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The Results of the Final Engineering and Geological Studies of the Mass of Lyoss Grits

J. Ravshanov

Assistant Jizzakh Polytechnic Institute, Department Road Engineering, Jizzakh, Uzbekistan

ABSTRACT

The results of investigation of morphological, retrospective and prognoses engineering-geological tasks concerning loess soils massifs are formulated. The main result of solution of retrospective engineering-geological tasks is the proposal of hypothesizes and mechanisms of loess soils subsidence formation. They are the base for four special and general theory of subsidence formation.

The result of solution of prognoses engineering-geological tasks is the elaboration of methods for calculation the expected subsidence of loess soils massifs under different mode of their wetting and the development of different methods (hydrogeomechanical, geochemical, geotechnical and complex) of improvement of loess soils massifs properties.

KEYWORDS: *Engineering geology of loess soils massifs, subsidence of loess soils, hypothesizes and theories of subsidence formation, methods of improvement of loess soils properties*

Introduction of great importance are the rocks of lyoss, formed by mankind among natural geological structures. They are very common on earth and are found on all continents of the Earth except Antarctica in large khajms threeraydi (Lisenko, 1978; lyoss...2001).This lyoss grunt is located on the highest surface of the Earth, manifested mainly in the Quadrangular formation of various Genesis.

The results of the study of morphological, retrospektiv (related to the past) and predictive engineering-geological problems with respect to the arrays of Lyoss grunt were formed. At relative deposition, the deposition values reach 0.17-0.21, the deposition thickness value at Natural loading effect is 55 m. shown to be equal. The main task of solving past Engineering and geological problems is the development of 8 hypotheses and rules for the formation of sediments of lyoss grits, on the basis of which four general theories of formation have been identified.

According to the results of solving the predicted problems – it is necessary to develop methods for calculating the expected values of lyoss grounding in different wet conditions of their deposition, as well as methods of further improvement of the composition of lyoss grounding arrays: geochemical, geotechnical and complex.

The law of their compression is almost no different from some other grunt, if external forces affect the grunt of lyoss, which has a natural moisture content. But if we saturate the lyoss grunt, which is affected by the pressure, with water, then rashes are also formed in it. Such additional sediments are called extreme sedimentation deformation of the lyoss grunt.

E. V. According to the Kadyrov calculations, the land of lyoss is covered in an area of 4 255 600 km2 of the Earth's surface, which makes up 3,2% of the landfill area on the planet on which we live. For many years, more precisely centuries, these rocks have attracted the attention of mankind. They are studied by geologists, soil scientists and geographers.

The massifs made up of these grounds are also mastered by builders, landlords and agricultural workers. The thickness of the areas where all these grills meet varies from a few tens or even hundreds of meters, their composition is specific and close enough; these are sandy-loy-dusty systems, the main part of which consists of fine sand (0.1-0.05 mm) and especially large-dusty (0.05-0.01 mm) - sized grains. The extreme dipping value of Lyoss grasses is determined using one-line and two-line methods, depending on the conditions of conducting experiments on the odometer instrument. But solving flat and spatial issues requires the use of parameters related to classical mechanics. Therefore, the extreme deposition value of lyoss grills can be expressed through the deformation module (1 and 2-formulas).

$$S_{sl} = \beta \frac{\sigma_{zp} h}{E_{sat}} - \beta \frac{\sigma_{zp} h}{E_0}$$

$$S_{sl} = \beta \frac{\sigma_{zp} h}{E_0}\left(\frac{E_0}{E_{sat}} - 1\right) = \beta = \frac{\sigma_{zp} h}{E^{`}} \quad \varepsilon_{sl} = \beta \frac{\sigma_{zp}+\sigma_{zg}}{E^{`}}$$

Lyoss grasses have a number of specific engineering-geological properties, which are distinguished as in different types of soils. To such a category of properties, first of all, they have a low content of natural moisture, high porosity, low water resistance, and the main thing is a sharp increase and decrease in the degree of deposition and deposition.As a result, in engineering-geology, a scientific and practical department was created, which is called engineering geology of the massifs of lousse gruels. Within its framework, the engineering-geological conditions of the massifs of the laussian lattices, their formation, spatial-time changes under the influence of natural and anthropogen (technoogen), modern and predicted geological processes are also studied (Trofimov, 2008). This set of studies and set of data is aimed at solving the engineering and geological problems of three types of massifs of lyoss grunt: they are morphological, retrospektiv (related to the past) and prophetic species.

Solving the problems of the first type-allows us to evaluate the properties, condition, structure and composition of lyoss grits, as well as the massifs that they constitute;

The solution of the second type of problem is to give us the named characteristics of this Massif, the history of the appearance of sediments and their recovery;

The solution of the third type of problem is the prediction of the economic assimilation of the lyoss gruels. In this regard, it is necessary to examine the solution of the problem predicted in the study of construction skills in the arrays of lyoss grasses as an examination.

It is permissible for us to definitely point out a few scholars who have added their great efforts and contributions in the engineering-geological studies of these peculiar massifs of lysos grunt. They Yu. M. Abelev, V. M. Alekseev, M. N. Y. Alekseev, V. P. Ananev, L. G. Balaev, V. S. Bykov, A. A. Velichko, B. F. Galay, N. Eat it. Denisov, R. S. Ziangirov, R. S. Of The Year, E. V. Kadirov, V. A. Korolev, V. F. Kraev, N. I. Kriger, V. I. Krutov, A. K. Larionov, M. P. Lisenko, G. A. Mevlanov, A. V. Minervin, S. G. Miranyuk, S. S. Morozov, A. A. Mustafev, V. A. Obruchev, V. I. Popov, E. M. Sergeev, V. N. Y. Sokolov, V. T. Trafimav, L. I. Turpin, Sh. E. Usupaev, P. V. Tsarev, Ya. E. Shaevich, M. Sh. Shermatov, as well as F. A. Nikitenko, I. D. Sedlesky, G. A. Sulekshine, I. V. Finaev and others. Thanks to their theoretical research and research, as well as the practical work of the army of senior seekers, they were studied like other gruples, achieved remarkable results by a positive solution to each task.

