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# FORMAL AND LEGAL REQUIREMENTS FOR PUBLIC ADMINISTRATION BODIES FOR THE PREVENTION OF A MAJOR INDUSTRIAL ACCIDENT

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## **Abstract**

The article presents issues concerning selected elements in the field of counteracting major industrial accidents, concerning formal and legal requirements for public administration bodies, their location in legal norms in the aspect of tasks performed in relation to the needs of the society. In this context, a review was made of legal acts related to the functioning of the major-accident prevention system, concerning the requirements for the bodies of the State Fire Service and the Environmental Protection Inspection.

Moreover, the provisions contained in legal regulations were analysed and their significance in the area of development and implementation of documentation by the State Fire Service authorities, concerning mitigation, combating and removal of effects of a major industrial accident, was explained.

The subject is based on the provisions of the European Union law and environmental law regulations and executive acts indicating the requirements which are directed in the context of public administration bodies for counteracting major industrial accidents. The objective of the accident prevention system is to limit, liquidate and remove the effects of a major accident, therefore the public administration bodies should ensure effective and efficient actions to save lives, property and the environment. The article indicates, in theoretical research, that in order for such actions to take place, it becomes necessary to introduce appropriate changes in national executive acts, concerning the determination of the way of combating the hazard by taking action in case of an industrial accident, as indicated in the European Union directive.

**Key words:** high risk establishment, major accident, emergency plan, State Fire Service, Environmental Inspectorate.

## **Introduction**

The issue of major industrial accidents, mainly with regard to the prevention mechanism, is steadily gaining in importance. This situation is caused by the constantly increasing technological advancement of industrial plants. Poland, as well as many other EU countries, attaches great importance to the issue of prevention of industrial accidents. Such activities are enforced mainly by legal regulations at the international level. The experience from the conducted activities indicate that the tasks of preventing, combating and removing the effects of accidents are performed to various degrees by public administration bodies, which are conditioned on the one hand by legal regulations and on the other hand by the capabilities of executive entities.

In view of the above, it is justified to review and present selected legal elements relating to prevention of major industrial accidents in relation to public administration bodies responsible for combating and removing the effects of a major accident.

The performance of tasks by public administration bodies, which imply the need to determine whether the formal and legal requirements indicate taking actions to combat the effects of a major industrial accident, becomes a research problem. The indicated mechanisms should minimize the effects of a major accident on people, the environment and property by preparing forces and means, taking appropriate actions and responding properly in an emergency situation.

The study was carried out using several research methods. Among the basic ones, one can mention the analysis (comparative-descriptive) of national and international legal and professional acts (standards) and literature on the subject, as well as the method of synthesis and deduction.

For the purposes of this thesis, theoretical and empirical research was carried out.

With reference to selected elements of safety against major industrial accidents, empirical research was carried out using the method of a diagnostic survey with questionnaires among the employees of management teams and engineering-technical groups of establishments at high risk of a major industrial accident and rescuers of a specialised chemical-ecological rescue group.

The article was prepared using the analysis of legal acts and the analysis of literature on the subject in terms of specifying theoretical and practical elements as requirements for public administration bodies, which should be implemented to improve the system of preventing major industrial accidents.

The analysis was based on publications concerning the law of the European Union, environmental protection, norms on requirements to be met by external emergency plans in Poland.

## ***Result and Discussion***

### **The role of the State Fire Service authorities in preventing a major industrial accident**

The system for preventing major industrial accidents in Poland is supervised in terms of operational control by the authorities of the State Fire Service. On the other hand, as far as environmental protection is concerned, supervision is exercised by the minister in charge of the environment, and in practice on his behalf by the Chief Inspector of Environmental Protection and the Environmental Protection Inspectorate.

In this respect, in the course of the activities carried out, it is verified whether the data contained in the relevant documents required by the relevant provisions of the Environmental Protection Act (concerning the accident prevention programme, the safety report, the internal operational and rescue plan, the materials submitted for the development of the external operational and rescue plan) submitted to the relevant bodies of the State Fire Service, are reliable and reflect the actual state of safety at the given establishment [17].

Pursuant to Art. 264a item 1 of the Environmental Protection Act (POŚ), the competent authority of the State Fire Service gives an opinion on the accident prevention programme or on amendments to the accident prevention programme, both for upper- and upper-tier establishments.

Accordingly, the accident prevention programme or the amendments to the accident prevention programme shall be deemed to have received a positive opinion if the authority does not object to them, by way of a decision, within 30 days from the date of their submission.

Pursuant to Art. 264b, by way of a decision, after obtaining an opinion of the provincial environmental protection inspector, the provincial commander of the State Fire Service shall approve or refuse to approve the safety report or amendments to the safety report.

In addition, the Provincial Commander of the State Fire Service shall give an opinion on the internal operational and rescue plan or amendments to the internal operational and rescue plan and, if the authority does not object to them within 2 months from the date of their submission, they shall, by decision, be deemed to have been given a positive opinion.

A very important element of the action of the regional commander of the State Fire Service, on the basis of the information provided by the operators of the establishments in the notification, the accident prevention programme, the safety report or the results of the inspection, is to determine, by way of a decision, a group of establishments whose location in relation to each other may cause a domino effect. This group of establishments may then include both upper-tier and upper-tier establishments and establishments which are not upper-tier or upper-tier establishments.

When taking the above actions by decision, the regional commander of the State Fire Service imposes obligations on the operators of the establishments:

1) to exchange information with each other so that the increased probability of an industrial accident or the increased consequences of its occurrence can be taken into account in the accident prevention programme, safety reports and internal emergency plans;

2) to provide the information necessary to draw up external emergency plans and to compile information on the risks of industrial accidents in upper-tier or upper-tier establishments and the safety measures envisaged;

3) to cooperate in informing the public and neighbouring establishments.

It is the duty of the regional commander of the State Fire Service to prepare an external emergency plan for the area exposed to the effects of an industrial accident, located outside a high-risk establishment. within 2 years from the date of receipt of the necessary information from the operator of the high-risk establishment, as well as from the regional environmental protection inspector, the bodies of crisis management, the Police, medical entities and other entities. The costs of developing

external emergency plan shall be borne by the establishment operator in an amount equal to the amount of the average remuneration in the national economy in the calendar year preceding the year of adoption of the external emergency plan, announced by the President of the Central Statistical Office on the basis of the Act of 17 December 1998 on pensions from the Social Insurance Fund [8].

