Tin Cup Mesa field in the Utah portion of the Paradox Basin produces from the Upper Ismay Zone of the Pennsylvanian Paradox Formation. The principal depositional and diagenetic facies within the reservoir are visible in cores from two wells. The Tin Cup Mesa #3-26 (NW NE Sec. 26, T28S-R25E) was drilled approximately 1160 feet northeast of, and updip from, the #3-26 and encountered only 30 feet of carbonate with a commensurate increase in anhydrite to a thickness of 90 feet.

The five major lithofacies within the field area include: (1) the phylloid-algal mound; (2) mound cap; (3) mound flank; (4) intermound; and (5) an evaporitic facies. All of these are present in the Marathon #3-26 producer, while in the Marathon #1-23 dry hole, facies numbers 4 and 5 above predominate. All lithofacies are potentially productive with the exception of the intermound and evaporitic facies found in the #1-23.

Diagenetic processes which have enhanced the reservoir include dolomitization and carbonate dissolution. These two processes, along with primary shelter porosity, are responsible for all of the reservoir present in the field. Cementation was the primary process by which porosity was destroyed, and at least six different types of cement are present. Compaction, bioturbation, and internal sedimentation were additional agents of reservoir destruction. It should be emphasized that repeated early exposure of the reservoir at Tin Cup Mesa field was of paramount importance in the creation of secondary porosity and in the enhancement of primary porosity.