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Technical Guidelines for Oil and Gas Well Drilling Accident Prevention

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Abstract: This article provides basic information about the causes of accidents that can occur during oil and gas drilling and accident recovery. Also, information was given on modern technical methods of emergency situations in wells that are being drilled to date and the impact of emergency situations on drilling efficiency. Also, new stages of extraction and processing of oil and gas fields are being implemented in the Republic of Uzbekistan. Currently, oil and gas wells are being vaporized by the "Eriell" well drilling enterprise in the West Aral district of the Republic of Karakalpakstan.

Keywords: Oil and gas fields, mining enterprises, drilling processes, wells, accidents, pressure, temperature, pipelines, equipment safety.

Introduction

To date, it is appropriate to plan the technical conditions of modern drilling processes in various types of geological schemes in mining enterprises that produce oil and gas wells through the drilling industry in the Republic of Uzbekistan. Eriell Drilling Company is a leader in the implementation of oil and gas well drilling processes. Eriell Drilling Company is engaged in drilling operations in many mines and oil and gas fields. Oil and gas wells are being drilled on the western island. Currently, in the Republic of Uzbekistan, modern technological drilling devices are used in the processes of drilling oil and gas wells, which serves to further increase the efficiency of drilling operations. With the increase in the depth of drilled wells in oil and gas production enterprises, we can consider the processes of increasing the static pressure and temperature in the formation as one of the main reasons that cause accidents in drilled wells. Accidents in oil and gas well drilling are mainly processes in which the pipes of the drilled gas wells can be compressed between the layers. . soil particles. causing processes such as weight or blockage in the pipe. Wellbore accidents caused by the level of corrosive environment in drilled oil and gas wells, the disruption of the drilling fluid structure, the variable thickness of the formation in the wellbore, and the misalignment of the well structure are very high. high. . In mining enterprises, drilling processes are complicated due to the fact that the lower part of the drilling ridge continues to the depth. For this reason, most mining companies have a number of tried and tested methods of dealing with drilling accidents. As the depth of the drilled wells increases, it is necessary to take measures to prevent blockage of pipes and to eliminate them in the event of an accident. Clogging of pipes during drilling processes in mining enterprises - mainly occurs in the construction scheme of drilling wells and unpredictable processes during its use, for example, stoppage of pipe direction or movement of tools in drilling wells. It has been confirmed in practical data that in the event of an accident in some drilling wells, it is impossible to restore it even when the maximum force is applied. Unfortunately, in some cases, well drilling

is stopped on the spot because the drilled wellhead is closed due to an emergency. Drilling this well consumes a lot of energy. This reduces the efficiency of drilling and damages the economic condition of the mine. The following forces affect the compression of pipes during well drilling. An example of this is compression of the drill string against the well wall under the influence of the mechanical force of the pipes lowered into the drilled wells, a decrease in the pressure in the pipe, and the interaction of the pressure forces created in the pipe. yarn Test data obtained as a result of our research show that during the normal circulation of drilling fluids in mines, after a certain time, dynamic equilibrium processes occur between the process of crust formation and its washing. According to these results, there is a consistency between the thickness of the casing drilled in the well and the water transfer system to the path of the drilling tool. The structural and mechanical properties of drilling fluids under the influence of the pressure difference in drilling processes affect the occurrence of seizure. By controlling the properties (composition and chemical, physical properties) of the drilling fluids, it is not always possible to prevent the spread of wells on the pipe walls when the movement between highly permeable rocks is stopped. With an increase in the speed of drilling wells (increasing temperature and pressure on the walls of the drilling well), the pressure increases due to a proportional increase in the pressure force against the well. With a sharp change in the pressure difference (between the hydrostatic pressure force and the formation pressure) on the wellbore wall being drilled, the presence of pressure forces on the wellbore solid rocks, permeable layers (sandstones, gravels, limestones and minerals of different hardness) and the pressure of the wellbore walls are normal components of the weight of the pipe. makes a secret. It is for this reason that an emergency situation occurs as a result of falling into permeable layers on the walls of a drilled well. Traps on the wall of the well where drilling is carried out in this type of layers, if the pipeline remains inactive for a certain period of time, the filtering layer (protection of the pipeline from external influences, for example, various particles, soil layers) is formed on the surface of the pipe on the pipe wall during this time. 'tadi) sticks, then creates a pressure difference on the walls of the well drilled slowly relative to the pipes. Also, the erosion processes of the formation wall in the wells dug in the mines are inextricably linked with the cyclical changes based on the hydrodynamic pressure during drilling. the rocks cannot withstand the pressure of a large value on the walls of the boreholes. In drilled wells, pipe clamps are used to overcome the emergency situation in the pipe wall at a certain depth. The main task of the pipe cutters is to hold and pull out the pipes that have broken under the influence of external pressure. These processes include slags that draw and seal the pipe walls from the walls of the drilled well. The spindles are mainly mounted on a conical ring and fixed to one axle. They slide into the ring of the cone and stick to the pipe walls and attach to damaged pipes. In the upper part of the pipes, the technical end connector, which serves to connect it to the downpipe, is equipped with magnetic milling cutters, and the lower part is equipped with a conical guide spring body and hydraulic levers for aligning it with the mouth. from the remaining pipe. In mining wells, magnetic cutters are mainly used to remove metal residues (metal particles) with ferromagnetic properties from the well using magnetic cutters. These milling machines are mainly of two types. In the oil production industry, the work related to the underground repair of the well is considered to be somewhat complicated and dangerous. Therefore, every worker here is required to know the rules of contact with mechanisms and observe the safety rules of the equipment designed to perform the work. Each worker of the underground repair crew must have completed a special course on equipment safety and be familiar with the instructions and rules for safe operation in the mine. The main production unit of the underground repair brigade is the lifting structures and mechanisms, that is, the tower, the riser and the oil and gas well drilling system. First of all, it is necessary to pay attention to the stability and reliability of the system. Before the lifting and lowering process, the tower, the tower and the tal system should be carefully inspected. The steel rope tensioner must be well fixed at the top of the tower and under the anchor. If the tensioner is loose, it must be fixed. All steps, platforms, legs and top of the tower should be checked. Nothing should be left on top of the tower, the fall of a small thing (bolt, nut) can cause serious complications. The work area above the service pipes shall be equipped with a board of sufficient size and strength to remove

