

MODERN APPROACHES TO THE EVALUATION OF THE MEDICAL ASPECTS OF THE PROFESSIONAL ACTIVITY OF FIREFIGHTERS IN THE TECHNOLOGICAL SPHERE

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Due to man-made activities in many regions of the Earth, the biosphere has been destroyed or altered and a new type of habitat has been created - the technosphere, which is regarded as a space under the influence of activity (production, instrumental, technical) and occupied by its products [1]. The technosphere space performs not only its positive role, in many respects ensuring human life, but also has an impact on negative factors (harmful, dangerous, afflicting) on the person himself and the vital areas for him (natural environment, biosphere). The structure of the technosphere includes hazardous production facilities where incidents, accidents, industrial disasters are possible. The consequences of accidents can cause emergency situations of man-made [2,3].

Hazardous industrial facilities contain liquefied and compressed gases, hazardous chemicals and sources of ionizing radiation. As a result of accidents at such facilities, explosions, fires, toxic and radiation damage may occur [4,5]. Thus, fires and explosions can be in buildings, communications and technological equipment of potentially hazardous objects, on the objects of extraction, processing and storage of flammable, combustible and explosive substances, on transport, in mines, on chemically and radiation-hazardous objects.

In case of an accident at hazardous industrial facilities, dangerous factors (mechanical, ballistic, thermal, etc.) arise that cause damage to human health (illness, injury, death). Striking factors lead to the disease or death of a person directly in their area of action. Harmful factors can cause these effects after exposure [6].

In case of man-made disasters, the greatest danger is represented by dangerous fire factors - shock wave, thermal radiation and convective currents from an open flame. A relatively new approach to predicting the effects of the impact of fire hazards on humans is the study of the interaction of thermal radiation with elements of the system "heat source - clothing materials - air gaps - human skin" using the method mathematical modeling and systems approach to the analysis of complex processes [7].

Low-temperature fires (up to 600 ° C) are extremely dangerous for firefighters, because of the release of dioxins. In the smoke zone are formed: benzene, vinyl chloride, nitrogen oxide, sulfur dioxide, hydrogen cyanide, chloroform, hydrogen chloride, carbon oxide, formaldehyde [8]. Under the action of carbon monoxide on the body, released during the burning of organic materials, carboxyhemoglobin is formed in the blood, which causes dizziness, nausea, vomiting, weakness;

damage to the nervous and cardiovascular systems; loss of consciousness, asphyxia, hypoxia coma, death. Death with extensive burns is possible from burn shock that develops during thermal damage of 40-60% of the body area [9,10].

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