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OIL BULL IN RELEASE DEPTH PUMPS WORK INDICATORS IMPACT ATTACHMENT FACTORS

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Annotatsiya. Ushbu maqolada neft quduqlari xom-ashyosi tarkibiy qismlari o‘zgarishiga bog‘liq ravishda chuqurlik nasoslarning ish qobiliyatiga ta’sir etuvchi omillar va uni bartaraflash usullarini tadqiq qilish orqali quduqlardan neft olish miqdorini oshirish ishning asosiy vazifasi qilib qo‘yildi. Neft konlaridagi mahsuldor qatlamlarni suvlanish darajasining oshib ketganligi mexanik holatda qazib olish jarayonida, yig‘ish va tovar neftni tayyorlashda murakkabliklarni keltirib chiqaradi. Bunday turdagi murakkabliklarga teskari turdagi katta qiymatga ega bo‘lgan va qovushqoq suvneft emulsiyalarining paydo bo‘lishidir. Shtangali chuqurlik nasoslarlari ishlatish jarayonlarida sodir bo‘ladigan murakkabliklar va ularni nasoslarning ish ko‘rsatgichlariga ta’sir etishini bartaraf qilish choralarini takomillashtirish muammolari bo‘yicha ko‘pgina olimlar ilmiy ish olib borishgan. Barqaror emulsiyalar shtangali chuqurlik nasos (shtangali chuqurlik nasoslari) qo‘llanilganda shtangalarni uzilib ketishiga, markazdan qochma elektr nasos (MQEN) da elektr qismlarini uzilishiga va BED (botma elektr dvigatellarni) o‘z muddatidan oldin ta’mirlash ishlarini olib borishni talab qiladi. Shtangali chuqurlik nasoslarining kamerasini to‘liq suyuqlik bilan to‘lmaganligi tufayli hamda shtangaga beriladigan cho‘zuvchi kuchlanishning ta’sirida markazdan qochma elektr nasosning ishchi organlarida gidravlik qarshilikni kuchayishi hisobiga kunlik uzatish ko‘rsatgichi 2 martaga kamayib ketadi. Neft qazib chaqrishda chuqurlik nasoslarni ishlatish jarayoni ish ko‘rsatkichlariga salbiy ta’sir ko‘rsatadigan olillar, ya’ni neft tarkibidagi erigan gazlarning ajralib chiqishi, qum zaralari, og‘ir uglevodorodlarning quduq ko‘targilari va nasos ishchi qismlarida chukib qolishi

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kabi salbiy olillari va ta’sir oqibatlari haqida ma’lumotlar keltirilgan.

Kalit so‘zlar: neft, nasos, chuqurlik, quduq, qum, erigan gaz, parafin, egrilanish, suv, shtanga.

Аннотация. В данной статье основная задача работы – повышение объемов извлечения нефти из скважин путем изучения факторов, влияющих на производительность глубоких скважинных насосов вследствие изменений состава сырья нефтяных скважин и методов их устранения. Повышенная степень гидратации продуктивных пластов на нефтяных месторождениях создает трудности в процессе механической извлечения, сбора и подготовки товарной нефти. Противоположностью таким трудностям является образование водно-нефтяных эмульсий, которые имеют высокую себестоимость и вязкость. Многие ученые проводили научные работы по проблемам улучшения трудностей, возникающих при эксплуатации штоковых глубоких скважинных насосов, и их влияния на производительность насосов. Стабильные эмульсии приводят к поломке штоков при использовании глубоководного насоса (глубоководных насосов), поломке электрических компонентов в центробежном электронасосе (ЦЭН) и преждевременному ремонту погружных электродвигателей (ПЭД). Из-за неполного заполнения камеры глубоких скважинных насосов жидкостью и увеличения гидравлического сопротивления в рабочих частях центробежного электрического насоса под воздействием растягивающего напряжения, приложенного к штоку, суточная производительность снижается в 2 раза. Представлены факторы, негативно влияющие на эффективность глубоких скважинных насосов в нефтедобыче, такие как выделение растворенных газов в состав нефти, песчаные частицы, вспучивание ствола скважины тяжелыми углеводородами и их отложение в рабочих частях насоса.

Ключевые слова: нефть, насос, глубинный, скважина, песок, растворенный газ, парафин, кривизна, вода, штанг.

