Oil and Gas Potential in the Secretaries Potash Enclave

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Potash, oil and gas leases in the Secretary's Area are managed by the Bureau of land Management (BLM) and oil and gas drilling is allowed by special permit. Since oil and gas wells must pass through potash, wells must be more than $^1/_4$ mile from existing potash mines and, conversely, mining companies must allow $^1/_4$ mile around existing oil wells. These limits are extended to $^1/_2$ mile in formations below the Bone Spring where production has been from high pressure gas wells. Persistent conflict between the two industries has created management problems for the BLM and an understanding of the economic impact of potential resources within the area is important to making development decisions.

This study combines to-date geologic understanding of the area with historic production data to make per-acre estimates of underdeveloped oil and gas reserves within the geologic boundaries of the main body of the Oil Potash leasing Area, as defined by the New Mexico Oil Conservation Division Rule R-111-p. Production and development within that area was compared to production and development In a 1-township wide buffer zone immediately surrounding the R-111-p area (Figures 1-3, Tables 1-2).

The purposes were twofold: First to provide a database and Geographic Information System which illustrates development potential utilizing existing oil and gas plays; and second to provide economic estimates of the total values of those resources and as royalty and tax revenues to federal, state, and local governments. This study does not address the economic impact of the jobs that would be created to produce this oil and gas, or the economic impacts of mining operations.

Untapped oil and gas resources using only existing plays was estimated at 1.4 billion BOE (Barrels Oil Equivalent), or 468 million barrels of oil and 5.5 TCF of gas. Secondary recovery could add an additional 318 million barrels of oil. Economic valuations using oil prices of $50, $75, and $100 per barrel and gas values of prices of $3, $5 and $7 per MCF yielded a resource value between $40-$86 billion for primary recovery and an additional $16-$32 billion for secondary oil recovery. The majority of the R-111-p area (-71%) is administered by the BLM and of the remainder -19.4% are New Mexico State lands. Royalties and taxes for a fully developed R-111-p area represent $11.4-$24 billion in potential revenues for Federal, State and County governments (-20% of the total resource value) of which $7.5-$15.8 billion would go to the State of New Mexico in MMS royalty shares, state royalties, and various taxes. Ad valorum taxes would provide lea and Eddy Counties a combined $1.4-$3.0 billion in revenue. The Federal MMS royalty share would provide $2.5-$5.2 billion at full estimated ultimate recovery.

Major existing plays that are under-developed in the Potash Enclave include the Brushy Canyon formation in the Delaware Mountain group, the Morrow, and the Bone Spring. Further, mature plays such as the Artesia group would likely have renewed interest within the currently restricted areas of the reserve both for primary production and for Residual Oil Zone (ROZ) Development. In recent years, the use of Drilling islands has already led to increased Brushy Canyon production within the enclave.

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This study used only existing production data and represents a conservative estimate of available resources. It does not, at present, fully consider recent changes to technology and future plays that do not have extensive existing production data, such as the Siluro-Devonian carbonates, Woodford Shale, Bone Springs shale, and the Wolfcamp, which could significantly impact regional production as the lower Brushy Canyon play did in the late 19805 and early 19905. Preliminary work on the Woodford Shale, Bone Spring/Avalon Shale, and ROZ potential in the Sand Andres and Grayburg strongly indicate significant additional potential reserves within the Potash Area.

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