In the understanding of the above, the regional commander of the State Fire Service in the proceedings whose subject is the preparation of the external operational and rescue plan shall ensure the possibility of public participation in accordance with the principles and procedure set out in the Act of 3 October 2008 on the provision of information about the environment and its protection, public participation in environmental protection and environmental impact assessments.

Another very important duty of the Regional Chief of the State Fire Service in the prevention process is to analyse and rehearse the implementation of the external emergency plan at least once every 3 years in order to make the necessary changes to it. In this regard, in particular, the changes made in the installation, in the way the fire protection units operate, the state of knowledge concerning the prevention, combating and elimination of the effects of an industrial accident, as well as scientific and technical progress should be taken into account.

Pursuant to Art. 266 item 1 of the Environmental Protection Act, in the event of a threat of an industrial accident or its occurrence, the Voivodeship Commander of the State Fire Service shall immediately start implementing an external emergency plan.

In the situation of an accident, the Voivode, through the State Fire Service Voivodeship Chief Fire Officer and the Voivodeship Environmental Protection Inspector, takes actions and disposes of resources necessary to remove the accident and its effects, specifying in particular the related obligations of administrative bodies and entities using the environment.

Accordingly, in the event of an accident, the regional environmental inspector may, by way of a decision, order to conduct proper investigations into the causes, course and effects of the accident and issue bans or restrictions on using the environment.

Guided by the need to provide the public with proper access to information on major-accident hazards, the organs of the State Fire Service shall, inter alia, make available, on their subject pages in the Public Information Bulletin, the following information:

- 1) information on approved safety reports or their amendments;
- 2) information on approved external emergency plans or their amendments;
- 3) information on notifications of establishments submitted,
- 4) information on major-accident prevention programmes that have received a favourable opinion;
- 5) information on planned inspections in the field;
- 6) information on the possibility for the public to participate in the procedure for drawing up the external emergency plan 30 days before its adoption;
- 7) instructions on how residents should behave in the event of an emergency;
- 8) information that a list of dangerous substances contained in upper-tier establishments has been placed on a publicly available list, which is updated annually;
- 9) justification for not drawing up the external emergency plan [17].

The competent authorities of the State Fire Service, in the event of an industrial accident, are obliged to:

- 1) take operational and rescue measures in cooperation with the operator of the establishment;
- 2) collect the information necessary to analyse the industrial accident and formulate recommendations for the establishment operator;
- 3) verify that the operator has taken all the necessary countermeasures;
- 4) Make recommendations for the future application of specific preventive measures;
- 5) Verify that the operator has implemented the recommendations of the competent authority of the State Fire Service.

It is worth emphasising at this point that the public administration bodies and the entities listed in the external emergency plan, in the event of an industrial accident, are obliged to inform the persons exposed to its effects about its occurrence.

In addition, the authority of the State Fire Service undertakes inspection and reconnaissance activities with regard to compliance with the regulations on industrial accident prevention, covering all activities, including field inspections, inspections of the measures, systems and reports applied at the establishment and follow-up documents, as well as activities that are not field inspections.

These field inspections of compliance with the legislation on industrial accident prevention shall be carried out in order to establish that the safety requirements are met and, in particular, to establish whether measures have been taken to prevent the occurrence of an industrial accident; whether sufficient measures have been provided to limit the effects of the industrial accident inside and outside the establishment, taking into account transboundary effects;

whether the data contained in the notification, the accident prevention programme, the safety report, the internal emergency plan and the information necessary to draw up the external emergency plan submitted to the competent authority of the State Fire Service are reliable and reflect the actual safety situation at the establishment; whether information has been made available to the public.

### **Competence of the Environmental Inspectorate for major industrial accidents**

The tasks of state supervision carried out by the Environmental Protection Inspection in the field of serious industrial accidents include mainly creating conditions aimed at preventing events

that could cause accidents and limiting the effects of accidents on people and the environment.

Referring to the above-mentioned subject matter, it follows from Art. 2 par. 1 of the Act on Environmental Protection Inspection [9] that the main tasks of the inspection include the following:

1) stopping activities carried out in breach of environmental requirements or conditions for the use of the environment;

2) preventing major accidents and supervising the removal of their consequences;

3) performing tasks in the field of prevention and remediation of environmental damage.

In turn, according to Article 29 of the Environmental Protection Inspection Act, in the field of prevention of major accidents, it is necessary to:

1) inspecting entities whose activities may be the cause of a major accident;

2) investigating the causes of major accidents and ways to eliminate the effects of major accidents on the environment;

3) keeping a register of establishments whose activities may be the cause of a major accident, including upper-tier and upper-tier establishments.

In this respect, the Environmental Protection Inspectorate cooperates in combating a major accident with the authorities competent to combat it and supervises the removal of the effects of the accident.

The authorities of the Environmental Inspectorate shall inspect at least once a year in high risk establishments and once every 3 years in upper risk establishments.

If it results from the list, agreed upon between the regional commander of the State Fire Service and the regional environmental protection inspector, referred to in Art. 269a par. 3 of the Act of 27 April 2001. – Environmental Protection Law, it results that the inspection has been planned by the competent authority of the State Fire Service, then the regional environmental protection inspector may refrain from carrying out the inspection.

In addition, the Chief Inspector of Environmental Protection keeps a register of major accidents.

It is the duty of the administrative bodies undertaking the control of major accidents to inform the Chief Inspector of Environmental Protection about major accidents that have occurred in the country and about their possible transboundary effects.

According to the ordinance of the Minister of the Environment of 30 December 2002 on major accidents subject to reporting to the Chief Inspector of Environmental Protection, the obligation to report to the Chief Inspector of Environmental Protection covers major accidents which occurred in the country as were the result of a fire, explosion or release during an industrial process of at least 5% of the quantity of one of the dangerous substances decisive for classifying an establishment as a high-risk establishment, as specified in the regulations issued pursuant to Article 248(3) of the Act of 27 April 2001. – Environmental Protection Law.

The obligation to notify is also extended to serious accidents which resulted from a fire, explosion or release during the industrial process, storage or transport of any quantity of at least one of the hazardous substances listed in the legislation, if they cause at least one of the consequences concerning the effects to persons, damage to the environment, damage to property, negative effects extending beyond the territory of the Republic of Poland.

