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Deltaic Systems in the Early Cretaceous Fall River Formation, Southern Powder River Basin, Wyoming

Early Cretaceous strata of the Fall River Formation in the southern Powder River Basin of northeast Wyoming contain deltaic sandstones and shales which were deposited in a slowly subsiding coastal area of the epicontinental "Thermopolis sea". The formation has been subdivided into five mappable units, with the lower four units related to specific deltaic systems. The second-oldest deltaic system is the largest and most complete in the study area, and is the focus of this paper.

Electric log patterns were used as an aid in determining the depositional environments of Fall River sandstones in the several thousand wells that penetrated the formation. Sandstone depositional environments recognized in the Fall River deltaic system include: delta plain facies (interdistributory bay and crevasse splay); distributary channel facies (channel fill bar, point bar, and clay plug; and crevasse splay channel fill); delta front facies (proximal and distal delta front sandstones); and prodelta facies (shaly prodelta sandstones and siltstones). Of significant importance in the exploration for petroleum in the Fall River Formation of the southern Powder River Basin is that specific sandstone facies and trends can be predicted by using available subsurface data.