

Zenith pool, production is obtained from Misener sand, Maquoketa dolomite, and cherty dolomite of the Viola. In the Peace Creek pool, oil is produced from the cherty Viola dolomites. Production in the Stafford pool is from the Viola, and one well is producing from the Arbuckle.

Where present, the top of the Fernvale in this area is considered the top of the Viola. Fernvale limestone is present over most of the producing areas under consideration. Two pronounced unconformities are present: one between the Pennsylvanian and Mississippian, and the other between the Mississippian and Ordovician. Post-Fernvale-pre-Kinderhook erosion is shown by the absence of Maquoketa and Fernvale over considerable areas adjacent to the pools.

In the Peace Creek and Zenith pools, accumulation is thought to be controlled by stratigraphic trap conditions, while in the Stafford pool accumulation is controlled by structure on the Viola.

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Pennsylvanian and Permian Stratigraphy of Northern New Mexico

This paper deals with the Pennsylvanian and Permian rocks exposed in the northern half of New Mexico. The Pennsylvanian consists of marine arkoses, shales, and limestones with interbedded continental clastics, including some coal. The Permian consists mainly of redbeds, arkoses, evaporites, and thick, light-colored, cross-bedded sandstones with local marine clastics and limestones in the lower part. A profound unconformity separates these rocks from the underlying granites and metamorphics of supposed pre-Cambrian age. Lithologic variations reflect the pre-Pennsylvanian physiography and the changing distribution of land and sea during the periods of deposition. All of the main units, except a basal limestone, contain fossil plants, fusulinids, and metazoans that provide evidence for detailed correlations. The earliest sedimentary formation in the areas of outcrop is a local massive limestone whose age is uncertain because it is barren of fossils excepting very rare, small crinoid columnals. It seems to be nearly conformable with the early Pennsylvanian rocks and is tentatively included as a formation with them, though it may be Mississippian or even earlier in age. Above this are rocks of Morrow, Des Moines, and upper Pennsylvanian age, though a complete succession is not present everywhere. The Morrow and lower Des Moines rocks commonly consist mainly of clastics and include some coal. The remainder of the Des Moines is dominantly calcareous and contains many horizons of *Wedekindellina* and *Fusulina*. The upper Pennsylvanian is represented by both marine and continental rocks and locally contains abundant *Triticites*.

The Wolfcamp equivalent is composed of marine and continental rocks, the latter continuing upward into possible Leonard equivalents. Above these are light-colored, tangentially cross-bedded sandstones, thin limestones, and evaporate-bearing redbeds of possible Leonard and Whitehorse age. Upper Triassic sandstones commonly overlie the last named.

Work in eastern Arizona has indicated a need for revision of the Arizona-New Mexico Permian correlations. The top of the Permian in the Colorado Plateau, the Kaibab limestone, is apparently the equivalent of the San Andres formation. Careful tracing eastward from the DeChelly upwarp indicates a continuation of the DeChelly sandstone or an upper tongue of the Coconino sandstone into the Glorieta sandstone and the Yeso formation of New Mexico. The Abo sandstone of some parts of New Mexico may be correlated with the lower Coconino as well as with the Hermit shale and Supai formation.

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The Big Snowy Group: Subsurface Extent and Character in the Northwest Great Plains

The Big Snowy group, as defined by Scott, consists of an upper and middle Mississippian series of shales, limestones, and sandstones with some evaporites. Recently drilled deep wells and new interpretations of older wells in eastern Montana and the Dakotas yield information which makes possible further considerations on the eastward extension of Big Snowy sediments.

An isopach map of the group indicates that an east-west depositional basin in Montana fingered over the northern portion of a widespread area of lower Mississippian (Madison) deposition. South of a narrow peninsula which occupied the approximate