DOI: 10.46299/ISG.2023.MONO.ECON.1.8.3

8.3 Industrial and professional risk and their expertise rating

Abstract. There are many different methods evaluations industrial and professional risks. Hardly among them you can highlight certain universal method which would suit everyone organizations . Therefore, the choice of risk assessment method is made by experts are doing independently _ This article considers _ opportunities application methods of expert evaluation in the analysis industrial and professional risks.

Keywords. Quality, quantity, risk, probability, expert assessment, labor protection, experience, method.

Introduction. The modern model of the occupational health and safety management system, preservation of occupational health and safety at enterprises is organized according to the OHSAS standard and is based on the methodology: plan - execute - check - act. The implementation of this methodology involves the development of specific methods aimed at identifying and reducing industrial and professional risks.

According to DSTU 2293-99, "risk is the probability of causing damage, taking into account its severity." Therefore, in a number of countries and in Ukraine, the relevance of studying issues of industrial and professional risks is increasing sharply . This is due, firstly, to the need to intensify preventive measures aimed at preserving the health of employees, and secondly, to the legal consequences associated with taking into account the level of industrial risk when assessing the quality of labor protection management in this production system.

The main part .

The fundamental basis for the reduction (elimination) of industrial and professional risks is a comprehensive analysis of dangerous and harmful production factors, which are the main causes of the occurrence of real, as well as the existence of potential dangers at the enterprise. Therefore, the procedure for analyzing industrial and professional risks, which includes the identification and assessment of risks,

deserves special attention. And this procedure can be done by various methods and schemes.

Risk can be assessed qualitatively or quantitatively. Qualitatively assessed risk characterizes the origin of potential danger and shows the dangers themselves. If a system of points is introduced during risk assessment, which more or less subjectively (numerically) assesses the possibility of an event and the consequence of its danger, then we can talk about a semi-quantitative method of assessment. A semi-quantitative method usually complements a qualitative analysis. It is also used in the initial stage of quantitative analysis.

Quantitative (numerical) assessment of risk in relation to qualitative one has a number of advantages: first, it provides a basis for objectively judging the extent of the threat; secondly, it makes it possible to develop a production management system that corresponds to the degree of risk; thirdly, only numerically assessed risks can be compared with regulatory requirements, as well as with each other, despite the different nature of their origin.

In practice most often are applied quality methods, because they are considered simple. A vivid example of quality analysis industrial and professional risks, is an application - based method probability of diagrams in the coordinate system events (consequence events), especially when absent necessary data or their very little Such diagrams are presented in the form matrices which show dependence level (category) of risk from correlation probability events and severity his consequences _ If quality risk assessment shows probability and danger consequences are necessary parameters are determined by a system of points or point. This method of risk assessment is widely used in Ukraine in practice development and operation of management systems protection works. According to this method , risk assessment in organizations is carried out, as a rule, by the head of the enterprise, often with involvement independent experts, from qualifications and experience whose depends quality and completeness performed work _ It is obvious a disadvantage this method has its absolute subjectivity: the expert, based only on their own knowledge, experience, feelings, decides to which categories take away probability and severity unwanted consequences. The amount of

risk (R) is defined as an essay probability (P) of the event on it consequences (S) and calculated according to the formula : $R = P \times S$.

It is clear that different experts will evaluate the same situation differently , and it is possible that the same expert after some time will assess the same risk at the same workplace place in a different way .

Then there is the question of correctness used experts methods evaluations industrial and professional risks: firstly , experts are not specially selected , moreover , they are often interested persons who it is strictly forbidden when conducting an expert assessment; secondly, the evaluation is carried out, as a rule, within one tour, which does not allow discussion and agreement evaluations; thirdly, absent appropriate mathematical processing results. In order to figure it out questions, let's stop in more detail on methods of expert assessment and, in particular, opportunities application them for evaluation industrial and professional risks.

Today they have become indispensable part of scientific and practical activity ***Methods of expert assessment*** industrial and professional risks. Why? Because in order to solve the tasks, to make well-founded and balanced decisions, it is necessary to rely on the professional experience, knowledge and intuition of specialists (experts), which is often the only and irreplaceable means to achieve the set goal.

Expert evaluation methods can be divided into two groups**: *individual and collective.***

Individual methods and expert evaluation are mainly used to evaluate the well-known of the object according to the tested and verified in practice criteria. The concept of individual evaluation is used here in the sense that each one member of the expert commission does assessment regardless from others members Commission . Audit of this type is more or smaller measure is routine work that does not require deep knowledge about the essence of the analyzed risk. In connection with this individual rating experts is admissible in cases where it is necessary make insignificant conclusions or accept unimportant decisions. For business management like that rating may be applicable in cases where inspection of labor safety , compliance with fire safety regulations and the like . Rating experts in such inspections is limited outputs

"is" - " no " or " corresponds " - "does not correspond ", which indicate in advance developed experienced leaves.

Collective methods of expert assessment , which characterized by open discussion of problems and assessments and collective making a decision is the most objective in assessment industrial and professional risks. In this sense most the Delphi method, according to which the evaluation procedure is acceptable , is acceptable is divided into several tours , and coordination is also carried out evaluations. But there is more to this method time-consuming , because the procedure is carrying out includes few stages: - formulation of the purpose of the examination and development procedures survey; - selection and formation groups experts; - conducting survey; - analysis and processing information received from experts; - making a decision according to the results . When using this method experts specially are selected , that is taken into account level their qualifications (professional education), work experience , specialty and experience practical works and they are in advance provide information about yourself in the form of a questionnaire self-assessment "according to the following characteristics: competence; interest in participating in the work of the expert commission; business acumen; objectivity. In case implementation evaluations production and professional risks, competence should include : professional education, including in the region protection work; experience developments regulatory, technical and methodical documentation in the region protection work; training and retraining in the region protection work; experience practical work in the region protection labor, etc.

