

---

## Detailed Depositional Architecture of the Wara Formation in the Waterflood Pilot Area of Greater Burgan Field

---

**Jarrah Al-Genai<sup>1</sup>**, *Thekriat Hussain<sup>2</sup>, Mohamed Abdul-Razak<sup>2</sup>, Pradyumna Dutta<sup>3</sup>, Osman Khalid<sup>3</sup>, and Rafael Ramirez<sup>4</sup>.*  
(1) Exploration Operations/Exploration Group, Kuwait Oil Company, Geophysicist, P.O.Box 9758, 61008, Ahmadi, Ahmadi, Kuwait, 61008, Kuwait, phone: 965-3989111-71002, fax: 965-3989167, jgenai@kockw.com, (2) Exploration Operations/Exploration Group, Kuwait Oil Company, Geophysicist, P.O.Box 9758, 61008, Ahmadi, Kuwait, 61008, (3) Exploration Operations/Exploration Group, Kuwait Oil Company, Senior Geophysicist, P.O.Box 9758, 61008, Ahmadi, Kuwait, 61008, Kuwait, (4) Exploration Operations/Exploration Group, Chevron, Senior Geophysicist, P.O.Box 9758, 61008, Ahmadi, Kuwait, 61008, Kuwait

This paper makes an attempt in resolving the detailed depositional architecture of the Cretaceous Wara formation in an area of the Greater Burgan (Magwa) field, where a Water Flood Pilot Project is currently being implemented. The Wara consists of sandstones interbedded with siltstones and claystones. This interval was deposited in a tidally influenced marine shelf/shoreface environment that included mouth bars, channels sands, bay head delta sands and intertidal mud flats. The geometry of the sand bodies vary from elongated channels and sand bars to more laterally extensive sheet sands.

Recently acquired single sensor seismic data, in conjunction with reprocessed 3D seismic data, VSP's, information from eight new wells drilled as part of the project is expected to increase our understanding of the structural and stratigraphic framework of the Wara sands. It is anticipated that seismic inversion will also assist in resolving the vertical and lateral distribution of the sands.

Improved imaging and resolution should lead to more accurate geological model which will enhance our understanding of the movement of water in the Wara sands and test the ability of increasing oil production from the Wara sands through water flood.

---

---