

29-27-35W
15-27-20530

CITIES SERVICE OIL COMPANY
Alexander "D" No. 2 Well
Grant County, Kansas

129876

29-27-35W
15-067-20338

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

April 18, 1975

REPLY TO
5 N. W. 42ND ST.
OKLAHOMA CITY, OKLA.
73118

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

Attn: Mr. James P. Barnhart

Subject: Core Analysis Data
Alexander "D" No. 2 Well
Panoma Field
Grant County, Kansas
CLI File 3402-8284

Gentlemen:

The Alexander "D" No. 2 Well was diamond cored from 2881 to 3121 feet. The recovered segments were preserved at the well-site and transported to the Oklahoma City laboratory where the accompanying Core-Gamma Surface Log was recorded to aid correlation with downhole electrical surveys.

Whole-core analysis made in the zones requested are presented on pages one through seven of this report. Zonal data averages are presented on the core summary pages of this report to reflect permeability, porosity and residual fluid saturation changes, along with lithology variations.

The cores have been shipped to Cities Service Research in Tulsa.

We are pleased to have been of service.

Very truly yours,

CORE LABORATORIES, INC.



Dale E. Boyle
District Manager

DEB:es

4-21-75

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL
PANOMA FIELD
GRANT COUNTY, KANSAS

DATE: 3-31-75
FORMATION: COUNCIL GROVE
DRLG. FLUID: WATER BASE MUD
LOCATION: C NE SEC. 29-27S-35W

FILE NO: 3402-8284
ENGINEER: PUGH
ELEVATION:

* INDICATES PLUG PERM

SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM	90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
WHOLE-CORE ANALYSIS								
1	2881.0-82.0	0.1	0.1		9.7	0.0 71.4	2.71	LM
2	2882.0-83.0	0.6	0.4		11.7	0.0 56.4	2.72	LM
3	2883.0-84.0	0.4	0.4		10.9	0.0 60.0	2.72	LM
4	2884.0-85.0	0.3	0.3		10.6	0.0 65.1	2.74	LM, SL/ANHY
5	2885.0-86.0	0.4	0.3		10.3	0.0 54.5	2.74	LM, SL/ANHY
6	2886.0-87.0	0.1	0.1		7.0	0.0 87.2	2.70	LM
7	2887.0-88.0	<0.1	<0.1		4.5	0.0 84.9	2.70	LM, SHY
# 8	2888.0-89.0	84.0	82.0		8.6	0.0 90.4	2.73	SLT, SL/LMY, SHY
# 9	2889.0-90.0	103.0	89.0		10.0	0.0 83.1	2.70	SLT, SL/LMY, SHY
# 10	2890.0-91.0	*	<0.1		9.9	0.0 87.3	2.75	SLT, LMY, SHY
# 11	2891.0-92.0	81.0	75.0		8.0	0.0 89.9	2.72	SLT, LMY, SHY
# 12	2892.0-93.0	*	<0.1		13.2	0.0 88.8	2.73	SLT, SL/LMY, SHY
# 13	2893.0-94.0	218.0	214.0		11.1	0.0 85.7	2.70	SLT, LMY, SHY
# 14	2894.0-95.0	33.0	4.5		10.5	0.0 91.3	2.71	SLT, LMY, SHY
15	2895.0-96.0	<0.1	<0.1		4.0	0.0 81.8	2.71	SLT, LMY, SHY
# 16	2896.0-97.0	0.5	<0.1		5.8	0.0 80.5	2.78	SLT, LMY, SHY
# 17	2897.0-98.0	0.3	<0.1		8.3	0.0 76.5	2.67	SLT, LMY, SHY
# 18	2898.0-99.0	5.9	5.8		8.8	0.0 87.4	2.67	SLT, LMY, SHY
# 19	2899.0-00.0	71.0	57.0		9.7	0.0 91.4	2.70	SLT, LMY, SHY
# 20	2900.0-01.0	7.2	0.1		7.5	0.0 90.2	2.69	SLT, LMY, SHY
# 21	2901.0-02.0	8.3	0.1		8.8	0.0 69.7	2.67	SLT, LMY, SHY
22	2902.0-03.0	0.1	0.1		5.6	0.0 87.1	2.82	DOL, SL/SHY
# 23	2903.0-04.0	1.5	0.2		6.7	0.0 88.1	2.78	DOL, SHY
	2904.0-07.0	SH						

