

## Geology of Jonah Field

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### ABSTRACT

Jonah Field is located in Sublette County, Wyoming and lies in the southeastern portion of the Hoback Basin, a northwestern extension of the Greater Green River Basin. The field is confined by the intersection of two sub-vertical shear fault zones that form a wedge-shaped structural block. The updip termination at the southwest end of the field is the apex of the block. The downdip limit is somewhat arbitrarily defined as occurring along the synclinal axis separating the basin flank from the Pinedale Anticline to the northeast. Within the wedge-shaped block, overpressure conditions exist near the top of the Upper Cretaceous (Maastrichtian) Lance Formation some 2000 to 3000 ft above regional occurrence. Immediately adjacent to the field to the west and south, overpressure conditions are found near the top of the Upper Cretaceous (Campanian) Mesaverde Group. The trap at Jonah is described as combination structural-stratigraphic. The bounding fault zones form the lateral trap and the top-seal is comprised of the Tertiary rocks that overlie the Lance.

The sandstones in the Lance Formation are the principal reservoir at Jonah Field. The Lance Formation is comprised of braided to meandering fluvial sandstones intercalated with overbank siltstones and mudstones. Similar sandstone facies in the upper Mesaverde Group are occasionally productive. The gross thickness of the Lance Formation increases toward the downdip limit of the field. Near the updip termination, the Lance is 2000 ft thick, while at the northeastern side of the field it attains a thickness in excess of 3000 ft.