by Carl W. Kuhnen,
Walter Oil & Gas Corporation,
Houston, Texas

West Delta Block 107 Field, Gulf of Mexico

West Delta Block 107 Field, located eight miles seaward of Southwest Pass of the Mississippi River in 235 feet of water (Fig. 1a), contains approximately 18 million barrels of oil (MMBO) and 70 billion cubic feet of gas (BCFG) (recoverable) in nineteen Pliocene sands. Hydrocarbons are trapped in a three-way structural closure downthrown to a large down-to-the-southeast growth fault. Stratigraphic variation plays a minor trapping in five sands.

Walter Oil & Gas Corporation discovered the field in 1993 with its OCS-G 8736 No. 1 well, located within a large, active mudflow lobe that has caused major difficulties in seismic and drilling exploration over the years. Due to effects of the mudflow, pre-1983 2D seismic data did not adequately define the amplitude response or the structure of the prospect. Only after 1988 3D seismic data was reprocessed with refraction statics corrections by Shell Offshore, Inc. in 1993, was it possible to interpret structure and amplitude correctly enough to discover the field. A 1996 3D survey further improved data quality and has refined our understanding of the field.

The field has been developed by seven wells. Five of the wells were drilled from a conventional platform (West Delta 106 "A" platform) (Fig. 1b) outside the mudflow and two miles west of the field. The other two wells (including the discovery well) are active subsea completions. Daily field production rate since February 1995 has averaged 7200 barrels of oil (BO) and 17 million cubic feet of gas (MMCFG) daily. Block 107 Field was nearly found in 1968 by Humble Oil & Refining Company's OCS-G 1591 No. 1 well and in 1983 by McMoran's OCS-G 4244 No. 2 well, each of which missed the main accumulation by less than 200 feet horizontally (Fig. 2).

Biographical Sketch

Carl Kuhnen prospects for Walter Oil & Gas Corporation in the Gulf of Mexico and onshore Gulf Coast. From 1981 to 1990 he explored the same areas for Prairie Producing Company following earlier work in the Gulf Coast and U.S. frontier basins for Union Texas Petroleum and Amoco. He received his B.S. in physics from M.I.T. in 1969 and his M.S. in geophysics from the University of Houston in 1974. This paper was published in July 1998 in GCAGS Special Publication 3-D Seismic Case Histories from the Gulf Coast Basin.

