ELECTRICAL RESISTIVITY DATA

FOR

CITIES SERVICE OIL COMPANY
DAVIS 'E' NO. 1 WELL
DECATUR COUNTY, KANSAS

25 - 5 - 30W

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

March 24, 1977

REPLY TO
SUITE 133
400 SOUTH VERMONT
OKLAHOMA CITY, OKLA.
73108

Cities Service Oil Company
3545 N. W. 58th Street
Oklahoma City, Oklahoma 73112

Attn: Mr. Donald G. Wright

Subject: Electrical Resistivity Data
Davis "E" No. 1 Well
Decatur County, Kansas
CLI File 3402-8797

Gentlemen:

One-inch diameter core plugs were drilled from Kansas City-Lansing cores that were recovered from the Davis "E" No. 1 Well. Ten representative samples covering lithology ranges and the zones of interest were selected for electrical resistivity tests. A sample of produced formation water furnished for this study was used as the saturating fluid for the resistivity measurements.

The core plugs used for analysis are lithologically described and identified as to sample number and depth interval on page one of this report. The electrical resistivity data are presented in tabular form on page two and graphically on pages three and four.

Formation resistivity factors were determined at atmospheric conditions. The formation factors were calculated from measurements of the resistivities of the formation brine and of the 100 per cent saturated samples.

The graphical plot of formation factor as a function of porosity indicates a considerable variation in electrical properties. Estimated best-fit lines for the data points indicate values for "m" of 2.25 and 1.87, which reflect significant differences in the lithological characteristics of the rock. The higher cementation exponent was determined for vuggy limestone, which was from the interval between 3977 and 3982 feet. Fewer vugs were present in the limestone analyzed below 3986 feet which exhibited the lower "m" factor of 1.87.

The core plugs were partially desaturated under selected levels of capillary pressure (air-brine system). Electrical resistivities were determined at the various equilibrium brine saturations. In spite of the variation in the formation factor data, the composite plot of the resistivity indices versus water saturation yields a single saturation exponent "n" of 1.86.

We appreciate this opportunity to be of additional service.

Very truly yours,

CORE LABORATORIES, INC.

Dale E. Boyle (VJP)

Dale E. Boyle
District Manager

DEB:VJP:es

3 cc - Addressee
3 cc - Cities Service Oil Company
Attn: Mr. C. E. Forrester
700 Sutton Place Building
209 E. William
Wichita, Kansas 67202

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Company CITIES SERVICE OIL COMPANY
Formation KANSAS CITY-LANSING
Well DAVIS "E" NO. 1
County DECATUR
Field WILDCAT
State KANSAS

Identification and Description of Samples

Sample Number	Depth, Feet	Lithological Description
1	3977-78	Lm,lt brn,v/fn-fnly xln,pp vgs,pyr
2	3978-79	Lm,lt gry,v/fn-fnly xln,pp vgs,w/few 1 mm vgs,sty
3	3979-80	Lm,lt brn,v/fn-fnly xln,pp vgs,w/few 1-2 mm vgs,pyr
4	3980-81	Lm,lt brn,v/fn-fnly xln,pp vgs,w/few 1 mm vgs,pyr
5	3981-82	Lm,lt brn,v/fn-fnly xln,pp vgs,w/few 1-2 mm vgs, sl/ool,sty
10	3986-87	Lm,lt gry,v/fnly,xln
11	3987-88	Lm,wht,v/fn-fnly xln,pp vgs
13	3989-90	Lm,wht,v/fn-fnly xln,w/few pp vgs
22	3998-99	Lm,lt gry,v/fnly xln,pp vgs,w/few 1-2 mm vgs
26	4088-89	Lm,gry,v/fnly xln,sh lams,pyr

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Formation Factor and Resistivity Ratio Data

Resistivity of Saturation Brine, Ohm-Meters: 0.098 @ 73°F.