In addition, it is obligatory to notify a major accident which resulted from the release during storage or transport of any substance which, due to its properties or quantity, may be dangerous to life, human health or to the environment, leading to at least one of the effects among the above-mentioned types of effects. According to § 4 para. 1 of the Regulation, the consequences of a major accident for persons are the death of at least one person; the injury of at least 6 persons in the establishment and the hospitalisation of at least one of these persons for at least 24 hours; the hospitalisation of at least one person outside the establishment for at least 24 hours; the evacuation

of at least 250 persons for more than 2 hours or of another number of persons if the product of the number of persons and the duration of the evacuation (defined in hours) is at least 500; Entrapment, defined as the exclusion of at least 250 persons from the external environment for more than 2 hours, or of another number of persons if the product of the number of persons and the duration of the confinement (expressed in hours) is at least 500; the deprivation of at least 500 persons of drinking water, electricity, gas or telephone connections for more than 2 hours, or of another number of persons if the product of the number of persons and the duration of the interruption of drinking water, electricity, gas or telephone connections (expressed in hours) is at least 1000.

The effects of major accidents, in terms of damage to property, are damage to or destruction of property in the establishment where the accident occurred, with a value of loss equal to or greater than EUR 2 million, converted to PLN at the average exchange rate of the euro announced by the National Bank of Poland on the day the accident occurred; damage to or destruction of property outside the establishment where the accident occurred with the value of the losses equal to or higher than EUR 0.5 million, converted to Polish zlotys according to the average exchange rate of the euro announced by the National Bank of Poland on the day when the accident occurred, or damage to residential buildings to the extent preventing their further use.

In the current legal status, the provisions of § 5 clearly indicate that the administrative bodies competent for combating major accidents shall report the occurrence of a major accident to the Chief Inspector of Environmental Protection, through the provincial environmental inspector, not later than by 1000 hrs on the day following the day when the accident occurred, and in case it is impossible to meet this deadline immediately after the accident occurred. Moreover, within one month from the date of a major accident, the authority handling the major accident shall provide the Chief Inspector of Environmental Protection, via the provincial environmental inspector, with supplementary information about the reportable major accident.

Taking into account the performance of inspection tasks by the Environmental Protection Inspectorate, it should be indicated that these will be scheduled and non-scheduled inspections.

Control in this respect is performed by the Chief Inspector of Environmental Protection, provincial environmental inspectors and environmental inspectors authorised by them.

A very important element is the entitlement when carrying out the control of compliance with environmental protection requirements that the inspector has by entering 24 hours a day with the necessary equipment to the premises, object or their parts, on which economic activity is carried out or to means of transport as well as to the premises not related to economic activity.

In addition, the inspectors may carry out the necessary measurements or examinations, including sampling or other control activities, using unmanned aerial vehicles, in order to determine on the controlled real estate, in the object or its parts, in the controlled means of transport, the state of the environment and to assess this state in the light of environmental regulations, as well as the conditions for carrying out activities affecting the environment individually specified in administrative decisions.

For the duration of the investigations, including the taking of samples and the taking of measurements, the inspectors may demand to stop the operation or commissioning of installations or equipment, including means of transport, and to refrain from carrying out other activities to the extent that this is necessary.

Inspectors may also assess the way in which installations or equipment are operated, including means of transport, assess the technologies and technical solutions used.

In addition, they may demand written or oral information and summon and interrogate persons to the extent necessary to establish the facts, while instructing them of the criminal liability for making false statements referred to in the Criminal Code.

In doing so, they may demand the production of documents, including financial documents, and access to any data relevant to the issue of the inspection.

In order to impose a fine by way of a criminal fine or to draw up a request for punishment have the right to establish the identity of persons and to request the production of documents.

The inspectors may also assess the manner in which the measurement of emissions, the amount of water taken and the amount of wastewater discharged by the measuring unit is carried out, including the correctness of the way samples are taken and analysed, as well as determine the morphological composition of waste based on expert knowledge.

The Chief Inspector of Environmental Protection or the provincial inspector of environmental protection may authorise a person who is not an inspector and has specialist knowledge or skills to participate in the inspection in order to carry out the necessary measurements, including sampling or other inspection activities.

The operator of the plant, subject to the provisions on protection of classified information and accommodation of the armed forces, shall be obliged to enable the inspector to carry out the inspection.

In order to receive assistance, the provincial environmental inspector may apply to the Police or public administration bodies, including the National Fiscal Administration, the Road Transport Inspectorate, mining supervision offices, the State Labour Inspectorate, the Trade Inspectorate, the State Sanitary Inspectorate, the Veterinary Inspectorate, the State Plant and Seed Protection Inspectorate, the Border Guard, the State Fire Service, if it is necessary to carry out control activities.

The assistance will consist, in particular, in allowing the inspector to enter the inspected area, the inspected object or the means of transport or in collecting and securing evidence of the commission of an offence or an offence. It may also involve establishing the identity of, and questioning persons in order to establish facts relevant to the investigation, or at least ensuring the safety of the inspector.

The person performing the inspection at the plant should present an official ID confirming the identity and authorization of the inspector to perform the inspection, as well as the authorization to perform the inspection. Pursuant to Art. 10b section 1 of the Act on the Inspection of Environmental Protection in the event of a justified suspicion of committing an environmental crime specified in Art. 182, art. 183 or art. 186 of the Penal Code or offenses against the environment specified in separate provisions, the Chief Inspector of Environmental Protection, the Provincial Inspector of Environmental Protection or authorized inspectors of the Environmental Protection Inspection may take actions consisting of:

- 1) observing and recording, using technical means, including satellite techniques and unmanned aerial vehicles, the image of events and the sound accompanying these events;
- 2) securing evidence of committing a crime or offense;
- 3) requesting information and interrogating persons to the extent necessary to establish the facts, while at the same time instructing them on criminal liability for submitting false testimony,
- 4) requesting the production of documents and establishing the identity of persons necessary to impose a fine by way of a penalty notice or to prepare an application for punishment;
- 5) imposing fines in ticket proceedings for offenses specified in the provisions on proceedings in petty offense cases;
- 6) conducting inspections of rooms and other places;
- 7) searching vehicles transporting goods and checking documents related to the transport of goods if there is a suspicion of transporting waste.

