

33-15-11W^{P1}
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State Geological Survey
WICHITA BRANCH

GEOLOGICAL REPORT

FRONTIER OIL COMPANY

FOSTER "A" NO. 4

725' FSL - 1235' FWL - SE/4

33-15S-11W

RUSSELL COUNTY, KANSAS

API NO. 15-167-22,153

Commenced: July 6, 1983

Completed: July 13, 1983

RECEIVED
STATE GEOLOGICAL SURVEY - WICHITA BRANCH

AUG 26 1983

WICHITA BRANCH
Wichita, Kansas

Frontier Oil Company
1720 Kansas State Bank Building
Wichita, Kansas 67202

87
Re: Frontier Oil Company
Foster "A" No. 4
725' FSL - 1235' FWL SE/4
33-15S-11W
Russell County, Kansas

Dear Sir:

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

Drilling was supervised from 2100' to 3217', rotary total depth. Samples were examined from 2100' to 3217', 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 this well have been incorporated into this report.

Elevation	1745 GL -- 1750 KB	
Anhydrite	592 to 623	(+1158)
Brownville	2145	(-395)
Tarkio	2251	(-501)
Topeka	2536	(-786)
Heebner	2783	(-1033)
Toronto	2801	(-1051)
Douglas Shale	2813	(-1063)
Lansing-Kansas City	2892	(-1142)
Base-Kansas City	3132	(-1382)
Arbuckle	3215	(-1465)
RTD	3217	(-1467)
5½" Casing	3216	(-1466)

Structurally, on top of the Lansing-Kansas City, the Foster "A" No. 4 ran 6' high to the Frontier Oil Company Foster "A" No. 3 located approximately 500' to the northwest.

On top of the Arbuckle, the Foster "A" No. 4 ran 8' low to the Foster "A" No. 3.

ZONES OF INTEREST

BROWNVILLE LIME (Top 2145)

GRAND HAVEN (Top 2184) 2184 to 2190

Brown and tan fine crystalline lime with fair pinpoint porosity, no show of oil and no odor.

33-15-11w

4A Foster

DOVER (Top 2209)
2209 to 2220

White, vuggy fossiliferous lime with no show of oil and no odor.

TARKIO LIME (Top 2251)
2251 to 2260

Tan crystalline weathered lime with no show of oil and no odor.

2296 to 2306

Scattered slightly micaceous grey sand clusters with no show of oil and no odor.

ELMONT LIME (Top 2314)
2314 to 2322

White dense crystalline lime with no show of oil and no odor.

TOPEKA (Top 2533)
2533 to 2542

Tan fine crystalline lime, barren.

2630 to 2640

Tan to buff, slightly vuggy barren lime.

2730 to 2740

Tan, crystalline, silty, slightly vuggy lime with a small show of oil flakes and a faint odor.

2760 to 2766

Tan crystalline lime.

HEEBNER SHALE (Top 2783)

TORONTO (Top 2801)
2801 to 2808

Tan crystalline and tan cherty limes with no show and no odor.

DOUGLASS SHALE (Top 2813)

Grey to pale green soft shale.

2834 to 2850

Greenish micaceous sand with no show of oil and no odor.

BROWN LIME (Top 2875)
2875 to 2880

Tan crystalline and tan cherty lime with no show of oil and no odor.

LANSING-KANSAS CITY (Top 2892)
2892 to 2900

Tan poorly developed oolitic lime with a trace of free oil and no odor.

2904 to 2909

Tan fossiliferous and tan oolitic and oolitic limes with small shows of free oil and a faint odor.

DRILL STEM TEST NO. 1
2880 to 2914

TEST: 60-30-30-30. Weak intermittent blow throughout. SI 30". No blow - flushed tool, very weak blow for 5". Recovered 10' of very slightly oil specked mud.
PRESSURES: 41-61, 41-41, 61-41 Bhps.

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33-11-15w
4A' Foster

2922 to 2931

Tan, fairly well developed oolitic lime, no show of free oil and a faint odor.

DRILL STEM TEST NO. 2
2914 to 2948

TEST: 60-30-30-30. Weak blow throughout. SI 30". No blow - flushed tool, no help. SI 30". Recovered 60' of mud. PRESSURES: 41-41, 41-41, 82-41 Bhps.

2951 to 2960

Tan to grey cherty limes and scattered cherty oolitic lime, no shows of oil and no odor.

2965 to 2975

Brown cherty fossiliferous lime with no show of oil and no odor.

2981 to 2992

Brown crystalline fossiliferous and poorly developed oolitic limes, no show of oil and no odor.

