

**EXPEDIENCY OF STUDIES OF THE IMPACT OF USE OF EXPLOSIVES
IN A MILITARY CONFLICT ON THE ENVIRONMENT
ECOLOGICALLY SAFE STATE**

**ДОЦІЛЬНІСТЬ ДОСЛІДЖЕНЬ ВПЛИВУ ЗАСТОСУВАННЯ ВИБУХОВИХ
РЕЧОВИН У ВОЄННОМУ КОНФЛІКТІ НА ЕКОБЕЗПЕЧНИ СТАН ДОВКІЛЛЯ**

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Анотація. Обґрунтовано доцільність та необхідність виконання наукових досліджень щодо надання комплексної оцінки впливу вибухових речовин при застосуванні артилерії у воєнному конфлікті на екобезпечний стан компонентів довкілля.

Ключові слова: технології захисту навколишнього середовища, екологічна безпека, вибухові речовини, артилерія, військовий конфлікт.

Annotation. The expediency and necessity of carrying out scientific research on providing a complex assessment of the impact of explosives during the use of artillery in a military conflict on the eco-safe state of environmental components is substantiated.

Keywords: environmental protection technologies, environmental safety, explosives, artillery, military conflict.

Introduction. In peacetime, the ecologically safe state of all components of the environment (atmosphere, hydrosphere and lithosphere) is exposed to intensive anthropogenic impact as a result of everyday household, industrial and commercial activities. A complex assessment of the indicators of such impact based on the results of theoretical and experimental studies allows us to establish the real level of ecological safety indicators of environmental components and to formulate appropriate lists of recommendations to reduce the negative effects of anthropogenic negative impact on these components.

Relevance of the main research. The negative impact on all components of the environment during a full-scale military conflict is significantly intensified and changes its nature both in quantitative and qualitative terms. At the present stage of development of military art, the main means of defeating the enemy at the tactical and at the strategic levels is artillery.

Presentation of the main research material. The use of all types of artillery during the so-called hot phase of a modern high-tech military conflict leads to significant consequences for the ecologically safe state of the atmospheric air (in the short term), since shots from wea-

pons and shells explosions release gaseous and aerosol products of redox reactions, the reagents of which are the corresponding types of explosives. When a projectile hits the target, in case of its defeat, the products of decomposition of the target elements are also released into the atmosphere, and in case of non-hit or non-defeat – particles of the dispersed phase of aerosols. The most dangerous are the consequences of the ingress of composite exploded or unexploded shells, their packaging elements and exhausted ammunition casings into the hydrosphere (surface water bodies) and the lithosphere (soils), as these pollutants and solid waste will cause negative impact in the long term. The scale of use of all types of artillery ranges from units to tens of kilometers, the geographical coordinates of their moving and stationary targets, their nomenclature and location of relatively significant elements of environmental components are random, a significant variety of artillery weapons, ammunition and the fact that the data on the use of artillery and its results are secret in wartime and can be lost, and therefore their detection will be of a search nature.

In the period of post-war reconstruction, the chosen direction of research is of particular importance in the restoration of critical infrastructure, industrial and residential facilities, accompanied by the demining of the relevant territories by the units of the State Emergency Service of Ukraine, the elimination of ammunition remnants and the remnants of targets hit by them. The practical problem of protecting the components of the environment (atmosphere – in the short term, and hydrosphere and lithosphere – in the long term) from the negative technogenic impact of environmental hazards caused by artillery used in combat operations.

Thus, the results of the implementation of a comprehensive assessment of the impact of the results of the use of artillery during hostilities on all components of the environment will be determined by a number of different factors and require an innovative science-based approach (which will constitute the scientific novelty of the results), and the recommendations developed on their basis to reduce the negative effects of the use of artillery will be suitable and useful for practical application in the activities of the units of the SES of Ukraine, which is the practical value of such a science.

Conclusions. Thus, relying on the above formulations, it can be stated that the carrying out scientific research on providing a complex assessment of the explosives impact during the use of artillery in a military conflict on the eco-safe state of environment is substantiated.

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