Development of proposals of improving the risk-oriented approach in control and supervision activities on labor protection

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Abstract. This work is devoted to the development of recommendations for improving the methodology for classifying the activities of employers to a certain risk category, which will make it possible to focus supervisory measures on enterprises in which professional risks to the life and health of workers are high.

1. Introduction

In 2017, in the field of inspections of compliance with labor law requirements, a number of regulations were adopted. Those provide important changes for both the employer and the supervisory authorities, namely the transition to a risk-based approach (RBA).

This approach is a method of organizing and implementation of control, according to which the number of scheduled inspections and measures to prevent violations is determined by classifying the employer’s activities as a risk category.

The risk-based model is aimed at concentrating a limited amount of resources precisely in those zones where there is a chance of maximum risk, as well as at reducing the administrative load and preventing harm to legally protected values on conscientious employers [1,2]

The risk category, which makes it possible to estimate the activities of the enterprise, is calculated on the basis of a certain methodology, which includes several stages, and the calculations of the corresponding formulas. However, this methodology is based on a list of indicators that do not fully or do not always reflect the specifics of the activities of enterprises. For example, the same lists include enterprises whose nature of activity is fundamentally different from the point of view of the presence of occupational risks to the health and life of an employee. There is a dependence of checks on criteria that do not significantly affect the definition of the risk category.

The introduction of a risk-based approach to control and surveillance activities in the field of labor protection provides a change in the number, duration and frequency of scheduled inspections by dividing organizations into several categories – those which require more close attention and enterprises that can be characterized as relatively safe. [3,4,5]

This approach is based on decisions taken while taking into account the calculation of the degree of risk. Therefore, it is necessary to provide a justification for the use or selection of additional criteria and indicators by which an enterprise can be included in one or another of the above risk categories.

In this regard, the purpose of this study is to develop recommendations for improving the methodology of classifying the activities of legal entities and individual entrepreneurs to a certain category of risk.

2. Methods

The methodological basis of the research is the analytical method, the method of systematization, generalization, comparison, deduction, the method of document analysis.

To develop recommendations for improving the risk-based approach, the materials-methodology for assigning employers’ activities to a certain risk category were studied. [6]

To determine the criteria and indicators that influence to a greater extent in the categorization, enterprises of the following sectors of the economy were analyzed: education, electricity supply, trade and...
manufacturing. The data provided by the labor protection service of each enterprise were studied, namely, information on injuries over the past 3 years, the average number of employees, information on the presence of wage arrears and administrative penalties.

3. Results
In the course of the work, a comparative analysis of the risk categories of enterprises of various economic activities was carried out, the difference in the considered indicators was carried out.

The comparative analysis revealed the following:
1. The industries of education and electricity supply are assigned into the high risk category, while trade and manufacturing are considered as moderate risk. Although from the point of view of threats to life and health, harmful and dangerous factors of the labor process, these industries can be related in a different way. If in the first case the coincidence of the risk category is explained by the presence of accidents, in the second, when the enterprises fully comply with labor legislation and there is no injury, there is a discrepancy between the assigned risk categories.
2. If there has been at least one minor accident, excluding severe and fatal, the potential risk indicator all (P), based on the value of which is assigned to the risk category, still increases regardless of the economic sector.
3. The definition of the risk category depends on the number of employees in a particular area. However, this should not affect the categorization, since the number of employees does not reduce the impact of occupational risks in really potentially dangerous areas for the life and health of employees.

Based on the comparative analysis, a detailed analysis of the calculations and factors affecting the final result was carried out, the shortcomings of the method were identified and a number of recommendations that could contribute to its improvement were proposed.

Conclusions on the identified shortcomings of the method:
1. The employer cannot influence the values of such indicators as the indicator of potential harm to legally protected values in the world of work (PH) and the indicator of the scale of the spread of potentially negative consequences (S), since they are already presented in numerical form in the regulatory document.
2. The product of the PH and S indicators may ultimately give such value (1 or more) that it makes no sense to consider the remaining coefficients. The indicator of potential risk already automatically takes on a value that assigns the enterprise to the high risk category.
3. The coefficient of the fact of the presence of administrative penalties for violations (Cadm) takes the value of either 0.1 or 0, but it does not depend on the number and significance of violations of mandatory requirements in legislation and the sphere of labor protection, but simply on the presence of an administrative penalty. In fact, there can be an uncountable number of violations, as well as violations may differ in degree of significance, but this does not affect the risk categories, and, consequently, scheduled inspections.
4. The risk category depends on the number of employees, excluding working conditions.

During the analysis of the methodology used for categorizing the enterprise, data that are not taken into account in the calculation were identified. Accordingly, the developed recommendations for improving the methodology include three areas:
1. Classification of violations.
2. Results of special assessment of working conditions – SAWC.
3. Risk assessment.

