

December 19, 1989  
NARRATIVE FOR  
THE CEDAR CREEK-POWDER RIVER  
OIL AND GAS DEVELOPMENT POTENTIAL MAP  
BIG DRY AND POWDER RIVER RESOURCE AREAS, MONTANA

INTRODUCTION

This report discusses the Cedar Creek-Powder River oil and gas development potential map. This is one of the more active oil and gas drilling areas covered by 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. This map includes portions of Carter, Dawson, Fallon, Powder River, Prairie, and Wibaux Counties. The Williston Basin crosses the northeast corner of the map. The Cedar Creek Anticline is the major producing structure in the map area and separates the Williston Basin from the Powder River Basin. Bell Creek Field, a stratigraphic trap, is the second largest producing area in the map area.

OCCURRENCE POTENTIAL

All of the Cedar Creek-Powder River map is classified high oil & gas occurrence potential. Regional geologic mapping (Mallory, 1972, p. 56) indicates the area contains more than 5000 feet of sedimentary rocks. The type log for the map, taken from the Marathon 1 State well ( T. 2 N., R. 61 E., Sec. 16 nws), logged 10,262 feet of sedimentary rock before drilling into the Precambrian. 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 60 years (Tonnsen, 1985). The recent purchase of Bell Creek Field By Exxon Corporation in anticipation of a carbon dioxide tertiary recovery project and the advent of horizontal drilling along the Cedar Creek Anticline, will cause this area to experience continued drilling activity and production in the next 15 years.

DISCUSSION OF DEVELOPMENT POTENTIAL RATINGS

All active producing townships have been rated as high oil and gas development potential in the Cedar Creek-Powder River map. Along the Cedar Creek anticline, primary targets have been the Cretaceous Eagle gas sands and the oil-bearing Ordovician Red River Formation. Bell Creek Field is a mature Cretaceous Muddy Sandstone oil producing field.

Because exploration and development typically centers around traditional producing areas, these townships can expect a high amount of development activity over the next 15 years. Based on this analysis, anywhere from 1 to 45 additional wells could be drilled in each of these townships, with numerous producers expected in the next fifteen years.

The rest of the Cedar Creek-Powder River map is classified moderate development potential because the sedimentary rocks are just as thick as adjacent producing areas of the Williston and Powder River Basins. Wildcatting and limited development will occur in these townships in the next 15 years. This will involve anywhere from one to three wildcat wells being drilled per township. Since the Pennsylvanian Minnelusa sandstone produces oil from hundreds of fields in the Wyoming portion of the Powder River Basin, a Minnelusa discovery in Montana will create a surge in wildcat drilling above normal moderate development potential levels.

### REFERENCES CITED

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

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