ABSTRACT GAS FIELDS IN SOUTHEAST PARKER AND SOUTHWEST TARRANT COUNTIES, TEXAS By: Dr. Arthur J. Ehlmann Department of Geology Texas Christian University Fort Worth, Texas and Rita J. Ehlmann Murjo Oil Royalty Company Fort Worth, Texas

The Southeast Parker and Southwest Tarrant County area is a gas producing area whose reservoirs are among the most easterly productive Pennsylvanian age rocks of the Fort Most of the gas producing zones can be Worth Basin. classified into shallow (less than 2000') in the Lower Strawn and deep (from 4000' to 6000') in the Atoka to Marble Falls. The reservoirs are in clastic strata ranging from conglomerates to fine sandstones which occur as sporadic, lensing bodies that are difficult to correlate. Much of the shallow production in the Lower Strawn is aligned with a roughly east-west orientation, indicating control by sand channeling. Traditionally, the rapid eastward thickening of these strata has been explained in terms of proximity to the rising Ouachita Fold Belt. Although a fan-delta environment has been proposed for this thick sequence of strata, particularly the Atoka, the generally uniform shale section with sparse sandstone bodies casts some doubt on this proposed environment.

X-Ray diffraction analysis of cores and cuttings reveals the typical lithology to be feldspathic sandstone with dolomitic or calcareous cement and interstitial clays consisting of major amounts of Kaolinite and lesser illite and mixed layer clays. Because of low permeabilities, clay migration is a major problem during drilling and completion.

The two largest gas fields are the Buck Ranch, which has produced over 5 MMCF of gas primarily from the Lower Strawn and Atoka, and the Aledo Southeast, which has produced over 2 MMCF of gas from the Lower Strawn at depths of approximately 1200 feet.

Sand percentage maps, isopach maps and cross sections aid in exploration for these gas reservoirs. Future gas discoveries and field development will probably move farther eastward increasing Tarrant County production.