

## **DIRECTIONS OF DRILL CUTTINGS UTILIZATION**

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The operation of oil and gas wells is marked by the generation of a significant amount of drilling waste, which is classified as multi-tonnage waste from oil and gas production. The volume of drilled cuttings can reach 0.4 m<sup>3</sup> per linear meter of well passage. Therefore, the problem of its storage, disposal, neutralization and utilization is relevant. Currently, there is no consensus on the chemical composition and physical and chemical properties of drill cuttings. The chemical composition of drill cuttings is determined by the content of 55-60 % SiO<sub>2</sub>, 12-16 % Al<sub>2</sub>O<sub>3</sub>, 3,2-4,3 % CaO, the rest is made up of organic compounds and heavy metal oxides. The composition of drill cuttings is characterized by the content of oil, oil products, synthetic surfactants, organic compounds hazardous to the environment and soluble mineral salts that are toxic to soil and vegetation. Drill cuttings contain up to 60-80% drilled rock, 8% organic matter, up to 6% water-soluble salts and weighting agents, clay and oil.

One of the most important aspects of drilling operations is to preserve the environment as much as possible. Oil and gas well construction activities have a negative impact on the environment, and the consequences of this impact are felt not only at the time of pollution but also for several years after the work is stopped. In addition, drilling operations are carried out without proper environmental control. Therefore, one of the primary problems is choosing the optimal scheme for their utilization or disposal. In the practice of drilling and operating oil wells, waste is disposed of in earthen sludge pits on the territory of the drilling site, the walls and bottom of which are insulated with polyethylene or polyvinyl chloride film and bentonite. Upon completion of the well, the storage facility is covered with mineral soil mixed with bentonite and a layer of fertile soil is applied, i.e., the site is reclaimed.

Based on the review of existing methods of drill cuttings utilization and taking into account the current experience of well drilling, it was established that the most acceptable way to neutralize drilling waste is the process of joint processing of drill cuttings and phosphogypsum to produce a building material such as gypsum concrete.

Based on the composition of drill cuttings, it can be used as fine aggregate in the manufacture of gypsum concrete based on phosphogypsum binder. Construction materials made from anthropogenic raw materials must have satisfactory technical and environmental characteristics. Modern utilization technologies allow changing the chemical composition and physical and chemical parameters of waste, giving it improved properties and the possibility of using it in the production of building materials such as bricks, expanded clay, and small-sized construction products. Modern environmentally friendly and efficient methods of utilization of this type of oil and gas production waste to ensure environmental safety is an urgent scientific task.