The above information obtained during the activities may be used to implement the statutory tasks of the Environmental Protection Inspection, including inspections, and constitute evidence in administrative and criminal proceedings as well as in offense proceedings. The inspector

prepares a report on the inspection activities carried out, one copy of which is delivered to the plant operator. This report is signed by the inspector and the plant operator or the inspected natural person, who may submit substantiated objections and comments to the report. If the operator of the plant or the inspected natural person refuses to sign the report, the inspector shall mention this in the report, and the person refusing to sign may present his/her position in writing to the competent authority of the Environmental Protection Inspection within seven days.

If violations are identified on the basis of the inspection findings, the voivodeship environmental protection inspector may issue a post-inspection order for the plant operator, post-inspection recommendations or an administrative decision, or initiate enforcement if the obligation results from the law or an administrative decision. The operator of the plant will be obliged to inform the Provincial Environmental Protection Inspector about the scope of actions taken and implemented to eliminate the indicated violations, within the deadline set in the post-inspection order. In addition, the voivodeship environmental protection inspector may request the operator of the plant to conduct official proceedings or other proceedings provided for by law against persons guilty of committing irregularities and to inform him, within a specified period, about the results of these proceedings and the actions taken. Within the meaning of the above, the voivodeship inspector of environmental protection may, during the inspection, issue a decision, subject to immediate execution, to suspend activities to the extent that pose a threat to human health or life or a threat to environmental destruction. It may also suspend the commissioning of a building, a complex of facilities or installations that do not meet environmental protection requirements. It should be noted that the Environmental Protection Inspectorate cooperates in the performance of inspection activities with other inspection bodies, including the State Sanitary Inspection, state and government administration bodies, local government bodies, civil defense bodies and social organizations. In this respect, referring to the provision of "civil defense bodies" should be indicated as a suspended provision due to the lack of applicable legal regulations in this area. Legislative work in this area is still ongoing and the final picture of the functioning of civil defense and population protection in Poland is being created. The draft Act of February 20, 2023 on civil protection and the state of natural disaster indicates that the authorities responsible for civil defense matters under the Act will be the minister responsible for internal affairs, the voivode and local government bodies. They will carry out civil protection tasks, and will also be responsible for maintaining and protecting resources necessary to perform civil defense tasks, meeting the needs of the population regarding collective protection, and providing the basic necessities necessary to meet life's needs, including food, water, energy, clothing. , basic sanitary conditions, as well as carrying out planning and organizational activities in order to prepare the office and civil defense formations to perform civil defense tasks in times of war and natural disasters.

The cooperation of the Inspection for Environmental Protection with the authorities will concern in particular the provision of information on the results of inspections carried out by the Inspection for Environmental Protection to the competent state and government administration bodies and local government bodies; exchange with the National Tax Administration and the Border Guard of information related to importing into the country goods whose import is prohibited or restricted due to environmental protection; cooperation with the Border Guard in carrying out inspections in the border zone; cooperation with the authorities of the State Fire Service in the field of preventing serious accidents; providing the Head of the Internal Security Agency with information about the loss, disappearance, abandonment or theft of waste containing biological or chemical agents that may be used to prepare or assist in committing a terrorist crime. It is worth emphasizing that an inspection not covered by the inspection plan of the Environmental Protection Inspection may be ordered by the voivode or the voivodeship inspector of environmental protection. Moreover, at the justified request of a local government body, the obligation of the voivodeship environmental

protection inspector is to carry out an inspection not covered by the inspection plan of the Environmental Protection Inspection regarding the levels of electromagnetic fields emitted from radiocommunication, radionavigation or radar installations, the equivalent isotropic radiated power of which is not less than 15 W, emitting electromagnetic fields with frequencies from 30 kHz to 300 GHz.

Pursuant to Art. 59 section 1 of the Act of March 6, 2018, Entrepreneurs' Law [15], the operator of a plant may object to inspection activities in the event of: - failure to notify about the intention to initiate an inspection, – failure of employees of inspection bodies to present official IDs authorizing them to perform such activities and failure to deliver authorization to carry out an inspection, - carrying out inspection activities without the presence of the inspected person or the presence of a person authorized by him or another employee of the entrepreneur or a person employed by the entrepreneur under another legal relationship, who may be considered a person referred to in Art. 97 of the Act of 23 April 1964, Civil Code [16], or in the presence of a summoned witness, who should be a public official who, however, is not an employee of the authority carrying out the inspection, – conducting inspections outside the entrepreneur's registered office or place of business activity and outside working hours or outside the time of actual business activity by the entrepreneur without his consent, – simultaneous undertaking and conducting more than one inspection of the entrepreneur's business activity, – occurrence of exceeding the duration of control in one calendar year.

It is worth emphasizing that the duration of all inspections by the inspection body at the entrepreneur in one calendar year cannot exceed: 1) in relation to micro-entrepreneurs – 12 business days; 2) in relation to small entrepreneurs – 18 business days; 3) in relation to medium-sized entrepreneurs – 24 business days; 4) in relation to other entrepreneurs – 48 business days, when the subject of the inspection specified in the authorization covered a previously completed inspection conducted by the same authority. The entrepreneur submits the objection in writing to the authority undertaking and performing the inspection. The entrepreneur shall notify the inspector in writing about the objection. The objection must be submitted within 3 business days from the date of initiation of the inspection by the inspection authority or the occurrence of grounds for objection. The entrepreneur must justify the objection. The inspection authority, within 3 business days from the date of receipt of the objection, considers the objection and issues a decision to withdraw from inspection activities or continue inspection activities. The entrepreneur's decision may be appealed against within 3 days from the date of receipt of the decision. The complaint is resolved by way of a decision, no later than within 7 days from the date of its submission. The entrepreneur signing the inspection report may submit substantiated reservations and comments [9].