To determine the risk category of the enterprise in the considered methodology, such an individual coefficient, which shows the presence of the fact of administrative punishments imposed for a number of violations of mandatory requirements in the world of labor (Cadm) is used. In the presence of punishments, the coefficient is 0.1, in the absence it is equal to 0. However, this coefficient does not take into account the significance, the severity of the consequences that may arise based on a particular violation.

The first recommendation is to rank the coefficient of administrative punishments (Cadm) according to high, low and medium risk of violations of mandatory requirements. The introduction of this coefficient will help to identify the significance of the violations committed and clearly demonstrate the employer the obligation to comply with the requirements of labor legislation and legislation in the field of labor protection.

The algorithm for determining Cadm can be represented in the form of a block diagram shown in figure 1.
Figure 1. Algorithm for calculating the coefficient of administrative penalties.

The calculation results, taking into account ideal conditions and taking into account the introduction of the gradation of the coefficient of administrative punishments, are presented in table 1.

| Sphere          | P    | Category  | Cadm by method | Cadm by degree of risk |
|-----------------|------|-----------|----------------|------------------------|
| Trade           | 0.3  | Moderate  | 0.1            | 0.4                    |
|                 |      | risk      |                | Moderate risk          |
| Electricity     | 0.693| Average   | 0.1            | 0.793                  |
| supply          |      | risk      |                | Significant risk       |
|                 |      |           |                |                        |

Let's move on to the second direction of the developed recommendations.

At enterprises, situations are possible when there are no accidents at work, but according to the results of the SAWC, 3 and (or) 4 classes of working conditions have been established, respectively, at the workplaces of these enterprises employees are involved whose work is carried out in harmful and (or) dangerous factors, affecting employees during the production process in the form of acquiring later or already having occupational diseases (OD).

Since the method under consideration includes an indicator of the scale of the spread of negative consequences (S), which is the average number of employees in the enterprise, an additional coefficient can be introduced to this indicator. It will consist of the presence of workers at work involved in harmful and (or) dangerous working conditions.

The algorithm for determining this coefficient is presented in the form of a block diagram in figure 2.
Figure 2. Algorithm for calculating the coefficient, taking into account the presence of workers involved in harmful and (or) dangerous working conditions.

The calculation results, taking into account the introduction of this coefficient, are presented in Table 2.

| Sphere                 | before the introduction of the coefficient | after the introduction of the coefficient |
|------------------------|--------------------------------------------|------------------------------------------|
|                        | PH  | S  | P  | Category         | PH  | S  | C  | P  | Category         |
| Trade                  | 0.2 | 1.5| 0.3| Moderate risk    | 0.2 | 1.5| 1  | 0.3| Moderate risk    |
| Electricity supply     | 0.99| 0.7| 0.693| Average risk     | 0.99| 0.7| 1.6| 1.1088| High risk        |

It is worth noting that the proposals mentioned above for improving the coefficients that affect the categorization of the enterprise do not take into account the number of identified workplaces with different classes of working conditions. In calculating the coefficient, only one workplace with the highest hazard class is used.

Thus, the introduction of this coefficient will focus the attention of the supervisory authorities on those workplaces (and, accordingly, enterprises) where it is possible to implement the impact of harmful and (or) hazardous factors that affect workers in the future in the form of occupational diseases.

One of the following recommendations for improving the risk-based approach is to use the information obtained through professional risk assessment. However, in the absence of an approved methodology, this approach cannot be implemented. This is another argument in favor of the need to develop and implement a common risk assessment methodology for all enterprises.

The use of the obtained results of a unified risk assessment, perhaps, should be presented in the form of a certain indicator and add it to the considered methodology as an independent coefficient. However, at the moment there is no way to say what this coefficient should be. Definitely it should be presented in numerical form, and the figure used should be convenient and understandable for the control and supervisory authorities. The value of this indicator should fully reflect the results of the risk assessment carried out.

4. Discussion
The introduction of a risk-based approach significantly changes the mechanism of state supervision and control in the field of labor protection. This innovation significantly reduces the load on the Rostrud system
and the State Labor Inspectorate when monitoring compliance with the requirements of labor legislation and other regulatory legal acts containing labor law norms, and also allows the supervisory authorities to focus increased attention at enterprises where the risks are the highest. The use of a risk-oriented model consists in using a methodology, based on which one or another category of risk is assigned to enterprises, and the “density” of control is determined.

The developed recommendations for improving this methodology will contribute to the most complete, deep and detailed assessment of a particular enterprise, taking into account various points in terms of hazards to the life and health of employees when categorizing with the subsequent implementation of scheduled inspections, increase the indicator of the validity of the number of inspections from the activities of the enterprise.

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