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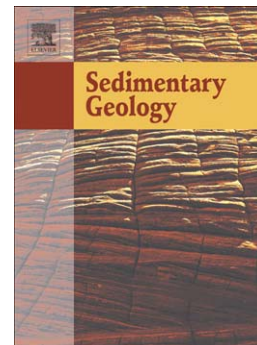
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Large-scale mud diapirism as a record of late-stage Laramide tectonism within the Eocene Green River Formation, Wyoming

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Abstract

The Greune and Verde mud diapirs, which range in size from 70 to 95 meters in diameter, are exposed within the Wilkins Peak Member of the Eocene Green River Formation near Flaming Gorge Reservoir, southwest Wyoming. These diapirs are sourced from the lower unit of the Wilkins Peak Member (lower, middle, and upper units can be defined based on dominant lithology), and were emplaced into the upper unit of the Wilkins Peak Member, cross-cutting hundreds of meters of strata. The structures contain brecciated dolomitic and lime mudstones with minor amounts of siliciclastic clays. Pervasive quartz veining is present throughout both diapirs. Though heavily disturbed, original bedding can be seen in both localities, either dipping radially outward towards the margins of the diapir as is dominant at the Greune diapir or tilted but near horizontal as is the dominant expression at the smaller Verde diapir. The Greune diapir can be seen in contact with several fluvial sandstone bodies within the upper Wilkins Peak strata in outcrop, and these fluvial sandstones transition from regional, near horizontal dips to steeply dipping beds and bedsets within 50 meters of the diapir. These sands show no signs of brittle deformation, and dip ranges from 20 to 50° radially away

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