Moreover, the entrepreneur may refuse to sign the inspection report and submit his position in writing to the competent authority of the Environmental Protection Inspection within 7 days (Article 11(3) of the Act of 20 July 1991 on the Environmental Protection Inspection). In the event of absence, the entrepreneur is obliged to indicate in writing the person authorized to represent him during the inspection (Article 50(3) of the Act of March 6, 2018, Entrepreneurs' Law). The entrepreneur is obliged to keep and keep an inspection book as well as authorizations and inspection protocols at his registered office, and also immediately present the inspection book to the inspector (Article 57(1) and (6) of the Act of March 6, 2018, Entrepreneurs Law). The voivodship inspector of environmental protection may request the operator of the plant to conduct official proceedings or other proceedings provided for by law against persons guilty of committing irregularities and to inform him, within a specified period, about the results of these proceedings and the actions taken (Article 12(3) of the Act of 20 July 1991, on the Environmental Protection Inspection). During the inspection, the voivodship environmental protection inspector may issue decisions regarding the suspension (Article 12(4) of the Act of 20 July 1991 on the Environmental

Protection Inspection): 1) activities in the scope that pose a threat to human health or life or a threat to environmental destruction, 2) commissioning a building, a complex of facilities or installations that do not meet environmental protection requirements. The costs of analyzes and measurements, including sampling, based on which a violation of environmental protection requirements was found, are borne by the organizational units or natural persons whose activities are the source of the violation of these requirements (Article 18(1) of the Act of 20 July 1991 on Environmental Protection Inspection). Pursuant to Art. 31c section 1 of the Act of July 20, 1991 on the Environmental Protection Inspection, whoever prevents or hinders the Environmental Protection Inspection body from carrying out an inspection is subject to a fine ranging from PLN 10,000 to PLN 100,000.

### **Proceedings of the State Fire Service and the Provincial Environmental Protection Inspector related to the industrial accident**

Referring to Article 12 of the directive regarding the development of emergency and rescue plans, this obligation applies only to high-risk establishments. In this respect, internal operational and rescue plans are developed by the operator of a high-risk facility, and also provide the competent authorities with the information necessary to prepare external operational and rescue plans. The new directive obliges the authorities to develop a ZPOR within two years from the date of receiving the necessary information from the plant operator [5].

Amended in accordance with the principles of the relevant provisions of Directive 2003/35/EC [6] the need to consult emergency plans with the public, with the provision that Member States provide the public concerned with the opportunity to express, in good time, an opinion on external emergency plans when they are drawn up or significantly amended. A very important factor in relation to the prepared operational and rescue plans is the indication in Annex IV of the directive that European Union Member States should ensure that internal operational and rescue plans are prepared in the process of consultation with the plant's staff, taking into account the relevant long-term employees of subcontractors. In addition, Member States are obliged, in accordance with Annex IV, to ensure that the public concerned have the opportunity to express, in good time, their views on external emergency plans when they are being drawn up or significantly amended. It is also the responsibility of the Member States of the European Union under Annex IV to ensure that internal and external emergency plans are reviewed, practiced and, where necessary, updated by operators and designated authorities at appropriate intervals not exceeding three years. The review shall take into account changes that occur in the plant or safety services concerned, the latest technical knowledge and knowledge relating to the response to major accidents. We cannot omit the indication in Annex IV to conduct cooperation in order to facilitate cooperation in the field of civil protection assistance in the event of serious emergencies, which has not changed. According to the directive, the essence of the directive is the appropriateness of implementing the necessary measures to protect human health and the environment against the effects of major accidents. In accordance with Annex IV, data and information must be included in the emergency plans referred to in Article. 12 above directive.

According to the Annex to the Directive, in relation to foreseeable conditions or events that have a significant risk of causing major accidents, a description of the actions that should be taken to control those conditions or events and to limit their effects should be included in the WPOR, together with a description of the safety equipment and available resources. The directive in the annex also indicates the inclusion in the ZPOR of arrangements for providing assistance when carrying out activities limiting the effects on the premises of the plant. In accordance with the regulation of the Minister of Internal Affairs and Administration of June 8, 2016 on the requirements to be met by operational and rescue plans [20], when comparing the indicated activities,

discrepancies can be noticed in terms of the terms used and the tasks assigned to company teams and rescue entities. (Table 1).

**Table 1 – Comparison of the specified actions with respect to the terms used and the tasks assigned to the company's teams and rescue organizations**

Internal Operational and Rescue Plan	External Operational and Rescue Plan
Part A	Detailed part
1) the manner of conduct of the plant's employees in the event of an alarm about a serious industrial accident; (§ 6 section 3)	1) A list of forces and resources necessary to carry out rescue operations and other tasks in the field of limiting and removing the effects of a serious industrial accident, including the size and type of forces and resources of individual entities, excluding the forces and resources intended to carry out tasks at the same time, included in in the internal plan, (§ 17 section 3 point 1b)
2) method of organizing and conducting the evacuation of people and property; (§ 6 section 4)	2. Arrangements with the plant operator regarding the implementation of rescue operations and other tasks related to removing the effects of a serious industrial accident on the premises of the plant; (§ 17 section 3 point 1d)
3) Tasks of the plant's organizational units, plant services and plant employees in limiting and eliminating the effects of a serious industrial accident resulting from the analysis of scenarios included in the internal plan, taking into account: a. Actions to limit the effects of a serious industrial accident, including – if possible – increasing the pressure in the internal water supply network constituting a source of water for fire-fighting purposes, b. Rescue operations, including providing first aid before the arrival of the first fire protection unit or medical rescue team, c. Use of devices and installations securing technological processes, d. Safe stopping of installations posing a risk of a serious industrial accident, e. Organizing the reception of forces and resources from external rescue entities; (§ 6 section 5)	3. How to proceed in the event of anticipating the occurrence of cross-border consequences of a major industrial accident, including in particular: a. notifying the competent services of a country at risk of cross-border effects of a serious industrial accident about the scale of the threat and possible effects of this accident, b. cooperation of rescue services in removing the effects of this failure; (§ 17 section 3 point 4)
4) In the case of plants with fire protection units – rules for taking over management of rescue operations; (§ 6 section 6).	4. The manner of cooperation of services, entities and institutions involved in the implementation of rescue operations and other tasks in the field of removing the effects of a serious industrial accident outside the plant, including with the plant's services; (§ 17 section 3 point 3)
5) The plant's capabilities in terms of logistic support for long-term rescue operations, including the provision of fire extinguishing agents; (§ 6 section 9)	5. Communication organization; (§ 17 section 3 point
6) Procedure aimed at removing the effects of a serious industrial accident and restoring the environment to its previous state, specifying:	6. Method of restoring the environment to its previous state, including: a. method of using the plant's resources,

