

**MINERALOGY AND GEOCHEMISTRY OF YAMAMA
FORMATION (LATE BEIRRIASSIAN-EARLY VALANGINIAN),
SOUTHERN IRAQ**

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Abstract

A total of 138 core samples were collected from six subsurface sections of Yamama Formation. These sections were randomly distributed in West Qurna and Nasiriya Oil Fields. The collected samples were analyzed for; Ca, Mg, Fe, Na, Mn, Sr, Pb and insoluble residue using wet chemical analyses, in addition of representative samples were examined by X-ray.

X-ray diffractograms revealed that the bulk samples consist of calcite, dolomite and subordinate quartz. Whereas, the clay fractions of insoluble residue consist of kaolinite, illite, illite-montmorillonite mixed- layer. The kaolinite percentage shows a marked increase in Nasiriya Field (i.e. toward the paleoshoreline).

The concentration of Mg and Na progressively increases as water salinity increases. The Fe and Mn concentrations are a function of the clay content of the sediments, while the concentration of Sr is largely controlled by the fossils debris. Regarding Pb no systematic trend in its distribution was noted, i.e. it has an erratic distribution. Ca/Mg molar ratio showed a less effective dolomitization process, while Sr/Ca and Fe/Mn atomic ratios proved that Yamama Formation was deposited in a shallow marine-lagoonal-brackish environment.