

ABSTRACT
GEOLOGY AND STRATIGRAPHY
OF CERRO LA PAZ AND VICINITY,
LA POPA BASIN, MEXICO

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Cerro La Paz is a Lower Cretaceous carbonate outcrop with 200-300 m topographic relief that is located at the juncture between two regional structural provinces, the southern margin of La Popa salt basin and the northern margin of the Sierra Madre Oriental (SMO) fold-thrust belt, in northeast Mexico. The exposed stratigraphic units of this study in ascending order are the Minas Viejas Formation (diapiric evaporite of Late Jurassic age that is currently mined), Aurora Formation (200 m, massive limestone), Cuesta del Cura Formation (50-100 m, medium bedded

limestone), Indidura Formation (675 m, deepwater carbonate shale with thin, interbedded limestone), and the base of the Parras Shale (carbonate mudstone with abundant siliciclastics). The Lower Cretaceous carbonate strata of this study were deformed by local syndepositional halokinesis of the diapiric Minas Viejas Formation. Bedding steepened during downbuilding adjacent to the diapir, and near-vertical faults extend from the diapir at a high angle and terminate basinward. Post-depositional regional tectonic shortening during the NW-SE Hidalgoan orogeny increased the steepness of the Cretaceous strata that flank the diapir and created disharmonic folds in the Indidura Formation northwest of Cerro La Paz. New cleavage data acquired from these folds indicates a shortening direction of $\sim 35^\circ$. The results of this study differ from recent work, which interpreted the deformed strata as a thrust fault. Evidence for diapirism includes: (1) a local unconformity between Late Jurassic evaporite and Lower Cretaceous strata, (2) stratal onlapping and thinning towards the diapir, (3) exotic clasts within the diapir derived from diapiric extrusion (unseen in the SMO), (4) high-angle faults oriented radially to the evaporite-carbonate contact, (5) Jurassic evaporite is present hundreds of meters above its usual stratigraphic position in the hinge of the fold.