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
24	2907.0-08.0	0.5	0.5		15.5	0.0 93.0	2.83	DOL
25	2908.0-09.0	0.5	0.4		14.5	0.0 89.9	2.84	DOL
26	2909.0-10.0	0.1	0.1		6.7	0.0 88.2	2.77	DOL, LMY, SL/SHY
27	2910.0-11.0	0.1	0.1		6.0	0.0 86.4	2.77	DOL, LMY, SL/ANHY
28	2911.0-12.0	0.4	0.4		13.2	0.0 88.5	2.81	DOL
29	2912.0-13.0	0.6	0.6		14.9	0.0 91.6	2.79	DOL, SL/ANHY
30	2913.0-14.0	0.1	<0.1		8.8	0.0 91.8	2.72	SLT, SHY, ANHY
31	2914.0-15.0	119.0	114.0		10.5	0.0 90.0	2.76	SLT, SL/LMY, SHY
32	2915.0-16.0	0.8	0.7		5.3	0.0 88.3	2.72	SLT, LMY, SL/ANHY
33	2916.0-17.0	0.6	0.2		5.6	0.0 78.2	2.68	LM, CHTY
34	2917.0-18.0	<0.1	<0.1		2.7	0.0 84.2	2.68	LM, SL/SHY
35	2918.0-19.0	54.0	26.0		8.0	0.0 91.5	2.75	SLT, LMY, SHY
36	2919.0-20.0	6.9	3.1		8.7	0.0 90.0	2.74	SLT, LMY, SHY
37	2920.0-21.0	3.5	0.2		5.7	0.0 69.1	2.68	LM, SL/SHY, SL/ANHY
38	2921.0-22.0	0.1	0.1		4.8	0.0 77.6	2.67	LM
39	2922.0-23.0	0.1	0.1		9.8	0.0 87.2	2.70	LM
40	2923.0-24.0	2.1	0.7		7.4	0.0 77.4	2.71	LM, STY
41	2924.0-25.0	1.8	0.3		10.4	0.0 69.6	2.73	LM, SL/ANHY
42	2925.0-26.0	1.2	1.0		8.1	0.0 69.7	2.76	LM, ANHY
43	2926.0-27.0	9.9	5.7		16.1	0.0 83.3	2.70	LM, STY
44	2927.0-28.0	62.0	62.0		14.9	0.0 60.9	2.74	LM, SL/ANHY
45	2928.0-29.0	0.9	0.9		11.2	0.0 64.3	2.83	LM, V/ANHY
46	2929.0-30.0	0.6	0.6		13.2	0.0 73.1	2.70	LM, SL/ANHY
47	2930.0-31.0	0.2	0.1		9.9	0.0 70.3	2.72	LM, ANHY
48	2931.0-32.0	0.2	0.2		9.3	0.0 65.5	2.72	LM, SL/SHY
49	2932.0-33.0	0.2	<0.1		3.5	0.0 61.0	2.68	LM, SHY
50	2933.0-34.0	5.4	3.3		4.2	0.0 87.4	2.70	LM, SHY
# 51	2934.0-35.0	4.3	1.4		5.2	0.0 82.9	2.69	SLT, LMY, SHY
# 52	2935.0-36.0	107.0	105.0		7.7	0.0 81.7	2.73	SLT, LMY, SHY
53	2936.0-37.0	2.8	1.5		2.4	0.0 92.0	2.69	SLT, LMY, SHY
54	2937.0-38.0	2.0	1.6		2.1	0.0 43.8	2.70	LM, SL/SHY, SL/CHTY
55	2938.0-39.0	<0.1	<0.1		1.4	0.0 38.1	2.70	LM, SL/CHTY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
# 56	2939.0-40.0	62.0	60.0		8.0	0.0 81.5	2.72	SLT, LMY, SHY
# 57	2940.0-41.0	62.0	48.0		6.8	0.0 81.6	2.71	SLT, LMY, SHY
# 58	2941.0-42.0	25.0	24.0		5.8	0.0 83.6	2.74	SLT, LMY, SHY
# 59	2942.0-43.0	1.7	1.2		4.5	0.0 68.6	2.69	SLT, SL/LMY, SHY
# 60	2943.0-44.0	88.0	76.0		7.0	0.0 77.6	2.74	SLT, LMY, SHY
# 61	2944.0-45.0	49.0	39.0		7.2	0.0 75.3	2.72	SLT, LMY, SHY
# 62	2945.0-46.0	54.0	30.0		7.1	0.0 68.4	2.72	SLT, LMY, SHY
# 63	2946.0-47.0	45.0	28.0		7.5	0.0 78.9	2.73	SLT, LMY, SHY
# 64	2947.0-48.0	35.0	25.0		7.7	0.0 80.8	2.73	SLT, LMY, SHY
# 65	2948.0-49.0	0.7	0.1		5.6	0.0 76.8	2.79	SLT, LMY, ANHY
# 66	2949.0-50.0	0.1	0.1		5.8	0.0 78.2	2.70	SLT, SL/LMY, SL/ANHY
# 67	2950.0-51.0	0.7	0.2		6.6	0.0 72.0	2.70	SLT, SL/LMY, SL/ANHY
# 68	2951.0-52.0	0.1	0.1		6.9	0.0 61.8	2.68	SLT, SL/ANHY
# 69	2952.0-53.0	15.0	5.2		7.3	0.0 72.6	2.71	SLT, SL/ANHY
# 70	2953.0-54.0	265.0	4.5		13.9	0.0 50.0	2.73	SLT, SHY, SL/ANHY
# 71	2954.0-55.0	14.0	3.7		15.0	0.0 76.7	2.83	SLT, LMY, SHY, ANHY
# 72	2955.0-56.0	*	<0.1		16.0	0.0 75.5	2.76	SLT, SL/DOL, SHY
# 73	2956.0-57.0	0.1	<0.1		5.0	0.0 53.6	2.72	LM, SL/ANHY
# 74	2957.0-58.0	<0.1	<0.1		7.1	0.0 60.5	2.77	LM, ANHY
# 75	2958.0-59.0	0.1	<0.1		7.0	0.0 60.3	2.78	LM, ANHY, STY
# 76	2959.0-60.0	0.2	0.1		6.8	0.0 45.0	2.79	LM, ANHY
# 77	2960.0-61.0	0.1	0.1		5.8	0.0 54.5	2.77	LM, ANHY
# 78	2961.0-62.0	1.7	0.1		10.1	0.0 66.3	2.73	LM, SL/ANHY
# 79	2962.0-63.0	0.3	0.3		3.4	0.0 68.0	2.73	LM, SL/SHY
# 80	2963.0-64.0	0.1	<0.1		6.5	0.0 76.8	2.78	LM, SHY, ANHY
# 81	2964.0-65.0	<0.1	<0.1		2.2	0.0 80.0	2.71	LM, STY
# 82	2965.0-66.0	0.3	<0.1		3.5	0.0 74.0	2.74	LM
# 83	2966.0-67.0	107.0	55.0		6.4	0.0 84.8	2.70	SLT, LMY, SHY
# 84	2967.0-68.0	*	<0.1		14.3	0.0 82.3	2.68	SLT, LMY, SHY
# 85	2968.0-69.0	43.0	40.0		5.3	0.0 78.6	2.70	SLT, LMY, SHY
# 86	2969.0-70.0	6.8	2.7		3.3	0.0 93.4	2.70	SLT, LMY, SHY
# 87	2970.0-71.0	33.0	31.0		5.6	0.0 84.2	2.72	SLT, LMY, SHY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
# 88	2971.0-72.0	*	<0.1		11.0	0.0 77.5	2.72	SLT, SHY
# 89	2972.0-73.0	*	<0.1		14.3	0.0 77.4	2.70	SLT, SHY
# 90	2973.0-74.0	*	<0.1		15.1	0.0 78.1	2.71	SLT, SHY
# 91	2974.0-75.0	*	<0.1		15.4	0.0 85.2	2.72	SLT, SHY
# 92	2975.0-76.0	120.0	49.0		9.6	0.0 77.7	2.68	SLT, SHY
# 93	2976.0-77.0	*	<0.1		5.4	0.0 60.5	2.68	SLT, LMY, SHY
	2977.0-78.0	SH						
+ 94	2978.0-79.0	0.6	0.2		4.8	0.0 65.8	2.71	LM, SL/SHY
95	2979.0-80.0	0.3	0.1		10.6	0.0 67.4	2.72	LM
96	2980.0-81.0	2.0	1.6		11.7	0.0 55.5	2.71	LM
97	2981.0-82.0	0.6	0.6		8.8	0.0 55.7	2.72	LM, SL/ANHY
98	2982.0-83.0	0.6	0.1		8.5	0.0 67.0	2.72	LM, STY
99	2983.0-84.0	0.7	0.2		9.2	0.0 68.8	2.72	LM, STY
100	2984.0-85.0	0.3	0.2		9.2	0.0 58.0	2.75	LM, SL/ANHY
101	2985.0-86.0	2518.0	1.1		9.4	0.0 69.2	2.70	LM, VERT FRAC
102	2986.0-87.0	0.2	0.1		2.2	0.0 62.1	2.68	LM, STY
103	2987.0-88.0	0.2	0.1		0.9	0.0 66.7	2.69	LM
# 104	2988.0-89.0	*	<0.1		9.4	0.0 70.0	2.69	SLT, SHY
# 105	2989.0-90.0	*	<0.1		9.7	0.0 69.0	2.68	SLT, SHY
# 106	2990.0-91.0	*	<0.1		10.7	0.0 64.8	2.71	SLT, SHY
# 107	2991.0-92.0	*	<0.1		9.3	0.0 67.4	2.70	SLT, SHY
# 108	2992.0-93.0	*	<0.1		10.2	0.0 67.4	2.70	SLT, SHY
# 109	2993.0-94.0	0.9	<0.1		9.2	0.0 80.0	2.72	SLT, LMY, SHY
# 110	2994.0-95.0	652.0	159.0		10.4	0.0 79.0	2.77	SLT, LMY, SHY
# 111	2995.0-96.0	55.0	35.0		10.9	0.0 66.1	2.74	SLT, LMY, SHY
# 112	2996.0-97.0	7.0	2.1		9.5	0.0 61.9	2.73	SLT, LMY, SHY
# 113	2997.0-98.0	*	<0.1		10.7	0.0 66.0	2.71	SLT, LMY, SHY
# 114	2998.0-99.0	*	<0.1		10.3	0.0 64.1	2.71	SLT, LMY, SHY
# 115	2999.0-00.0	*	<0.1		11.1	0.0 73.5	2.70	SLT, LMY, SHY
# 116	3000.0-01.0	214.0	151.0		12.0	0.0 62.2	2.71	SLT, LMY, SHY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
117	3001.0-02.0	0.6	0.3		2.5	0.0 64.0	2.73	LM, SL/SHY, SL/ANHY
118	3002.0-03.0	0.5	0.3		7.1	0.0 58.2	2.70	LM, SL/ANHY, VERT FRAC
119	3003.0-04.0	1.6	0.2		6.8	0.0 52.9	2.72	LM, SL/ANHY, VERT FRAC
# 120	3004.0-05.0	0.4	0.2		6.6	0.0 69.4	2.69	SLT, LMY, SHY
# 121	3005.0-06.0	1.2	0.3		8.0	0.0 65.6	2.68	SLT, LMY, SHY
# 122	3006.0-07.0	0.6	0.3		8.9	0.0 69.6	2.69	SLT, LMY, SHY
# 123	3007.0-08.0	5.3	5.0		6.0	0.0 75.7	2.68	SLT, LMY, SHY
# 124	3008.0-09.0	261.0	181.0		11.1	0.0 85.9	2.72	SLT, LMY, SHY
# 125	3009.0-10.0	14.0	0.3		6.0	0.0 82.3	2.68	SLT, LMY, SL/SHY
126	3010.0-11.0	0.2	0.1		7.9	0.0 75.3	2.68	SLT, LMY, SL/SHY
127	3011.0-12.0	0.3	0.1		7.6	0.0 68.4	2.68	SLT, LMY, SL/SHY
128	3012.0-13.0	0.2	0.1		7.5	0.0 73.5	2.68	SLT, LMY, SL/SHY
# 129	3013.0-14.0	58.0	26.0		7.3	0.0 80.0	2.68	SLT, LMY, SHY
# 130	3014.0-15.0	127.0	110.0		8.3	0.0 63.2	2.68	SLT, SL/LMY, SHY
131	3015.0-16.0	8.9	0.1		6.1	0.0 52.9	2.68	LM, SL/SHY, STY
132	3016.0-17.0	1.0	0.6		11.9	0.0 59.3	2.71	LM
133	3017.0-18.0	0.3	0.2		6.9	0.0 53.3	2.72	LM, SL/ANHY
134	3018.0-19.0	<0.1	<0.1		3.0	0.0 52.0	2.72	LM, SL/ANHY
	3019.0-22.0	SH						
# 135	3022.0-23.0	749.0	84.0		9.7	0.0 69.6	2.73	LM, SHY
136	3023.0-24.0	3.6	2.9		9.6	0.0 57.9	2.70	LM
137	3024.0-25.0	39.0	34.0		18.8	0.0 55.8	2.72	LM, SL/ANHY
138	3025.0-26.0	241.0	15.0		16.9	0.0 78.4	2.74	LM, SL/DOL, VERT FRAC
139	3026.0-27.0	6.7	6.1		18.0	0.0 69.4	2.75	LM, SL/DOL, VERT FRAC
140	3027.0-28.0	19.0	15.0		17.3	0.0 63.4	2.74	LM, SL/ANHY
141	3028.0-29.0	0.3	0.2		6.4	0.0 62.1	2.85	LM, ANHY
142	3029.0-30.0	0.1	0.1		4.1	0.0 60.0	2.85	LM, ANHY
143	3030.0-31.0	0.7	0.4		11.5	0.0 63.1	2.72	LM
144	3031.0-32.0	14.0	8.2		11.3	0.0 51.4	2.77	LM, ANHY, STY
145	3032.0-33.0	3.0	0.7		10.6	0.0 74.6	2.74	LM, SL/ANHY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
146	3033.0-34.0	0.9	0.7		11.7	0.0 59.1	2.73	LM, STY
147	3034.0-35.0	1.7	1.7		11.4	0.0 58.0	2.73	LM
148	3035.0-36.0	0.1	0.1		7.0	0.0 65.2	2.71	LM
149	3036.0-37.0	2.1	0.1		5.4	0.0 59.4	2.69	LM
150	3037.0-38.0	0.2	0.1		5.7	0.0 68.3	2.74	LM, SL/SHY
	3038.0-46.0	SH, SL/LMY, SLTY						
# 151	3046.0-47.0	30.0	12.0		6.8	0.0 85.4	2.74	SLT, LMY, SHY
# 152	3047.0-48.0	*	<0.1		10.9	0.0 69.6	2.68	SLT, LMY, SHY
# 153	3048.0-49.0	158.0	124.0		10.5	0.0 75.2	2.76	SLT, LMY, SHY, ANHY
	3049.0-50.0	SH, SL/LMY, SLTY						
# 154	3050.0-51.0	141.0	119.0		9.5	0.0 75.8	2.73	SLT, LMY, SHY
# 155	3051.0-52.0	183.0	124.0		13.1	0.0 76.7	2.77	SLT, LMY, SHY
# 156	3052.0-53.0	125.0	102.0		11.2	0.0 73.6	2.75	SLT, LMY, SHY
# 157	3053.0-54.0	85.0	65.0		7.4	0.0 69.5	2.73	SLT, LMY, SHY
# 158	3054.0-55.0	100.0	43.0		9.0	0.0 76.8	2.72	SLT, LMY, SHY
# 159	3055.0-56.0	154.0	137.0		9.0	0.0 77.0	2.71	SLT, LMY, SHY
# 160	3056.0-57.0	*	<0.1		14.3	0.0 70.0	2.73	SLT, LMY, SHY
	3057.0-62.0	SLT, SL/LMY, SL/SHY						
# 161	3062.0-63.0	*	<0.1		7.2	0.0 70.0	2.70	SLT, SHY
162	3063.0-64.0	3.0	2.0		2.3	0.0 61.1	2.70	LM, STY
163	3064.0-65.0	0.6	0.6		7.0	0.0 55.7	2.72	LM, SL/ANHY
164	3065.0-66.0	0.1	0.1		3.1	0.0 53.8	2.70	LM
165	3066.0-67.0	7.7	1.1		5.4	0.0 74.4	2.71	LM, VERT FRAC
166	3067.0-68.0	0.7	0.1		5.9	0.0 70.3	2.70	LM, SL/SHY, STY
+ 167	3068.0-69.0	41.0	37.0		5.4	0.0 80.0	2.69	LM, SHY
168	3069.0-70.0	0.1	0.1		1.9	0.0 66.7	2.71	LM, SL/SHY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM	90 DEG VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL	WTR.	GR. DEN.	DESCRIPTION
169	3070.0-71.0	0.4	0.1	2.9	0.0	52.9	2.69	LM
170	3071.0-72.0	3.9	0.1	6.0	0.0	65.8	2.73	LM, VERT FRAC
171	3072.0-73.0	0.5	0.1	11.3	0.0	61.6	2.77	LM, DOL
172	3073.0-74.0	0.5	0.4	14.5	0.0	60.5	2.75	LM, DOL
173	3074.0-75.0	1.2	0.8	5.9	0.0	66.2	2.71	LM, SL/SHY
174	3075.0-76.0	0.1	<0.1	5.1	0.0	71.0	2.71	LM, SL/SHY
175	3076.0-77.0	0.2	0.2	4.1	0.0	78.1	2.70	LM, SHY
+ 176	3077.0-78.0	1.4	0.4	3.5	0.0	59.9	2.67	LM, SHY
177	3078.0-79.0	13.0	0.1	4.0	0.0	66.6	2.67	LM, SHY
178	3079.0-80.0	0.1	0.1	4.0	0.0	70.6	2.67	LM, SHY
179	3080.0-81.0	7.1	0.5	3.9	0.0	59.4	2.66	LM, SHY, VERT FRAC, CHT
180	3081.0-82.0	0.1	<0.1	4.2	0.0	56.3	2.64	LM, SL/SHY, CHT
+ 181	3082.0-83.0	1.8	1.1	5.0	0.0	53.3	2.65	LM, SHY, CHT
+ 182	3083.0-84.0	20.0	2.7	4.6	0.0	68.3	2.67	LM, SHY, VERT FRAC, CHT
+ 183	3084.0-85.0	1.6	1.3	4.3	0.0	79.1	2.68	LM, SHY, CHT
184	3085.0-86.0	0.2	0.1	3.9	0.0	62.2	2.66	LM, SHY, CHT
185	3086.0-87.0	0.2	0.1	3.4	0.0	58.4	2.65	LM, SHY, CHT
+ 186	3087.0-88.0	26.0	0.8	5.8	0.0	76.0	2.67	LM, SHY
187	3088.0-89.0	0.1	0.1	2.9	0.0	58.0	2.66	LM, SHY, CHT
188	3089.0-90.0	<0.1	<0.1	3.6	0.0	51.3	2.65	LM, SHY, CHT
+ 189	3090.0-91.0	34.0	16.0	5.6	0.0	62.4	2.65	LM, SHY, CHT
190	3091.0-92.0	0.2	0.2	7.9	0.0	65.3	2.65	LM, SHY, CHT
191	3092.0-93.0	<0.1	<0.1	5.6	0.0	64.2	2.67	LM, SHY, CHT
192	3093.0-94.0	<0.1	<0.1	5.7	0.0	62.0	2.66	LM, SHY, CHT
+ 193	3094.0-95.0	14.0	4.4	3.9	0.0	68.4	2.67	LM, SHY, CHT
+ 194	3095.0-96.0	34.0	10.0	5.4	0.0	68.8	2.65	LM, SHY, CHT
+ 195	3096.0-97.0	36.0	7.8	6.8	0.0	82.3	2.66	LM, SHY, CHT
196	3097.0-98.0	<0.1	<0.1	4.1	0.0	75.0	2.65	LM, SHY, CHT
+ 197	3098.0-99.0	1.6	1.4	3.9	0.0	71.4	2.65	LM, SHY, VERT FRAC, CHT
198	3099.0-00.0	<0.1	<0.1	2.9	0.0	68.3	2.65	LM, SHY, CHT
+ 199	3100.0-01.0	12.0	8.5	4.4	0.0	71.9	2.66	LM, SHY, CHT
+ 200	3101.0-02.0	39.0	7.7	4.2	0.0	72.9	2.67	LM, SHY, CHT

