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ON THE QUESTION OF THE PRELIMINARY STAGE OF INSPECTION OF THE INCIDENT SCENE IN CASES OF FIRES

This report clarifies the definition of the preliminary stage of fire scene inspection and identifies and analyzes its main characteristics. Emphasis was placed on the systemic issue of inadequate regulation of the investigation stage in legislation in many countries, including the Republic of Belarus and member states of the European Economic Union.

The preliminary investigation of a fire scene is a crucial step in fire investigation and forensic identification, yet it has not received sufficient attention in academic research and practical norms in many jurisdictions.

As the initial foundational step in handling fire incidents, this phase lays the groundwork for determining the cause of the fire, identifying responsible parties, and safeguarding public safety and legitimate rights. With the increasing complexity of modern fire incidents, such as those involving new energy sources, complex buildings, and chemical hazards, the scientific and standardized nature of the preliminary investigation phase is becoming increasingly important.

The purpose of this study is a comprehensive analysis of the preliminary stage of fire inspection, clarification of its concept, identification of systemic problems in its legal regulation and development of scientific and practical recommendations for its standardization and improvement.

Preliminary investigation of a fire scene refers to a series of standardized investigation activities immediately carried out by the competent authorities, such as fire departments, judicial appraisal institutions, etc., in accordance with legal procedures and technical standards after the fire is extinguished. Its core purpose is to protect the original appearance of the scene, collect preliminary evidence, identify potential hazards, and preliminarily determine the scope and basic situation of the accident [1, art 12]. Unlike the subsequent in-depth investigation stage, the preliminary investigation focuses on rapid response, scene protection, and preliminary evidence collection, which directly affects the effectiveness and accuracy of subsequent

investigations.

Its main tasks include:

1. Insulation and protection of the scene to prevent destruction or contamination of traces.
2. Visual assessment of the situation, preliminary determination of the area of the fire and the ways of spreading the fire.
3. Identification and removal of obvious and fragile material evidence (residues of alleged means of ignition, wiring, samples of combustible materials).
4. Documentation of the initial state of the accident site by taking photos and videos, drawing up plans and schematics.
5. Ensuring the safety of inspection participants (detection of collapse threats, presence of toxic substances, damaged communications).

Currently, the legal systems of many countries stipulate regulations for fire scene investigation, but lack unified and detailed regulations for the preliminary investigation phase.

As N.V. Petrov points out, «Preliminary fire scene investigation is often marginalized in legislative documents, with most regulations focusing on formal investigation procedures, leading to confusion in practice» [2, p. 89]. The Eurasian Economic Union Treaty mentions the obligation of member states to cooperate in fire safety investigations, but does not specifically stipulate the procedures and requirements for the preliminary investigation phase [3, Article 78, paragraph 3]. This legislative gap leads to inconsistencies in preliminary investigation practices across regions, affecting the validity and authority of fire investigation results.

The inspection shall be carried out immediately after the fire has been extinguished and the site of the accident has been deemed safe to begin work. Any delay can lead to irreversible loss of key evidence. For example, traces of flammable liquids can fly away, electrical artifacts can oxidize under the influence of moisture, and charcoal structures can collapse. Normatively, this requirement is enshrined, for example, in departmental instructions prescribing the start of the inspection within the minimum technically possible time [1, Art. 15]. In practice, however, coordination between emergency services, law enforcement and forensic agencies does not always ensure the required speed.

The first task of the arrival group is to physically isolate the perimeter by means of fences, warning signs and security posts. This prevents access by outsiders, including media representatives and curious people, who may unintentionally destroy material evidence. The Law of the Republic of Belarus «On fire safety» obliges investigators as soon as possible to install warning signs and protective fences at the scene of the accident to ensure its integrity [4, Art. 23]. Difficulties arise in fires at large facilities (manufacturing plants, shopping centers), where the complete isolation of the entire territory presents significant operational difficulties.

At this stage, the task is not to conduct a complete and exhaustive analysis of all objects. The focus shifts to detecting, fixing, and removing the evidence that is most vulnerable and can be quickly lost. These include samples with obvious traces of combustible liquids.

The collected materials are subject to proper packaging and sealing for

subsequent transfer to forensic laboratories for in-depth investigation [2, p. 92].

All actions during the preliminary examination must strictly comply with the rules of criminal procedure law. This concerns the scope of the participants, their powers, the procedure for access to the territory and the methods of taking evidence. Violation of the established procedures may result in the recognition of the evidence received as inadmissible in court [1, Art. 18].

Modern fire requires knowledge from different areas. In addition to the investigator and fire specialist, civil engineers (to assess the stability of structures), chemical technologists (to identify hazardous substances), electrical engineers can be invited to the scene. Their joint work at the preliminary stage allows to draw a more accurate and complete picture of what happened [5, p. 145].

