The purpose and objectives of the labor protection service at the enterprise

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Abstract. The main goal of improving working conditions is to achieve a social effect, i.e. ensuring labor safety, preserving the life and health of workers, reducing the number of accidents and diseases at work. Improving working conditions also yields economic results: an increase in profits (due to an increase in labor productivity); reduction of costs associated with compensation for work with harmful and difficult working conditions; reduction of losses associated with injuries, occupational morbidity; decrease in staff turnover, etc. The main document in the normative and technical documentation is the normative act "Occupational safety standards system".

1. Introduction
Injuries are called damage to body tissues and impairment of its functions in case of accidents, i.e. when exposed to hazardous production factors: mechanical (injury, cut, fracture, dislocation, etc.), thermal (burn, frostbite), chemical (chemical burn), electrical (burn, skin metallization, electric shock, etc.), psychological (nervous stress, fright, etc.)

The causes of industrial injuries and diseases can be divided into the following groups: technical, organizational, sanitary and hygienic, psychophysiological, subjective and economic.

Technical reasons may be design flaws of machines, mechanisms, tools, devices or their malfunction. Lack, imperfection, malfunction of protective, blocking, ventilation devices; grounding or grounding of electrical installations; leakage of poisonous liquids, gases, etc.

Organizational reasons - untimely or poor-quality instruction and training on labor protection of workers, lack of instructions on labor protection. Insufficient control over the fulfillment of labor protection requirements by workers, unsatisfactory maintenance of the workplace, shortcomings in the organization of group work, in providing workers with overalls and other PPE. The use of equipment, tools for other purposes, violation of the regime of work and rest, technological process.

Sanitary and hygienic reasons - unfavorable natural and climatic conditions or indoor microclimate, high levels of harmful substances in the air, high levels of noise, vibrations, radiation, irrational lighting, unsanitary conditions of workplaces and household premises, non-compliance with personal hygiene rules, etc.

Psychophysiological reasons - monotony, high work intensity, inconsistency of the anatomical, physiological and psychological characteristics of the organism with working conditions, fatigue, unsatisfactory psychological situation in the team, etc.
Subjective reasons are the employee's personal indiscipline, failure to comply with labor protection instructions, being in a state of alcoholic or drug intoxication, in a sick state, etc.

Economic reasons can be the desire of workers to ensure high output and wages with a disdainful attitude towards labor protection issues, insufficient allocation of funds for measures to improve working conditions, etc.

An accident (injury, illness) can be caused by one, but more often several, related or unrelated causes that create a hazardous situation in the workplace. A hazardous situation includes hazardous conditions and hazardous actions.

Hazardous conditions - a state of the working environment that does not comply with established standards.

Dangerous action is an incorrect, unprofessional action of an employee, which is the result of lack of training, inability, unwillingness, inability, and in some cases, the inability of the employee to correctly assess the production environment and comply with all the requirements of labor protection norms and rules.

2. Methods

Injury prevention measures include solving labor protection issues, introducing new, advanced methods of organizing safe work at each production site.

Measures to improve working conditions can be divided into: legislative, organizational, technical, medical and preventive and economic.

Legislative measures define the rights and obligations of workers in the field of labor protection, their work and rest regime, labor protection for women and youth, sanitary standards for the maximum content of harmful substances in the working area, compensation for damage to victims, their pension provision, benefits, etc.

Organizational measures provide for the introduction of a labor protection management system, training of workers, providing them with instructions, the creation of labor protection offices, the organization of control over compliance with labor protection requirements, etc.

Technical measures include:

- development and implementation of complex mechanization and automation of heavy, harmful and monotonous work; creation of safe equipment and technology; installation of safety, signaling, blocking devices;
- technical solutions for the normalization of the air environment, industrial lighting; preventing the formation and removal of harmful substances from the working area; reduction of noise, vibration, protection from harmful radiation;
- creation of isolation cabins for operators working in hazardous conditions, or remote control; development and manufacture of collective and individual protective equipment, etc.