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
+ 201	3102.0-03.0	311.0	66.0		6.8	0.0 86.5	2.67	LM, SHY, CHT
# 202	3103.0-04.0	59.0	50.0		8.1	0.0 85.0	2.68	LM, V/SHY
# 203	3104.0-05.0	<0.1	<0.1		9.1	0.0 85.2	2.68	LM, V/SHY
+ 204	3105.0-06.0	1.6	1.4		8.1	0.0 85.4	2.68	LM, V/SHY
205	3106.0-07.0	<0.1	<0.1		3.2	0.0 68.6	2.72	LM, SHY
206	3107.0-08.0	<0.1	<0.1		3.6	0.0 60.0	2.72	LM, SHY
# 207	3108.0-09.0	59.0	50.0		8.1	0.0 86.0	2.68	SLT, SHY
# 208	3109.0-10.0	311.0	66.0		8.2	0.0 75.5	2.68	SLT, SL/LMY, SHY
# 209	3110.0-11.0	59.0	50.0		8.4	0.0 78.2	2.68	SLT, SHY
210	3111.0-12.0	5.9	5.7		15.0	0.0 52.7	2.72	LM
211	3112.0-13.0	11.0	11.0		15.2	0.0 63.6	2.72	LM
212	3113.0-14.0	6.4	5.6		14.9	0.0 64.9	2.75	LM
213	3114.0-15.0	10.0	5.6		17.7	0.0 60.0	2.76	LM
214	3115.0-16.0	3.1	2.4		17.0	0.0 52.4	2.74	LM, SL/SHY
215	3116.0-17.0	4.9	4.5		17.4	0.0 56.9	2.73	LM
216	3117.0-18.0	4.3	3.5		10.6	0.0 53.3	2.71	LM, VERT FRAC
217	3118.0-19.0	6.1	2.6		6.3	0.0 57.1	2.71	LM, VERT FRAC
218	3119.0-20.0	<0.1	<0.1		1.4	0.0 70.0	2.69	LM, SL/SHY
219	3120.0-21.0	2.3	0.6		1.6	0.0 76.2	2.70	LM

