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DEVELOPMENT OF MEASURES TO ASSESS AND MANAGE THE MORPHOLOGICAL COMPOSITION OF HOUSEHOLD WASTE IN EDUCATIONAL INSTITUTIONS

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ANNOTATION:

The reliability of the scientific statements and the results of the conducted research is confirmed by the use of modern methods of theoretical and experimental research, comparison of the results obtained with the results of other authors' work in close areas of research, sufficient convergence of model and experimental data (during verification, the relative error of the calculated data was 0.6-7%), positive experience in the practical implementation of research results.

Keywords: Technical measures, different stages, pollutants.

INTRODUCTION:

The practical value of the work lies in the possibility of applying the developed integrated dynamic model of organic carbon fluxes when assessing the environmental impact of existing and projected facilities, using the results of calculations in the development of technical and technological solutions to ensure the environmental safety of landfills throughout the life cycle.

According to statistics, the number of educational institutions operating in Uzbekistan for 2020-2021 is 10181 units [1]. According to the data, at the beginning of 2020 - 2021, the total number of students who study only in higher educational institutions of Uzbekistan is 571.5 thousand people [2], each of whom, in the course of their activities in educational institutions, form various wastes that need to be disposed of in a timely manner. Attention to the problem of waste accumulation in the Republic of Uzbekistan has now increased. According to the Decree of the President of the Republic of Uzbekistan dated 21.04.2017 No. UP-5024 "On improving the system of public administration in the field of ecology and environmental protection" should be carried out state control over compliance with legislation in the field of waste management.

At the same time, emissions of other polluting inorganic substances depend on the stage and degree of transformation of organic carbon, which determine the environmental conditions (pH, redox potential, the presence of free oxygen). As a result of a complex of chemical, biochemical, geochemical, geotechnical, physical processes occurring in the landfill waste array, the formation of emissions of pollutants and environmental stabilization of the waste array occurs. Environmental safety of solid waste landfills during the operational and recultivation periods of the life cycle of solid waste landfills is ensured by a number of engineering and technical measures. To ensure the environmental safety of landfills throughout the entire life cycle, it is necessary to analyze the composition and properties of waste, determine the assimilation capacity of the site

location area, develop technical measures to control and reduce emissions of pollutants.

The principle of multi-barrier environmental protection of landfills consists in analyzing the quality of waste entering the landfill, the natural conditions of the landfill site and developing solutions for the construction, operation and reclamation of landfills, taking into account the quality of waste and the natural conditions of the landfill site. The design, construction, operation and reclamation of landfills in accordance with the proposed principle is aimed at ensuring the environmental safety of landfills throughout its life cycle.

Waste quality assessment measures are recommended based on the fact that it is important to manage the flows entering the landfill, which affect the formation of flows from the landfill into the environment. The management of waste flows at the stages of their movement preceding burial determines the quantity and quality of waste entering the landfill, which in turn affects the nature of the processes in the landfill body and, consequently, the formation of its emissions into the environment.

Reducing the environmental hazard of landfills can be achieved by implementing measures to assess the quality of waste carried out before the disposal of waste at the landfill and during the operation of landfills in order to reduce the potential hazard of waste.

To predict the emissions of pollutants from landfills, the potential hazard of waste is determined by analyzing their chemical composition. The criteria for classifying waste as particularly dangerous and preventing it from being disposed of in a landfill are: high toxicity, explosion and fire hazard, corrosion activity and sanitary and epidemiological danger. Waste quality analysis is also carried out in order to prevent the disposal of waste components of solid waste, which can be sorted from the total mass of waste and reused. To reduce the potential danger of waste before disposal, it is necessary to carry out preliminary preparation of waste by mechanical-biological, thermal methods and solidification of waste.

When analyzing the quality of waste entering the landfill, it is recommended to develop a system for the identification of hazardous waste; to monitor the flow of waste in order to identify and prevent the disposal of highly hazardous waste; if necessary, the disposal of hazardous waste at landfills, pre-treatment methods can be used; when organizing separate collection of individual components of solid waste, their disposal can be carried out at separate landfills, to which requirements corresponding to the potential danger of this type of waste will be imposed.

The following statements can be used as the basis for assessing the quality of waste placed at the landfill: waste stored at the landfill is a source of environmental impact; the intensity of the impact, with the same amount of waste, is determined by the potential hazard (quality) of waste; when neutral waste is disposed of in any place and under any conditions, no harmful environmental impact occurs, therefore such waste can be placed without precautions; any (by properties) waste can be placed in the environment without precautions, if it is possible to change their quality in such a way that they become neutral and none of their components will be released into the environment (in the form of dust, gas or filtrate).

