Analysis and modeling of flammable gas droplet flows in case of fuel spills and emissions into the atmosphere.

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The experimental complex for rapid scanning of turbulent gas droplet fuel flows during their spills, evaporation and condensation of vapors due to emergency and man-made fuel emissions from surface and underwater storage tanks with the formation of explosive and fire-hazardous fuel assembly clouds with digital data transmission via cable or radio channel to the server has been developed and created. Its diagnostic units have been successfully tested in the study of fuel outages in the process of modeling man-made accidents at fuel and energy complex facilities.

It is shown that during large-scale spills and emissions of hydrocarbons in the atmosphere, fluctuating, optically dense and flammable fuel assembly zones can form from a mixture of vapors and droplets with a diameter of 0.5 to 5000 microns.

The created experimental fuel assembly cloud analysis complex can be used in industrial safety control systems for fuel and energy complex facilities, as well as for the development of generators of "instantaneous" aerosol barriers in the atmosphere in the way of man-made and/or accidental emissions of fuels, toxic and radioactive gases.

The result was created while working on the open topic "Development of the physico-technical foundations of methods for measuring the parameters of aerosol and vapor-gas clouds that occur during large-scale accidents at fuel and energy complex facilities and the creation of experimental samples of aerosol cloud diagnostic systems" in accordance with Order No. 5450 dated 12/26/2024.