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Flow Units Identification of the Mishrif Formation in North Rumaila Field

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SUMMARY

North Rumaila field is located about 54 km to the west of Basrah in south Iraq.

The Mishrif Formation in North Rumaila is one of the most important reservoirs in southern Iraq. The present work is a reservoir unit identification of the Mishrif Formation in North Rumaila Field. The study is based on subsurface sections from 14 wells; nine of which are from North Rumaila Field and five from West Qurna and South Rumaila.

The Mishrif is a carbonate rock formation of Cenomanian age bounded by the dense Khasib Formation at the top and Rumaila Formation at the bottom. The upper and lower boundaries are determined using the various available well logs.

The Mishrif Formation is divided into five main units, three of which are considered as reservoir rocks (MI, MII, and MIII); the other two are considered as cap rocks (CI, CII).

In this study, the reservoir units are further divided into subunits depending on the similarity of the log curves, water saturation–porosity–depth relationship, capillary pressure curves, porosity–permeability cross plots (r35) and computer processed interpretation. Unit (MI) is subdivided into two secondary reservoir subunits (MI.1 and MI.2) and unit (MII) into four secondary reservoir subunits (MII.1, MII.2, MII.3 and MII.4). Among these subunits, MII.4 is considered the most important reservoir in the area under study; subunits MI.1 and MII.2 may be classified as good reservoirs, whereas subunits MI.2 and MII.1 are of moderate reservoir characteristics. On the other hand, subunit MII.3 and unit MIII have comparatively inferior reservoir characteristics and may be classified as poor reservoirs.