The expert's ***interest*** in the work of the expert commission depends on his individual characteristics, the workload of the main work, the goals of the assessment and the possibility of using the results in his practical activities. It should include : participation in functioning systems management protection work in the organization ; participation in scientific security seminars and conferences work; availability scientific works, publications in the region protection labor.

Business an expert includes his composure, efficiency in work, ability quickly switch from one problems on another , skill work with people in decision making tasks

in conflict situations, ability resist thoughts the majority with confidence in their own rightness, skill clearly formulate your thoughts. For purposes evaluations industrial and professional risks, as a rule, happen experience participation in the implementation supervisory and control events , examinations in the region protection labor. _

Objectivity (impartiality) of the expert consists in making judgments that characterize valid state of the data problems , in particular , assessment of industrial and professional risks. There should be no bias. Trace consider factor possible subjective interest experts in the end The expert must not be related to the appraised object by signs participation in the labor process . He must be impartial (absent material interest in the analyzed activity the worker place).

In addition to the expert group , is being formed working a group that organizes and conducts meetings experts groups , analyzes received results and calculates experts evaluations .

Carrying out assessment is carriedout in several tours. In the first tours experts are offered the questions they ask answers without arguments. The results poll processed and reported experts. In the second round experts argue or change their primary assessment with an explanation of the reasons for the adjustment . Further tours are carried out subject to compliance similar procedures . Usually after third or fourth round value evaluations stabilize, which serves as a criterion termination further survey.

Way poll experts is defined working group to form an expert group to its structure, professional composition and number experts corresponded to the survey method . At the same time one of the options is selected organizations communication experts : absence communication, extramural anonymous communication, extramural communication without anonymity, face-to- face communication. In the absence communication expert expresses his opinion without knowing anything about others experts and their opinions. Correspondence anonymous communication means that _ expert gets acquainted with the opinions and arguments of others experts , but does not know who exactly expressed this or that position. Correspondence communication without anonymity is done, for example, by means of mailings letters, phone or Internet

surveys . All of them options extramural examinations good ones because there is no necessity collect experts together, therefore, to find for this convenient time and place. However, more time is needed to reach agreed answers. During face-to-face communication, experts speak instead of writing, as in face-to-face communication, and therefore manage to do significantly more in the same time. Face-to-face communication - these meetings that follow a fixed schedule. It has disadvantages related to the possibility of negative influence on their implementation of the socio-psychological properties and passions of the participants, as well as the inequality of their professional, official and scientific statuses.

Depending on the nature of the researched object, on the degree of its formalization, the compliance of the experts' characteristics with the requirements, the procedure for working with them may be different, but it basically involves the following successive stages: specifying the type of the object, its parameters and indicators subject to expert evaluation; clarifying the wording of questions and the terminology used; coordination of the form of presentation of the results of expert assessments; presentation of questionnaires, questionnaires and other handouts to experts. Then relevant explanations are given, which describe the purpose of the work, the structure and the order of construction of the handout; self-filling of questionnaires by experts.

The results of the expert assessment are processed by the working group. Given that collective methods of expert assessment are more time-consuming than individual ones, they are less often used within individual organizations in the assessment of industrial and professional risks. But these methods are indispensable in cases where it is necessary to obtain a quantitative assessment of risks.

Returning to the methodology of assessing industrial and professional risks in organizations using diagrams in the form of matrices based on the probability and consequences of events, we can safely say that in this case, individual methods of expert assessment are used, which are characterized, as already mentioned above, by a high degree subjectivity. In order to strengthen the objectivity of industrial and

professional risks, it is possible to additionally use the method of survey questionnaires for employees of various professions.

This method, the method of survey questionnaires, is used in cases where it is required to assess the dangers of production or individual workplaces, based on typical worker operations, to evaluate the object for compliance with the requirements of regulations or standards, and also to objectively evaluate and take into account opinions and the wishes of the employees themselves. The advantage of this method is that an occupational health and safety specialist without special training, analyzing the information obtained from the questionnaires, can reach a satisfactory result and obtain the necessary data for a further more complete assessment of industrial and professional risks. The effectiveness of using questionnaires depends on the competence and experience of their compilers, so they must be constantly revised and supplemented.

The ***survey questionnaires themselves*** must be developed individually for each type of activity (profession). The structure of the questionnaire should include such positions as workplace assessment, workload, room characteristics, work organization, as well as indicators that allow you to determine the employee's profession, professional experience, age, floor and obtain other necessary information. The questionnaire should include questions affecting the attitude of employees to the industrial and professional risk present in their working environment: does the microclimate meet the necessary requirements; whether there are physical (noise, vibration, etc.), chemical and biological factors, psychosocial problems, and the like. If physical exertion is present, then the questionnaire should contain questions about the weight of the object being lifted or moved, or the load, the number of operations per shift, discomfort or pain in certain parts of the body until the end of the shift, and other information.

Conclusion Evaluators of the above, it is possible to conclude that the existing various formal methods of assessment of industrial and professional risks in many cases (actually in all non-trivial situations) cannot give unequivocal recommendations. In the end, the decision is made by a person, the head of an enterprise, a university, the

head of a public enterprise, and he is responsible for it. Therefore, it is desirable to include expert assessment procedures in the analysis of industrial and professional risks within the framework of newly created, as well as functioning occupational health and safety management systems.