

A Study of Warehouse Safety Management System in Upstream Oil & Gas Industry

Koshy K. Ninan under the guidance of Dr. N.A.SIDDIQUI Associate Professor and Head Health, Safety and Environment, University of Petroleum Energy Studies, UK, India

ABSTRACT

A storage system is an engineered system with the function to store materials, in other words to hold materials until they are needed. Storage systems are an essential component of virtually every supply chain. Moral, legal, and economic issues provide strong justification for the time and effort required for compiling a sound warehouse safety program. Morally, every employer should provide a work environment that shields employees and visitors from the possibility of injury. Legally, a vast array of federal, state, and local laws spell out an employer's specific responsibilities in regard to the safety of a facility. Failure to meet the requirements of these laws can lead to substantial fines and penalties. Finally, an effective safety program is profitable. Reduced insurance premiums, fewer workmen's compensation claims, less time lost due to injury, and higher productivity associated with high levels of morale, can result from an effective safety program. Clearly, a strong safety program is important for employee protection, legal compliance, efficient warehouse operation, and a healthy working atmosphere.

Keywords: injury, prevention, safety, Ware House Safety System, Upstream Oil & Gas, Incident

Introduction

Providing a safe and healthful working environment for all employees and visitors should be a priority for every warehouse. The moral, legal, and economic dimensions of warehouse safety clearly indicate that it cannot be compromised. Because of this critical importance, a comprehensive, formal safety program should be the foundation of any warehouse management system. The sheer volume of material related to warehouse safety makes it difficult to create and maintain an effective safety program. The numerous regulations promulgated by OSHA, state agencies, and municipalities are complex. Hundreds of organizations, associations, and private companies have produced and distributed films, slides, videocassettes, programs, self-instruction manuals, seminars, and training programs related to warehouse safety. These guidelines seek to provide a way to sift through all this material to discover what is useful and which regulations apply.

Objectives of the study

1. To ensure that the building, equipment, and products do not create safety hazards for employees and visitors
2. To ensure that all employees are provided effective initial and on-going instruction on working safely, responding to all injury, disaster, and dangerous situations, and all applicable safety regulations
3. To provide adequate equipment, clothing, and gear to protect employees from injury
4. To provide a system for testing and observing that all safety rules, procedures, and training are being followed by employees
5. To comply with all federal, state, and local laws relating to job safety
6. To provide for an effective system to report safety information, including accidents, injuries, training, and legal compliance
7. To provide information on all hazardous chemicals and materials in the warehouse.

Methodology of the study: The data and information has been taken from the Chemical warehouse of National Petroleum Services Company warehouse located in the State of Kuwait. The ware house is used for the purpose of storing various chemicals used in upstream Oil field operations. The study show that the chemical spill occurred in the warehouse was due to the increased atmospheric temperature. During the time of spilling, lot of gaps were observed in the current HSE Management system of National Petroleum Services Company. So the management has decided to conduct a study on the current HSEMS system for the purpose of improvement in the areas wherever required. The above study verified all the HSEMS documents which include incident reports, Material safety data sheets, laboratory test repots, drill report etc

ROLE OF WAREHOUSE IN SUPPLY CHAIN: Since inventory holding and the customer serving are key warehouse functions which implies warehouse has an important role to play in supply chain. Some of the important roles of warehouse are to make or break bulk. Consolidation centers, cross docking centers, transshipment, product fulfillment centers, returned goods depots, some other roles like customer support, installation and repair services. The roles mentioned here are associated with some concepts like agility, production postponements and time compression which are recognized as increasing trends in warehousing. Thus inventory has important role on warehouse in modern supply chains.

Types of Warehouse Accidents: All of these different injuries can happen in any warehouse and to any worker. Unfortunately, these injuries can be fatal or cause lasting harm that puts an end to the labor-intensive and physically demanding career of a warehouse worker.

Pallet Rack Collapses: Incidents involving pallet rack collapses often stem from materials not being properly stowed in a safe and orderly manner. Such collapses are especially dangerous when the incident occurs from a mezzanine or high tier, since even the smallest, seemingly innocuous item can become a projectile hazard when dropped from a certain height. To avoid a collapses, a best practice is to stack and wrap the pallet racks with the biggest and heaviest items on the bottom and then the lighter and smaller materials positioned toward the top. Also, make sure that pallets have adequate space between them to prevent collapse issues when accessed by lift trucks. A safety program that regularly inspects pallet racks for potential dangers and issues can help prevent costly accidents.

Slips, Trips & Falls: According to OSHA, "Slips, trips, and falls constitute the majority of general industry accidents. They cause 15% of all accidental deaths, and are second only to motor vehicles as a cause of fatalities." Yet as frequent at these types of incidents are, with the right safety procedures in place, they are also among the easiest of accidents to prevent. Falls from height are often among the most serious of these types of incidents; however, even slips, trips and falls on the same level can have serious consequences. To that end, it is critical that workers maintain clear, tidy work areas that are free of clutter to help minimize any threats that contribute to slip, trip and fall injuries. For instance, when a warehouse worker leaves his or her work area, it is important to ensure any materials that obstruct aisles or walkways out of the way. Additionally, when spills occur, employees should follow the necessary steps to ensure they are cleaned up as soon as possible, and that the area is cordoned off to traffic until the hazard is abated. Lighting is another often overlooked factor in workplace accidents. Poorly lit hallways and stairs are dangerous because they obscure the ability to see what is underfoot, additional lighting in these areas can add a measure of prevention. These are just a few examples of the simple, commonsense steps employers should take seriously to help alleviate slips, trips and falls

Hazardous Material Incidents: Production and distribution centers often receive shipments with hazardous or volatile materials, and accidental spills are an unfortunate reality. While people often assume large-scale spills are the most dangerous, even small leaks and spills pose a threat to worker safety. An effective hazmat plan helps prepare workers for chemical spills by providing them with the information and training necessary to properly contain and clean-up the material. It is also incumbent upon employers to ensure workers have access to the proper personal protective equipment (PPE) and the most up-to-date safety data sheets (SDSs) when working with hazardous materials. Sound HazCom practices are a necessity for warehouses, even if

employees' exposure to hazardous chemicals is minimal — with the proper response plan in place, workers can act quickly to control the spill situation to minimize any injuries.

