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GEOLOGICAL REPORT

FRONTIER OIL COMPANY

NO. 1 BURTON

NE NW SEC. 15-7S-19W

ROOKS COUNTY, KANSAS

15-163-23143

DATE COMMENCED: February 6, 1991

DATE OF RTD: February 14, 1991

GEOLOGIST

STEVE D. PARKER

KCC

APR 14 1992

CONFIDENTIAL

STATE OF KANSAS
COMMISSION

MAR 28 1991

OFFICE OF THE
ATTORNEY GENERAL

FRONTIER OIL COMPANY
125 N. Market, Ste. 1720
Wichita, Kansas 67202

Re: FRONTIER OIL COMPANY
No. 1 Burton
NE NW Sec. 15-7S-19W
Rooks County, Kansas

Dear Sir:

The following is a Geological Report, with a Time Log attached,
on the above captioned well.

Drilling was supervised from 3000' to 3448', rotary total depth.
Samples were examined from 2900' to rotary total depth.

All formation tops, zones of porosity and staining are based
on rotary bushing measurements. Any corrections in measurements
during the drilling of the well have been incorporated into this
report.

ELEVATIONS	American Elevations	1973 DF	- 1975 KB
Anhydrite		1483	-492
Topeka		2924	-949
Heebner		3127	-1152
Toronto		3152	-1177
Lansing-Kansas City		3167	-1192
Base Kansas City		3388	-1413
RTD		3448	-1473

Structurally, on top of the Lansing-Kansas City the No. 1 Burton
ran 1' lower than the Graves Drilling Inc. No. 1 Graham, a Lansing-
Kansas City producer located approximately 2½ locations North and
½ location east.

ZONES OF INTEREST

TOPEKA (Top 2924)
2924 to 2962

White chalky to light tan finely-
crystalline fossiliferous lime-
stone, No show of Oil.

3080 to 3089

Light tan fossiliferous limestone,
w/trace of spotted stain, no show
of free oil, no odor.

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WICHITA, KANSAS

3099 to 3106	Light tan fine crystalline fossiliferous limestone w/trace of pin point porosity, trace of light spotted stain. No show of free oil, very faint odor.
<u>TORONTO</u> (Top 3152) 3152 to 3154	White fine crystalline, slightly fossiliferous limestone. No show. (Poor samples) (Included in DST #1)
<u>LANSING-KANSAS CITY</u> (Top 3167) 3167 to 3172	White to light tan fine crystalline, fossiliferous limestone, scattered light spotted stain, a show of free oil, very faint odor. (Included in DST #1)
<u>DRILL STEM TEST NO. 1</u> (TRILOBITE TESTING) 3121 to 3190	60-30-60-30. 1st op weak increasing to good, 2nd op weak blo. Rec. 30' GIP, 60' GOSM (10% G, 2% O, 88% M), 90' GOCM (10% G, 15% O, 75% M). IF 66-91, FF 107-124, ISIP 637, FSIP 595.
3210 to 3214	Tan slightly chalkly to cherty oolitic limestone, trace of spotted stain no show of free oil, no odor.
3228 to 3233	Tan fine crystalline oolitic limestone, poor vugular porosity, scattered spotted stain, slight show of free oil, no odor. (Included in DST #2)
3244 to 3248	White chalky oolitic limestone, scattered spotted stain, very slight show of free oil, no odor. (Included in DST #2)
3254 to 3257	Light tan fine crystalline oolitic limestone, scattered light spotted stain, slight show of free oil, no odor. (Included in DST #2)
3263 to 3266	Light tan fine crystalline, slightly chalky oolitic limestone, scattered light spotted stain, very slight show of free oil, no odor. (Included in DST #2)

DRILL STEM TEST NO. 2 (TRILOBITE TESTING)

3215 to 3272

60-30-15-30. 1st op weak to fair blo. 2nd op no blo. Rec. 30' SOCM (5%G, 5%O, 90%M) 50' SOCM (5% G, 10% O, 85% M), IF 49-66, FF 82-82, ISIP & FSIP 545.

3304 to 3308

Light tan chalky slightly cherty limestone, trace of light spotted stain, no show of free oil, no odor. (Included in DST #3)

3323 to 3328

Light tan fine crystalline, slightly oolitic limestone, scattered light spotted stain, very slight show of free oil, no odor. (Included in DST #3)

3342 to 3346

Tan fine crystalline oolitic to well developed oolitic limestone, good dark saturated stain, fair show of free oil, faint odor. (Included in DST #3)

3364 to 3369

White vugular fine crystalline limestone, spotted to saturated stain, good show of free oil, very faint odor. (Included in DST #3)

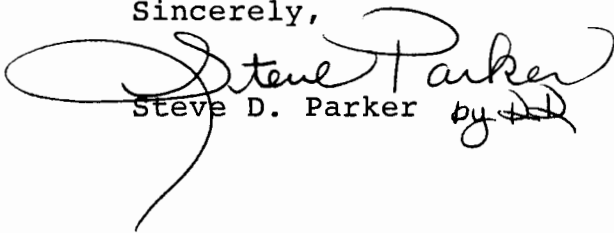
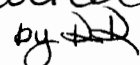
DRILL STEM TEST NO. 3 (TRILOBITE TESTING)

3304 to 3375

60-30-60-30. Rec. 50' SOCM. IF 10-20, FF 20-20, ISIP 948, FSIP 350.

4½" used 10½# casing was set at 3430' with 165 sacks Common cement to further test the Lansing-Kansas City. The Shoe joint was 28 feet long. Zero point is 5 feet AGL. A basket was set on the 48th joint.