ACS W	X

In this article, we will get acquainted with the achievements in solving only the first problems mentioned above, that is, solving the problems of morphological engineering and geological functions in the study of lysous grits.

The main results of the engineering-geological study of the Lyoss grunt masses in the field of solving morphological problems are as follows:

A. reliable descriptions of the distribution, composition, structure, condition and properties of lyoss grits and their arrays are obtained;
B. the nature of the deposition of lyoss grunds is determined;
C. the types of separation of lyoss grounding masses and the total value of sediments, as well as the description of the change of sediments by layers are determined;
D. g) the regional legislation of the distribution of mass of sedimentary lyoss grits and the strength of sedimentary layers are indicated;
E. requirements for engineering and geological exploration work have been developed in the districts where sedimentary rocks are distributed.

Further it can be noted that the process of deposition in the humidification of lyoss grasses - the fact that it is a mechanism of development of deposition – has been sufficiently studied in this regard to date (Abelev, 1968; Ananev, etc., 1976; Denisov, 1953; Krutov, 1982; Mustafaev, 1989). In this regard, many scientists have studied the fact that on earth, for example, even in northern Eurasia, the deposition and spread of lyosss is a different district, and the factors underlying them (Abelev, 1968, Ananev, 2004, Ananev and others, 1976; Kart…, 1989; Kriger, 1965, 1986; Kriger and others, 1981; Krutov, 1982, 1998; Larionov and others, 1959; Lyosslar., 1966, 1986, 2001; Lisenko, 1978; Mavlanov, 1958; Base., 2008; Trafimav, 2008). It is also determined that other mountaineers also have deposition properties: dusty salty and non-salty Sands, volcanic ash and artificial soils are identified. The data collected to date has also made it possible to characterize the excessively high values of the deposition indicators of lyoss grunds.

Table 1 Classes of techniques for controlling the deposition of Lyoss grunt arrays.

Groups of methods	Classes of methods	Methods types of	Basic techniques
hydrogeomechanical	Methods aimed at the deposition of lyoss grits by condensation and wetting	Methods of mechanical densification of sedimentary lyoss grinds	Flattening the hipper with heavy rollers. Pillows from lyoss grills restoration. Blow up and condense. Avavlik condensation. Condensation with the help of Catholics.
		Gidromechanical methods of eliminating the deposition of a wide lyocoid grunt mass	Wet the grunt massifs by pouring water into the pits. Deeply moisten the massifs. Densify by blasting extra soaked grunt massifs. Soaked grunt masses shake and condense. Steaming Lyoss rock Massif
Geochemical	Using physico-chemical melioration technologies, it is possible to determine the methods aimed at eliminating sediment	Thermal methods of eliminating the deposition of lyosimon rocks	Activate the side to the strengthening mass. Additional heated air to the massif to squeeze and drive.
		Methods of physico-chemical injection strengthening of sedimentary rocks	Strengthening the mass of lossy grits with dumbbells with dumbbells. Silicate. Ammonia. Reinforcement with urea resin.
Geotechnician	Methods based on scraping of sedimentary lyoss grinds	Methods based on industrial shearing of sedimentary lyoss grinds	In places where the highway is planned to be built, it is necessary to take the road beam-based sleeper lyoss grounding, etc.

	Methods based on armature of sedimentary lossy grunt massifs	direct techniques of grinding massifs with sedimentary lossy	Restoration of Sandy pillows. Scraping small-sized piles. Scraping the injecting and twisting piles into the indestructible sinking grunt.
	Methods based on the complete cutting of layers of calcareous sedimentary grits	Deep-foundation cutting of the sinking layer of lyoss grinds	The use of stumbling devices or clogging piles that cross the lyoss grinds. Restoration of sedimentary lyoss rock massifs with reinforced grunt columns.
	Based on the control of the humidity regime of sedimentary rock masses with lyoss methods	Water repellent activities	Area Planning Build waterproof screens to the foot of highways. Qualitative filling of the gaps between the pits and trenches around the pipe and other artificial structures at the base of the road. Management of emergency water out of the way and water leakage network.
Complex mixed	Methods based on combining different classes of techniques.	A set of activities that include different combinations of techniques of the first three groups.	Complex measures aimed at partial elimination of the deposition content of calcareous grits, structural and water-bearing protective measures.

It is known that the relative sedimentation value of lossy grills often reaches 0. 09-0. 15 (in urban and urban areas such as Tashkent, Odessa, Zaporozhe and Grozny), the base in Chirchik amounted to 0. 3 MPa at a load of 0. 17 (at a depth of 3-9 m), the depth at a natural load of 0. 21 MPa at a depth of 22 m. ni established. The smallest values of the initial immersion pressure are V. I. According to Krutov (V. I. Krutov, 1998) reported that the extreme sedimentation rate of lyoss grunt was <0. 02 MPa, while the relative sedimentation rate in it was known to increase to 0. 12 MPa at the pressure effect of 0. 3 MPa on the grunt.

The maximum value of the strength of the sinking area ie thickness 43-55 m. by arrangement, the value of the difference in the deposition of often lyossy grinds can also vary up to 30 m.

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