Medical and preventive measures include:

- preliminary and periodic medical examinations of workers in dangerous, harmful and difficult working conditions;
- providing them with therapeutic and prophylactic nutrition;
- conducting industrial gymnastics; ultraviolet and bactericidal irradiation;
- application of coniferous, salt-coniferous baths, massage, etc.

Economic measures include material incentives for work to prevent injuries and improve working conditions, a more rational distribution of funds allocated for labor protection.

The manager, chief engineer, chief mechanic, chief power engineer, other chief specialists, heads of structural divisions, foremen - everyone is obliged to provide safe and harmless working conditions in his area of work.
The chief engineer supervises the development and implementation of labor protection work plans, organizes the execution of instructions from higher authorities, checks the state of safety and sanitary and hygienic working conditions in workshops and structural divisions, takes prompt measures to eliminate identified deficiencies. His responsibilities also include organizing the development and approval of labor protection instructions for all occupations of workers and work performed, promoting labor protection and providing employees with instructions and rules on labor protection. The chief engineer organizes knowledge testing and professional development of managers and specialists on labor protection issues, ensures the timely submission of the established labor protection reporting, as well as operational information about accidents and the work carried out to eliminate them.

Figure 1. The number of accidents at work (thousand people).

The chief technologist of the enterprise ensures the development and implementation of rational and safe technological processes, devices, tools, as well as compliance with technological instructions.

The chief designer ensures the development of safe structures for machine tools, machinery, equipment, fixtures, installations and other products manufactured by the enterprise.

The chief mechanic and chief power engineer of the enterprise ensure timely maintenance and repairs of equipment, lifting machines and mechanisms, steam and hot water boilers, apparatus and devices operating under pressure, compressor units, electrical installations and devices, as well as ventilation and heating systems.

The building maintenance service and its personnel carry out technical supervision over the safe condition of industrial buildings and structures.

Safe condition and operation of railway and water transport vehicles, access roads and berths; organization of loading and unloading operations; Proper maintenance of the territory and sanitary facilities and devices of the enterprise, provision of drinking water, means of individual and collective protection shall be provided by the corresponding deputy heads of the enterprise and the services under their subordination.

The foreman organizes and creates safe working conditions at workplaces, monitors the condition and proper operation of equipment, fixtures, fences, alarm and automation equipment. He monitors the operation of ventilation units, lighting of workplaces; safe use of electrical equipment, gas welding equipment; carries out labor protection measures.

Together with the public labor safety inspector, the foreman carries out operational control over the state of labor protection. The foreman conducts instruction on labor protection at the workplace, takes part in training workers on labor protection, keeps logs of registration of instructions at the workplace.
The foreman immediately reports to the head of the shop about the accidents that have occurred, provides the site with means of visual agitation and promotion of labor protection (instructions, memos, posters).

May or may not be accompanied by disability. In severe cases, they can lead to disability.

3. Results
The labor protection service at an enterprise is an independent structural unit that reports directly to the head or chief engineer of the enterprise and is responsible for organizing work at the enterprise to create healthy and safe working conditions for workers, to prevent industrial accidents and occupational diseases.

The labor protection service, labor protection engineer or persons performing his functions are obliged to:

- organize work on labor protection and monitor compliance with the current legislation on labor and labor protection, instructions on labor protection, industrial sanitation, fire safety at the enterprise;
- monitor compliance with the correct operation of steam boilers, pressure vessels, cylinders with compressed, liquefied and dissolved gases, control equipment, cranes, lifts, schedules for measuring industrial noise, air, vibration;
- draw up a list of high-risk works, register their performance, exercise control over their safe production;
- develop training programs for workers in safe working methods;
- compile, with the participation of the heads of technical services, a list of instructions on labor protection for certain professions and certain types of work;
- participate in the work of qualification commissions for the conduct of qualification exams, in commissions for testing the knowledge of workers of the rules, norms and instructions on labor protection;
- participate in the work of examination commissions to test knowledge by officials and specialists of labor legislation, rules and regulations on labor protection;
- develop an induction program and ensure that it is carried out;
- control the provision of employees with personal protective equipment and the correctness of their use;
- participate in the drafting of the section of the collective agreement concerning the improvement of working conditions, health promotion of workers;
- participate in the investigation of accidents and occupational diseases at work, the development of measures to prevent them, keep records and analyze the causes of accidents;
- monitor compliance with the instructions of the state specialized supervision authorities;
- advise employees on labor protection issues, supervise the work of the labor protection office, organize labor protection propaganda at the enterprise, etc.