Sincerely,


Steve D. Parker by 

DRILLING INFORMATION ON THE NO. 1 BURTON

CONTRACTOR	: Red Tiger Drilling Co.	DRILLERS	: Kenny Lyle Morris Leech, Jr. Stephen Hejny
TOOL PUSHER	: Kenny Lyle		
SPUD DATE	: February 6, 1991	DATE of RTD:	: February 14, 1991
SURFACE PIPE:	8 5/8" @ 262 w/160sx	CASING	: 4½" @ 3430'/165sx, Basket on 48th jt.

TOTAL FOOTAGE DRILLED PER DAY

Under Surface at 7:00 A.M. on February 6, 1991

276	Feet	At	7:00	A.M.	On	02-07-91
1720	"	"	"	"	"	02-08-91
2352	"	"	"	"	"	02-09-91
2772	"	"	"	"	"	02-10-91
3067	"	"	"	"	"	02-11-91
3190	"	"	"	"	"	02-12-91
3300	"	"	"	"	"	02-13-91
3420	"	"	"	"	"	02-14-91

BIT RECORD

<u>BITS</u>	<u>TYPE</u>	<u>FOOTAGE</u>
#1	Vearl L-126	1453 to 1720
#2	Vearl V-517	1720 to 3190
#3	CP 44 EH 537C	3190 to 3448

MUD RECORD

MUD COMPANY: Mud-Co

MUD TYPE: Starch

Surface:

1771: 56sx gel, 17sx hulls, 3sx lime, 40sx starch
2883: 5sx hulls
3173: 95sx salt clay, 6sx starch
3190: 11sx salt clay, 4sx starch, 3sx hulls
3315: 1sk hulls

DRILLER TIME LOG

FRONTIER OIL COMPANY
No. 1 Burton

NE NW
Sec. 15-7S-19W
Rooks County, Kansas

Elev.: 1970 GR
1975 KB

DEPTH	MINUTES	REMARKS
	1 Foot Drilling Time	
2900 to 2910	4-2-2-3-2-3-5-4-2-2	
2920	3-2-3-3-3-2-3-3-2-3	
2930	2-2-2-2-6-7-5-6-6-7	
2940	6-8-6-6-6-6-7-7-7-8	
2950	6-4-5-7-7-6-5-4-3-6	
2960	5-4-4-4-3-2-2-2-2-3	
2970	3-3-5-7-6-2-6-6-5-4	
2980	5-4-6-4-4-5-4-4-3-5	
2990	4-4-4-4-6-8-8-8-7-8	
3000	5-3½-3½-3-3-4-4-6-8-9	
3000 to 3010	10-8-6-4-3-5-5-5-4-5	
3020	3-2-3-5-5-5-6-7-7-5	
3030	5-5-5-5-5-5-6-5-4-5	
3040	3-3-4-5-5-6-6-6-5-8	
3050	7-5-6-6-6-5-5-6-5-6	
3060	5-5-8-8-8-8-9-9-7-7	
3070	7-7-7-6-5-7-8-4-2-5	
3080	10-7-5-8-10-9-6-4-3-7	
3090	3-2-3-2-3-3-2-3-5-7	
3100	5-6-7-6-6-7-6-8-6-5	
3100 to 3110	3-4-4-5-6-7-5-6-5-5	
3120	3-4-5-4-4-5-4-4-5-5	DST #1 (3121-3190)
3130	5-4-5-4-6-5-4-2-2-5	
3140	5-4-5-4-6-4-3-3-2-2	
3150	4-3-3-3-3-3-3-3-2-3	
3160	4-3-3-6-5-7-6-6-5-7	
3170	7-5-5-6-6-6-5-6-4-3	
3180	5-5-6-6-8-8-10-11-8-9	
3190	9-8-8-9-8-8-7-8-8-9	
3200	4-5-4-5-6-6-5-4-5-2	
3200 to 3210	5-3-4-3-4-4-4-3-3-4	DST #2 (3215-3272)
3220	5-4-5-6-5-6-5-6-5-4	
3230	3-4-4-3-4-4-5-6-4-3	
3240	4-4-5-5-6-6-4-4-6-6	
3250	4-3-4-5-5-6-5-6-5-6	
3260	5-4-5-4-3-3-5-5-5-5	
3270	3-2-3-2-3-4-4-4-4-5	
3280	5-6-5-6-6-5½-5½-6½-6-6	
3290	6-6½-6-6-6-5½-6½-6-5-4	
3300	6-6-5-5-5-6-6-6-6-5	

3300 to 3310

3320

3330

3340

3350

3360

3370

3380

3390

3400

3400 to 3410

3420

3430

3440

3450

7-7-8-6-4-5-5-8-9-8

8-9-8-8-7-7-6-5-4-5

4-4-5-3-5-4-5-5-4-5

5-6-5-5-4-3-4-3-3-4

3-5-1-3-2-5-5-5-6-5

6-6-6-5-3-4-4-4-4-5

4-4-5-3-5-5-5-4-5-7

6-6-5-5-7-7-6-6-7-8

7-6-6-5-8-8-9-7-4-6

5-5-4-5-4½-4½-5-5-5-5½

6-6½-7-7-7-7-4½-4½-5-4½

4½-4½-5-5½-6-6-7-7-8-6

6-7-7-6-7-5-5-6-5-7

5-6-7-5-8-5-7-6-6-7

4-2-2-2-1-2-3-2-x-x

DST #3 (3304-3375)

RTD 3448