

**CORE LABORATORIES, INC.**  
SPECIAL SERVICES



January 30, 1981

YATES PETROLEUM CORPORATION  
207 S. 4th Street  
Artesia, New Mexico 88210

Attention: Jim Mason

Subject: Special Core Analysis  
Murphy NW Federal No. 1  
Atoka Morrow Field  
Eddy County, New Mexico  
Our File Number: 20681001

Gentlemen:

Presented in the attached report are the results of a Special Core Analysis Study on the subject well. Air Permeability and Porosity as a function of overburden pressure (service code sc-55-22-01) tests were performed as outlined by Mr. Jim Mason.

Routine core analysis was performed by our Core Analysis laboratory in Midland, Texas and the final data was reported on November 28, 1980 (File No. 3202-12-42).

Initially, sixteen unpreserved core segments were received by this laboratory on January 9, 1981. One 1-1/2 inch sample was drilled perpendicular to the horizontal axis from each requested core segment, using water as a bit coolant and lubricant. The samples were cleaned in a carbon dioxide-toluene, pressure extraction apparatus, leached with mehtanol to remove residual salts, then dried in a vacuum oven at 160°F.

Each clean, dry sample was placed into a hydrostatic core holder with 200 psi effective overburden pressure. Permeability to Air and Helium (Boyles Law) Porosity measurements were taken. The effective overburden pressure was then increased to 3300 psi. The permeability to Air and Helium Porosity was again measured. The results are tabulated on page 2 of the following report.

It has been a pleasure to perform this work for Yates Petroleum Corporation. If you should have any questions about the procedure used or the results obtained, please do not hesitate to contact us.

Very truly yours,

CORE LABORATORIES, INC.

A handwritten signature in dark ink, appearing to read "James L. Pritchard".  
James L. Pritchard  
for Robert L. Locklin  
Laboratory Manager

REL/JLP/ljj  
Copies: (7) Addressee