DENOTES CHAOTIC FISSURES
+ DENOTES HORIZONTAL CRACKS

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE SUMMARY

COMPANY	CITIES SERVICE OIL COMPANY
WELL	ALEXANDER "D" NO. 2
PAGE	9 OF 10 FILE 3402-8284

DEPTH	PERMEABILITY			POROSITY	SATURATION		PRODUCTIVITY	COMMENTS
	MAXIMUM	90 DEGREES	VERTICAL		OIL	WATER		
2881-82	0.1	0.1		9.7	0.0	71.4		Wreford
82-86	0.4	0.4		10.9	0.0	59.0	Gas	Wreford
86-88	0.1	0.1		5.8	0.0	86.1		Wreford
88-95	104	66		10.2	0.0	88.1	Poss	Slt, fiss
95-02	13	9.0		7.6	0.0	82.5	Poss	Slt, fiss
2902-04	0.8	0.2		6.2	0.0	87.6		Dol
07-13	0.4	0.4		11.8	0.0	89.6		Dol
13-16	40	38		8.2	0.0	90.0		Slt, anhy
16-23	9.3	4.2		6.5	0.0	82.5		Lm
23-33	7.9	7.2		10.4	0.0	69.5	Gas	Lm
33-37	30	28		4.9	0.0	86.0		Slt, fiss
37-39	1.0	0.8		1.8	0.0	41.0		Lm, low porosity
39-42	50	44		6.9	0.0	82.2		Slt, fiss
42-52	27	20		6.6	0.0	73.8	Poss	Slt, fiss
52-57	74	2.7		11.4	0.0	65.7	Poss	Slt, fiss
57-66	0.3	0.1		5.8	0.0	65.0		Lm, anhy
66-71	47	26		7.0	0.0	84.7		Slt, fiss
71-77	120	8.2		11.8	0.0	76.1	Poss	Slt, fiss
78-88	252	0.4		7.5	0.0	63.3	Gas	Lm
88-01	186	27		10.3	0.0	68.6	Gas	Slt, fiss
3001-04	0.9	0.3		5.5	0.0	58.4		Lm, tight
04-15	43	29		7.7	0.0	73.5	Poss	Slt, fiss
15-19	2.6	0.2		7.0	0.0	54.4	Gas	Lm
22-33	98	15		12.2	0.0	64.1	Gas	Lm
33-38	1.0	0.5		8.2	0.0	62.0	Gas	Lm
46-49	94	45		9.4	0.0	76.7	Poss	Slt, fiss
50-57	131	84		10.5	0.0	74.2	Poss	Slt, fiss
3063-66	1.2	0.9		4.1	0.0	56.9		Lm, low porosity

