"The Permian Basin: Providing Energy For America", D. T. Grace, G. D. Hinterlong, eds.,
West Texas Geological Society Publ. # 99-106

# An Integrated Reservoir Characterization Study of the Upper Blinebry Interval, South Justis Unit, Lea County, New Mexico

**James J. Reeves, Ph.D., P.E., P.G.,** and **Hoxie Smith, M.S.,**
GeoSpectrum, Inc., Midland, Texas

## ABSTRACT

**ARCO Permian contracted with GeoSpectrum, Inc. to perform a comprehensive reservoir study at its South Justis Unit. A pilot area was chosen for the integrated stud of the Upper Blinebry Formation. Previous petrophysical analyses indicated roughly 80 percent of remaining recoverable reserves are in this interval.**

**ARCO supplied GeoSpectrum with detailed core descriptions from 4 cored wells, 4 vertical seismic profiles (VSPs) from the cored wells, and 3-D seismic data that was acquired at 110 ft group spacing. Additionally, digital data from 43 injection wells with modern suites of logs were used for further petrophysical analysis and pore type determination.**

**The South Justis Unit is undergoing secondary recovery from a waterflood designed with a five-spot injection pattern and developed on 20 acre spacing. Oil production from the secondary recovery operations has been less than anticipated. A number of previous reservoir studies (both in-house and by contractors) have been conducted to address production problems. However, this study is the first at the Unit to integrate 3-D seismic attribute analysis and pore typing from advanced petrography and petrophysical analysis.**

**The paper and presentation review the methodology applied to integrate the large database for defining porosity development within the study interval. Advanced reservoir analysis techniques were applied during the study including: transforms developed from core permeameter measurements, a tracer survey, seismic amplitude normalization, coherency, and seismic inversion. The seismic inversion compared favorably to cumulative production from individual wells. Several recommendations have been made to increase production at the Unit, including a recommendation for selective infill drilling.**


Copyright © 2024 West Texas Geological Society