The preliminary stage of fire incident scene inspection is an indispensable part of fire safety management and judicial practice. Its scientificity and standardization are crucial to ensuring the smooth progress of fire investigations and safeguarding social fairness and justice. However, the current lack of unified legislative norms and standardized operating procedures in many jurisdictions has become a prominent problem affecting the quality of preliminary inspections. To address this, it is necessary to strengthen legislative construction, clarify the procedures, requirements, and responsibilities of the preliminary inspection stage, and improve the professional quality of investigators through systematic training. Comprehensive work is needed in the following areas:

1. Strengthening the legislative framework: towards unified EAEU standards.

The current fragmentation in procedural norms across EAEU member states undermines the consistency and mutual recognition of fire investigation outcomes. To address this, a concerted effort is required to develop and implement unified model protocols for the preliminary inspection stage. These protocols must transcend generalities and provide a granular, step-by-step sequence of actions—from the initial securing of the perimeter to the final documentation and handover of evidence. They should explicitly delineate the rights, responsibilities, and jurisdictional boundaries of all involved parties: first-responding firefighters, law enforcement officers, forensic specialists, and other relevant experts. Crucially, these documents must standardize the forms for documenting results, including checklists for scene assessment, standardized evidence tags, and digital reporting templates. This harmonization will not only minimize procedural errors and jurisdictional disputes but also facilitate cross-border cooperation in investigations involving multiple EAEU members, ensuring that evidence collected in one country meets the admissibility standards in another. The ultimate goal is to create a seamless, legally robust framework that elevates the preliminary inspection from an ad-hoc operation to a standardized, forensically sound process.

2. Introduction of modern technologies: building a «digital first» response.

Leveraging technology is paramount for enhancing the safety, speed, and accuracy of the preliminary inspection. The deployment of Unmanned Aerial Vehicles (UAVs) equipped with advanced sensors represents a paradigm shift. Beyond basic photography, UAVs with thermal imaging cameras can identify latent heat signatures

in debris, pinpointing smoldering hotspots invisible to the naked eye. Multispectral imaging can reveal chemical residues or patterns of accelerants. Furthermore, 3D laser scanning should become a standard practice. A 3D scan, conducted from the first moments of the inspection, creates an immutable, high-fidelity digital twin of the scene. This model allows investigators to take precise measurements, virtually revisit the scene indefinitely, and provides a powerful visual tool for court presentations. Complementing this, mobile gas analyzers and portable chemical laboratories enable on-site, real-time detection of hazardous substances like toxic gases or flammable liquid vapors, which is critical for both the safety of the investigation team and for the immediate identification of potential causes. Integrating these technologies into a cohesive digital workflow—where data from UAVs, scanners, and sensors is fused into a single interactive platform—will create a comprehensive and objective record, drastically reducing the risk of missing critical, ephemeral evidence [5, p. 147-148].

3. Personnel development: fostering expertise through specialized training.

The most advanced protocols and technologies are ineffective without a highly trained workforce to implement them. Therefore, a systemic overhaul of training and professional development is essential. This involves the creation of specialized certification programs focused exclusively on the tactics and methodologies of the preliminary fire scene inspection. The curriculum should combine rigorous theoretical knowledge of fire dynamics, chemistry, and structural engineering with intensive practical exercises. The use of high-fidelity simulators and virtual reality (VR) platforms is highly recommended. These tools can recreate complex and dangerous fire scenarios in a safe, controlled environment, allowing trainees to hone their decision-making and evidence-collection skills under time pressure and psychological stress. A core component of this training must be interdisciplinary teamwork drills. Investigators, fire experts, engineers, and chemists must learn to communicate effectively and coordinate their actions seamlessly at the scene. This collaborative competence ensures that the inspection benefits from diverse expertise simultaneously, leading to a more holistic initial assessment.

4. Deepening scientific research: data-driven fire investigation. To move from reactive analysis to predictive insights, a new frontier of research must be embraced. A primary and promising direction is the development of sophisticated mathematical models and AI-powered software. By inputting data routinely collected during the preliminary inspection—such as the spatial distribution of damage, patterns of soot deposition, and witness statements—these models can reverse-engineer the fire's progression. They can simulate various scenarios to predict the areas of greatest thermal impact and statistically determine the most probable location of the fire's origin. This data-driven approach can objectively validate or challenge initial hypotheses, guiding investigators toward the most fruitful lines of inquiry and preventing cognitive biases. Future research should also focus on miniaturized and more sensitive sensor technologies for faster on-site analysis, and the establishment of shared EAEU-wide databases of fire scene metadata. The analysis of such aggregated data can reveal larger patterns in fire causes and behaviors, informing not only investigations but also the development of improved fire prevention standards and building codes across the union.

Summing up the study we can conclude that:

the preliminary stage of fire inspection is not just a technical formality, but an independent, complex and scientifically based activity, the quality of which directly depends on the success of the entire investigation.

- increased standardization, equipment and professionalism at this stage will not only increase the detection of fire-related crimes, but will also contribute to the improvement of the fire safety system as a whole, ensuring the protection of life and property of citizens, as well as the rule of law.

- in the context of global economic and technological development, fire incidents are becoming increasingly complex and diverse, which puts forward higher requirements for the preliminary stage of fire scene inspection. Future research should focus on the application of new technologies (such as drone surveys and thermal imaging detection) in the preliminary inspection, and promote the integration of legal norms and technical standards to continuously improve the level of fire investigation and maintain public safety.

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CIVIL LIABILITY FOR HARM CAUSED BY A SOURCE OF INCREASED DANGER

This report clarifies the definition of civil liability for harm caused by a source of increased danger and identifies and analyzes its core characteristics. Emphasis is placed on the systemic issue of inconsistent legislative regulation and practical application dilemmas of this liability type in many jurisdictions, including the Republic of Belarus and member states of the Eurasian Economic Union.