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE SUMMARY

COMPANY CITIES SERVICE OIL COMPANY
WELL ALEXANDER "D" NO. 2
PAGE 10 OF 10 FILE 3402-8284

DEPTH	PERMEABILITY			POROSITY	SATURATION		PRODUCTIVITY	COMMENTS
	MAXIMUM	90 DEGREES	VERTICAL		OIL	WATER		
3066-71	10	7.7		4.3	0.0	68.9		Lm
71-74	1.6	0.2		10.6	0.0	62.6	Gas	Lm,dol
74-80	2.7	0.3		4.4	0.0	68.7		Lm
80-96	8.7	2.3		4.7	0.0	63.3		Lm, chty
96-02	15	4.2		4.4	0.0	73.6		Lm, chty
3102-08	62	20		6.5	0.0	78.5		Lm, shy
08-11	143	55		8.2	0.0	79.9	Poss	Slt
11-19	6.5	5.1		14.3	0.0	57.6	Gas	Lm
3119-21	1.2	0.3		1.5	0.0	73.1		Lm, low perm

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Alexander "D" No. 2 Well
Grant County, Kansas
CLI File 3402-8284

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CITIES SERVICE OIL COMPANY
ALEXANDER NO. 2 WELL

REPLY TO
B N. W. 42ND ST.
OKLAHOMA CITY, OKLA.
73118

PRELIMINARY RESIDUAL HYDROCARBON ANALYSIS

<u>DEPTH</u>	<u>INTERRUPTIVE</u>	<u>DEPTH</u>	<u>INTERRUPTIVE</u>
2884	Gas	3064.2	Nonproductive
2892	Gas	3066	Nonproductive
2895	Nonproductive	3067	Possible gas - rerun
2899	Rerun	3070	Nonproductive
2902	Gas	3073	Transitional
2908	Possible gas - rerun	3077	Transitional - Nonproductive
2911	Gas	3096	Nonproductive
2916.3	Possible gas - rerun	3107	Nonproductive
2924	Gas	3113.8	Transitional
2926	Possible gas - rerun	3117	Water
2928	Gas		
2931	Gas		
2937.8	Nonproductive		
2942	Nonproductive		
2944	Rerun		
2946	Nonproductive		
2948	Nonproductive		
2950	Nonproductive		
2957	Nonproductive		
2960	Nonproductive		
2961.5	Possible gas - rerun		
2965	Nonproductive		
2968	Nonproductive		
2970	Nonproductive		
2974	Rerun		
2976	Nonproductive		
2979.4	Gas		
2981	Possible gas - rerun		
2983.5	Gas		
2986	Nonproductive		
2993	Gas		
2997	Possible gas - rerun		
3002	Gas		
3010	Rerun		
3016	Gas		
3023.5	Gas		
3026.0	Possible gas - rerun		
3030	Rerun		
3033.4	Gas		
3049	Rerun		
3061	Nonproductive		

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL
PANOMA FIELD
GRANT COUNTY, KANSAS

DATE: 3-31-75
FORMATION: COUNCIL GROVE
DRLG. FLUID: WATER BASE MUD
LOCATION: C NE SEC. 29-27S-35W

FILE NO: 3402-8284
ENGINEER: PUGH
ELEVATION:

* INDICATES PLUG PERM

SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM	90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
WHOLE-CORE ANALYSIS								
1	2881.0-82.0	0.1	0.1		9.7	0.0 71.4	2.71	LM
2	2882.0-83.0	0.6	0.4		11.7	0.0 56.4	2.72	LM
3	2883.0-84.0	0.4	0.4		10.9	0.0 60.0	2.72	LM
4	2884.0-85.0	0.3	0.3	- 9.9	10.6	0.0 65.1	2.74	LM, SL/ANHY
5	2885.0-86.0	0.4	0.3		10.3	0.0 54.5	2.74	LM, SL/ANHY
6	2886.0-87.0	0.1	0.1		7.0	0.0 87.2	2.70	LM
7	2887.0-88.0	<0.1	<0.1		4.5	0.0 84.9	2.70	LM, SHY
# 8	2888.0-89.0	84.0	82.0		8.6	0.0 90.4	2.73	SLT, SL/LMY, SHY
# 9	2889.0-90.0	103.0	89.0		10.0	0.0 83.1	2.70	SLT, SL/LMY, SHY
# 10	2890.0-91.0	*	<0.1		9.9	0.0 87.3	2.75	SLT, LMY, SHY
# 11	2891.0-92.0	81.0	75.0		8.0	0.0 89.9	2.72	SLT, LMY, SHY
# 12	2892.0-93.0	*	<0.1		13.2	0.0 88.8	2.73	SLT, SL/LMY, SHY
# 13	2893.0-94.0	218.0	214.0		11.1	0.0 85.7	2.70	SLT, LMY, SHY
# 14	2894.0-95.0	33.0	4.5		10.5	0.0 91.3	2.71	SLT, LMY, SHY
# 15	2895.0-96.0	<0.1	<0.1	- N. P. 1.0	4.0	0.0 81.8	2.71	SLT, LMY, SHY
# 16	2896.0-97.0	0.5	<0.1		5.8	0.0 80.5	2.78	SLT, LMY, SHY
# 17	2897.0-98.0	0.3	<0.1		8.3	0.0 76.5	2.67	SLT, LMY, SHY
# 18	2898.0-99.0	5.9	5.8		8.8	0.0 87.4	2.67	SLT, LMY, SHY
# 19	2899.0-00.0	71.0	57.0		9.7	0.0 91.4	2.70	SLT, LMY, SHY
# 20	2900.0-01.0	7.2	0.1		7.5	0.0 90.2	2.69	SLT, LMY, SHY
# 21	2901.0-02.0	8.3	0.1		8.8	0.0 69.7	2.67	SLT, LMY, SHY
# 22	2902.0-03.0	0.1	0.1		5.6	0.0 87.1	2.82	DOL, SL/SHY
# 23	2903.0-04.0	1.5	0.2		6.7	0.0 88.1	2.78	DOL, SHY
	2904.0-07.0	SH						

