.

### **3. GENESIS AND DEVELOPMENT OF ISO45001**

Organizations' interest in the health and safety of their employees has increased with the passage of time and since the industrial revolution. And this interest developed with the principles set by (Robert Aden) and increased with the escalation of workers' demands and the successive reforms that coincided with the stages that human resources went through until they settled on a set of rules and regulations that govern the health and safety of workers (Al-Karkhi, 2020). There has been global interest in the occupational health and safety management system since the mid-1990s (Al-Kaabi & Khalaf, 2019) (Al-Obaidi, 2019). In 1992, the British Health and Safety Commission published a guide to managing health and safety at work. Then the British Standards Organization (BSI: 8800) introduced the first guiding national specification for the occupational health and safety management system in 1996 to assist organizations in the effective implementation of the requirements of the occupational health and safety management system. In 1998, the Occupational Health and Safety Management System Standard (BSI:8800) was developed and changed to (OHSAS 18001) and it was the first version of it with the participation of 20 bodies from different countries of the world represented by the United States, Japan, Korea, Ireland, Spain, Denmark, Mexico, the United Kingdom and Singapore. Thus, (OHSAS 18001) is the first issuance to grant a certificate in the occupational health and safety management system (Yahya, 2018).

The British Standards Institution (BSI), with the participation of specialists from 43 countries in the world, seeks to make many changes to the standard for wider use. After the standard was applied in 80 countries in different countries of the world. And more than 16,000 organizations obtained the OHSAS 18001:1999 Occupational Health and Safety Management Certificate. The result of the changes was the issuance of the standard (OHSAS:1800) in July 2007, which is the second version of it. It has been updated with ISO9001 and ISO14001 specifications with the aim of more consistency and facilitating the integration of quality management systems, environmental systems and occupational health and safety systems into a single management system. Then, a draft of the global standard ISO 45001 was published in 2016, which is the first international standard for occupational health and safety. ISO 45001 is designed to prevent work-related accidents and diseases and to maintain health and safety at work. All international standards transcend all geographical, political, economic and social barriers making them suitable for all companies and organizations around the world. Thus accredited organizations can remain in a safe position because the risks of work accidents are minimized for employees and other affected parties. Figure (1) shows the time frame of the occupational health and safety management system according to the international standard.



**Figure (1)** Time frame of the occupational health and safety management system according to the international standard.

ISO45001 uses the improvement wheel ( Plan, Do, Check, Check/ PDCA) , which provides a framework for organizations to plan what should be done in the workplace to reduce the risk of harm. These steps should pay attention to problems that can cause long-term health problems and absence from work, as well as things that cause accidents.

#### 4. INTERNATIONAL STANDARD ISO 45001

The indicators of ISO 45001 specify with great accuracy the requirements of the occupational health and safety management system with special guidelines for the application of the standard so that all organizations can provide healthy and safe workplaces. ISO 45001 includes an integrated system for the prevention of work injuries. ISO 45001 is suitable for any organization wishing to establish and implement an occupational health and safety management system with the aim of improving occupational safety and health. ISO 45001 can be applied to all large, medium and small organizations with different activities. ISO 45001 concerned with important factors related to the organization such as the context of the organization and factors related to the needs and expectations of its customers and any parties involved with it. The ISO 45001 specification consists of ten main clauses: (ISO 45001: 2018)

- Scope
- Normative references
- Terms and definitions
- Context of the organization
- Leadership and worker participation
- Planning
- Support
- Operation
- Performance evaluation
- Improvement

## 5. THE FRAMEWORK OF THE INTERNATIONAL STANDARD ISO 45001

The basis upon which the occupational health and safety management system approach applied in this International Standard is (PDCA Cycle), which requires leadership, commitment and participation of workers and their representatives wherever they are located and at all levels in the organization. The PDCA model is an iterative process that organizations use to achieve continuous improvement that can be applied to a management system and to each of its individual elements. PDCA means that it is a cycle that is repeated in order to implement specification 45001, which consists of ten standards. The first, second and third standards are indicative. As for the obligatory standards, starting from the fourth to the tenth standard, they can be described as follows (www.bsi.org.in) (Purwanto et al., 2020:1982):

- Plan: Define the objectives, processes and activities directly related to the occupational health and safety system in line with the organization's policy.
- Do: Work to implement the planned goals and operations.
- Check: Monitor the results of operations and activities in light of the organization's occupational health and safety policy and objectives, with the preparation of reports for the results.
- Act: Making the proposed actions to improve and maintain performance efficiency, through management review for continuous improvement.

