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Thesis Title	Using Gas Lift Technique in Mishrif Formation / Noor Oil Field
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Abstract	<p>Noor Oil Field is one of the Iraqi oil fields located in Missan province / Amara city. This field is not subjected to any licensing round, but depends on the national effort of Missan Oil Company. The first two wells in the field were drilled in the seventies and were not opened to production until 2009.</p> <p>The aim of this work is to study the possibility of using the method of gas lift to increase the productivity of this field in conjunction with the use of water injection method once and without water injection again.</p> <p>CMG/2010 software was used to build three-dimensional reservoir simulation model for Mishrif formation based on an existent geological model from a previous study.</p> <p>As a result of a significant lack of information in this field, a correlation has been done with the surrounding fields as Halfaya field, which is located 25 km south of Noor field. The main data which was taken from Halfaya Field included: special core analysis and rock compressibility, while the data of water properties was obtained from Fauqi Field.</p> <p>The validity of Mishrif reservoir model was confirmed by history matching that was done between the calculated and measured data which were available for pressures and flow rate.</p> <p>Depending on the results of harmonization, scenarios have been proposed to predict performance of the reservoir in the future. The prediction period was (30) years from 2015 to 2045. These plans include drilling of production wells and water injection wells and the comparison between them was done to choose the best of these scenarios depending on higher recovery factor.</p> <p>Fifth scenario was considered as best plan since it achieved a higher recovery factor during the prediction period. This scenario included the drilling of (40) production wells and (23) water injection wells. It achieved a production</p>

	<p>rate of (39.360) MSTB/day lasting for eleven years. The expected total cumulative production from the reservoir is (357.4) MM STB with an equivalent recovery factor of (25.8)% at the end of 2045.</p> <p>PROSPER software was used to design the continuous gas lift by using maximum production rate in the design.</p> <p>The design was made after comparing the measured pressure with the calculated pressure. This comparison shows that the method of Beggs-Brill and Petroleum Expert2 give the best results; therefore, these correlations were adopted in the design of gas lift.</p> <p>The point of gas injection has been selected; the optimum gas injection rate, the maximum oil production rate, the number of valves required for gas injection and their depth, the pressure required to open and close each valve were calculated. The effect of water-cut, change the amount of ratio of gas to oil and decline reservoir pressure in natural flow case and gas lift method case were studied. The results of gas lift design show that the maximum oil production rate is (1000) STB/Day and the optimum gas injection rate (2.65) MM Scf/Day using operating pressure of (1700) psi available at casing head and the minimum bottom hole following pressure is (1501.5) psi.</p>
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