Internal Operational and Rescue Plan	External Operational and Rescue Plan
<b>Part A</b>	<b>Detailed part</b>
a. Rules for securing the site of a serious industrial accident, b. Documenting major industrial accidents and their effects, c. Tasks of organizational units of the plant and persons and external entities in the scope of restoring the environment to its previous state, including tasks arising from contracts or agreements; (§ 6 section 10)	b. list of entities intended to carry out the tasks and the rules for notifying them about the event. (§ 17 section 3 point 7)
<b>Część B</b>	
1) Indication of tactical parameters, in particular the intensity of the application of extinguishing agents and their throw range, the type and quantity of equipment, including specialized equipment, necessary to undertake effective rescue operations; 2) A summary of the needs of forces and resources at the plant's disposal and necessary to be implemented by external rescue entities; 3) Defining the tasks performed by company services during rescue operations; 4) Specifying the tasks performed by entities outside the plant during rescue operations, if necessary. (§ 12 section 3)	

Source: own study

Comparing the above data, we note that the WPOR legal act indicates in general terms the tasks of the plant's organizational units, plant services and plant employees in the scope of limiting and eliminating the effects of a serious industrial accident resulting from the analysis of scenarios included in the internal plan. It can be assumed that the above activities are undertaken according to the possibilities and discretion, and not the requirements and standards set by emergency situations. This applies in particular to situations in which there may be a direct threat to life. An example of this may be a situation in which an employee is injured in a toxic hazard zone and is not evacuated due to the lack of basic respiratory protection equipment and gas-tight clothing in the plant. The above situation may be extended due to the determinant of the time after which the first fire protection unit or a specialized chemical-ecological rescue group will arrive. Moreover, the lack of developed rules for the organization of rescue activities at the plant until the arrival of rescue entities results in difficulties in preparing for actions by the plant teams and failure to comply with basic safety rules.

It can also be noted that the concepts assigned to company teams in the legal act are not referenced in the definition of what they include and what we mean by a given provision. These include "limiting a serious accident, eliminating the effects of a serious industrial accident, undertaking rescue operations, and logistic support for long-term rescue operations.

However, in the external plan, we find provisions regarding actions taken by rescue entities in the following areas: "limiting and removing the effects of a serious industrial accident". In this respect, the lack of the provision "elimination of the effects of a major failure" causes another discrepancy regarding the assigned tasks. The assignment of tasks in the field of limiting, combating and removing the effects should be assigned in a legal provision both to company teams in WPOR

and to rescue entities in ZPOR. Moreover, it should be noted that the developed external emergency and rescue plans in the described scenarios indicate the actions of the plant operator, but do not present the operating procedures of the State Fire Service units in the event of a given type of failure, including procedures in the event of fire or unintentional release into the environment. According to ZPOR, in the event of a threat occurring at the plant, operational security is provided by the forces and resources of the State Fire Service, in particular those with chemical and ecological specialties. Such a unit may be located in the vicinity of the plant and is then able to undertake effective rescue, fire-fighting and security actions within a few minutes of the notification. A more difficult situation occurs when the PSP unit or chemical group with PSP is located at a considerable distance from the plant. Employees have at their disposal equipment protecting the installation/building, handy fire-fighting equipment and specialized fire-fighting means and devices, means of transport, laboratory, as well as personal protective equipment (most often masks with absorbers, in company units breathing apparatus, protective clothing, first aid kits and communication devices).

The basic obligation of each plant employee is to inform all co-workers and any other persons staying in the endangered area about the occurrence of a failure and threat. According to the provisions of ZPOR, in the event of an industrial failure on a scale that requires action by the State Fire Service, these services should be called as soon as possible and, until their arrival, ad hoc actions should be taken to limit the size of the failure and ensure the safety of people and the environment. These activities should be carried out through:

- ✓ withdrawal of all persons not participating in rescue operations from the endangered area,
- ✓ limiting access to the endangered area,
- ✓ providing injured persons with first aid and calling the Emergency Service,
- ✓ in the event of a fire, extinguish the source of the fire using fire extinguishing equipment and hand-held fire extinguishing equipment,
- ✓ in the event of a leak of a dangerous chemical substance outside the technological installation, cutting off the leak site by closing the nearest available valves,
- ✓ securing the chemical spill, e.g. by embanking it and neutralizing it with available sorbents.

In the event of an industrial failure on a scale extending beyond the plant, the technical supervision informs the President of the situation and requests that an alarm be announced regarding contamination with hazardous substances, which may be ordered by the President of the Management Board or a person designated by him. Only the person in charge of the rescue operation can cancel the pollution alarm. Many high-risk plants do not have their own rescue structures, so rescue operations are managed by employees until the arrival of appropriate fire protection units. Persons authorized to manage rescue operations are:

- Production foreman, who, by the time the Production Manager arrives at the site of the failure, should determine: the type and scale of the threat, the number of people in the danger zone, the possibility of acting on one's own resources, the approximate scope of the threat's impact, protective activities, emergency stop of technological processes, responsibilities for people involved in action, evacuation of people and property, further supervision of the technological process,
- Heads of departments of individual facilities, who should determine: securing the life and health of people in the danger zone, assigning duties to subordinate employees and others directed to help, limiting the scope and eliminating the source of threat using available means and methods, preventing environmental contamination,
- Another person, designated by name by the President of the Management Board, who should carry out coordinating activities if the failure extends beyond the building installation area (applies to several facilities, structures and adjacent areas), notifies relevant entities and

external bodies, prevents secondary threats, determines loss, secures physical evidence about the cause of the threat.

The further process in the external plan should be focused on activities undertaken by public administration bodies and rescue entities together with collaborating services. It should be emphasized that Article 260 para. 1 of the Environmental Protection Act clearly indicates the development of an internal and external operational and rescue plan in order to prevent, combat and limit the effects of an industrial accident. Operational and rescue plans should include in particular:

1) planned actions to limit the effects of an industrial accident on people and the environment; 2) proposals for methods and measures to protect people and the environment against the effects of an industrial accident;

3) information on the existing threats, preventive measures taken and actions that will be taken in the event of an industrial accident, presented to the public and the competent authorities of the State Fire Service, the voivode, the voivodeship inspector of environmental protection, the regional director of environmental protection, the starosta, the commune head, the mayor or the president cities;

4) indication of ways to remove the effects of an industrial accident and restore the environment to its previous state, and if this is not possible – ways to remove the threat to human health and the environment;

