

Ship Shoal 208–209 Field: A Fresh Look at an Old Field, with Integration of Disciplines, Yields New Reserves

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ABSTRACT

Ship Shoal (SS) Blocks 208–209 Field has produced 114 MMBO (million barrels of oil), 510 BCFG (billion cubic ft of gas), and 80 MMBW (million barrels of water) from 1963 to the present. The field was originally developed by Unocal. EPL Oil & Gas LLC purchased the field in late 2012 from Hillcorp. The field's producing reservoirs are from 7000 to 13,600 ft true vertical depth. Traps are both structural and stratigraphic around a salt dome.

Exploration around salt domes in the 1960s was accomplished using 2D migrated data. Data quality around salt domes during the 1960s was poor, at best. The concept of salt movement at that time was the old piercement model. Integrating the wells with the seismic using the piercement concept lead interpreters to consolidate sands near the flanks of the domes. EPL's evaluation of the SS 208 dome integrated the modern Fairfield nodal PSDM (prestack depth migration) seismic data and well control to develop a new depositional model for the Bull 1–6 sand. Mapping based on the new model led to reserves adds in the Bull 1–6 reservoir.

Detailed correlation of existing wells in the Bull 1–6 sand intervals indicated that proven oil might exist up dip of 11 MMBO of Bull 1–6 production. Wells that were drilled updip of the 11 MMBO of production were interpreted to have penetrated the Bull 1–6 interval. These wells were drilled based on the assumption that the Bull 1–6 interval and the overlying sands thinned toward the salt dome.

Revised correlations were confirmed by pressure histories and well performance studies. Historical pressure data in producing reservoirs mapped as in communication support a more complex hydraulic system with correlative sand packages actually being separate accumulations. Fluid identification using cased-hole logs were used to confirm common accumulations and optimal new take points.

After the integration of engineering, geological and geophysical information, a well was drilled updip to Bull 1–6 production. The well found over 100 feet of oil pay in the Bull 1–6 sand. Substantial reserves were added by integration of disciplines.