The Smackover Facies Distribution at Brooklyn Field, Conecuh County, Alabama

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ABSTRACT

Brooklyn Field is located in the Conecuh Embayment of southwest Alabama, and produces from the Upper Jurassic Smackover Formation. It was discovered in February 2011 and has produced 20,786,743 barrels of oil as of March 2018. Its production will soon outpace even that of the neighboring Little Cedar Creek Field (21,167,636 barrels of oil to date). Unlike the Little Cedar Creek Field that extends more or less parallel to the Smackover paleo-shoreline, the Brooklyn Field is positioned across the mouth of the Eastern Conecuh Embayment.

The Smackover 'B' member is the main reservoir at Brooklyn Field. It is composed of coalescing ooid and pellet grainstone shoals and microbiolite patch reefs. This is in contrast to the Little Cedar Creek 'B' reservoir, which consists wholly of ooid grainstone bars and beaches that parallel the ancestral eastern shoreline of the Conecuh Embayment. The reservoir at Brooklyn measures up to 40 feet thick, and hosts porosities as high as 36% with permeabilities ranging from 0.02 to 2 Darcys. The productive reservoir occurs at sub-sea depths between 11,000 and 11,700 feet. The upper reservoir possesses a top seal composed of tight thin-bedded limestone, anhydritic shale and siltstone of the Buckner Formation.

The basal Smackover 'C' member consists primarily of microbiolites at the Brooklyn Field. It is often non-productive however, due to its lower structural position. The Smackover 'C' is separated from the overlying Smackover 'B' by a lowstand terrigenous shale that commonly contains a wide assemblage of vegetative material including pollen, spores, and leaves and woody material.

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