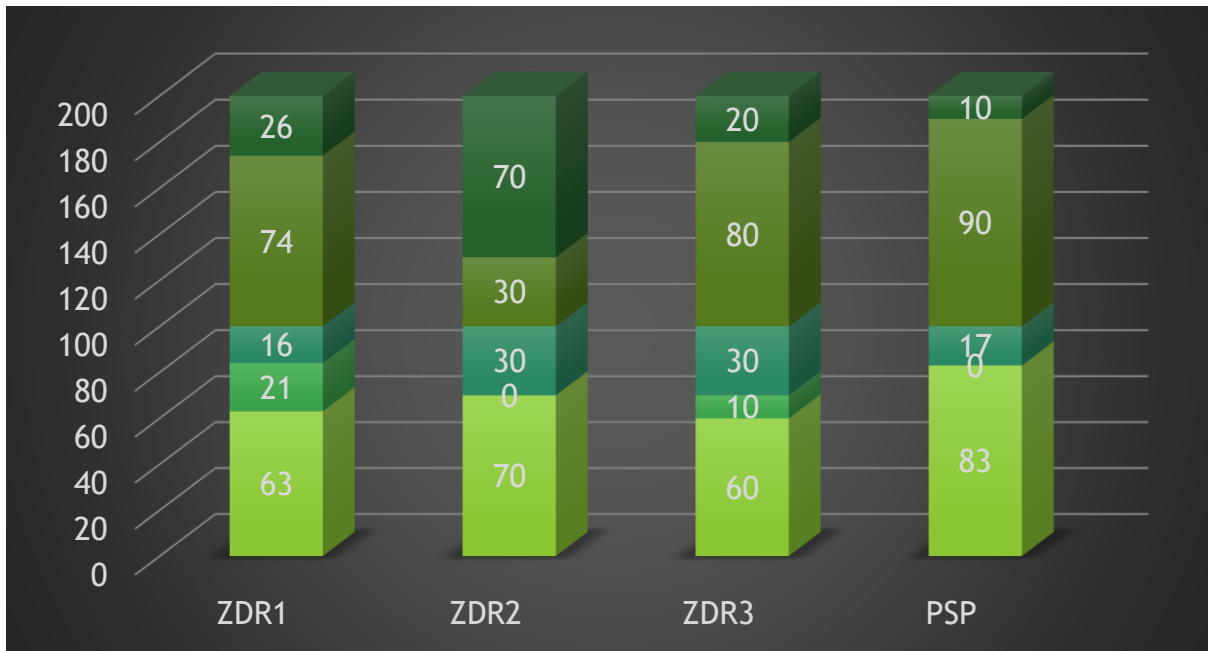
5) indication of ways to prevent cross-border effects of an industrial accident.

Pursuant to the above provisions, event scenarios included in external operational and rescue plans should indicate not only the activities undertaken to combat the effects of a failure by the plant operator, but also the variants of combating by undertaking rescue operations of the State Fire Service units in the event of a given type of failure in this procedures in the event of fire or accidental release into the environment. For this to happen, it is necessary to supplement the regulation in the context of the external plan with provisions on how rescue entities will combat an industrial accident. This importance is even more important due to the provisions of the Seveso III directive itself, which indicates that, in relation to external emergency plans, Member States take into account the need to facilitate close cooperation in the field of civil protection during serious crisis situations. The provisions in the context of developing external plans should clearly indicate activities also outside the plant, in particular including the evacuation of civilians and cooperation in monitoring the danger zone.

This cooperation is tested in the task aspect contained in Art. 265. paragraph 9, according to which the provincial commander of the State Fire Service, based on information provided by the operator of a high-risk plant, after developing an external operational and rescue plan for an area exposed to the effects of an industrial accident, is obliged to analyze and practice the implementation of the external operational and rescue plan at least once for 3 years in order to introduce necessary changes; in particular changes made in the installation, in the functioning of fire protection units, the state of knowledge regarding the prevention, combating and removal of the effects of an industrial accident, as well as scientific and technical progress. In this respect, the provincial commander of the State Fire Service, pursuant to Art. 265 section 9 of the Act of April 27, 2001, Environmental Protection Law [17], most often recommends preparing and conducting practical and application rescue exercises in the implementation of selected elements of an external operational and rescue plan for a high-risk plant.

Referring in this respect to selected safety elements in the prevention of serious industrial accidents, empirical research was undertaken using the diagnostic survey method with the use of surveys among employees of management teams and engineering and technical groups of high-risk plants (ZDR) of the occurrence of a serious industrial accident and rescuers of a specialized chemical

rescue group – ecological. The survey used closed questions that required selecting one or more answers regarding prevention, response and cooperation in an emergency situation. The survey included 19 questions in the form of a decision, one of which concerned, among others: the form of improving their skills used by company teams and services as well as rescue entities (Fig. 1). Based on observational research and our own observations while participating in external plan exercises, two contexts are noted in this regard. The first concerns the form of exercise preferred by the study participants. It turns out that ZDR, like PSP, point to primarily practical exercises with the development of a common assumption (concerning greater cooperation of PSP with ZDR) and a discussion of their course. This aspect was unanimously indicated by 60-70% of respondents from ZDR and even 83% from PSP.



Legend:

- Practical by jointly developing the assumption and presenting conclusions from the course.
- As part of theoretical familiarization with the capabilities of given entities and installations.
- Combining practical development of entities with theoretical discussion.
- Organizing exercises once a year.
- Organizing exercises twice or more a year.

Figure 2. Percentage distribution of answers to the question: “what form of exercise brings the most benefits for you in terms of acquiring knowledge and practical conduct”, “how often in the plant where you work there is a need to organize exercises in cooperation with rescue entities”.

Source: own study.