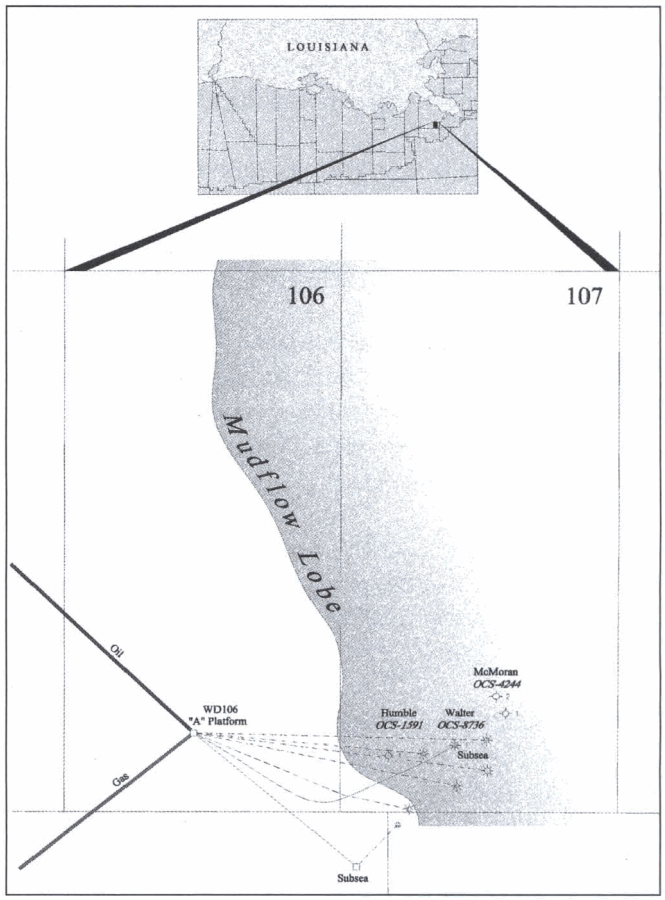
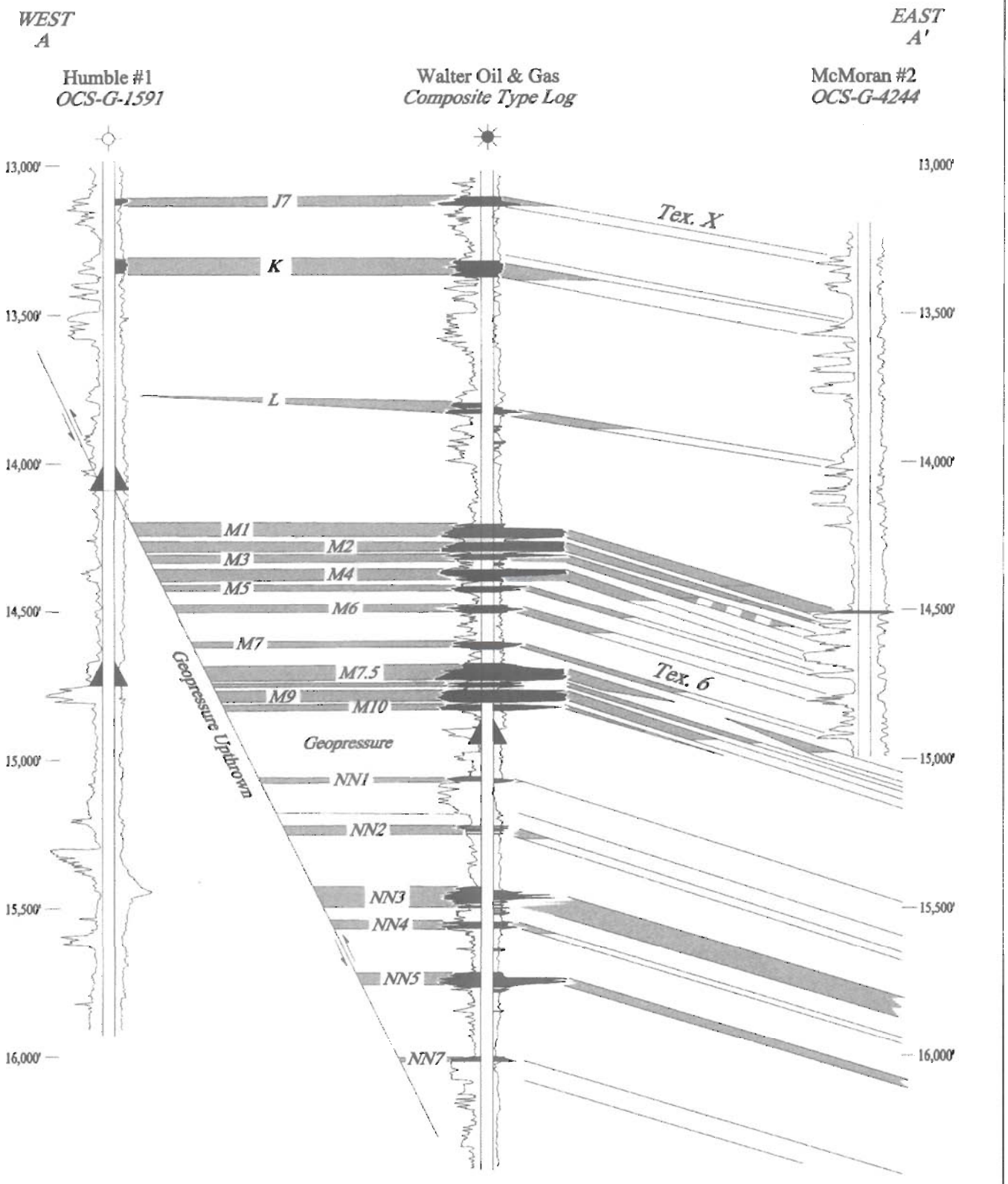


Figure 1a. & 1b. *Location Map and detail of Block W.D. Blk.107*



Schematic structural cross-section A-A' through field composite type log and previous key exploratory wells.

Figure 2.