

CORE ANALYSIS RESULTS

Company AMOCO PRODUCTION COMPANY Formation COUNCIL GROVE File CP-1-7675
 Well FIRST NAT'L BANK OF LARNED G.U. NO. 2 Core Type DIAMOND Date Report 10-5-72
 Field PANOMA Drilling Fluid WATER BASE MUD Analysts BOYLE
 County MORTON State KANSAS Elev. Location SEC. 29-T31S-R39W

Lithological Abbreviations

SAND - SD SHALE - SH LIME - LM	DOLOMITE - DOL CHERT - CH GYPSUM - GYP	ANHYDRITE - ANHY CONGLOMERATE - CONG FOSSILIFEROUS - FOSS	SANDY - SDY SHALY - SHY LIMY - LMY	FINE - FNE MEDIUM - MED COARSE - CSE	CRYSTALLINE - XLN GRAIN - GRN GRANULAR - GRNL	BROWN - BRN GRAY - GY VUGGY - VGY	FRACTURED - FRAC LAMINATION - LAM STYLOLITIC - STY	SLIGHTLY - SL/ VERY - V/ WITH - W/
SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS	
		PERM. MAX.	PERM. 90°		OIL	TOTAL WATER		

WHOLE-CORE ANALYSIS

1	2675-76	<0.1	<0.1	9.0	0.0	72.4	Lm
2	76-77	<0.1	<0.1	8.0	0.0	87.2	Lm
3	77-78	<0.1	<0.1	3.0	0.0	83.3	Lm, sl/shy
4	78-79	<0.1	<0.1	8.3	0.0	90.3	Siltstone, lmy, shy
5	79-80	<0.1	<0.1	8.4	0.0	92.6	Siltstone, lmy, shy
6	80-81	<0.1	<0.1	7.8	0.0	92.5	Siltstone, lmy, shy
7	81-82 <i>top C.G.</i>	<0.1	<0.1	7.3	0.0	92.4	Siltstone, lmy, shy
	82-84						Sh
8	84-85	<0.1	<0.1	6.2 ^x	0.0	85.7	Sd, lmy, silty
9	85-86	0.2	<0.1	8.7	0.0	81.8	Sd, lmy, silty
10	86-87	0.6	0.6	10.7	0.0	65.6	Sd, lmy
	87-88						Sh
11	88-89	<0.1	<0.1	9.0	0.0	94.3	Siltstone, lmy, shy
12	89-90	<0.1	<0.1	10.2	0.0	94.4	Sd, lmy, silty
13	90-91 <i>Asilt</i>	<0.1	<0.1	10.7	0.0	88.8	Sd, lmy, silty
14	91-92 <i>+</i>	0.2	<0.1	13.5	0.0	95.3	Sd, lmy, silty
15	92-93 <i>sand</i>	<0.1	<0.1	11.9	0.0	91.4	Sd, lmy, silty
16	93-94	<0.1	<0.1	9.6	0.0	90.5	Sd, lmy
17	94-95	<0.1	<0.1	7.4	0.0	88.4	Sd, lmy
18	95-96	<0.1	<0.1	9.4	0.0	91.0	Sd, lmy
	96-97						Sh
19	97-98	<0.1	<0.1	5.9	0.0	89.8	Siltstone, lmy
20	98-99	<0.1	<0.1	5.6	0.0	83.3	Siltstone, lmy
21	99-00	<0.1	<0.1	6.8	0.0	88.7	Siltstone, lmy
22	2700-01	<0.1	<0.1	11.1	0.0	92.1	Siltstone, lmy, shy
	01-04						Sh
23	04-05	<0.1	<0.1	1.3 ^x	0.0	90.0	Lm, dse, sl/shy
24	05-06	<0.1	<0.1	0.7 ^x	0.0	66.7	Lm, dse, sl/shy
25	06-07	<0.1	<0.1	6.4	0.0	95.2	Lm, shy
26	07-08	<0.1	<0.1	7.1	0.0	98.6	Lm, shy
27	08-09	<0.1	<0.1	9.1	0.0	98.6	Siltstone, lmy, shy, anhy
28	09-10 <i>Aline</i>	<0.1	<0.1	9.4	0.0	98.0	Siltstone, lmy, shy, anhy
29	10-11	<0.1	<0.1	8.8	0.0	98.7	Siltstone, lmy, shy
30	11-12	<0.1	<0.1	3.5 ^x	0.0	97.5	Lm, shy
31	12-13	<0.1	<0.1	1.0 ^x	0.0	83.3	Lm, dse
32	13-14	<0.1	<0.1	3.0 ^x	0.0	91.7	Lm, shy
33	14-15	<0.1	<0.1	6.9	0.0	94.3	Siltstone, lmy, shy
34	15-16	<0.1	<0.1	8.9	0.0	95.2	Siltstone, lmy, shy
	16-17						Sh
35	2717-18	91	0.1	4.6 ^x	0.0	85.4	Lm, sl/shy, vert frac

