

MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986



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GEOLOGIC EXPLANATION OF THE NORTH LIVINGSTON RIDGE AREA, EDDY AND LEA COUNTIES, NEW MEXICO

Yates Petroleum Corporation seeks approval of two deviated boreholes on a federal lease located in Section 19 of Township 21S - Range 32E. The proposed wells (Bottom hole locations - 660' FSL & 1049' FWL and 2573' FSL & 1075' FWL of Section 19 of Township 21S - Range 32E, Surface location for both - 660' FSL & 200' FEL of Section 24 of Township 21S - Range 31E) will be drilled to a projected true vertical depth of 8500' to test the hydrocarbon potential of the Delaware Mountain Group.

The primary objective of the proposed wells is to test the basal Cherry Canyon Formation and the hydrocarbon reserves of the south-half of section 19. Yates has acquired this lease through a farm-out agreement which expires April 30, 1992. Consequently, if a well is not spudded before that date Yates will lose all rights to the lease. Yates is willing to drill a possibly uneconomic or marginally economic deviated well to preserve rights to the hydrocarbon potential on all of the lease.

The two vertical section diagrams show the projected angle at which the borehole will be deviated. Kick-off point of wellbore deviation starts at a depth of 2800' and 3200' well below Marker 126 which the BLM has determined to be at a depth of approximately 1900'. This leaves a minimum of 900' between Marker 126 and the kick-off point.

Cross-section A - A' is a south - north stratigraphic cross-section. The cross-section is hung on the top of a shale marker that is consistent throughout the area. Correlations of the Cherry Canyon and Brushy Canyon Formations are shown along with perforated intervals. The "Main Pay" zone is colored orange along with three "Secondary Pay" zones.

A structure map, with the top of a Cherry Canyon shale marker as datum, shows east to southeast dip in the North Livingston Ridge area. The proposed locations and most of the south-half of section 19 are situated updip or on strike with established production. Thus, the oil/water contact should not be encountered.

The net porosity map shows the limits of the "Main Pay" reservoir. The map is an isopach of density porosity of 15% or greater in thickness of feet. Our experience has indicated that vertical wells with porosities of 15% or greater will produce commercial amounts of oil from this zone. The depositional environment present is represented by channels within and channels feeding a submarine fan system. The general north - south trending channels that carry sand throughout the system are represented on the map. This map indicates that the south-half of section 19 should have a sufficient amount of porosity to establish good production in four vertical wells and possibly in two locations on the east side.

YATES PETROLEUM CORP.
BEFORE EXAMINER CATANACH
NMOCD CASE NOS. 10460/10461
DATE: 04/02/92
EXHIBIT NO. 3

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In summary, two deviated boreholes have been proposed. The tests, along with most of the south-half of section 19, should encounter the "Main Pay" zone and several "Secondary Pay" zones. The pay zones should be updip of or on strike with producing wells and the thickness and quality of reservoir encountered will be sufficient to produce economic vertical wells. The Delaware wells of this area have a potential cumulative production of 125,000 barrels of oil per well. Yates does not expect to produce a good economic deviated well. The extra cost of drilling, completing, and producing a deviated well at this depth negates potential economic gain. Yates is willing to drill a deviated hole to secure long-term rights to the said lease and its potential. By drilling one marginally economic deviated well 625,000 barrels of oil could be produced from a possible five vertical wells on the rest of the lease.