The determination of the potential hazard of waste is carried out to identify and exclude the storage of highly hazardous waste at landfills together with solid waste. If it is necessary to dispose of hazardous waste at landfills, pretreatment methods should be used to reduce the danger. Identification of highly hazardous waste is carried out according to the

following criteria: toxicity; flammability; reactivity; sanitary and epidemiological hazard.

To reduce the potential hazard of waste, the following pretreatment methods can be used: mechanical and biological processing (including composting); thermal processing; physical and mechanical methods (compaction, curing); sorting with the release of various fractions. Each of these methods, in relation to the subsequent disposal of residues, is the preparation of raw materials. The analysis of literature sources allowed us to assess the impact of each method of solid waste processing on the process of disposal of non-utilized residues.

At the same time, methods of optimization and automation of the site selection process can be used, the natural properties of soils for adsorption, ion exchange, substitution, due to which the filtrate is subjected to natural purification, are predicted. It is also recommended to forecast the quality of groundwater during the penetration of filtrate and calculate the required capacity of the geological barrier for the option when the engineering structures of the anti-filtration protection system of the landfill base fail.

The landfill site should be considered from the following positions: minimizing the permanent harmful effects of the landfill on environmental objects; minimizing potential emergency environmental impacts.

The reduction of environmental risk through the element of natural protection of the landfill site is supposed to be achieved by implementing the following principles: the choice of the site should be carried out in such a way that whatever the harmful impact, its consequences will be minimal (environmental risk assessment is in this case a meaningful approach to generalize all the characteristics of the proposed site); since the anti-filtration protection system is not eternal, it is necessary to consider the natural factors of pollution purification, which should subsequently replace artificial measures, and it is also necessary to predict the qualitative state of groundwater in such a situation.

The analysis of the processes occurring at different stages of the life cycle in the body of the landfill allowed us to establish the main factors affecting the nature and intensity of the processes and their accompanying emissions. The main internal factors are: organic carbon content; cellulose/lignin ratio; humidity and temperature of the waste array. The management of these factors allows to regulate the processes occurring in the body of the landfill within certain limits, to influence the intensity and composition of the emission. The internal parameters of the polygon are influenced by external factors.

- Management of landfill emissions by reducing the proportion of active carbon in waste, their stabilization before burial by methods of separate collection, sorting, thermal or biological treatment;
- Exclusion of disposal of unstable, toxicological and sanitary - epidemiologically hazardous waste, inhibitors of biochemical processes and catalysts of hazardous properties;
- Selection of a safe area for the placement of the site of the projected landfill according to sanitary, environmental, urban planning, geological, hydro geological, hydrological, landscape, etc. criteria;
- Organization of anti-filtration protection of the landfill base by using a natural geological barrier, its sorption and water-resistant properties, an artificial anti-filtration screen device, a filtrate collection and drainage system;
- Ensuring a minimum hydraulic gradient at the base of the landfill by hydraulic unloading of the screen, managing the water balance of the landfill;

The method of analyzing material flows in the study of the landfill system allows you to

simultaneously answer a number of questions: how does the intensity of the environmental impact change, depending on the concentrations of pollutants in the filtrate and the volume of biogas formation, during the life cycle of landfills; what is the duration of the negative impact of landfills, determined by the intake of excess amounts of pollutants into the environment; what factors affect the intensity and duration of the negative impact; how does the composition and properties of waste received at the landfill affect the formation of emissions of pollutants; what measures should be taken at the operational, recultivation and assimilation stages of the life cycle of landfills in order to reduce the intensity and shorten the duration of the negative impact on the environment.

LITERATURES:

1) Vaisman Ya.I. Tagilova O.A., The study of the "landfill" system for modeling its metabolism // Ecological rehabilitation of industrial plants and territories. Perm, 2005. pp.212-222.
2) Vostretsov S.P., Tagilov M.A., Tagirova O.A. Forecasting the composition of the filtrate of the projected landfills of solid household waste disposal // EKVATEK-2002. M., 2002. pp. 473-475.
3) Temporary recommendations for conducting geological and environmental studies at existing and projected landfills of Moscow and the Moscow region. M., 1989.
4) Galitskaya I.V., Trufmanova E.P. Geochemical assessment of the territories of former landfills / Geoecology. Engineering geology. Hydrogeology. Geocryology. M., 1999. No. 5. pp. 480-485.