PETROGRAPHIC ANALYSIS OF D SAND - BIG SPRINGS FIELD, DEUEL COUNTY, NEBRASKA

David W. Oldham May 1994

INTRODUCTION

Thin section analysis of 5 core samples of the D sand from two wells in the Big Springs field was performed to study the the grain size, mineralogy, and porosity of the D sand reservoir. Samples were obtained from cores of the D sand from BSU 25, SE SE Section 11 - T13N - R43W, and BSU 26, NE NE Section 18, T13N - R42W. Three samples were taken from the BSU 25 core and two samples were taken from the BSU 26 core. Samples were chosen to compare sandstone of varying permeability. Cores from the two wells are housed in the USGS Core Research Center in the Denver Federal Center. Upon completion of the petrographic analysis, the 5 thin sections were sent to the Core Research Center for storage.

Figure 1 shows the relationship of sample depths to the core analysis and shows the correction of core depths to log depths for BSU 25.

Figure 2 shows the relationship of sample depths to the core analysis and shows the correction of core depths to log depths for BSU 26.

BRIEF SUMMARY OF PETROGRAPHIC CHARACTERISTICS

Grain Size

The D sand in both cores is classified as a fine- to very fine-grained sandstone, with the majority of grains ranging from 0.07 mm to 0.2 mm in diameter.

Sorting

All samples exhibited good to very good sorting.

Grain Shape

Most grains are subangular, however in most cases the original shape of the grains has been altered by quartz cement overgrowths.