МОЛОДЕЖНАЯ СЕКЦИЯ

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IMPACT OF DRILLING PROCESSES ON BIOSPHERE COMPONENTS

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Environmental impact occurs at all stages of drilling, starting from preparation for construction, as well as during the construction and operation of wells.

At different stages of construction, the intensity of the impact, its duration, as well as the equipment used and the types of work performed will vary, and therefore the impact itself at different stages will also be different. Therefore, to conduct a more correct identification of negative environmental impacts, it is recommended to analyze the environmental impact during well construction at each stage [1]. During the construction of a well and its further operation, a number of main stages can be distinguished, each of which has a different impact on the atmosphere: construction and installation works; drilling and well fixing; well development; well operation [2].

At the first stage of preparatory work for the construction exploration wells appear a need for a rational choice of land for drilling sites. The provision of land allotments for the construction of wells for temporary use is carried out for the entire period of mineral exploration, after which they must be returned to the user of land in a condition suitable for agricultural activities. To ensure effective environmental protection and reliable protection of the subsoil, it's necessary to have the following data: description of the complex geological structure, rationale for the selection of necessary equipment and materials, estimated volumes of drilling fluids and generated drilling waste, rationale for the selection and provision of progressive reservoir opening systems breakdowns, intelligence loss analysis, economic and environmental indicators of drilling operations [3]. In preparation for drilling wells, an arrangement should be

made for the temporary accumulation of waste and construction of a system for collecting liquid and solid industrial waste.

The main potential environmental pollutants in well construction: drilling and grouting solutions, drilling wastewater, drill cuttings, formation mineralized water, productions of fuel combusting during operation of internal combustion engines, combustion of products of well development and associated gas in flares, etc. During well construction, environmental pollution occurs during the cleaning of vibrosit, mopping cleaning floors and equipment, washing of washed pipes, leaks in the preparation of drilling fluids and chemicals for their processing, clogging and through integrity.

It is necessary to foresee and carry out environmental protection measures at all stages of preparation for drilling. At the first stage of the preparatory work – preventive measures aimed at preventing pollution and man-made disturbances of the natural environment. Then – collection, purification, neutralization, utilization and burial of waste from well construction, as well as measures to prevent pollution of atmospheric air, soil, surface and underground waters, subsoil, and land reclamation. Industrial, household, wastewater from flushing process equipment and containers from chemical reagents, as well as wastewater from production sites of drilling rigs, should be reused. If it is impossible to reuse, it is allowed to discharge them into water bodies after treatment at treatment facilities [4].

In the future, when operating wells, it is also necessary to take measures to prevent harmful effects on the environment in full.

References

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