4. Discussion
According to the Rules (see clause 4.2.1) and GOST 12.0.004-90, the following types of briefings are held: introductory, primary at the workplace, repeated, unscheduled, target.

Introductory briefing on labor protection is carried out upon admission to a permanent or temporary job by the labor protection service of the enterprise. All new entrants to the enterprise, as well as business travelers, students who arrived for practice, graduate students, interns must undergo this instruction.

The purpose of this briefing is to familiarize with the general rules and requirements of labor protection at the enterprise.
The introductory briefing is carried out by an occupational safety engineer or a specialist of the organization who is entrusted with these duties. The introductory briefing is carried out according to the program (instructions) approved by the head of the organization, containing the following questions:

- general information about the organization and characteristic features of production;
- rules of conduct for employees on the territory of the organization;
- the main provisions of contracts: labor and collective;
- rules of internal labor regulations of the organization, responsibility for violation of these rules;
- organization of work on the management of labor protection;
- control and supervision over compliance with labor protection requirements in the organization;
- the main hazardous and harmful production factors, typical for the given production;
- PPE, the procedure and standards for issuing them and the timing of wearing;
- procedure for investigation and registration of accidents and occupational diseases;
- action of employees in case of an accident at work, provision of first aid to victims;
- fire safety, personnel actions in the event of a fire and other issues.

References
[1] Kobzev, K. 2020 Studies related to the calculation of the noise. the study of pumping hydraulic systems and the study of the use of an unloading valve in a hydraulic system E3S Web of Conferences 175,05037
[2] Kobzev, K. 2020 Pumping hydraulic systems and the use of an unloading valve in a hydraulic system E3S Web of Conferences 175,05036
[3] Kobzev, K. 2020 Mathematical model of a drive mechanism with a crank device of a crank press E3S Web of Conferences 164,03051
[4] Kobzev, K. 2020 Learning the basics of a battery pack control system E3S Web of Conferences 164,13006
[5] Kobzev, K. 2020 The process of increasing the stable operation of the working body in crank presses E3S Web of Conferences 164,03017
[6] Staseva, E. 2020 Theoretical studies on the calculation of the noise of impact equipment in blacksmith shops E3S Web of Conferences 164,01030
[7] Kobzev, K. 2019 Principles of improving the smoothness of the working mechanism in forging and stamping machines IOP Conference Series: Earth and Environmental Science 403(1),012145
[8] Stuzhenko, N.2020 Means and methods of noise protection to reduce the risk of cardiovascular disease in workers E3S Web of Conferences 164,01029
[9] Staseva, E 2020 The effect of noise on the human body, in particular, on cardiovascular diseases E3S Web of Conferences 164,01028
[10] Il'Ev, A. 2020 Vibration safety to reduce the risk of cardiovascular disease in workers E3S Web of Conferences 164,01025
[11] Rybak, A 2020 Simulation of the pump-battery power supply control system based on the unloading machine E3S Web of Conferences 164,01004
[12] Rybak, A.T.2019 Simulation of the stand drive system for testing plunger hydrocylinders, AIP Conference Proceedings 2188,050042
[13] Ivanovskaya, A.V. 2018 Simulation of drive of mechanisms, working in specific conditions, Journal of Physics: Conference Series 1015(3),032054
[14] Demyanov, A. 2019 Skid adjuster for humps E3S Web of Conferences135,02020
[15] Gnusov, M 2020 Improving the efficiency of forest fire prevention and suppression with of forest fire machine *IOP Conference Series: Materials Science and Engineering* 919(3),032025