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Optimizing Matrix Stimulation in Southern Iraq Oil Field

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SUMMARY

This paper will discuss the implementation of optimized solution for acid stimulation in one of the oil field Southern Iraq. The wells were drilled to penetrate a thick carbonate reservoir which ranges from 80 to 100 meters thickness containing 26 API oil, subsequently completed as single selective produce with cemented casing and perforated across the target zone.

Permeability and porosity varies drastically within same carbonate reservoir, thus to achieve uniform stimulation and stable production particularly challenging. As such, effective diversion is required to ensure the largest possible surface area of the reservoir is contacted and exposed to stimulation fluid. Combination of hydraulic acid, emulsified acid and viscoelastic diverting acid were used with varying composition and volume loading depend upon targeted zone to be treated.

Steps and considerations in decision making, reaching the most advantageous solution for the acid stimulation as well as the detailed engineering evaluation will be addresses in this paper. Data and results from fluid laboratory tests, core laboratory tests and computer simulations shall be woven in the discussion.

Introduction

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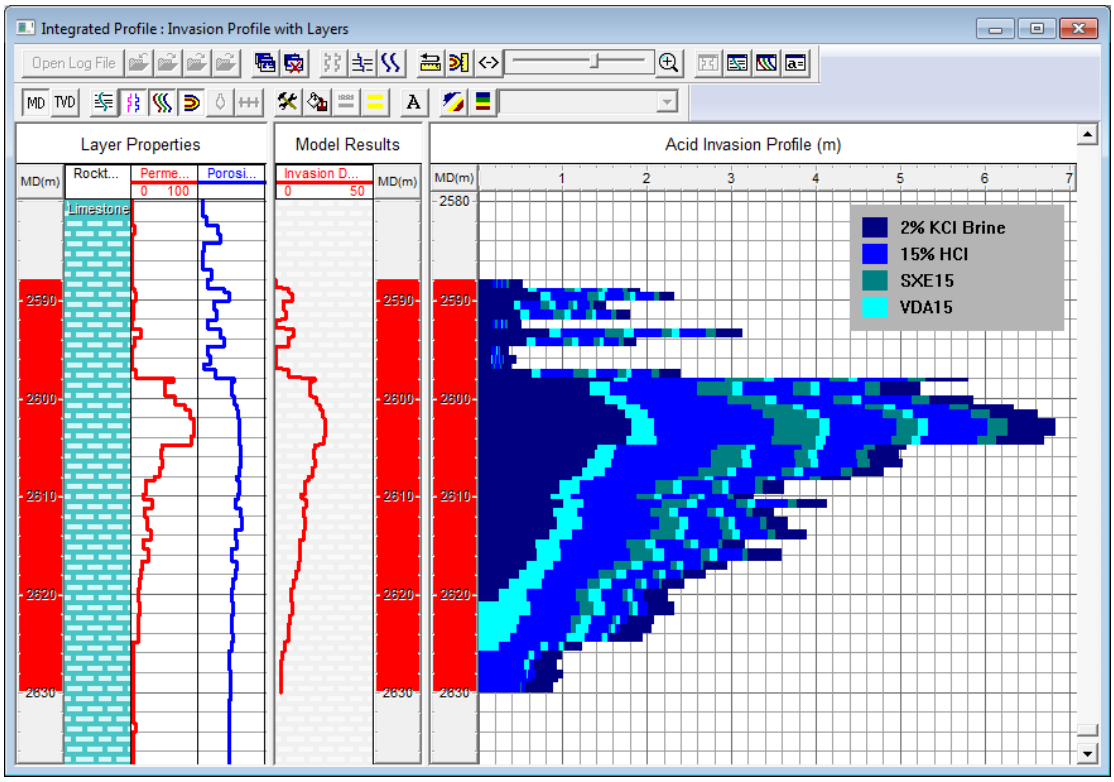

Figure 1 *Computer simulation result of the invasion profile.*

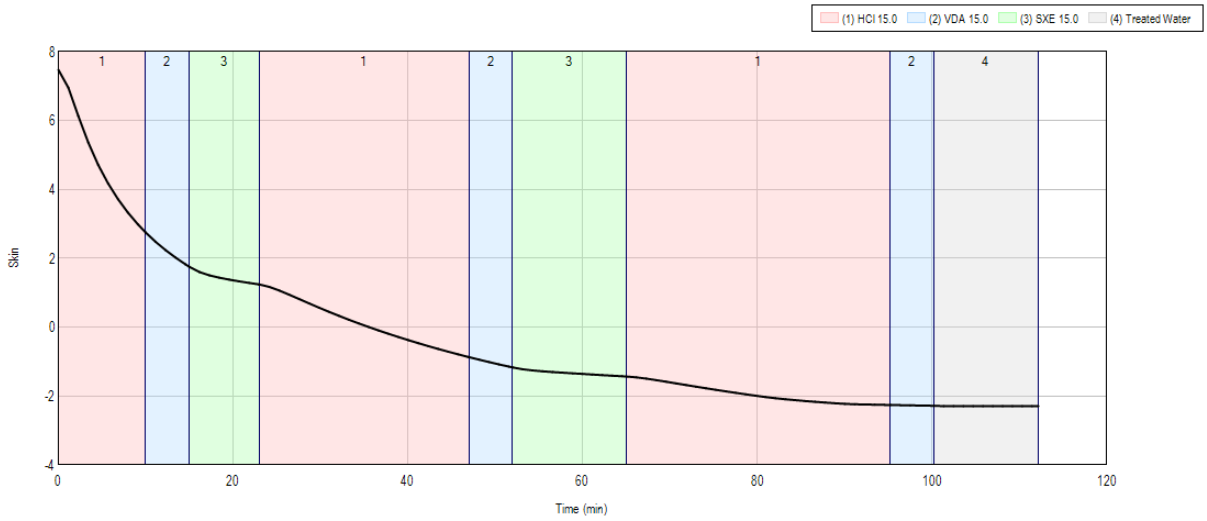

Figure 2 *Post job evaluation of the newly treated well.*

Conclusion

The improvement in productivity on the newly wells treated using this process over other types of diversion techniques was substantial. It is the author's intent to contribute, to some degree, lessons learnt in the planning, design and execution for future development wells.

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