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Cappadocia, TURKEY

ABSTRACT BOOK

Edited by
Dr. Mehriban EMEK
Nurlan AKHMETOV

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INFORMATION TECHNOLOGIES EMERGENCIES PREVENTION AT SOLID WASTE LANDFILL WITH LIQUIDATION ENERGY-INTENSIVE TECHNOLOGICAL EQUIPMENT

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Abstract

The results of scientific work is devoted to solve the important scientific and practical issue in the civil safety field – to develop the methodology of emergencies prevention cascade type of dissemination concerned with landslide at solid waste landfill with liquidation energy-intensive technological equipment, aim to emergency prevention of escalating from the object to higher levels of danger. The implementation of the issue will protect civilians and specialists of State Emergency Service of Ukraine.

At landfills of municipal solid waste there are numerous cases of emergency situations associated with landslides [1, 2]. The consequences of the emergency situations are a significant area of their distribution and a significant number of dead, injured, persons with violation of the living conditions. There are trends in the reconstruction of landfills in the world. Reconstruction consists in the location of liquidation-intensive technological equipment (LETE) on the territory of the landfills. LETE is sources of the emergence and spread of man-made emergencies [3].

The object of the research is the process of emergencies prevention cascade type of dissemination related to landslide at solid waste landfill with liquidation energy-intensive technological equipment. The subject of the research is the characteristics of the process of emergencies prevention cascade type of dissemination related to landslide at solid waste landfill with liquidation energy-intensive technological equipment that which are due to the physical properties of landfill soils, technological indicators of liquidation energy-intensive technological equipment.

The author has analyzed the physical conditions of emergencies prevention, has found solutions to certain issues for assessing humidity, density, temperature of landfills soils, and the level of danger of landslides depending on the technological parameters of LETE. This allowed to determine the conditions for solving particular problems that have been included in the general mathematical model. The mathematical model of emergencies prevention is the system of four analytical dependencies. The first analytical dependence describes the number of dead persons on the characteristics of the physical properties of landfill soils and technological indicators of LETE. The second one describes the number of victims of the physical properties of landfill soils and technological indicators of LETE. The third one describes the number of people with violations of living conditions from the characteristics of the physical properties of landfill soils and technological indicators of LETE. The fourth analytical dependence allows to determine the conditions of absence of injured persons and victims depending on the variation of solutions of particular problems to assess the physical properties of landfills soils, and landslide hazards taking into account technological indicators of LETE.

The method of emergencies prevention on a mathematical model has been developed in the research. The method realization provides the groups of works before and after the fact of moving the landslide: related to the design and construction of the object; concerned with the facility operation; related with the localization and liquidation of the negative consequences of the landslide; related with the elimination of the further landslides risk and stabilization of the facility.

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