

UDC 331.44

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ANALYSIS OF HAZARDOUS PRODUCTION FACTORS IN THE OIL AND GAS INDUSTRY AS THE MAIN COMPONENT OF ENSURING LABOR SAFETY

The oil and gas industry is a branch of the economy that provides for the search, exploration and development of oil and gas deposits, transportation, processing, storage and sale of oil, gas and their processing products. The oil and gas industry, along with other industries, ensures the functioning of a large number of industrial enterprises, plays an important role in the economic development of Ukraine, in its security and energy independence.

The socio-economic development of modern society involves improving working conditions, reducing the level of general and occupational morbidity, and the prevention of industrial injuries and occupational diseases is one of the most important factors for enterprises of all branches of production, and especially enterprises of increased risk.

All dangers that may arise at the enterprise can be conditionally divided into overt (obvious) and hidden.

Obvious (obvious) dangers include dangers of a technical and mechanical nature that can lead to injury due to the movement or rotation of machines, mechanisms, falling tools, parts, etc.; electrical hazards - the possibility of receiving industrial injuries due to electric shock; sanitary and hygienic.

Hidden dangers are dangers for the prevention of which there are no requirements in the company's documents (labor safety acts, technological process maps, etc.) and/or in state regulations on labor protection. Potential (hidden) danger manifests itself under certain, often hard-to-predict conditions and is realized in the form of emergency situations, diseases or injuries to people.

Hidden dangers are determined by the fatigue of the worker due to excessive difficulty and/or intensity of work, monotony of work, the sick condition of the person, his possible carelessness, inattention, inexperience, inconsistency of psychophysiological or anthropometric data of the worker, the equipment used or the work performed.

By origin, all dangerous and harmful factors are divided into the following groups:

- physical (moving machines and mechanisms, increased dustiness or gassiness at the workplace, increased or decreased temperature of surfaces, equipment, air in the working area, increased levels of noise, vibrations, electromagnetic radiation, deficiencies in industrial lighting, etc.);

- chemical (chemical substances or compounds that can cause general toxic, irritating, carcinogenic, mutagenic, sensitizing effects);

- biological (pathogenic microorganisms and their life products, macro-organisms - plants and animals);

- psychophysiological (physical and neuropsychological overload, emotional overload).

[1]

Occupational diseases primarily include diseases that arise as a result of the direct effect on a person of harmful production factors, as well as those that develop much more often than usual under certain production conditions. So, for example, in the case of long-term exposure to high concentrations of dust on the human body, diseases of the lungs and respiratory tract may occur, under the influence of high levels of vibration - vibration disease, as a result of the impact of noise - diseases of the hearing organs, and the consequence of exposure to chemicals will be poisoning. Acute and chronic occupational diseases and poisoning are

distinguished. Harmful factors of the production environment affect various organs and body systems of workers. Diseases caused by long-term, over many years, inhalation of small concentrations of vapors of chemical substances, dust, gases, exposure to vibration and noise on the body, as a rule, are chronic in nature and appear gradually - after 10-15 or more years of work.

Work at oil and gas production enterprises is characterized by the following features:

- execution of most of the works under the open sky;
- the use of chemical and explosive substances and the probability of contact with these substances;
- significant physical exertion and nervous tension when performing some types of work (elimination of accidents, open fountains, moving loads, etc.);
- increased operating parameters of some devices and installations (pressure, electric voltage, speed of movement, etc.)
- remoteness of workplaces from settlements, sanitary facilities and other premises.

The following are the main adverse production factors during oil and gas extraction, oil and gas well operation, and product processing:

- hard physical work;
- impact of vibration and noise;
- action of toxic vapors and gases;
- unfavorable meteorological conditions;
- action of ionizing radiation.

These factors lead to the occurrence of diseases of the peripheral nervous system and musculoskeletal system. Drillers, diesel operators, and workers at complex oil preparation facilities often experience hearing loss - sensorineural deafness, and vibration disease may develop. The air in the working area is polluted by oil and gas components (methane, propane, hydrogen sulfide, ammonia, carbon dioxide). In a hot climate, where the evaporation of harmful substances is increased, and in the conditions of the north, where pumping and solvent systems are placed in covered blocks, the content of vapors of harmful substances can be ten times higher. Constant stay in the open air, exposure to chemicals can lead to the development of occupational bronchitis, and subsequently to bronchial asthma. Workers exposed to oil and oil products may develop chronic hydrocarbon intoxication or allergic reactions. Oil and coal hydrocarbons can cause the development of professional dermatitis: volatile fractions (kerosene, gasoline) cause banal dermatitis; medium - lesions of the follicular apparatus; solid - photodermatitis, hyperkeratoses, skin tumors, melanoderma. [2]

Since the level of occupational morbidity is a serious medical, social and economic problem, measures for the prevention of occupational morbidity and detection of diseases at the early stages of development will play an important role. The main methods of preventing the occurrence of occupational diseases are the constant and systematic improvement of the working conditions of employees, the reduction of the levels of exposure to harmful production factors, the implementation of medical and preventive health measures, primarily preliminary and periodic medical examinations, the implementation or improvement of a rational regime of work and rest. Thus, in order to ensure the safe work of employees, it is important to identify industrial hazards, that is, to identify the type of hazard, establish its characteristics, which is necessary for the development of measures to eliminate them or minimize possible negative consequences, and systematic monitoring of the state of labor protection, analysis of indicators of conditions and occupational safety will give the ability to timely identify certain patterns and take measures to prevent industrial injuries and occupational diseases.

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