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## IDENTIFICATION OF OCCUPATIONAL ACCIDENT RELATIONS OF SHIPYARD LABOUR IN TERMS OF INDIVIDUAL AND WORKPLACE FACTORS

**Remeshevska I.***Candidate of Technical Sciences, Associate Professor of the Department  
of Ecology and Environmental Technologies***Gurets N.***Senior Lecturer of the Department of Ecology and Environmental Protection Technologies  
Admiral Makarov National Shipbuilding University**Ukraine, Mykolaiv**natalya.gurets@nuos.edu.ua*

The whole process in the shipyard must be done correctly and in a timely manner. The causes of industrial accidents in shipbuilding are described. Eight factors of work safety are given. Prevention of workplace factors in various ways are done.

**Keywords:** work safety, workplace factors, industrial accidents, prevention of accidents.

There is a major manpower requirement to process production in shipyard industry under hard working conditions with hazardous material. Most of the processes such as welding, painting, blasting, fiberglass production has direct effect on workers' health, i.e., exposure to volatile organic compounds (VOCs), fumes resulting from burning through base metal and from burning the interior and exterior coatings, as well as a significant generation of NO<sub>x</sub> gases during welding and cutting processes that are often left in place can cause acute and chronic health problems. In recent years some researchers have focused on health of shipyard workers related to working conditions [1,3]. There are some additional studies on environmental effects such as noise, dust, VOCs, on shipyard workers health.

The whole process in the shipyard must be done correctly and in a timely manner. The highest chance of industrial accidents is caused by human activities (88%), 10% caused by unsafe working environment, and 2% of work accident caused by the unreasonable factor. The result of his research shows that 98% of accidents can be avoided and can be controlled by human capabilities. Currently, many industrial accidents are caused by human factors. Therefore, it is an important issue to avoid and control human habits in preventing accidents from happening.

Workplace accidents are unforeseen and unintentional incidents, which occur in economic activity, causing one or more workers to be injured or lost their lives. An accident is a preliminary event, after which an injury may result, material damage, or environmental damage. Common causes of occupational accidents include altitude, toxic materials, flammable and explosive materials, fire, rotating machinery, harmful gases, frivolous work, equipment misuse or equipment failure, improper work, poor lighting at a place, electrical hazards, and clothing that does not comply with safety standards [2]. Worker carelessness, lack of training and education about work safety, human error in operation, and insufficient workspace are major factors in workplace accidents. More than 2.3 million deaths per year are caused by occupational accidents, and there are more than 336 million accidents each year.

Every worker must be granted protection for the safety of doing work for the welfare of life and to increase national production and productivity, and every other person at work needs to be assured of his safety. Mentioned in this regulation that the requirement of occupational

safety is to prevent and reduce accidents; prevent, reduce and extinguish fires; prevent and reduce the dangers of blasting; provide an opportunity or a way to save themselves when a fire occurs or other dangerous circumstances; giving help to accidents; provide self-protection tools to workers; prevent and control the emergence or spread of temperature, humidity, dust, dirt, smoke, vapor, gas, wind, weather, light or radiation, sound and vibration; prevent and control the onset of illness due to physical or psychological work, poisoning, infection and transmission; obtain sufficient and appropriate lighting; maintaining good air temperature and humidity; maintaining sufficient air refreshment; maintain hygiene, health, and order; obtaining harmony between the workforce, the work tool, the environment, the way, and its work processes; secure and facilitate the transportation of persons, animals, plants, or goods; securing and maintaining all types of buildings; securing and expediting loading and unloading, treatment and storage of goods; prevent exposure to dangerous electrical current; adjusting and perfecting security in jobs where the danger of accidents grows higher.

Psychologists conduct research on what the definition of occupational safety is and relate the relationship between occupational accidents and factors related to occupational safety cultures, such as heavy workload, emotional stability, and internal or external safety control. Workplace safety is defined as a basic perception of the worker about how safe his work environment is. Work safety consists of eight factors: the importance of conducting safety training, safety attitudes from management, the impact of safety culture on promotion, the severity of risks arising from the workplace, the effects of the speed of work on safety, the status of the occupational safety manager, the influence of safety culture on social status, and the status of the safety committee [4]. Work safety is defined as a climate that exists in organizations that an individual feels toward the organization that he or she is following. Work safety consists of five factors: the meaning of management, communication, safety implementation, education/training, and safety tools.

Prevention of occupational injuries can be done because according to previous research, 98% of accidents can be prevented, and only 2% of workplace accidents cannot be prevented. Prevention of workplace factors are done in various ways as follows: for falling from height accident use and check safety equipment to work at heights, build handrails at elevated workplaces, inspect work surfaces at slippery heights and install web if needed, provide safety training, place warning signs at workplace, for electric exposure use insulated shoes and appropriate work clothes, plug ground electrical systems and switches for electrical leakage, check cables regularly, for fire and or explosion check gas regularly and strictly control, create a hot work action report when needed, make good ventilation, for being struck by object accident cause always work with a rigger, follow the rules of crane use, use appropriate support items, and for squeezed between accident, create an appropriate environment for work, install a sound warning system on the shipyard, use a border for steel sheets.

#### REFERENCES:

- [1] Celebi, U.B., Akanlar, F.T., Vardar, N., Chemicals and Hazardous Wastes Generated by Shipyard Production and Their Effects on Human Health at Workplace, *Fresenius Environmental Bulletin* Volume 18 – No.10. 2009, pp.1901- 1908.
- [2] B. Barlas, "Shipyard fatalities in Turkey," *Saf. Sci.*, vol. 50, no. 5, pp. 1247–1252, 2012.
- [3] Buerke, U., Schneider, J., Rosier, J., and Weitowitz, H.-J., Interstitial Pulmonary Fibrosis After Severe Exposure to Welding Fumes. *American Journal of Industrial Medicine* 41, 2002, pp.259-268.
- [4] ILO code of practice: Safety and health in shipbuilding and ship repair. International Labour Office, Geneva, 2019.