

Integrated Niobrara/Mancos Maturity Model for the Piceance Basin, Northwest Colorado, USA

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ABSTRACT

Combining Niobrara/Mancos geochemical properties, production trends and geothermal gradient mapping in conjunction with the Piceance regional structure allows us to develop a predictive maturity model for continuing Niobrara development. This new model indicates the northern and southern halves of Piceance Basin have different burial histories. Tertiary volcanic activity associated with the Colorado Mineral belt provides a late stage heating event that affected the southern portion of the Piceance Basin. The Douglas Creek Arch Left Lateral Shear Zone appears to be important in the division between the northern and southern portions of the basin. The model explains Niobrara dry gas production in the southern Piceance at shallower depths than the northern Piceance. While the in northern Piceance, this model indicates possible oil and condensate production in the north and west, and dry gas to the east.