

# An Overview of Enhanced Oil Recovery Methods in Fractured Carbonated Reservoirs



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## Abstract

In some cases that the fluid (oil) enter in the bottom of the well and the fluid pressure in the bottom of the well is not capable to bring them to wellhead, other techniques such as gas lift (gas is injected from the surface into the well and this gas with well oil creates mixed miscibility that the density is less than primary oil density and can be transmitted oil to wellhead with that bottom pressure) or down-hole pumps (the oil is pumped from the bottom to wellhead by this device) is used. But, this technique is not mentioned as one of EOR methods.

## Introduction

When a reservoir was being drilled, firstly it was produced by the natural mechanisms. Natural mechanisms provided the substantial energy to push the fluid mainly included oil and gas to the surface [1,2]. Oil expansion is a very important part among those mechanisms if without availability of other artificial introduced energy. The rock and fluids expand due to their individual compressibility [3,4]. Since the fluid was expanded and the matrix pore volume was imbibed by the surrounding fluid, the reservoir pressure was plunged. As a result, the crude oil and water will be forced out of the pore space to the wellbore [5,6].

Primary recovery or natural production is applied for oil extraction under natural driving mechanisms in reservoir without the use of external energy such as gas and water. As it mentioned before, a reservoir has economic production for a short period. In the natural production of reservoir, oil drift is run due to certain mechanisms; we will express them as below [7,8].

- A. Rock and Fluid expansion
- B. Solution Gas Drive
- C. Gas Cap Drive
- D. Water table Drive
- E. Gravity Drive
- F. Enhanced Oil Recovery

Certainly, enhanced oil recovery (EOR) methods are named as techniques that the fluid inject into the reservoir and this

process energize the fluid so, the aim of these methods, is reducing amount of waste oil reservoir. These methods are divided into two categories:

- A. Secondary Recovery
- B. Tertiary Recovery

## Conclusion

The importance of oil reservoirs injection is being classified as below:

Gas injection in oil fields is one of the top priorities of Oil Companies in context of quality target. This major is important for several reasons:

- A. The necessary of hydrocarbon resources protection for posterity rights.
- B. The necessary of national wealth preservation providing long-term investment in oil section and other sectors of the economy and the strength of countries economic infrastructure.
- C. Dependence of countries economy on revenues from crude oil exports.

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