Comparison of Depositional Facies and Diagenetic Overprint on Reservoir Quality in the Residual Oil Zone and Main Pay Reservoirs in the Goldsmith Landreth San Andres Unit, Goldsmith Field, Ector County, Texas – A Progress Report

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The Goldsmith Field, Ector County, Texas was discovered in 1935 and produces from the San Andres, Clearfork, and Devonian. The Landreth San Andres Unit is productive from the Leonardian/Guadalupian San Andres Formation. It is currently operated by Legado Resources, Houston, Texas. The San Andres "Main Pay" interval is 105' thick and has produced 240 million barrels of oil field wide from 1935 to the present day.

Beneath the San Andres "Main Pay" is the ~150' thick "Residual Oil Zone" that contains ~30% oil saturation, but that has been impervious to primary and water flooding attempts to recover the hydrocarbons still contained within it. Many similar "transition zones" or "residual oil zones" exist beneath productive fields in the Permian Basin. Injection of CO_2 into these zones can recover tens to hundreds of millions of additional barrels of hydrocarbons and extend the life of many conventional fields.

A DOE funded study of the Landreth San Andres Unit is currently underway to determine the differences between the "Main Pay" and the "Residual Oil Zone"(ROZ) and how to maximize recovery from this "new" interval. 6 wells were drilled or deepened and cored by Legado Resources and the cores are being described and analyzed. So far, the Legado #190 and #204R have been described. The #190 was cored entirely in the water leg and "Residual Oil Zone" in partially and completely dolomitized fusulinid packstones and grainstones. The #204R was cored within the ROZ, "Main Pay" and the gas cap and displays more traditional dolomitized fusulinid and

oolitic packstones and grainstones with some tidal flat capped cycles. These units will be compared.