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Geology, geological history, and exploration potential of the Middle and Late Miocene natural gas sands of Alabama

The 1979 discovery of natural gas in Miocene strata of southwestern Baldwin County initiated an active and successful exploration program throughout southern Alabama and its adjoining State waters area. Since this initial discovery, 44 Miocene natural gas fields have been established in Alabama with production occurring from five formal and informally named middle and late Miocene sands. These fields have produced over 131 billion cubic feet of natural gas from the late middle Miocene (*Cibicides carstensi* Zone) Amos sand (32 fields) and early late Miocene (*Discorbis* “12” Zone) Luce (3 fields), Escambia (1 field), Meyer (4 fields), and Dauphin (4 fields) sands. Subsurface Miocene sediments of southern Alabama were deposited on a gentle southwestward-dipping carbonate shelf of predominantly late Oligocene age. Both lithological and biological evidence suggests a significant and regional unconformity between the Oligocene carbonate and the overlying early middle Miocene sand-starved and open-marine transgressive clays and shales. These lower strata are overlain by an offlapping sequence of gas-rich sand and shale of late middle and late Miocene age. These Miocene sediments form a southward-thickening clastic wedge ranging in thickness from less than 500 feet in south-central Baldwin County to about 3,500 feet in the southwestern margin of Alabama State waters. Due to the shallow depth of burial of these sands and relatively low drilling costs, as well as the application of highly successful “bright spot” exploration technology, profit margins can be significant. Alabama’s Miocene continues to hold substantial economic impact to industry as well as local, state, and federal government entities.