

Production Trends in the Travis Peak of Panola and Rusk Counties, Texas, East Texas Basin

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ABSTRACT

Travis Peak oil and gas in Panola and Rusk counties, Texas occurs in both structural and stratigraphic traps. The structurally-trapped oil and gas is largely confined to the crest of the Sabine Uplift in central Panola County. The stratigraphically-trapped oil and gas is produced from westward-dipping strata between depths of 7,500 ft and 5,600 ft across southwestern Panola and central Rusk counties.

The production map reveals that wells producing from stratigraphic traps often occur in northwest-southeast trending alignments that may span an entire county. Well log cross sections show that the stratigraphic traps along the trends occur as a series of wedge-outs along a common lineation. The linear production trends are coincident with specific patterns of erosion that are visible on topographic maps. The topographic features are associated with lineaments that are visible on satellite imagery and high-altitude photography.

The lineations that have topographic expression, and are visible on various types of imagery, are thought to represent lines of weakness in the in the sedimentary cover that may extent to the basement rock and perhaps into the Earth's crust. The lines of weakness may be created by continental plate motion, tectonic events, or even gravitational distortion caused by the Earth-Moon orbital system. Regardless of the origin, these linear zones exert a certain amount of control over present-day sedimentation and erosion, and they appear to have been in place during Travis Peak deposition actively influencing paleo-sedimentation and erosion. Placing these zones of weakness on exploration and production maps may aid the geologist in predicting the trend of a stratigraphic play, increasing the probability of success of exploration and development drilling without adding additional cost.