3000 to 3007

White crystalline oolitic lime.

3009 to 3015

Tan oolitic and poorly developed oolitic lime.

3019 to 3024

Tan crystalline and tan, slightly vuggy cherty lime with a small show of black oil flake staining and no odor.

DRILL STEM TEST NO. 3
2936 to 3024

TEST: 30-30-15-30. Very weak blow for 5", flushed tool and had a very weak blow for 5". SI 30". No blow. SI 30". Recovered 20' of mud. PRESSURES: 62-62, 72-72, 855-815 Bhps.

3031 to 3039

Tan oolitic and poorly developed oolitic lime.

3050 to 3058

Tan cherty oolitic lime.

3072 to 3080

Tan crystalline and tan fossiliferous limes.

3086 to 3093

Tan cherty fossiliferous limes.

BASE-KANSAS CITY (Top 3132)

DRILL STEM TEST NO. 4
3024 to 3134

TEST: 30-30-15-30. Tool open with surge and had very weak blow for 5". Flushed tool - very weak blow for 5". SI 30". No blow - flushed tool, no help. SI 30". Recovered 10' of mud. PRESSURES: 72-82, 93-102, 257-163 Bhps.

33-11-1510
4'A' Foster

3143 to 3152	Tan and brown fresh cherts and tan crystalline limes.
3160 to 3166	Multi-colored shales and scattered tan cherts and tan crystalline limes.
3172 to 3180	Tan and brown crystalline limes and tan poorly developed oolitic limes.
3180 to 3185	Fine to large angular clear quartz sand grains bonded in lime.
3185 to 3189	Scattered pale green shales, few pieces of dolomitic lime.
3190 to 3194	Light and dark green shales, white and yellow cherts and grey translucent oolitic cherts.
3196 to 3204	Red shales and multi-colored cherts.
<u>ARBUCKLE (Top 3215)</u> 3215 to 3217	White and greyish medium crystalline dolomite. Scattered pieces of pyritized dolomite, fair intercrystalline porosity and scattered good intercrystalline porosity with a fair show of free oil and a fair odor.
<u>DRILL STEM TEST NO. 5</u> 3130 to 3217	TEST: 60-30-30-30. Weak blow for 10", flushed tool after 30" - no help. No blow. SI 30". No blow on second opening. SI 30". Recovered 30' of mud. PRESSURES: 72-72, 82-82, 185-144 Bhps.
<u>ROTARY TOTAL DEPTH @ 3217'</u>	

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33-11-15w
4'A' Foster

New 5½" casing was set at 3216', one foot into the Arbuckle and one foot off bottom with 200 sx common cement plus 10% salt.

The shoe joint is 35.08' in length and zero point is 5' AGL.

Sincerely,

A handwritten signature in cursive script that reads "Steven D. Angle". The signature is fluid and stylized, with the first name "Steven" and last name "Angle" being more prominent than the middle initial "D".

Steven D. Angle

PC

33 - (5 - 1) / w

DRILLING INFORMATION ON THE FOSTER "A" NO. 4

Drilling Contractor: Red Tiger Drilling Co.

Rig No. 3

Tool Pusher: Ross Crawford Jr.

Drillers: R. Crawford

R. Cox

J. Ball

Spud Date: July 6, 1983

Date of RTD: July 13, 1983

Surface Pipe: New 8-5/8" 24# set @ 606'

w/300 sx 60/40 Poz, 3% cc

2% gel. CDC.

Casing: New 5 1/2" 14# set @ 3216'

w/200 sx common +10% salt.

TOTAL FOOTAGE DRILLED PER DAY

Under surface at 4:30 A.M. on 7-7-83

1920	Feet	At	7:00 A.M.	On	7-08-83
2615	"	"	"	"	7-09-83
2914	"	"	"	"	7-10-83
2975	"	"	"	"	7-11-83
3120	"	"	"	"	7-12-83
3215	"	"	"	"	7-13-83
3217	Feet	At	7:02 A.M.	On	7-13-83

MUD RECORD

Surface - 30 sx Mud-Co gel, 4 sx hulls.

2490 - 5 sx Mud-Co gel, 80 sx salt clay, 30 sx starch, 3 sx hulls, 3 sx mud seal, 3 sx caustic soda.

2890 - 20 sx salt mud, 13 sx starch.

2948 - 5 sx starch.

3035 - 10 sx zeogel, 2 sx mud seal, 2 sx hulls, 1 sx preservative.

3180 - 10 sx zeogel, 5 sx starch, 10 sx salt clay.