Annotation. In this article, the main task of the work is to increase the amount of oil recovery from wells by studying the factors affecting the performance of deep well pumps due to changes in the composition of the raw materials of oil wells and methods for eliminating them. The increased level of hydration of the productive layers in oil fields creates difficulties in the process of mechanical extraction, collection and preparation of commercial oil. The opposite of such difficulties is the formation of viscous water-oil emulsions, which have a large value. Many scientists have conducted scientific work on the problems of improving the effectiveness of the operation of rod deep well pumps and their impact on the

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performance of pumps. Stable emulsions lead to breakage of rods when using a submersible pump (submersible pumps), breakage of electrical components in a centrifugal electric pump (CEP), and premature repair of SEM (submersible electric motors). Due to the incomplete filling of the chamber of the submersible pump with liquid and the increase in hydraulic resistance in the working parts of the centrifugal electric pump under the influence of the tensile stress applied to the rod, the daily transmission rate decreases by 2 times. The factors that negatively affect the performance of the use of submersible pumps in oil production, namely the release of dissolved gases in the oil, sand particles, heavy hydrocarbons in the wellbore and the working parts of the pump, and their consequences are presented.

Keywords: oil, pump, deep, well, sand, dissolved gas, paraffin, curvature, water, rod.

INTRODUCTION

Currently used in the extraction of oil from oil fields is determined by the long-term reliable operation of their constituent elements, the ability to extract the required amount of oil in a timely manner, the distribution of various mechanical impurities and resinous paraffins in the raw material , etc. Therefore , increasing the efficiency of oil extraction from wells while ensuring the long-term operability of deep well pumps is one of the important issues of the present day .

PURPOSE AND OBJECTIVES OF THE WORK.

The main purpose of the work is to study the factors affecting the performance of technological equipment operating in interaction with the environment as a result of increased water content in wells during oil extraction using deep well pumps, the presence of aggressive environments in the composition of the oil raw material, and the formation of layers with low adhesion with the metal surface , reducing the amount of solid particles in the composition of the raw oil and increasing the wear resistance of pump elements, eliminating negative factors affecting the operating modes of pumps, such as temperature-dependent settling of heavy hydrocarbons in the composition of the oil , and the release of free gases at the bottom of the well .

ANALYSIS OF LITERATURE ON THE TOPIC

The rod well pump device is widely used in the operation of wells, including those with a large amount of free gas, mechanical impurities, water, and paraffin and mineral salt deposits in the well product during the operation of the well. Difficulties arise when using pumps to operate curved sections of the well. Each of these factors reduces the efficiency of the rod well pump device, and when the above complex factors occur together, they can cause serious dangers.

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Many types of complications arise when using wells with rod pump installations, and they include the following.

1. The amount of free gases entering the well along with oil.
2. Sand particles entering the well along with oil.
3. Formation of paraffin deposits in the pump, pump-compressor pipes and rods.
4. Bending of the wellbore.

RESEARCH METHODOLOGY

As a result of the harmful effect of gas on the pump in the operation of the lever device, the pump filling coefficient decreases and complications arise.

As the idle phase decreases, the intake volume increases and the pump fill factor becomes higher. In order to reduce the idle phase in the pump, an additional drive valve is installed at the lower end of the plunger, and it is carried out by inserting the plunger into the pump cylinder.

By increasing the length of the plunger stroke and simultaneously reducing the diameter of the submersible pump, the proportion of the volume of the waste phase decreases. In mining conditions, the pump is immersed deeper below the dynamic surface.

In rod pump installations, sand that comes out with the working oil creates difficulties. Sand entering the pump disrupts the plunger's movement, resulting in increased fluid leakage through the valves, often causing the plunger to stick to the pump, the rod to break, stopping fluid flow from the well, and requiring well repair. The repair interval for such wells is very short.

The annular space between the pump pipes and the tubular rods is filled with water or oil, eliminating the imbalance when the plunger moves downward. When extracting paraffinic oils, complications arise due to the deposition of paraffins on the walls of the liquid pumps, on the walls of the pump-compressor pipes, on the rods and in the deep well pump. The remaining paraffin also settles on the walls of the oil wells, leading to a reduction in the cross-sectional area, while at the same time, paraffin deposits settle on the walls of the oil wells, on the walls of the rods, preventing the movement of the rod assembly and the movement of the liquid.

When working with rod-type deep wells, they can damage the pump rod and pipes and cause cracks. To combat this negative phenomenon, centering devices are installed on the rod string. All types of centering devices are divided into two groups: sliding centering devices and vibrating centering devices (roller centering devices). Centering devices are made of metal and plastic materials. Centering devices installed on the rod string also perform the function of a scraper.

CONCLUSIONS AND SUGGESTIONS

Measures are being developed to eliminate the impact of negative factors and

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to assess the efficiency of pumps in ensuring the long-term reliable operation of technological equipment used to increase the quantity and quality of oil field production using deep well pumps .

Performance indicators of pumps in mining conditions , the composition of mined products are studied and recommendations are made to eliminate negative effects .

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