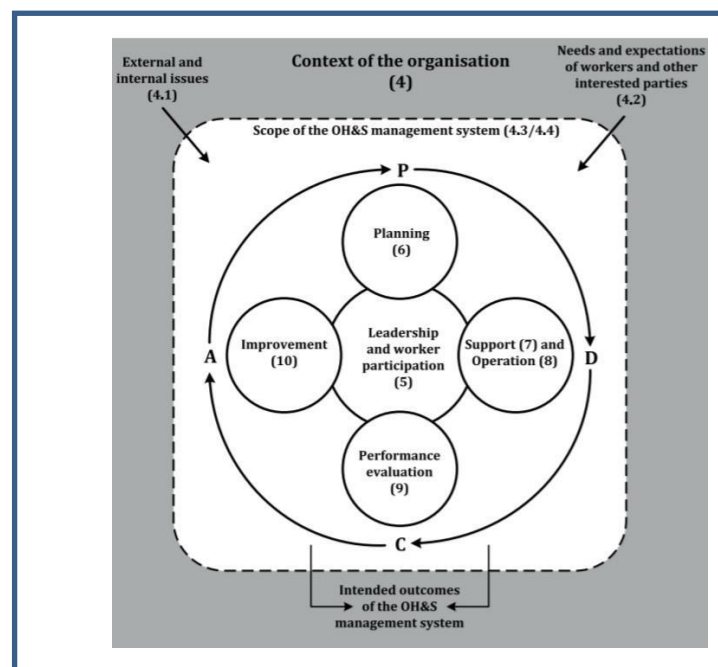


Figure (2) shows the standards of ISO 45001 according to the Deming circle

## 6. METHODOLOGY

Diagnosis and analysis of the gap between the reality of the occupational health and safety management system at the thermal plant and the requirements of the international standard ISO

---

45001:2018 by comparing the reality of the procedures and processes for occupational health and safety at the thermal plant and this standard ISO 45001:2018. The checklist was approved and designed according to a scale (6:fully implemented and fully documented, 5:fully implemented and partially documented, 4:fully implemented and not documented, 3: partially implemented and fully documented, 2:partially implemented and partially documented, 1: partially implemented and not documented, 0: not implemented and not documented ) in the analysis of gaps (Gap Analysis), in addition to conducting personal interviews and actual observations to ensure the accuracy of the information.

## **7. RESULT & DISCUSSION**

The results of Table (1) show that the actual level of application and documentation of the requirements of the organization context in the thermal station in accordance with the requirements of the international standard (ISO 45001: 2018) reached an application rate of (79.2%) and an mean of (4.75), which indicates that the size of the gap reached (20.8%). The thermal station identifies internal and external problems related to the objectives and strategic direction. It also monitors and reviews information about stakeholders, their needs and expectations. However, it lacks the occupational health and safety management control system in accordance with the requirements of the international standard (ISO 45001: 2018). The thermal station did not specify the limits and applicability of the occupational health and safety management system in accordance with the requirements of the international standard ISO 45001:2018. The role of the Quality Division is very small. The results of Table (1) indicate that the actual level of application and documentation of the driving standard in the thermal station in accordance with the requirements of the international standard (ISO 45001: 2018) achieved an mean of (3.5) out of

(6) degrees and a matching rate of (58.3%), which indicates the presence of A gap of (41.7%). The thermal station bears the overall responsibility for the prevention of injuries and work-related diseases, as it adopts the policy and objectives of occupational health and safety in line with its strategic direction. The senior management of the thermal station is also concerned with occupational health and safety and compliance with the requirements of the occupational health and safety management system by directing and supporting workers to contribute to the effectiveness of the occupational health and safety management system. However, it suffers from a weakness in providing the necessary resources for the ISO45001:2018 occupational health and safety management system. The results of Table (1) indicated that the actual level of application and documentation of the planning standard in the thermal station in accordance with the requirements of the international standard (ISO 45001: 2018) has achieved an mean of (4) out of (6) degrees and an identical percentage (66.7%), which indicates that There is a gap of (33.3%). That is, the thermal station maintains documented information about risks and opportunities and takes the necessary measures to reduce risks and take advantage of opportunities so that there are no major deviations from what is planned, in addition to having detailed records of past incidents of internal or external relatedness. However, the thermal station suffers from a weakness in the infrastructure, equipment, materials and physical conditions necessary for the workplace. The results of Table (1) indicate that the actual level of application and documentation of the support standard in the thermal station in accordance with the requirements of the international standard (ISO 45001: 2018) has achieved an mean of (4) out of (6) degrees and an identical percentage