and secure the pipes. This place should be clean, not slippery and not slippery. Each well should be provided with water hoses to wash the drilling area, spilled oil and mud. Oil and gas well drilling workplace must be protected from rain and sun. Before work, it is required to lubricate the sound-emitting parts of the pipe lifting and lowering mechanisms, otherwise accidents will occur. The lifting hook must have a lock that prevents it from opening during operation. The main purpose is to thoroughly flush the well after removing the emergency in the drill wall to remove all debris from the bottom of the well. If the metal object is located at a distance of 1-2 cm from the magnetic pole, it is well attracted by the handles. When there are large bodies at the bottom of the drilled well, crown cutters are mainly used. Before lifting the milling machine, the loading values of the pressure force applied to the magnetic milling machine should not exceed 50kN-70kN. When stratified well pumps are used, plates are used that are fixed to the flange of the ridge head with the help of studs. A two-stage guide and two clutches are installed on the turntable. The gap between the couplings and the plates is hermetically closed using a ring seal. The pump-compressor pipes are attached to the thread in the lower part of the coupling, and the seals along the well are attached to the thread in the upper part. Each oil and gas well has a flanged discharge line next to each oil and gas well to transport the formation products, and the upper part is tightened with a compression bolt and an adjustment nut. Flow rate regulators are used to provide a specified flow rate of pumped water to the formation, keeping the flow or pressure of the pumped fluid constant, depending on the conditions of use of the formation. Flowmeters use fluid-receiving adjusters, which are lowered into the well using wires and installed. The flow regulator ensures constant removal of liquid from the reservoir and prevents backflow into the reservoir when the pressure decreases or, inside the NKQ, when the pressure increases. Downhole equipment uses pump-compressor tubing that creates a gathering flow and directs fluid flow through the back loop of the tubing or vice versa. Successful recovery of drill pipe accidents in mining operations is often associated with quick detection of pipe breaks. Drilling specialists, while detecting accidents in drill pipes, raise them at maximum speed and study the part where the accident occurred. After lifting the broken end of the drill string during the investigation of the accident, the surfaces are cleaned, washed and the nature of the fracture (factors that caused the accident) is determined. After that, the number of candles is calculated, the rest of the pipes that caused the accident and the depth are determined. Then the emergency response procedures are determined. At the drilling site, emergency operations in the drilling well are mainly carried out by the lead engineer and driller. These processes are managed by the chief engineer in complex works. In mining enterprises, before lowering the holding devices into the well where the drilling processes are being carried out, a technical scheme is drawn up showing the main dimensions of the general equipment and parts of the holder. In the technical scheme of the drilling equipment, a washing (slip) grip, a crane or a bell is used to hold the wells. After the drill pipe assembly is gripped by the tools, it is slowly moved and the well begins to be flushed. With this tool kit, the drill pipe system can wash out the wells and slowly move the metal particles that remain inside the wells after they are captured. In conclusion, it can be said that in the implementation of drilling processes in mining enterprises, it is necessary to draw up a well formation scheme. Every drilling accident should be investigated. Thus, it is necessary to eliminate the accidents that occurred during the drilling process in time. When repairing and sealing the top of the well, it is necessary to inspect the top of the well and correct its malfunctions. Especially in gas wells, malfunctions are eliminated before repair work is carried out. Defects of the spine include its twists and fractures. The compression of the mountain range is different and is evaluated according to the change in its internal diameter. If the diameter is reduced by 15% compared to the previous state, it is called a small injury. If 0.8 (80%) of the diamctmi is broken, it is considered a major damage. Damaged areas are repaired with a pear-shaped or columnar milling machine. The cutter is lowered into the oil and gas wells in such a way that a free passage is formed for lowering the template of the nominal diameter. The suspended area should be sealed as much as possible so that extraneous water and exposed stones do not enter. Oil and gas wells are drilled using a drill press to drive a cement mixture under pressure through a ridge defect and insert metal patches. If it is not possible to adjust the

diameter, a ridge or "helper pipe" is often installed. If it is not possible to lower the ridge into the well, it is returned to the horizon lying above or a second shaft is opened from the side. During the operation of oil and gas wells, defects of one kind or another appear in the wells themselves and in underground equipment. Each moving well can be stopped for planned, mandatory or current maintenance. Well shutdowns are also associated with outages related to underground workovers or surface equipment repairs, power transmission, compressed gas and air transmission.

Conclusion

In conclusion, it can be said that when drilling oil and gas wells, it is necessary to constantly control the parameters of the well. It is advisable to constantly check the technical adjustment of the drilling machine during operation. In drilling oil and gas wells, technical efficiency and human safety are very important. When drilling gas wells, it is desirable to determine the static compressive strength of the layers and the tension applied to the drilling rigs.

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