PRELIMINARY REPORT

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM 90 DEG VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
24	2907.0-08.0	0.5 0.5	15.5	0.0 93.0	2.83	DOL
25	2908.0-09.0	0.5 0.4	14.5	0.0 89.9	2.84	DOL
26	2909.0-10.0	0.1 0.1	6.7	0.0 88.2	2.77	DOL, LMY, SL/SHY
27	2910.0-11.0	0.1 0.1	6.0	0.0 86.4	2.77	DOL, LMY, SL/ANHY
28	2911.0-12.0	0.4 0.4	13.2	0.0 88.5	2.81	DOL
29	2912.0-13.0	0.6 0.6	14.9	0.0 91.6	2.79	DOL, SL/ANHY
30	2913.0-14.0	0.1 <0.1	8.8	0.0 91.8	2.72	SLT, SHY, ANHY
31	2914.0-15.0	119.0 114.0	10.5	0.0 90.0	2.76	SLT, SL/LMY, SHY
32	2915.0-16.0	0.8 0.7	5.3	0.0 88.3	2.72	SLT, LMY, SL/ANHY
33	2916.0-17.0	0.6 0.2	5.6	0.0 78.2	2.68	LM, CHTY
34	2917.0-18.0	<0.1 <0.1	2.7	0.0 84.2	2.68	LM, SL/SHY
35	2918.0-19.0	54.0 26.0	8.0	0.0 91.5	2.75	SLT, LMY, SHY
36	2919.0-20.0	6.9 3.1	8.7	0.0 90.0	2.74	SLT, LMY, SHY
37	2920.0-21.0	3.5 0.2	5.7	0.0 69.1	2.68	LM, SL/SHY, SL/ANHY
38	2921.0-22.0	0.1 0.1	4.8	0.0 77.6	2.67	LM
39	2922.0-23.0	0.1 0.1	9.8	0.0 87.2	2.70	LM
40	2923.0-24.0	2.1 0.7	7.4	0.0 77.4	2.71	LM, STY
41	2924.0-25.0	1.8 0.3	10.4	0.0 69.6	2.73	LM, SL/ANHY
42	2925.0-26.0	1.2 1.0	8.1	0.0 69.7	2.76	LM, ANHY
43	2926.0-27.0	9.9 5.7	16.1	0.0 83.3	2.70	LM, STY
44	2927.0-28.0	62.0 62.0	14.9	0.0 60.9	2.74	LM, SL/ANHY
45	2928.0-29.0	0.9 0.9	11.2	0.0 64.3	2.83	LM, V/ANHY
46	2929.0-30.0	0.6 0.6	13.2	0.0 73.1	2.70	LM, SL/ANHY
47	2930.0-31.0	0.2 0.1	9.9	0.0 70.3	2.72	LM, ANHY
48	2931.0-32.0	0.2 0.2	9.3	0.0 65.5	2.72	LM, SL/SHY
49	2932.0-33.0	0.2 <0.1	3.5	0.0 61.0	2.68	LM, SHY
50	2933.0-34.0	5.4 3.3	4.2	0.0 87.4	2.70	LM, SHY
# 51	2934.0-35.0	4.3 1.4	5.2	0.0 82.9	2.69	SLT, LMY, SHY
# 52	2935.0-36.0	107.0 105.0	7.7	0.0 81.7	2.73	SLT, LMY, SHY
53	2936.0-37.0	2.8 1.5	2.4	0.0 92.0	2.69	SLT, LMY, SHY
54	2937.0-38.0	2.0 1.6	2.1	0.0 43.8	2.70	LM, SL/SHY, SL/CHTY
55	2938.0-39.0	<0.1 <0.1	1.4	0.0 38.1	2.70	LM, SL/CHTY

CITIES SERVICE OIL COMPANY
ALEXANDER D NO. 2 WELL

DATE: 3-31-75
FORMATION: COUNCIL GROVE

FILE NO: 3402-8284
ENGINEER: PUGH

SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
# 56	2939.0-40.0	62.0	60.0		8.0	0.0 81.5	2.72	SLT, LMY, SHY
# 57	2940.0-41.0	62.0	48.0		6.8	0.0 81.6	2.71	SLT, LMY, SHY
# 58	2941.0-42.0	25.0	24.0		5.8	0.0 83.6	2.74	SLT, LMY, SHY
# 59	2942.0-43.0	1.7	1.2		4.5	0.0 68.6	2.69	SLT, SL/LMY, SHY
# 60	2943.0-44.0	88.0	76.0		7.0	0.0 77.6	2.74	SLT, LMY, SHY
# 61	2944.0-45.0	49.0	39.0		7.2	0.0 75.3	2.72	SLT, LMY, SHY
# 62	2945.0-46.0	54.0	30.0		7.1	0.0 68.4	2.72	SLT, LMY, SHY
# 63	2946.0-47.0	45.0	28.0		7.5	0.0 78.9	2.73	SLT, LMY, SHY
# 64	2947.0-48.0	35.0	25.0		7.7	0.0 80.8	2.73	SLT, LMY, SHY
# 65	2948.0-49.0	0.7	0.1		5.6	0.0 76.8	2.79	SLT, LMY, ANHY
# 66	2949.0-50.0	0.1	0.1		5.8	0.0 78.2	2.70	SLT, SL/LMY, SL/ANHY
# 67	2950.0-51.0	0.7	0.2		6.6	0.0 72.0	2.70	SLT, SL/LMY, SL/ANHY
# 68	2951.0-52.0	0.1	0.1		6.9	0.0 61.8	2.68	SLT, SL/ANHY
# 69	2952.0-53.0	15.0	5.2		7.3	0.0 72.6	2.71	SLT, SL/ANHY
# 70	2953.0-54.0	265.0	4.5		13.9	0.0 50.0	2.73	SLT, SHY, SL/ANHY
# 71	2954.0-55.0	14.0	3.7		15.0	0.0 76.7	2.83	SLT, LMY, SHY, ANHY
# 72	2955.0-56.0	*	<0.1		16.0	0.0 75.5	2.76	SLT, SL/DOL, SHY
# 73	2956.0-57.0	0.1	<0.1		5.0	0.0 53.6	2.72	LM, SL/ANHY
# 74	2957.0-58.0	<0.1	<0.1		7.1	0.0 60.5	2.77	LM, ANHY
# 75	2958.0-59.0	0.1	<0.1		7.0	0.0 60.3	2.78	LM, ANHY, STY
# 76	2959.0-60.0	0.2	0.1		6.8	0.0 45.0	2.79	LM, ANHY
# 77	2960.0-61.0	0.1	0.1		5.8	0.0 54.5	2.77	LM, ANHY
# 78	2961.0-62.0	1.7	0.1		10.1	0.0 66.3	2.73	LM, SL/ANHY
# 79	2962.0-63.0	0.3	0.3		3.4	0.0 68.0	2.73	LM, SL/SHY
# 80	2963.0-64.0	0.1	<0.1		6.5	0.0 76.8	2.78	LM, SHY, ANHY
# 81	2964.0-65.0	<0.1	<0.1		2.2	0.0 80.0	2.71	LM, STY
# 82	2965.0-66.0	0.3	<0.1		3.5	0.0 74.0	2.74	LM
# 83	2966.0-67.0	107.0	55.0		6.4	0.0 84.8	2.70	SLT, LMY, SHY
# 84	2967.0-68.0	*	<0.1		14.3	0.0 82.3	2.68	SLT, LMY, SHY
# 85	2968.0-69.0	43.0	40.0		5.3	0.0 78.6	2.70	SLT, LMY, SHY
# 86	2969.0-70.0	6.8	2.7		3.3	0.0 93.4	2.70	SLT, LMY, SHY
# 87	2970.0-71.0	33.0	31.0		5.6	0.0 84.2	2.72	SLT, LMY, SHY