---

(66.7%), which indicates that There is a gap of 33.3%. That is, the thermal station identifies and provides the resources necessary to establish, implement and maintain occupational health and safety management on a continuous basis, in addition to documenting the appropriate complete information as evidence of the efficiency of the workers. However, the thermal station suffers from a weakness in defining the station the documented information required by the ISO 45001:2018 Occupational Health and Safety Management System, in addition to the difficulty in dealing with the activities of distribution, storage, preservation, change control, and identification and control of external related information. The results of the table (1) also indicate that the actual level of application and documentation of the Operation Standard in the thermal station in accordance with the requirements of the international specification (ISO 45001:2018) has achieved an mean of

(4) out of (6) degrees and an identical percentage (66.7%), which indicates that There is a gap of 33.3%. That is, the thermal station provides planning and implementation of the operations necessary to meet the requirements of the occupational health and safety management system to set standards in addition to having procedures for implementing and maintaining disposal operations and reducing risks that affect occupational health and safety. However, the thermal station suffers from the weakness of the station's follow- up to implement and monitor changes in the work sites and surrounding areas, whether permanent or temporary, which affect performance. The results of Table (1) also indicate that the actual level of application and documentation of the performance evaluation standard in the thermal station in accordance with the requirements of the international standard (ISO 45001:2018) has achieved an mean of (4.3) out of (6) degrees and a matching rate of (71.6%), which indicates There is a gap of (28.4%). That is, the thermal station adheres, implements and maintains monitoring, measurement analysis and performance evaluation procedures for the occupational health and safety management system for regular periods. However, the thermal station suffers from a weakness in establishing calibration procedures if there are equipment to monitor and measure performance. The results of Table (1) indicate that the actual level of application and documentation of the improvement criterion in the thermal station in accordance with the requirements of the international standard (ISO 45001:2018) has achieved an mean of (3) out of (6) degrees and a matching percentage (50%), which indicates that There is a gap of (50%).

**Table (1) The level of application of ISO 45001:2018 standards in the thermal station**

No.	Standard	Mean	Percentage of conformity with standards	Gap
1	Context of the organization	4.75	79.2%	20.8%
	Understanding the organization and its context	6	100%	0
	Understanding the needs and expectations of workers and other interested parties	4	66.7%	33.3%
	Determining the scope of the OH&S management system	4	66.7%	33.3%
	OH&S management system	5	83.3%	16.7%
2	Leadership and worker participation	3.5	58.3%	41.7%
	Leadership and commitment	2	33.3%	66.7%
	OH&S policy	3	50%	50%
	Organizational roles, responsibilities and authorities	5	83.3%	16.7%
	Consultation and participation of workers	4	66.7%	33.3%
3	Planning	4	66.7%	33.3%
	Actions to address risks and opportunities	4	66.7%	33.3%
	OH&S objectives and planning to achieve them	4	66.7%	33.3%
4	Support	4	66.7%	33.3%
	Resources	5	83.3%	16.7%
	Competence	4	66.7%	33.3%
	Awareness	4	66.7%	33.3%
	Communication	4	66.7%	33.3%
	Documented information	3	50%	50%
5	Operation	4	66.7%	33.3%
	Operational planning and control	3	50%	50%
	Emergency preparedness and response	5	83.3%	16.7%
6	Performance evaluation	4.3	71.6%	28.4%
	Monitoring, measurement, analysis and performance evaluation	3	50%	50%
	Internal audit	5	83.3%	16.7%
	Management review	5	83.3%	16.7%
7	Improvement	3	50%	50%
	General	3	50%	50%



---

**8. CONCLUSION**

The study indicated that the thermal station does not adopt the occupational health and safety management system in accordance with the international standard (ISO 45001:2018). Rather, occupational safety affairs are managed by the Occupational Safety Department in accordance with the instructions and directives related to occupational safety issued by the Iraqi Society for Occupational Health and Safety, and the National Center for Occupational Health and Safety of the Ministry of Labor and Social Affairs. The thermal station lacks to assess and determine the risks in the workplace near the old and worn out machinery, equipment and equipment. The thermal station needs to perform a number of maintenance procedures to reduce work accidents and injuries that lead to material and human losses. The workers in the thermal plant do not have the required competence to take preventive measures, in addition to their lack of awareness and awareness of the occupational health and safety system, and this is due to the reason for the poor performance of the occupational health and safety units in the thermal station.. The thermal station did not take any measure to improve occupational health and safety because it did not provide any Procedures for implementing the occupational health and safety management system in accordance with (ISO 45001:2018). The thermal station must implement the requirements of (ISO 45001:2018) to ensure a safe working life.

