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FEATURES OF PRIMARY OPENING OF LOW-PRESSURE FORMATIONS USING GAS-LIQUID MIXTURES

Annotation: This article provides information on the features of using a gas-liquid mixture to clean the bottomhole of a well, the negative and positive effects of a gas-liquid mixture on the body of a well.

Key words: gas-liquid, speed, pressure, liquid, opening, drilling, speed, walls, wells.

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ОСОБЕННОСТИ ПЕРВИЧНОЙ ВСКРЫТИЕ НИЗКОНАПОРНЫХ ПЛАСТОВ С ИСПОЛЬЗОВАНИЕМ ГАЗОЖИДКОСТНЫХ СМЕСЕЙ

Аннотация: В данной статье представлена информация об особенностях использования газожидкостной смеси для очистки забоя скважины, отрицательном и положительном влиянии газожидкостной смеси на тело скважины.

Ключевые слова: газожидкость, скорость, давления, жидкость, вскрытия, бурения, скорость, стенок, скважин.

Introduction

Discovery of a formation with low pressures (even when using progressive drilling fluids) is significantly complicated. During circulation, large pressure differences occur on the formation, which causes a violation of its natural structure, complete absorption of the drilling fluid. In case of catastrophic absorption of the drilling fluid, the filtrate with sludge and other impurities penetrates to such a depth, from where it is impossible to extract it during development [1].

Main part

To open low-pressure formations, it is recommended to use balanced-pressure drilling technology with gas-liquid mixtures. In this case, in addition to

the improved quality of formation opening (due to the balanced pressure in the wellbore and formation), the drilling technology allows to increase the drilling speed due to the intensification of bottomhole cleaning. At low flow rates, low carrying capacity of cleaning agents, a significant volume of sludge is not carried to the surface, but is repeatedly ground and re-ground at the bottomhole. Therefore, most of the energy is used not for the destruction of the face, but for grinding and crushing the cuttings.

At a balanced pressure, the borehole walls are maintained in a stable position, which determines the advantages of using gas-liquid cleaning agents during drilling;

prevention of packing, tool seizure, pipe breaks and other types of accidents;

prevention of pressure increase in the injection line, pump compression, intensification of absorption and loss of circulation;

increase in drilling speed by eliminating re-grinding of collapsed rocks;

simplification of the well design by partially eliminating intermediate casing strings used to cover caving intervals;

minimization of inter-formation flows that occur during poor-quality cementing, which is caused by the collapse of the borehole walls due to the eccentric nature of the casing string installation.

The analysis of the listed advantages allows us to conclude that drilling wells with flushing with gas-liquid mixtures can increase the mechanical drilling speed, reduce the cost of the well, improve the quality of construction, meet environmental protection requirements, and save materials and reagents.

The rational area of application of the technology is determined by the conditions in which the advantages of gas-liquid cleaning agents are most fully manifested. The technology of cleaning the well with gas-liquid mixtures is recommended for use in the following cases.

Drilling in rocks prone to absorption of the filtrate of the cleaning agent.

Unsatisfactory well drilling speed.

Drilling large-diameter wells.

Drilling in rocks prone to swelling and collapse when filtrate penetrates

Increased requirements for environmental protection, cementing quality [3].

The need to simplify the well design, reduce the number of intermediate columns.

Carrying out work in conditions of the absence of a stable supply of water and reagents.

Conclusion

Main parameters of gas-liquid mixtures. The parameters of aerated fluids are selected for the following conditions:

well drilling at balanced pressure;

ensuring the required bearing capacity of the solution at a given pumping equipment capacity, drilling speed and well design;

economical use of reagents.

The main parameter of the gas-liquid mixture is the volume ratio of the liquid and gas phases. Let us determine this ratio. Balanced pressure during drilling is observed in the case of equality of the hydrostatic pressure of the aerated fluid column up to the wellhead to the formation pressure. To ensure stable stability of the well walls, it is usually recommended to drill the well with a repression on the formation within 0.03-0.05 MPa.

List of references

1. Arens V. Zh. Physical and chemical geotechnology. - M.: Publishing house of Moscow state mining university, 2001.

2. Mukhammadiyev, K. (2023). Gas-lifting technologies for drilling wells and formations. Innovatsiontexnologiyalar, 51(03), 11-16.

3. Bashkatov D. N., Pankov A. V., Kolomiets A. M. Progressive technology of drilling hydrogeological wells. - M.: Nedra, 2004.

4. Mukhammadiyev, H. M., &Khamroev, B. Sh. (2021). Assessment of the influence of the number of interlayers on the results of formation opening. BBK 1 E91, 93.

5. Рахмонкулов, М. Т., Абдиразаков, А. И., & Мавланов, З. А. (2022). Влияние методов консервации на повторное использование и показатели эксплуатации скважин. *Oriental renaissance: Innovative, educational, natural and social sciences*, *2*(5-2), 147-153.

6, Орипова, Л. Н., Абдиразаков, А. И., Жураев, Э. И., Саматов, Ш. Ш. (2020). Меры по повышению поглощения в жидкую поверхность газов при очищении природного газа методом абсорбции. In *мировая наука 2020. проблемы и перспективы* (pp. 88-91).

7. Samadov A.X., Ashurov Sh.M., Bekmuratov J.A. BURG`ILASH MINORASINI MONTAJ VA DEMONTAJ QILISH TEXNOLOGIYASINI ASOSLASH // Экономика и социум. 2024. №5-1 (120). URL: https://cyberleninka.ru/article/n/burg-ilash-minorasini-montaj-va-demontaj-qilish-texnologiyasini-asoslash (дата обращения: 11.11.2024).

8. Nomozov B.Yu., Samadov A.X., Yuldashev J.B., Boyqobilova M.M. ISM TURDAGI QATTIQ QOTISHMALI BURG`ILAR // Экономика и социум. 2023. №9 (112). URL: https://cyberleninka.ru/article/n/ism-turdagi-qattiq-qotishmali-burg-ilar (дата обращения: 11.11.2024).

9. Самадов А. Х., Бойқобилова М. М., Мажидова Ю. С. ТЕХНОЛОГИЯ ВОЗДЕЙСТВИЯ ПАРОВОГО ТЕПЛА И ГОРЯЧЕЙ ВОДЫ НА ПЛАСТ ЧЕРЕЗ НАГНЕТАТЕЛЬНУЮ СКВАЖИНУ // Экономика и социум. 2023. №10 (113)-1. URL: https://cyberleninka.ru/article/n/tehnologiya-vozdeystviya-parovogo-tepla-i-goryachey-vody-na-plast-cherez-nagnetatelnuyu-skvazhinu (дата обращения: 11.11.2024).