CITIES SERVICE OIL COMPANY
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FORMATION: COUNCIL GROVE

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SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM	90 DEG VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
# 88	2971.0-72.0	*	<0.1	11.0	0.0 77.5	2.72	SLT, SHY
# 89	2972.0-73.0	*	<0.1	14.3	0.0 77.4	2.70	SLT, SHY
# 90	2973.0-74.0	*	<0.1	15.1	0.0 78.1	2.71	SLT, SHY
# 91	2974.0-75.0	*	<0.1	15.4	0.0 85.2	2.72	SLT, SHY
# 92	2975.0-76.0	120.0	49.0	9.6	0.0 77.7	2.68	SLT, SHY
# 93	2976.0-77.0	*	<0.1	5.4	0.0 60.5	2.68	SLT, LMY, SHY
	2977.0-78.0	SH					
+ 94	2978.0-79.0	0.6	0.2	4.8	0.0 65.8	2.71	LM, SL, SHY
95	2979.0-80.0	0.3	0.1	10.6	0.0 67.4	2.72	LM
96	2980.0-81.0	2.0	1.6	11.7	0.0 55.5	2.71	LM
97	2981.0-82.0	0.6	0.6	8.8	0.0 55.7	2.72	LM, SL, ANHY
98	2982.0-83.0	0.6	0.1	8.5	0.0 67.0	2.72	LM, STY
99	2983.0-84.0	0.7	0.2	9.2	0.0 68.8	2.72	LM, STY
100	2984.0-85.0	0.3	0.2	9.2	0.0 58.0	2.75	LM, SL, ANHY
101	2985.0-86.0	2518.0	1.1	9.4	0.0 69.2	2.70	LM, VERT FRAC
102	2986.0-87.0	0.2	0.1	2.2	0.0 62.1	2.68	LM, STY
103	2987.0-88.0	0.2	0.1	0.9	0.0 66.7	2.69	LM
# 104	2988.0-89.0	*	<0.1	9.4	0.0 70.0	2.69	SLT, SHY
# 105	2989.0-90.0	*	<0.1	9.7	0.0 69.0	2.68	SLT, SHY
# 106	2990.0-91.0	*	<0.1	10.7	0.0 64.8	2.71	SLT, SHY
# 107	2991.0-92.0	*	<0.1	9.3	0.0 67.4	2.70	SLT, SHY
# 108	2992.0-93.0	*	<0.1	10.2	0.0 67.4	2.70	SLT, SHY
# 109	2993.0-94.0	0.9	<0.1	9.2	0.0 80.0	2.72	SLT, LMY, SHY
# 110	2994.0-95.0	652.0	159.0	10.4	0.0 79.0	2.77	SLT, LMY, SHY
# 111	2995.0-96.0	55.0	35.0	10.9	0.0 66.1	2.74	SLT, LMY, SHY
# 112	2996.0-97.0	7.0	2.1	9.5	0.0 61.9	2.73	SLT, LMY, SHY
# 113	2997.0-98.0	*	<0.1	10.7	0.0 66.0	2.71	SLT, LMY, SHY
# 114	2998.0-99.0	*	<0.1	10.3	0.0 64.1	2.71	SLT, LMY, SHY
# 115	2999.0-00.0	*	<0.1	11.1	0.0 73.5	2.70	SLT, LMY, SHY
# 116	3000.0-01.0	214.0	151.0	12.0	0.0 62.2	2.71	SLT, LMY, SHY

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SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
117	3001.0-02.0	0.6	0.3		2.5	0.0 64.0	2.73	LM, SL/SHY, SL/ANHY
118	3002.0-03.0	0.5	0.3		7.1	0.0 58.2	2.70	LM, SL/ANHY, VERT FRAC
119	3003.0-04.0	1.6	0.2		6.8	0.0 52.9	2.72	LM, SL/ANHY, VERT FRAC
# 120	3004.0-05.0	0.4	0.2		6.6	0.0 69.4	2.69	SLT, LMY, SHY
# 121	3005.0-06.0	1.2	0.3		8.0	0.0 65.6	2.68	SLT, LMY, SHY
# 122	3006.0-07.0	0.6	0.3		8.9	0.0 69.6	2.69	SLT, LMY, SHY
# 123	3007.0-08.0	5.3	5.0		6.0	0.0 75.7	2.68	SLT, LMY, SHY
# 124	3008.0-09.0	261.0	181.0		11.1	0.0 85.9	2.72	SLT, LMY, SHY
# 125	3009.0-10.0	14.0	0.3		6.0	0.0 82.3	2.68	SLT, LMY, SL/SHY
126	3010.0-11.0	0.2	0.1		7.9	0.0 75.3	2.68	SLT, LMY, SL/SHY
127	3011.0-12.0	0.3	0.1		7.6	0.0 68.4	2.68	SLT, LMY, SL/SHY
128	3012.0-13.0	0.2	0.1		7.5	0.0 73.5	2.68	SLT, LMY, SL/SHY
# 129	3013.0-14.0	58.0	26.0		7.3	0.0 80.0	2.68	SLT, LMY, SHY
# 130	3014.0-15.0	127.0	110.0		8.3	0.0 63.2	2.68	SLT, SL/LMY, SHY
131	3015.0-16.0	8.9	0.1		6.1	0.0 52.9	2.68	LM, SL/SHY, STY
132	3016.0-17.0	1.0	0.6		11.9	0.0 59.3	2.71	LM
133	3017.0-18.0	0.3	0.2		6.9	0.0 53.3	2.72	LM, SL/ANHY
134	3018.0-19.0	<0.1	<0.1		3.0	0.0 52.0	2.72	LM, SL/ANHY
	3019.0-22.0	SH						
# 135	3022.0-23.0	749.0	84.0		9.7	0.0 69.6	2.73	LM, SHY
136	3023.0-24.0	3.6	2.9		9.6	0.0 57.9	2.70	LM
137	3024.0-25.0	39.0	34.0		18.8	0.0 55.8	2.72	LM, SL/ANHY
138	3025.0-26.0	241.0	15.0		16.9	0.0 78.4	2.74	LM, SL/DOL, VERT FRAC
139	3026.0-27.0	6.7	6.1		18.0	0.0 69.4	2.75	LM, SL/DOL, VERT FRAC
140	3027.0-28.0	19.0	15.0		17.3	0.0 63.4	2.74	LM, SL/ANHY
141	3028.0-29.0	0.3	0.2		6.4	0.0 62.1	2.85	LM, ANHY
142	3029.0-30.0	0.1	0.1		4.1	0.0 60.0	2.85	LM, ANHY
143	3030.0-31.0	0.7	0.4		11.5	0.0 63.1	2.72	LM
144	3031.0-32.0	14.0	8.2		11.3	0.0 51.4	2.77	LM, ANHY, STY
145	3032.0-33.0	3.0	0.7		10.6	0.0 74.6	2.74	LM, SL/ANHY

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SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
146	3033.0-34.0	0.9	0.7		11.7	0.0 59.1	2.73	LM, STY
147	3034.0-35.0	1.7	1.7		11.4	0.0 58.0	2.73	LM
148	3035.0-36.0	0.1	0.1		7.0	0.0 65.2	2.71	LM
149	3036.0-37.0	2.1	0.1		5.4	0.0 59.4	2.69	LM
150	3037.0-38.0	0.2	0.1		5.7	0.0 68.3	2.74	LM, SL/SHY
	3038.0-46.0	SH, SL/LMY, SLTY						
# 151	3046.0-47.0	30.0	12.0		6.8	0.0 85.4	2.74	SLT, LMY, SHY
# 152	3047.0-48.0	*	<0.1		10.9	0.0 69.6	2.68	SLT, LMY, SHY
# 153	3048.0-49.0	158.0	124.0		10.5	0.0 75.2	2.76	SLT, LMY, SHY, ANHY
	3049.0-50.0	SH, SL/LMY, SLTY						
# 154	3050.0-51.0	141.0	119.0		9.5	0.0 75.8	2.73	SLT, LMY, SHY
# 155	3051.0-52.0	183.0	124.0		13.1	0.0 76.7	2.77	SLT, LMY, SHY
# 156	3052.0-53.0	125.0	102.0		11.2	0.0 73.6	2.75	SLT, LMY, SHY
# 157	3053.0-54.0	85.0	65.0		7.4	0.0 69.5	2.73	SLT, LMY, SHY
# 158	3054.0-55.0	100.0	43.0		9.0	0.0 76.8	2.72	SLT, LMY, SHY
# 159	3055.0-56.0	154.0	137.0		9.0	0.0 77.0	2.71	SLT, LMY, SHY
# 160	3056.0-57.0	*	<0.1		14.3	0.0 70.0	2.73	SLT, LMY, SHY
	3057.0-62.0	SLT, SL/LMY, SL/SHY						
# 161	3062.0-63.0	*	<0.1		7.2	0.0 70.0	2.70	SLT, SHY
162	3063.0-64.0	3.0	2.0		2.3	0.0 61.1	2.70	LM, STY
163	3064.0-65.0	0.6	0.6		7.0	0.0 55.7	2.72	LM, SL/ANHY
164	3065.0-66.0	0.1	0.1		3.1	0.0 53.8	2.70	LM
165	3066.0-67.0	7.7	1.1		5.4	0.0 74.4	2.71	LM, VERT FRAC
166	3067.0-68.0	0.7	0.1		5.9	0.0 70.3	2.70	LM, SL/SHY, STY
+ 167	3068.0-69.0	41.0	37.0		5.4	0.0 80.0	2.69	LM, SHY
168	3069.0-70.0	0.1	0.1		1.9	0.0 66.7	2.71	LM, SL/SHY

