

East Cox Bay Field Discovery and Development, Plaquemines Parish, LA

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ABSTRACT

The East Cox Bay Field was discovered in November 2014 by Southern Oil of Louisiana LLC's predecessor, Century Exploration of New Orleans, LLC. The discovery well, the Louisiana State Lease 21380 #1, logged 40 net feet of oil in the Uvigerina 3 Sand at 12,366' TVD in moderate geopressure (14.5ppg MW). The well tested 422 BOPD and 795 MCFGPD in December 2014, production began on February 3, 2015. To date, the East Cox Bay field is an active 4-well development which has produced 2,038,585 Barrels of Oil, 13,161,420 MCF of Gas, and 2,516,830 Barrels of Water from two oil wells, one gas/condensate well, and serviced by one dry-hole which was converted to a salt water disposal well.

The discovery history of East Cox Bay underscores the importance of regional sequence-stratigraphic seismic mapping, well log integration, amplitude analysis and analog studies to find new reservoirs in South Louisiana. The prospect was first recognized as a high-amplitude basin-margin pinch-out on a seismic traverse of the **WesternGeco Quarantine Bay 3-D** seismic survey. Regional log correlations from Cox Bay to Manilla Village and Lake Washington Fields to the west predicted the sequence as Uvigerina 3 upper slope which contained slope channel sands and multiple fan-lobes with excellent reservoir quality and production. Regional correlations of the Uvigerina 3 Maximum Flooding Surface (UV3-MFS) e-log marker above the reservoir sands, and the basal unconformity below, defined the objective zone as a low-stand system tract. Isochron mapping of the zone identified a south-dipping wedge which pinches out to the northeast and thickens to the south into the large salt-controlled counter-regional Quarantine Bay Fault and migration pathway. Further mapping identified a daisy-chain of amplitude anomalies confined by slump faults and stratigraphic pinch-outs. Amplitude attribute analysis and AVO cross-plot techniques were used to compare the geophysical signature to productive analogs on-trend which guided pre-drill volumetric estimates and probability of success characterization.

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