

McAllen Ranch Field: Success in the 3-D Based Redevelopment Program, Hidalgo County Texas

Marilyn Taggi Cisar¹ and R. Michael Stovall²

¹Shell Texas Gulf Coast Resources Company, P.O. Box 576, Houston, TX 77001-0481

²Shell Deepwater Development, Inc., P.O. Box 481, Houston, TX 77001-0481

McAllen Ranch Field is located in northwestern Hidalgo County, approximately 40 miles north of the Mexican border and 30 miles north-northwest of the city of McAllen, Texas. Production in the field is from the geopressed Oligocene aged Vicksburg formation from depths of 9,200 to 16,000 ft. The Shell-operated portion of McAllen Ranch field covers approximately 31,000 acres and has produced approximately 900 BCF gas since the Shell A.A. McAllen No. 1 was drilled and completed in 1960. A total of 170 wells have been drilled on the acreage to develop stratigraphic intervals within the Vicksburg from the K sand to the V sand.

Shell's first attempt to use seismic in the exploration and development of this area was a one square mile grid of single shot (no stacking) data acquired in the late 1950s to early 1960s. Over the next 25 years numerous 2-D lines were acquired with multiplicities of as high as 100. Ties of dip and strike lines indicated some areas with severe crossline problems. In 1988 it was decided to acquire Shell's first 3-D survey for Vicksburg objectives to cover

the McAllen Ranch B Lease with a survey area of 22 square miles. From 1989 to 1991 two more 3-D seismic surveys extended the 3-D to almost completely cover the Shell-operated McAllen Ranch properties, all surveys with common line orientation and bin spacing. The prestack data have been merged to form a 90-square mile blanket of 3-D coverage.

Thirty-nine wells have been drilled based on these surveys. Thirty-six have been completed as producers and three were dry holes. The wells drilled on the B lease following the remapping of the field based largely on the 3-D survey have produced 99 BCF gas to date. This represents 69% of the gas produced from this lease. Interpretation of the 3-D survey run over the more completely faulted south McAllen has resulted in the drilling of 18 wells by Shell to date and additional drilling locations are continuing to be identified. Over 40 BCF have been produced from the wells drilled on the extension 3-D survey acquired in 1991.