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SMP. NO.	DEPTH	PERM. MAXIMUM	TO AIR MD. 90 DEG	MD. VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
169	3070.0-71.0	0.4	0.1		2.9	0.0 52.9	2.69	LM
170	3071.0-72.0	3.9	0.1		6.0	0.0 65.8	2.73	LM, VERT FRAC
171	3072.0-73.0	0.5	0.1		11.3	0.0 61.6	2.77	LM, DOL
172	3073.0-74.0	0.5	0.4		14.5	0.0 60.5	2.75	LM, DOL
173	3074.0-75.0	1.2	0.8		5.9	0.0 66.2	2.71	LM, SL/SHY
174	3075.0-76.0	0.1	<0.1		5.1	0.0 71.0	2.71	LM, SL/SHY
175	3076.0-77.0	0.2	0.2		4.1	0.0 78.1	2.70	LM, SHY
+ 176	3077.0-78.0	1.4	0.4		3.5	0.0 59.9	2.67	LM, SHY
177	3078.0-79.0	13.0	0.1		4.0	0.0 66.6	2.67	LM, SHY
178	3079.0-80.0	0.1	0.1		4.0	0.0 70.6	2.67	LM, SHY
179	3080.0-81.0	7.1	0.5		3.9	0.0 59.4	2.66	LM, SHY, VERT FRAC, CHT
180	3081.0-82.0	0.1	<0.1		4.2	0.0 56.3	2.64	LM, SL/SHY, CHT
+ 181	3082.0-83.0	1.8	1.1		5.0	0.0 53.3	2.65	LM, SHY, CHT
+ 182	3083.0-84.0	20.0	2.7		4.6	0.0 68.3	2.67	LM, SHY, VERT FRAC, CHT
+ 183	3084.0-85.0	1.6	1.3		4.3	0.0 79.1	2.68	LM, SHY, CHT
184	3085.0-86.0	0.2	0.1		3.9	0.0 62.2	2.66	LM, SHY, CHT
185	3086.0-87.0	0.2	0.1		3.4	0.0 58.4	2.65	LM, SHY, CHT
+ 186	3087.0-88.0	26.0	0.8		5.8	0.0 76.0	2.67	LM, SHY
187	3088.0-89.0	0.1	0.1		2.9	0.0 58.0	2.66	LM, SHY, CHT
188	3089.0-90.0	<0.1	<0.1		3.6	0.0 51.3	2.65	LM, SHY, CHT
+ 189	3090.0-91.0	34.0	16.0		5.6	0.0 62.4	2.65	LM, SHY, CHT
190	3091.0-92.0	0.2	0.2		7.9	0.0 65.3	2.65	LM, SHY, CHT
191	3092.0-93.0	<0.1	<0.1		5.6	0.0 64.2	2.67	LM, SHY, CHT
192	3093.0-94.0	<0.1	<0.1		5.7	0.0 62.0	2.66	LM, SHY, CHT
+ 193	3094.0-95.0	14.0	4.4		3.9	0.0 68.4	2.67	LM, SHY, CHT
+ 194	3095.0-96.0	34.0	10.0		5.4	0.0 68.8	2.65	LM, SHY, CHT
+ 195	3096.0-97.0	36.0	7.8		6.8	0.0 82.3	2.66	LM, SHY, CHT
196	3097.0-98.0	<0.1	<0.1		4.1	0.0 75.0	2.65	LM, SHY, CHT
+ 197	3098.0-99.0	1.6	1.4		3.9	0.0 71.4	2.65	LM, SHY, VERT FRAC, CHT
198	3099.0-00.0	<0.1	<0.1		2.9	0.0 68.3	2.65	LM, SHY, CHT
+ 199	3100.0-01.0	12.0	8.5		4.4	0.0 71.9	2.66	LM, SHY, CHT
+ 200	3101.0-02.0	39.0	7.7		4.2	0.0 72.9	2.67	LM, SHY, CHT

CITIES SERVICE OIL COMPANY
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SMP. NO.	DEPTH	PERM. TO AIR MD. MAXIMUM	90 DEG	VERT.	POROSITY GEX. FLD.	FLUID SATS. OIL WTR.	GR. DEN.	DESCRIPTION
+ 201	3102.0-03.0	311.0	66.0		6.8	0.0 86.5	2.67	LM, SHY, CHT
# 202	3103.0-04.0	59.0	50.0		8.1	0.0 85.0	2.68	LM, V/SHY
# 203	3104.0-05.0	<0.1	<0.1		9.1	0.0 85.2	2.68	LM, V/SHY
+ 204	3105.0-06.0	1.6	1.4		8.1	0.0 85.4	2.68	LM, V/SHY
205	3106.0-07.0	<0.1	<0.1		3.2	0.0 68.6	2.72	LM, SHY
206	3107.0-08.0	<0.1	<0.1		3.6	0.0 60.0	2.72	LM, SHY
# 207	3108.0-09.0	59.0	50.0		8.1	0.0 86.0	2.68	SLT, SHY
# 208	3109.0-10.0	311.0	66.0		8.2	0.0 75.5	2.68	SLT, SL/LMY, SHY
# 209	3110.0-11.0	59.0	50.0		8.4	0.0 78.2	2.68	SLT, SHY
210	3111.0-12.0	5.9	5.7		15.0	0.0 52.7	2.72	LM
211	3112.0-13.0	11.0	11.0		15.2	0.0 63.6	2.72	LM
212	3113.0-14.0	6.4	5.6		14.9	0.0 64.9	2.75	LM
213	3114.0-15.0	10.0	5.6		17.7	0.0 60.0	2.76	LM
214	3115.0-16.0	3.1	2.4		17.0	0.0 52.4	2.74	LM, SL/SHY
215	3116.0-17.0	4.9	4.5		17.4	0.0 56.9	2.73	LM
216	3117.0-18.0	4.3	3.5		10.6	0.0 53.3	2.71	LM, VERT FRAC
217	3118.0-19.0	6.1	2.6		6.3	0.0 57.1	2.71	LM, VERT FRAC
218	3119.0-20.0	<0.1	<0.1		1.4	0.0 70.0	2.69	LM, SL/SHY
219	3120.0-21.0	2.3	0.6		1.6	0.0 76.2	2.70	LM

DENOTES CHAOTIC FISSURES
+ DENOTES HORIZONTAL CRACKS