**REFERENCES**

- Hermansson, C., & Forsman, C. (2019). Arbetsmiljöindikatorer i litteratur och praktik.
- Calle Anzola, C. (2020). Propuesta metodológica para integrar la Responsabilidad Social Empresarial bajo la guía ISO 26000: 2010 y los Sistemas de Gestión de medio ambiente y salud y seguridad en el trabajo bajo las normas ISO 14001: 2015 e ISO 45001: 2018 en empresas extractivas del sector hidrocarburos en Colombia.
- Abrigo Alvarado, S. L., & Quishpi Alcócer, J. B. (2019). Diseño de un sistema de gestión de seguridad y salud en el trabajo basado en las Norma ISO 45001: 2018 para la empresa importadora Electric Jordan SA (Bachelor's thesis, Universidad de Guayaquil. Facultad de Ingeniería Química).
- Neag, P. N., Ivascu, L., & Draghici, A. (2020). A debate on issues regarding the new ISO 45001: 2018 standard adoption. In MATEC Web of Conferences (Vol. 305, p. 00002). EDP Sciences.
- Suhaila, Bou Said, (2015): The Role of Occupational Safety and Health Administration in Improving the Performance of Workers in Industrial Small and Medium Enterprises Case Study Plastic Transformation Corporation - Unit Ouargla, a thesis submitted for obtaining a master's degree in business administration, Kasdi Merbah University - Warfalla,
- Aqili, Omar Wasfi (2005), Contemporary Human Resources Management (a strategic dimension), first edition, Wael Publishing House, Amman.
- Akaner, M. (2003). Application of ISO 9000 and OHSAS 18000 to a mining company, a case study (Master's thesis, Middle East Technical University).
- Kaynak, R., Toklu, A. T., Elci, M., & Toklu, I. T. (2016). Effects of occupational health and safety practices on organizational commitment, work alienation, and job performance: Using the PLS-SEM approach. *International Journal of Business and Management*, 11(5), 146-166.
- Min, J., Kim, Y., Lee, S., Jang, T. W., Kim, I., & Song, J. (2019). The fourth industrial revolution and its impact on occupational health and safety, worker's compensation and labor conditions. *Safety and health at work*, 10(4), 400-408.

---

Widhiawati, I. A. R., Joni, I. G. P., & Kusuma, P. A. C. W.(2021). Preferences For Controlling Occupational Health and Safety Risk In The Building Projects.

Al-Karkhi, Dreams (2020): Analytical reading of the reality of occupational health and safety in cement companies / a case study of LafargeHolcim-Jordan, Journal of Economics and Mining Research Volume 1, Issue 2.

Al-Kaabi, Majid Hamid Hassan & Khalaf, Batoul Attia (2019): Evaluation of the occupational health and safety management system according to (ISO 45001:2018) applied research in the Baghdad Soft Drinks Company, Journal of Administrative and Economic Sciences, Volume 25, Issue 113, pages 171-190 .

Yahya, R., Handayani, N. U., & Purwanggono, B. (2018). Analysis of OHSAS 18001: 2007 standard renewal towards ISO 45001: 2018 at PT. Power Plant Indonesia by using gap analysis method. In SHS Web of Conferences (Vol. 49, p. 01009). EDP Sciences.

Al-Obaidi, Shakir Mahmoud Ahmed (2019): Evaluation of the occupational health and safety management system according to the requirements of the standard OHSAS18001: 2007 A case study in the Baghdad Sewer Department / Al-Rustania Project, Higher Diploma, University of Baghdad - College of Administration and Economics.

Purwanto, Y. K. H., Abidin, R. Z., Suhendra, R. F. P., & Julyanto, O. (2020). Exploring Impact of Occupational Health and Safety Iso 45001 Implementation on Employee Performance: Evidence From Indonesian Industries. Journal of Critical Reviews, 7(15), 1981-1990.

<https://www.bsigroup.com/en>

<https://www.iso.org>