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

File CP-1-7675 Page No. 2

Well FIRST NATIONAL BANK OF LARNED

GAS UNIT NO. 2

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
		MAX.	90°		OIL	TOTAL WATER	
36	2718-19	0.1	<0.1	5.9	0.0	87.3	Lm
37	19-20	0.3	0.2	8.3	0.0	85.6	Lm
38	20-21	0.1	<0.1	8.7	0.0	86.1	Lm
39	21-22	0.1	0.1	8.7	0.0	87.1	Lm
40	22-23	231	<0.1	5.7	0.0	86.7	Lm,sl/shy,vert frac
41	23-24	<0.1	<0.1	8.2	0.0	92.1	Siltstone,lmy,shy
	24-26						Sh
42	26-27	314	<0.1	8.4	0.0	92.0	Siltstone,lmy,shy,vert frac
43	27-28	Aline <0.1	<0.1	7.5	0.0	88.1	Siltstone,lmy,shy
44	28-29	<0.1	<0.1	7.7	0.0	88.0	Siltstone,lmy,shy
45	29-30	<0.1	<0.1	3.2	0.0	70.6	Lm,shy,vert frac
46	30-31	<0.1	<0.1	2.9	0.0	61.1	Lm,shy
47	31-32	<0.1	<0.1	5.4	0.0	78.0	Lm,shy,vert frac
48	32-33	<0.1	<0.1	2.6	0.0	70.0	Lm,shy
	33-38						Sh
49	38-39	<0.1	<0.1	6.6	0.0	84.4	Siltstone,lmy,shy
50	39-40	<0.1	<0.1	7.8	0.0	84.3	Siltstone,lmy,shy
51	40-41	<0.1	<0.1	7.1	0.0	91.1	Siltstone,lmy,shy
52	41-42	<0.1	<0.1	4.1	0.0	82.8	Lm,shy,silty
53	42-43	Bsilt 3.8	0.9	2.3	0.0	85.2	Lm,sl/shy
	43-49						Sh
54	49-50	sand <0.1	<0.1	12.1	0.0	90.3	Siltstone,sl/lmy,shy
55	50-51	<0.1	<0.1	13.2	0.0	93.0	Sd,sl/lmy,shy,silty
56	51-52	<0.1	<0.1	5.3	0.0	87.5	Sd,lmy,silty
57	52-53	0.6	0.6	8.0	0.0	78.4	Sd,lmy,silty
58	53-54	<0.1	<0.1	3.6	0.0	85.0	Sd,lmy,silty
59	54-55	<0.1	<0.1	5.8	0.0	85.9	Sd,lmy,silty
	55-59						Sh
60	59-60	<0.1	<0.1	2.5	0.0	81.3	Lm,shy
61	60-61	411	<0.1	1.9	0.0	83.3	Lm,vert frac
62	61-62	<0.1	<0.1	3.8	0.0	78.6	Lm,vert frac
63	62-63	<0.1	<0.1	3.7	0.0	80.5	Lm
64	63-64	<0.1	<0.1	5.1	0.0	85.5	Lm
65	64-65	Bline 0.3	0.3	15.1	0.0	95.0	Dol,lmy,shy
66	65-66	<0.1	<0.1	2.9	0.0	80.6	Lm,sl/shy
67	66-67	<0.1	<0.1	3.4	0.0	86.4	Lm,shy
68	67-68	<0.1	<0.1	4.0	0.0	89.3	Lm,shy
69	68-69	<0.1	<0.1	2.8	0.0	81.2	Lm,shy
70	69-70	<0.1	<0.1	2.3	0.0	88.2	Lm,sl/shy
71	70-71	<0.1	<0.1	3.3	0.0	87.2	Lm,shy
72	71-72	8.1	<0.1	1.8	0.0	75.0	Lm,vert frac
73	72-73	36	<0.1	2.3	0.0	73.9	Lm,vert frac
	73-84						Sh
74	84-85	0.2	<0.1	1.6	0.0	76.5	Lm,vert frac
75	85-86	5.1	<0.1	2.3	0.0	74.1	Lm,vert frac
76	86-87	<0.1	<0.1	4.1	0.0	88.2	Lm,sty
77	2787-88	1.4	1.2	10.7	0.0	52.5	Lm

