
Geological Analysis of the Trinity Group Aquifers in Western Hays County, Texas, with Focus on Implications to Groundwater Availability

Alex S. Broun¹, Doug Wierman², Andrew H. Backus³, and Brian Hunt⁴

¹131 Cross Creek Dr., Dripping Springs, Texas 78620

²400 Blue Creek Rd., Dripping Springs, Texas 78620

³16204 Hidden Springs Ln., Austin, Texas 78737

⁴1124 Regal Row, Austin, Texas 78748

ABSTRACT

The subsurface geology and lithostratigraphy of the Cretaceous Trinity Group aquifers in western Hays County, Texas, is illustrated using a series of cross sections, isopach maps and structure contour maps. A geological model was developed by analysis of data obtained from a literary review, field work, a review of approximately 60 geophysical logs and 30 sets of bore-hole cutting samples from recently drilled wells. The primary area of study is the jurisdiction of the Hays Trinity Groundwater Conservation District, which encompasses about 370 square miles of western Hays County. The eastern limit of the study area is bound by the Balcones fault zone and the surface outcrop of the Edwards aquifer. Data from a network of 30 water-level monitoring wells from which monthly water level data is gathered was overlaid on the geologic model.

Understanding the geological model of the Trinity Group aquifers in Hays County has become increasingly important. The rapid population growth is leading to increasing demands on the groundwater resources, the desire to optimize groundwater production while maintaining groundwater contributions to stream and spring flow, and the ever increasing need to understand the subsurface relationship of the Trinity Group and Edwards aquifers along the Balcones fault zone.