At New Well Peak (NWP) in the Big Hatchet Mountains (sec. 32, T31S, R14W and vicinity), an exceptionally thick, well-exposed, nearly homoclinal and almost complete section of the Pennsylvanian-Permian Horquilla Formation is exposed. At NWP, the Horquilla Formation is ~ 1 km thick, dips 20-30° to the SW, rests with erosional disconformity on the Mississippian Paradise Formation and has its top faulted out. Nearby outcrops indicate that the Lower Permian Earp Formation rests disconformably on the Horquilla Formation. The NWP section of the Horquilla Formation comprises three lithologically-distinct intervals: (1) lower member of sandy limestones, calcarenites and oolitic limestones, ~ 200 m thick; (2) middle member of cherty, thick-bedded limestones, many with silicified Chaetetes, ~ 300 m thick; (3) and upper member of thin-bedded limestones with especially rich fusulinacean assemblages, ~ 500 m thick. The only significant structural disruption of the Horquilla Formation at the NWP section occurs low in the middle member in the form of a complex of down-to-the-north normal faults (NWP fault zone), topographically low on the north side of NWP. Conodont biostratigraphy indicates the basal part of the Horquilla Formation at NWP is of Morrowan age. A detailed fusulinid biostratigraphy indicates that the upper part of the lower member is Atokan, the middle member is Atokan-Missourian and the upper member is Missourian-Wolfcampian. Newly collected conodont data allow correlation of Atokan-Wolfcampian fusulinid and conodont biostratigraphy at NWP, and provide an important reference point for the conodont-defined base of the Permian and its relationship to fusulinid biostratigraphy.


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