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES, INC.
 Petroleum Reservoir Engineering
 DALLAS, TEXAS

File CP-1-7675 Page No. 3

Well FIRST NATIONAL BANK OF LARNED
 GAS UNIT NO. 2

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCS		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
		MAX.	90°		OIL	TOTAL WATER	
78	2788-89	2.3	2.2	14.1	0.0	49.2	Lm
79	89-90 <i>B line</i>	1.3	1.3	12.4	0.0	55.0	Lm
80	90-91	0.6	0.2	8.9	0.0	80.2	Lm, sty
81	91-92	<0.1	<0.1	2.0 x	0.0	72.7	Lm, sl/shy
	92-2802						Sh
82	2802-03	<0.1	<0.1	9.7	0.0	91.9	Sd, lmy, shy, silty
83	03-04	<0.1	<0.1	6.3 x	0.0	89.2	Sd, lmy, silty
84	04-05 <i>C silt</i>	<0.1	<0.1	8.2	0.0	91.5	Sd, lmy, silty
85	05-06	<0.1	<0.1	11.7	0.0	92.2	Sd, lmy, silty
86	06-07 <i>sand</i>	<0.1	<0.1	11.0	0.0	88.8	Sd, silty
87	07-08	<0.1	<0.1	11.4	0.0	91.1	Siltstone, shy
	08-09						Sh
88	09-10	5.5	5.5	15.0	0.0	59.7	Lm
89	10-11 <i>C line</i>	4.1	3.9	14.5	0.0	56.7	Lm
90	11-12	1.8	1.7	12.2	0.0	63.1	Lm
91	12-13	0.8	0.5	4.6 x	0.0	81.4	Lm
92	13-14	2.1	1.9	14.6	0.0	93.2	Siltstone, shy
93	14-15	2.8	2.8	17.4	0.0	93.2	Sd, lmy, silty
94	15-16	<0.1	<0.1	6.3 x	0.0	87.7	Sd, lmy, silty
95	16-17 <i>D silt</i>	<0.1	<0.1	6.6 x	0.0	87.3	Sd, lmy, silty
	17-19						Sh
96	19-20 <i>sand</i>	<0.1	<0.1	4.8 x	0.0	82.1	Sd, lmy, silty
97	20-21	<0.1	<0.1	4.7 x	0.0	79.2	Sd, lmy, silty
98	21-22	0.1	0.1	7.3	0.0	84.4	Sd, lmy, silty
99	22-23	0.2	0.1	8.2	0.0	89.9	Sd, lmy, silty
	23-25						Sh
100	25-26	0.1	0.1	9.5	0.0	86.3	Lm
101	2826-27 <i>D line</i>	0.4	0.4	12.8	0.0	63.7	Lm



PRELIMINARY REPORT

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

Small Core

Lab. No. 4541
Date 5-4-73

Core Analysis Data Record

First State Nank of Larned

Well Gas Unit #2 29-31-39

Field Panoma

State Kansas

Sample Number	Depths	Description	Permeability-Millidarcys		Effective Porosity	Saturation % Pore		Grain Density
			Horizontal	Vertical		Oil	Water	
A	2688-89	SNXFR	20.6		9.2			2.71
B	2689-90	SN	.17		11.5			2.70
C	2690-91	SN	.17		13.7			2.71
D	2691-92	SN	.17		13.6			2.70
E	2692-93	SN	.16		12.3			2.72
F	2693-94	SN	.16		12.0			2.73
G	2694-95	SN	<.05		11.6			2.73
H	2695-96	SN	<.05		11.8			2.72
I	2696-97	SN	.17		8.1			2.72
J	2704-05	LM	<.05		1.8			2.70
K	2705-06	LM	<.05		1.4			2.71
L	2706-07	LMXFR	3.61		6.5			2.74
M	2707-08	LM	.09		4.9			2.70
N	2708-09	LMXFR	4.51		7.8			2.73
O	2760-61	LM	<.05		3.0			2.71
P	2761-62	LM	<.05		7.0			2.72
Q	2762-63	LM	.07		6.9			2.75
R	2763-64	LM	<.05		6.7			2.75
S	2764-65	LM	.33		17.7			2.78
T	2765-66	LM	.09		5.6			2.77
U	2766-67	LM	<.05		4.1			2.73
V	2767-68	LMXFR	25.0		3.3			2.72
W	2768-69	LM	<.05		4.7			2.70
X	2769-70	LM	<.05		3.0			2.70
Y								
Z								

cc: M. S. Kraemer
J. A. Momper
J. W. WilsonBy: *J. J. Elliott*
J. J. Elliott