Sample Number	Porosity, Per Cent	Formation Factor	Brine Saturation, Per Cent Pore Space	Resistivity Ratio
1	6.3	466	100.0	
			86.3	1.45
			76.1	1.87
2	6.0	591	100.0	
			72.4	1.86
3	8.3	260	100.0	
			82.5	1.47
			78.3	1.67
			68.2	2.14
4	8.4	126	100.0	
			85.1	1.29
			60.6	2.41
5	9.6	200	100.0	
			76.3	1.68
			71.8	1.79
			44.1	4.50
10	11.1	61.3	100.0	
			97.4	1.06
			67.6	1.95
11	8.3	95.4	100.0	
			89.6	1.21
			75.6	1.60
			41.0	4.97
13	8.0	133	100.0	
			97.1	1.05
			78.8	1.54
22	4.7	281	100.0	
			85.8	1.22
			65.4	2.10
26	1.3	2570	100.0	

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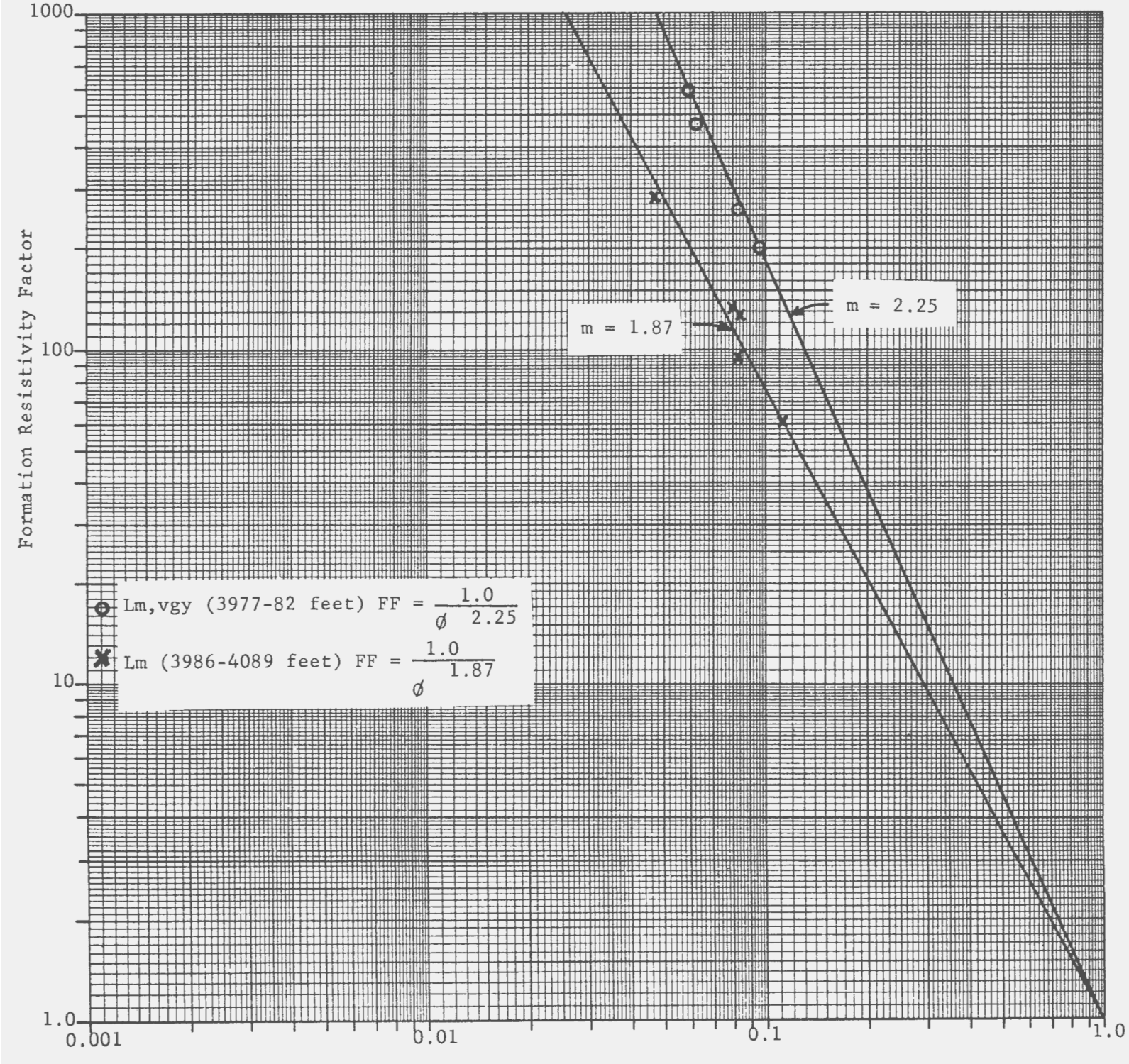
Well DAVIS "E" NO. 1
Field WILDCAT
Formation KANSAS CITY-LANSING
County DECATUR
State KANSAS



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