In the second study, we see that most respondents prefer to exercise once a year, except for one plant that wants to exercise twice or even more. It can be assumed that this process results from the specific nature of the plant, depending on the number of installations, as well as on organizational tasks, conditioned by the time of qualifying for high or increased risk. In the preventive process of training in counteracting serious industrial accidents through the use of various forms of exercises, it is noticed that not all assumed goals are implemented during exercises. This is often caused by failure to comply with the time regime assumed in the organization of exercises. Focusing too extensively on selected elements in application or practical exercises

regarding the external emergency operation and rescue plan, in particular on the process of noticing the emission of a hazardous substance, detecting and determining the location of its emission source before the arrival of forces and resources, or the process of taking action by plant teams itself, causes the next stage of the exercise regarding the activities of public administration bodies, in particular the implementation of the process of evacuating people outside the plant, is often omitted or discussed in an applied manner without practicing the practical episode. Due to time reasons, this activity is carried out to a limited extent in relation to elements related to the performance of tasks by local government administration, crisis management bodies and rescue services, security and public order. It is at the local government level of the commune that the implementation of basic tasks related to monitoring, warning, alarming, planning, reacting and removing the effects of threats in their area should be practiced. These tasks will also concern the evacuation of civilians, medical and social assistance, and ensuring the necessary conditions for survival. The generated conclusions regarding the implementation of selected elements of the external emergency operation and rescue plan of a high-risk plant indicate the main purpose of the exercises, which is to verify the rules and procedures contained in the external emergency operation and rescue plan of the plant.

### **Conclusions**

The actions taken to counteract serious industrial accidents, both preventive and rescue, are becoming more and more efficient and effective every year. Increasing cooperation and collaboration in this area, both at the planning stage, practical exercises and during actual rescue operations, is of great importance here. The experience gained should be analyzed in detail and the conclusions drawn from them should be successively implemented. It should be emphasized that exercises of the external rescue operation plan should be focused on activities undertaken outside the plant towards neighboring institutions and on the implementation of practical tasks by rescue entities and services cooperating with local government administration. This element is confirmed by the above surveys of respondents, which indicate the proper organization of practical exercises combined with the use of assessment of their course, paying attention to the elements that should actually be practiced, observing time rules and selecting appropriate forces and means. The implementation of tasks in this respect by public administration bodies imposed by an external emergency operation and rescue plan shows that at some point two systems collide, i.e. the system for preventing serious industrial accidents and the national rescue and fire-fighting system. The tasks of the systems and their convergence in some elements indicate the need for cooperation in undertaking activities included in the internal operational and rescue plan and the external operational and rescue plan, starting from reconnaissance and ending with limiting the range. It should also be noted that the detailed part of the external emergency operation and rescue plan does not indicate tasks for rescue entities regarding, among others, undertaking rescue operations in the field of combating a major industrial accident, which should involve taking into account, in accordance with the Seveso III Directive, the need to facilitate close cooperation in the field of civil protection during major crisis situations. It is necessary to introduce in the regulation on the development of an external emergency operation and rescue plan a method of combating by taking appropriate actions in the event of an industrial accident, as indicated by both Art. 260(1) of the Environmental Protection Program as well as the Seveso III directive. Referring here to the national rescue and firefighting system, it should be remembered that in this respect chemical and ecological rescue includes not only planning, organizing but also implementing rescue activities necessary to reduce or eliminate direct threats posed by substances dangerous to people, animals, the environment or property. This area will include providing qualified assistance before the arrival of the emergency medical team as well as appropriate evacuation of people.

## References

1. Konieczny J., Management in crisis situations, accidents and disasters, GOW, Poznań-Warsaw 2001.
2. Kożuchowski K. (ed.): Meteorology and climatology. Warsaw, Publishing House. Scientific PWN, 2009.
3. Obolewicz-Pietrusiak A., Wojnarowski A., Basics of chemical rescue, Firex, Warsaw 2001.
4. Kołcz B., Formal and legal requirements for rescue entities regarding the recognition of chemical threats in Poland, Ed. Scientific and Research Center for Fire Protection J. Tuliszkowski, National Research Institute, 2023, SFT VOL. 61 ISSUE 1, 2023, PP.102-118. Available from : <https://sft.cnbp.pl/pl/sft-vol-61-issue-1-2023-wymagania-formalnoprprawne-wobec-podmiotow-ratowniczych-dotyczace-rozpoznawania-zagrozen-chemicznych-w-polsce>. (dostęp: 12.012 2024).
5. Seveso III Directive, Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC. Journal Device UE L 197, 24/07/2012, pp. 1–37.
6. Directive 2003/105/EC, Directive 2003/105/EC of the European Parliament and of the Council of 16 December 2003 amending Council Directive 96/82/EC on the control of major accident hazards involving dangerous substances. Journal Device EC L 345, 31/12/2003, pp. 97-105. Polish special edition: Chapter 05 Volume 04 pp. 398-406.
7. Announcement of the Speaker of the Sejm of the Republic of Poland of July 22, 2022. Regarding the publication of the uniform text of the Act on chemical substances and their mixtures (i.e. Journal of Laws of 2022, item 1816).
8. Act of December 17, 1998 on pensions and annuities from the Social Insurance Fund (Journal of Laws of 2022, items 504, 1504 and 2461, as amended).
9. Act of July 20, 1991 on the Environmental Protection Inspection (consolidated text: Journal of Laws of 2023, item 824, as amended).
10. Act of August 24, 1991 on fire protection (Journal of Laws of 2022, item 2057, as amended).
11. Act of 24 August 1991 on the State Fire Service (Journal of Laws of 2022, item 1969, as amended).
12. Act of January 23, 2009 on the voivode and government administration in the voivodeship (Journal of Laws No. 31, item 206, as amended).
13. Act of April 18, 2002 on the state of natural disaster (Journal of Laws of 2017, item 1897).
14. Act of June 5, 1998 on district self-government (consolidated text: Journal of Laws of 2019, item 511).
15. Act of March 6, 2018, Entrepreneurs' Law (consolidated text: Journal of Laws of 2023, item 221, as amended).
16. Act of April 23, 1964, Civil Code (Journal of Laws of 2023, item 1610, as amended).
17. Act of April 27, 2001, Environmental Protection Law, (consolidated text: Journal of Laws of 2022, ite 2556, as amended).
18. Regulation of the Minister of Interior and Administration of September 17, 2021 on the detailed organization of the national rescue and fire-fighting system (Journal of Laws of 2021, item 1737).
19. Regulation of the Minister of the Environment of May 18, 2016 amending the regulation on serious accidents subject to the obligation to report to the Chief Inspector of Environmental Protection (Journal of Laws, item 799).
20. Regulation of the Minister of Internal Affairs and Administration of June 8, 2016. on the requirements to be met by operational and rescue plans, (Journal of Laws Laws of 2016, item 821).
21. Principles of organizing chemical and ecological rescue in the national system rescue and firefighting, KG PSP Warszawa, 2021. Available from : <https://www.gov.pl/web/kgpsp/dokumenty-rchem>. (accessed: 12/01/2024).