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## Correlation of the Eagle Ford Group, Woodbine Group, and Equivalent Cenomanian-Turonian Mudstones using Regional Wireline-Log Cross Sections across the Texas Gulf Coast, U.S.A.

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### ABSTRACT

As part of the U.S. Geological Survey's 2018 hydrocarbon assessment of the Eagle Ford Group and associated Cenomanian-Turonian strata, a series of regional wireline-log cross sections were constructed to examine geologic characteristics of this stratigraphic interval across the Texas Gulf Coast from Mexico to Louisiana. The cross sections were used to help define six continuous assessment units based, in part, on stratigraphic thickness, lateral extent, and lithology. The locations of the strike and dip cross sections were selected to address questions pertinent to the hydrocarbon assessment.

Stratigraphic correlation of the Eagle Ford Group and corresponding Cenomanian-Turonian mudstones has been debated for many years, and differences in interpretations remain. Formation tops published in the literature, from IHS Markit™, as well as information from a commercial biostratigraphic database were used to define consistent criteria to construct these cross sections from interpreted wireline logs. Specific units of interest include the Austin Chalk, upper and lower Eagle Ford Group, mudstones of the Woodbine Group, and the Buda Limestone.

Wireline gamma-ray (GR) logs through the Eagle Ford Group have values greater than 100 American Petroleum Institute (API) units in several areas of this study, including the Maverick Basin, the Karnes Trough, and the Brazos Basin. High GR values in mudstones may be interpreted to represent potential organic-rich intervals. These high GR zones provide a criterion to identify the lateral variability in potential Cenomanian-Turonian source rock intervals from South Texas to the Texas-Louisiana border.