

SINKHOLES AS TRANSPORTATION AND INFRASTRUCTURE GEOHAZARDS IN MIXED EVAPORITE-SILICICLASTIC BEDROCK, SOUTHEASTERN NEW MEXICO

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Personnel with the National Cave and Karst Research Institute and the New Mexico Bureau of Geology and Mineral Resources conducted an assessment of karst geohazards southeast of Carlsbad, New Mexico, USA. The US Highway 285 corridor in this area is subject to high levels of oilfield traffic, and is particularly prone to sinkholes because of the presence of gypsum bedrock of the Rustler Formation at or near the surface throughout much of the study area. These features pose a geohazard for the transportation and pipeline network in this part of the state. The geotechnical properties of the Rustler Formation are influenced by soluble gypsum strata interbedded with mechanically weak mudstone and siltstone and more rigid dolomite beds. Surface geologic mapping and near-surface electrical resistivity (ER) surveys indicate that most sinkholes formed in the Rustler are relatively shallow (<3 m), without deep roots, probably due to the mixed lithology of soluble and insoluble bedrock. However, longer-array ER surveys have identified additional cavities at greater depths that do not breach the surface.

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