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Surface to Subsurface Stratigraphy of the Upper Cretaceous Buda Formation in West Texas

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ABSTRACT

The Upper Cretaceous Buda Formation is composed of bivalve/brachiopod wackestone/packstone interbedded with thin black shale layers (<30 cm thick) exposed in the outcrop of West Texas. Although the outcrops of the Buda Formation are well exposed in West and Central Texas, its subsurface distribution is quite variable across Texas (ranging from <1 m to >113 m). Preliminary wireline log correlations indicate that the Buda Formation thickens into the Maverick Basin of southwestern Texas, and thins onto the San Marcos Arch in the subsurface. Based on the outcrop studies in Val Verde County in West Texas, the Buda Formation is bounded at its top by the regional Mid-Cenomanian unconformity with local hummocky features in the overlying Eagle Ford Group. The Del Rio Formation–Buda Formation contact is a sharp surface with white nodular skeletal wackestone/packstone containing bored rip-up clasts from the underlying Del Rio Formation. Slabbed cores in Wilson and Karnes counties show similar borings within massive beddings as well. Initial review of measured outcrop sections and subsurface core samples illustrates similar litho facies patterns. Preliminary result of relative uniform macrofossil content (mainly bivalve) and high bioturbated bedding indicate the depositional environment of the Buda Formation tend to be storm dominated intertidal facies in shallow shelf ramp. We are continuing to determine the regional distribution of the deposition environments within the sequence stratigraphic framework of the Buda Formation by integrating subsurface data (wireline logs and cores) with outcrop samples.