Forklift Crashes: Whether due to a novice worker who takes a wrong turn, or an experienced operator having an off-day, forklift crashes are a common mishap in the workplace. According to the National Institute for Occupational Safety and Health (NIOSH), the forklift, workplace environment and operator actions all contribute to fatal forklift incidents. As such, forklift operating training, along with training on industry specific hazards; significantly reduce the risk of injury and death. It's also critical that vehicles are checked prior to use for any faulty components that might cause an incident to occur. While accidents are bound to happen, employers can take steps to create a work environment that focuses on safety and minimizes risks to employees. With regular training and the right tools, employees are better equipped to identify hazards and reduce accidents. The benefits go beyond limiting injuries and decreasing compensation claims, and can even drive efficiency and productivity across all business units.

Overexertion injuries: Putting too much stress on the body is a major cause of warehouse injuries. Injuries often occur when a worker tries to lift too much. The back and shoulders are most likely to be hurt when a worker overexerts himself, but other body parts can be affected as well. Pushing, pulling, carrying and lowering are also causes of overexertion injuries along with lifting.

Truck accidents: While many warehouses contract with outside trucking companies, others provide transportation services. Warehouse employees operating trucks are in danger of becoming involved in accidents while moving materials from one place to another.

Being hit by objects: Workers who are hit by industrial lift trucks or handling equipment are often at risk of very serious injuries or even death. Workers can be hit not just by handling equipment but also by falling loads or shifting inventory.

Loading dock injuries: Loading docks can be the most hazardous area in warehouses. Workers can fall off docks, be crushed while loading or unloading, be hit by trucks or vehicles that come too close or hurt themselves while in the process of moving materials from the dock to the truck for shipment.

20. How to Prevent Warehouse Accidents?

Employees working in a warehouse are exposed to a number of strenuous activities that can threaten their well-being. According to OSHA, the number of forklift-related accidents reaches close to 100,000 per year (100 fatal accidents, 34,900 serious injury accidents, and 61,800 non-serious accidents). As a result, those who handle heavy material handling equipment such as forklifts need to take special precautions to ensure that the materials they transport are properly handled. Here are four most common warehouse incidents you can easily avoid to prevent injuries and increase workplace productivity.

Slips & Trips: The warehouse is a place with lots of stuff. Its narrow aisles, tall stacks of goods, and poor lighting are the exact ingredients that can compromise visibility. Slipping and tripping over materials or spilled liquid are common accidents that can be avoided if the warehouse maintains adequate lighting and equips dark corners with special lights that can be easily switched on and off. Remove unnecessary steps or ridges and encourage employees to never leave any cargo, box, and goods unattended on the floor.

If a warehouse worker needs to temporarily leave the floor, it is important for him or her to move materials away from the center of the aisle while keeping lights on. In cases when something is spilled, employees should take the proper steps to close the area with visible signs and clean up as soon as possible.

Falls: Duties in the warehouse sometimes take employees to relatively high places off the floor. Working with complicated and heavy materials at high points increases the possibility of employees falling and suffering severe injuries. According to the U.S. Department of Labor, slipping, tripping, and falling are the most common industry accidents. They make up to 15 percent of all accidental deaths. Additionally, accidents cause warehouses to lose more than 95 million total work days each year. As a result it is critical for warehouses to not only provide adequate lighting and repair uneven floor surface, but also have safety rails, straps, and even non-slip mats to equip their employees for safety and success.

Fire: Warehouse fires can have costly and devastating consequences, but are considered to be one of the more preventable incidents. To avoid this disaster from finding its way into your warehouse, make sure that

- Make sure your warehouse passes fire inspection
- Install sprinkler systems, while giving employees easy access to fire-extinguishing tools
- Keep electrical cords in good condition and inspect them for damage. Discard worn wires and old extension cords.
- Handle all flammable fluids and gasses with the right equipment

Ergonomics & Improper Material Handling: Healthy employees are better able to maintain a high level of alertness and responsiveness than those that suffer from work-related ailments and injuries. Make sure that you give your employees some time to chill and catch their breath throughout the day. Emphasize the importance of safety and worker well-being in your monthly employee meetings so that everyone has a chance to review some of the basic safety material handling rules. Provide adequate training and protective equipment for all employees.

21. Conclusion

As per the study conducted, the key reasons for warehouse accidents are: - lack of training, lack of emergency planning, failure to understand the key risks involved in warehouse operations and also observed less attention to evaluate the risk involved in Oil and Gas sector warehouses. Most of the warehouses keep hazardous chemicals without any emergency preparedness. The warehouses related to Oil and Gas Industry require a detailed Safety management Program in order to mitigate any kind of emergencies.

Glossary

- HSEMS: Health, Safety, and Environmental management system
- WHO: World Health Organization
- RC: Regulatory Compliance

References

1. BS 8800:2004 Occupational health and safety management systems; guide
2. BS 9001:2000 Quality Management Systems
3. BSIOSH: Systems in Focus; Guidance on OHS Management Systems
4. 18001:2007 Occupational health and safety management systems; requirements
5. BS 8800:2004 Occupational health and safety management systems; guide