December 19, 1989
NARRATIVE FOR
A PORTION OF THE POPLAR-GLENDIVE
OIL AND GAS DEVELOPMENT POTENTIAL MAP
BIG DRY RESOURCE AREA, MONTANA

INTRODUCTION

This report discusses the Poplar-Glendive oil and gas development potential map outside of the Fort Peck Indian Reservation. The Fort Peck Reservation is not being classified for the purposes of this study. This is the most active oil and gas drilling area in the BLM Miles City District. Drilling is expected to be just as active over the next 15 years as it has been the last 15 years. It includes portions of Dawson, McCone, Prairie, Sheridan, Wibaux, and all of Roosevelt and Richland Counties. The east half of the map is in the Williston Basin. The north extent of the Cedar Creek Anticline and Sheep Mountain Syncline occurs in the southwest corner of the map.

OCCURRENCE POTENTIAL

All of the Poplar-Glendive is classified high oil & gas occurrence potential. Regional geologic mapping (Mallory, 1972, p. 56) indicates that this area contains more than 5000 feet of sedimentary rocks. The type log for the map, taken from the Dome Petroleum 3 Panasuk (T. 29 N., R. 59 E., Sec. 28, swnw), logged 13,146 feet of sedimentary rock and only reached the Ordovician Red River Formation. The source rocks and reservoirs are proven by the number of producing oil and gas wells in this area.

This area has been a target for oil and gas exploration for over 30 years (Billings Geological Society, 1951). Since then, over 100 oil and gas fields have been developed in this area (Tonnsen, 1985). With the successful introduction of horizontal drilling in the Williston Basin in the last two years, many unproductive townships and sections will likely experience significant drilling activity and production in the next 15 years.

DISCUSSION OF DEVELOPMENT POTENTIAL RATINGS

All of the active producing townships, outside the Fort Peck Indian Reservation, have been rated as high oil and gas development potential in the Poplar-Glendive map. There are multiple producing horizons in these townships.

The following horizons are productive throughout the area: 1) the Mississipian Mission Canyon Formation, 2) the Mississippian/ Devonian Bakken Formation, 3) the Devonian Nisku Formation, 4) the Devonian Duperow Formation, 5) the Devonian Winnipegosis Formation, 6) the Ordovician Gunton Formation, and 7) the Ordovician Red River Formation. It is this mutiple pay potential that gives this area of Montana such high development potential despite the depth of most of these wells.

Because exploration and development typically centers around traditional producing areas, these townships can expect a high amount of development activity over the next fifteen years. Based on this analysis, anywhere from 8 to 95 additional wells could be drilled in each of each township, with numerous producers and new fields expected in the next fifteen years.

The rest of the Poplar-Glendive map is classified moderate development potential because: 1) the numerous wells that have encountered shows throughout the formations mentioned above, 2) the thickness of the sedimentary rocks, and 3) the number of wells that have been drilled in each township in the last fifteen years (0-7). Wildcatting and limited development may occur in these townships in the next 15 years. This will involve anywhere from one to seven wildcat wells being drilled per township. Should a discovery befound in any of these townships, that particular township will experience additional drilling activity.

REFERENCES CITED

Billings Geological Society, 1951, The well that focused national attention on Montana's vast unexplored oil potentialities: Second Annual Field Conference, p. 67.

Mallory, W.W. (ed.), 1972, Geologic atlas of Rocky Mountain Region: Rocky Mountain Association of Geologists, p. 56.

Tonnsen, J.T.(ed.), 1985, Montana oil and gas fields symposium: Montana Geological Society, 2 vols., 1250 p.