UDK 001

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HUMAN FACTOR IN TECHNICAL SAFETY

Annotation: According to the World Health Organization, the death rate from accidents in our time ranks third after cardiovascular and oncological diseases.

Key words: human factor, technical safety, labor protection.

However, if these diseases mainly kill older people, then accidents mainly kill able-bodied young and middle-aged people. Thus, statistics show that in men aged 15 to 36 years, the most common cause of death is an accident. It is safe to say that the problem of reducing injuries of various kinds in our country, as well as in the whole world, is extremely relevant and deserves the greatest attention.

The main method of labor protection for many years has been the use of technical means of safety. At the same time, two main tasks are solved:

1. Creating machines, tools, and technologies that reduce the risk of occurrence from a particular case to a minimum.

2. Creation of special means of protection that protect a person from danger in the process of work.

However, according to statistics, in at least two out of three accidents, the main culprit is not the equipment, not the technological process, but the working person himself, who for one reason or another did not comply with safety rules, violated the normal course of the labor process, did not use the provided personal protective equipment, etc. A crucial question arises: why do people who are born with the instinct of self-preservation so often become the culprits of their injuries? After all, if a person is mentally normal, then he will never strive for trauma without a reason. Such cases occur either for reasons beyond

the control of the person, or when he is prompted to violate the rules by certain circumstances. Obviously, in order to prevent the occurrence of such incidents, it is necessary first of all to identify these motivators and, if possible, reduce their impact.

The most general consideration of the laws of technological progress allows us to note that the circumstances that lead to accidents and accidents occur for quite objective reasons:

The first reason is that with the development of tools, the range of human impact on the world around him has expanded, both in variety and intensity. The achievements of science allow the development of technology to make it less dangerous, to create appropriate means of protection against danger, to choose methods of action taking into account the danger, etc. However, despite these preventive measures, with the development of technology, the danger increases faster than the counteraction to it.

The second reason that makes working conditions and human life more harsh and dangerous is the increase in the price of error. Now people are more often killed by high-voltage current, are injured when using increasingly powerful lifting and transport vehicles, fall from a height and fall more often not on the ground, but on asphalt or concrete.

The third reason is the habituation of a person to danger. Using the benefits of technology and getting used to them, a person often forgets that technology is usually also a source of high danger, and the intensive use of technology increases the possibility of realizing this danger. A city dweller in our time is more afraid of a peacefully grazing horse than of a madly rotating car shaft or a car rushing towards him. Constant interaction with dangerous equipment and ignorance about the mass of accidents lead to the fact that a person ceases to be afraid of what is actually very dangerous. Fortunately, not every violation leads to an accident. But this "fortunately" has a downside. People who once break the rules with impunity and get some small profit from it, repeat such violations.

Gradually, there is an adaptation to the danger, and with it the habit of breaking the rules.

In addition to the general causes, there are many diverse, purely individual factors, mainly of a psychological order, that create a deliberate violation of labor safety rules and an increase in the number of accidents (ostentatious courage, indiscipline, risk-taking, and much more).

Therefore, the security problem cannot be solved by technical means alone. Moreover, with the improvement of technology, increasing its reliability and safety, the shortcomings of the human factor become more noticeable, since in the total mass of accidents, human errors become increasingly important.

What are the reasons for the wrong, erroneous actions of a person? The reasons are diverse. These can be purely subjective factors: a person's lack of psychological or physiological qualities necessary for this work, a lack of knowledge or experience, a violation of the physical or emotional state, etc.

Internal factors can also be generated by external circumstances. For example, external physical influences, starting with those that arise from working conditions, and up to such phenomena as magnetic storms, the change in the phase of the moon, can affect the internal state of a person and be the root cause of accidents.

The possibility of accidents is also influenced by many social factors, such as the psychological climate in the team, the adopted system of labor incentives, and living conditions. Thus, the identification and prevention of the causes of failures, errors, intentional and accidental dangerous human actions is a task of high uncertainty and complexity. The psychology of safe work as a scientific discipline is designed to find and offer employees specific recommendations for solving these problems. Ultimately, the human factor should become a reliable link in the system of measures to ensure safe work. According to experts of the national association of occupational safety centers, the generalization of materials from investigations of industrial accidents and accidents allows all the

variety of direct causes of dangerous actions to be reduced to four groups (classes) of causes:

Does not know how – this means that the employee does not have the necessary knowledge for this work, has not mastered the relevant skills, methods, techniques, methods. Does not want to – this means that the employee is able to perform this work (operation) efficiently and safely, but he does not have the desire to comply with the safety requirements, in other words, there is no motivation, no developed psychological attitude to comply with these requirements. Not – this means that the employee is in such physical or psychological condition that, in spite of the ability, despite the desire, allow dangerous action. City not provided – this means that the employee does not perform the action prescribed by the lack of his conditions required tools, materials, devices, information, etc. The first three groups of reasons (A, B, C) are due to the individual and personal characteristics (qualities) of the employee. In general, these reasons are called the human factor. The fourth group (D) of direct causes is an external factor in relation to the employee, in other words, it is the production environment in which the employee's activities take place.

All four identified groups of direct causes of dangerous actions, in turn, are the result of higher-level causes, which should be attributed to the sphere of organization and management of production. Usually these reasons are defined as organizational. Initially, we will consider what is meant by the term "safe work". Is not this concept synonymous with the concept of "safe conditions of the pile" .

Safe working conditions are working conditions in which the impact of harmful and (or) dangerous production factors on workers is excluded, or the levels of their impact do not exceed the established standards. As you can see, this definition does not exclude the presence of potentially dangerous factors in the workplace and does not contain any requirements for the employee.

But such conditions are not enough to prevent an accident (accident). First, as noted, for a number of reasons, the employee himself can commit a dangerous action, which will result in an accident or accident. Secondly, the potential danger of production under certain conditions can turn into a real one, in which a dangerous situation or an emergency situation is created that requires adequate actions and behavior from the employee. Finally, there may be situations where severe consequences occur not because of the impact of a dangerous factor, not because of the reckless behavior of the employee, but in connection with his condition. Imagine that at an ideal (according to the safety criterion) workplace, an employee had a heart attack due to strong emotions (which took place before the start of the working day), he lost consciousness, fell and received a traumatic brain injury. Thus, it should be recognized that safe working conditions are necessary, but not sufficient for safe work. Much depends on the employee: on his qualifications, behavior, physical and mental condition.

Based on the above judgments, we can give the following definition of the concept of "safe work»: Safe work is an activity in which safe working conditions are provided and the employee acts reasonably and safely both when performing work operations and in the event of dangerous situations, and the physical and mental state of the employee corresponds to the norm.

Four groups of reasons for dangerous actions of employees are considered above: 1. Does not know how, 2. Does not want, 3. Can not, 4.Is not provided. Obviously, for safe work, these reasons must be eliminated. Then the formula of necessary and sufficient conditions for the safe work of a particular employee can be presented in the following form:

Safe labor of the employee = 1. Can + 2. Wants + 3. Can + 4. Provided.

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