Mocha Exploratory Unit Geologic Justification

Yates Petroleum Corporation requests the formation of the Mocha Exploratory Unit to support the drilling of a wildcat well in the N/2 of section 2 T13S R34E. The footage location will be 1200' FNL and 1980' FWL of section 2. The proposed unit outline is shown on both the geologic structure and the land maps. The primary target of the initial well will be the Atoka-Morrow, but the well will TD in the Lower Mississippian limestone at a depth of 12,800'.

The targeted Atoka-Morrow sands are gas productive channel sands of limited aerial extent. These channel sands were deposited in structurally low areas that existed during Atoka-Morrow time. Several areas were probably sources for the sands. During middle Mississippian time, erosion from the Roosevelt Uplift (located 50 miles to the north), and the Bagley high (located 10 miles to the northwest) probably supplied sand to this area. During late Mississippian to early Pennsylvanian time, structural uplift redistributed these sands and partially eroded the Austin and Morrow formations depositing the sand into the lows. Cross section A-A' crosses the structural high and shows a thin Morrow zone on top of the structural high and a thicker Morrow on the flanks of the high.

The top Morrow structure map shows the current structural highs in blue and the sand channels coming off these highs with a black line. These sand channels are narrow, elongate features, but they can be very prolific when discovered. There are no significant Atoka-Morrow producers on the structure map, but Yates' geologic interpretation is that the lows that contain sand channels. Although not in the proposed unit outline, Yates Petroleum Corporation plans to re-enter the New Mexico State #1 well located in section 1 T13S R34E. This re-entry candidate is well #5 on cross section A-A', and seems to be on the edge of a low. There are sands at the top of the Morrow in this well that were never tested.

The proposed Yates well is located on the southern end of a long channel in the N/2 of section 2 T13S R34E. . If successful, this well will lead to development wells being drilled both to the north and south of the initial well. North of the proposed location, there is a distinct channel, and to the south, the channel seems to die out as the contours broaden out. This could indicate where the sands might develop into a fan depositional system. A successful first well in the Unit outline also will lead to the other channel systems shown on the map being tested .

The proposed Unit outline encompasses an area on the flanks of two structural highs which Yates Petroleum Corporation believes has the potential for channel sand depositional systems. The formation of this exploratory unit would aid in the development of these potential reservoirs.