BRINE CHEMISTRY CONTROL OIL RESERVOIR PRESSURE IN GIANT MISHRIF RESERVOIR, SOUTHERN IRAQ

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The Mishrif Formation (Cenomanian - Early Turonian), regional shallow water limestone succession is the main reservoir in southern Iraq. It has been investigated hyrochemically and mineralogically at North Rumaila, South Rumaila, Majnoon, Zubair and West Qurna oilfields. The brine chemistry and mineralogical components of the oil reservoir were studied by using the Inductively coupled Plasma-Mass spectrometer (ICP-MS) in and the Scanning Electron Microscopy (SEM) coupled with Energy-Dispersive X-Ray (EDX) Spectroscopy. The brine salinity is very high, six-time greater than seawater and therefore it is playing a great role in generating additional pressure control the fluid flow accordingly. The pressure distribution was modeled via drawing maps of potentiometric subsurface of oil-water contact for each oilfield, and facilitated the marking of abnormal pressure (super-pressure) as an important location need to pay further attention during oil exploration for the future drilling.

Keywords: Mishrif; Brine Chemistry; Abnormal Pressure