

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

Re: Frontier Oil Company
Curry No. 1
SW SE SW 14-19S-15W
Barton County, Kansas

Dear Sir:

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

Drilling was supervised from 1600' to 3650', rotary total depth. Samples were examined from 1600' to 3650', 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	1916 GL	--	1921 KB
Anhydrite	871 to 886		(+1050)
Herrington	1778		(+143)
Winfield	1828		(+93)
Council Grove	2090		(-169)
Cottonwood	2217		(-296)
Brownville Lime	2503		(-582)
Tarkio Lime	2620		(-699)
Topeka	2898		(-977)
Heebner	3149		(-1228)
Brown Lime	3229		(-1308)
Lansing-Kansas City	3241		(-1320)
Base-Kansas City	3454		(-1533)
Sand	3544		(-1623)
Arbuckle	3561		(-1640)
Quartz	3600		(-1679)
RTD	3650		(-1729)

Structurally, on top of the Lansing-Kansas City, the Curry No. 1 ran 2' low to the Frontier Oil Company Button No. 1 located 660' to the south.

On top of the Quartz the Curry No. 1 ran 6' high to the Button No. 1.

ZONES OF INTEREST

HERRINGTON (Top 1778)
1778 to 1790

Tan fine crystalline lime with no show and no odor.

1800 to 1808

Tan crystalline junky hard lime with no show and no odor.

WINFIELD (Top 1828)
1828 to 1838

Tan sucrosic and brown sandy lime with no show and no odor.

DRILL STEM TEST NO. 1
1728 to 1850

TEST: 60-30-60-30. Very good blow throughout. SI 30". Very good blow throughout. SI 30". Recovered 250' of salt water.
PRESSURES: 83-145, 166-207, 477-477 Bhps.

FT. RILEY (Top 1927)
1927 to 1946

Tan crystalline lime with very good pinpoint porosity, no show of oil and no odor.

COUNCIL GROVE (Top 2090)
2090 to 2100

Tan crystalline slightly vuggy lime with no show of oil and no odor.

2100 to 2110

Scattered tan vuggy limes with no show and no odor.

2110 to 2114

Tan oolitic lime with no show and no odor.

COTTONWOOD (Top 2217)
2217 to 2224

Tan fossiliferous lime with no show and no odor.

2230 to 2243

Tan slightly vuggy crystalline lime with no show and no odor.

DRILL STEM TEST NO. 2
2094 to 2260

TEST: 30-30-120-30. Few bubbles - died. SI 30". Few bubbles - flushed tool at 15" and had a strong blow throughout. Recovered 520' of muddy water.
PRESSURES: 114-155, 197-321, 713-652 Bhps.

BROWNVILLE LIME (Top 2503)
2503 to 2510

Tan dense lime with no show and no odor.

2512 to 2517

Tan fossiliferous lime with no show and no odor.

TARKIO LIME (Top 2620)
2620 to 2628

Tan crystalline lime with no show and no odor.

2637 to 2644

Tan junky crystalline lime with no show and no odor.

2648 to 2652

Fine grey slightly micaceous sand with no show and no odor.

LOST CIRCULATION @ 2656'

DRILL STEM TEST NO. 3

2516 to 2700

TEST: 60-30-60-30. Strong blow immediately throughout. SI 30". Strong blow throughout. SI 30". Recovered 2100' of muddy water.
PRESSURES: 1236-1236, 1236-1236, 1236-1236 Bhps

TOPEKA (Top 2898)

2898 to 2908

Tan crystalline slightly silty, slightly fossiliferous lime.

2910 to 2920

Tan crystalline lime.

2933 to 2940

Tan crystalline silty, chalky lime with no show of free oil and a very faint odor.

DRILL STEM TEST NO. 4

2884 to 2960

TEST: 60-30-60-30. Very weak blow building to a weak blow throughout. SI 30". Weak blow throughout. SI 30". Recovered 150' of mud.
PRESSURES: 41-103, 82-124, 1012-1012 Bhps.
(Some plugging on both openings)

3095 to 3103

Tan crystalline oolitic lime.

HEEBNER SHALE (Top 3149)

DOUGLASS SHALE (Top 3178)

3218 to 3224

Fine grey micaceous sand with no show of oil and no odor.

BROWN LIME (Top 3229)

LANSING-KANSAS CITY (Top 3241)

3241 to 3249

Tan crystalline lime and scattered milky white cherts.

3255 to 3263

Tan crystalline limes.

3285 to 3294

Scattered white oolitic weathered lime with a trace of free oil and no odor.

3299 to 3308

Poorly developed oolitic lime with no show of oil and a few pieces of chalky white lime with a small show of black dead oil, no odor.

DRILL STEM TEST NO. 5

3234 to 3310

TEST: 60-30-60-30. Fair blow throughout.
SI 30". Fair blow throughout. SI 30".
Recovered 435' of muddy water.
PRESSURES: 62-114, 187-218, 1135-1135 Bhps.

3316 to 3330

Well developed oolitic tan lime with no show of oil and no odor.

3342 to 3350

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

3350 to 3355

Same as above.

3368 to 3378

Tan dense lime and scattered poorly developed oolitic lime with no show of oil and no odor.

3380 to 3386

Poorly developed, weathered lime with a trace of free oil and a faint odor.

3390 to 3400

Tan, weathered to vuggy oolitic lime with a fair to good show of free oil and a fair odor.

3403 to 3410

White, slightly vuggy oolitic and white weathered fossiliferous limes with fair shows of free oil and a good odor.

3411 to 3417

Well developed oolitic, slightly vuggy lime with a good show of free oil and a fair odor.

3421 to 3432

Fairly well developed oolitic lime with small shows of free oil and fair shows of plastic oil and barren oolitic lime with fair odors.

3440 to 3447

Barren oolitic lime and scattered crystalline tan lime with a fair show of free oil and a faint odor.

BASE-KANSAS CITY (Top 3454)

DRILL STEM TEST NO. 6

3340 to 3455

TEST: 60-30-30-30. Very weak blow for 45 minutes. SI 30". No blow - flushed tool, no help. SI 30". Recovered 10' mud.
PRESSURES: 41-62, 62-83, 311-207, Bhps.

3486 to 3492

Large clear and frosted loose quartz grains and sand clustered with a fair show of free oil and no odor.

3498 to 3500

Fresh grey hard chert.

DRILL STEM TEST NO. 7

3450 to 3500

TEST: 30-30-30-30. Few bubbles - flushed tool at 15 minutes. No help. SI 30". No blow. SI 30". Recovered 20' of mud.
PRESSURES: 207-207, 311-311, 311-311 Bhps.

3502 to 3510

Scattered clear quartz sand clusters with small show of free oil and no odor. Gray shales.

3510 to 3520

Multi-colored cherts and red shales

3520 to 3530

Multi-colored cherts and shales.

3530 to 3540

White and tan cherts.

SAND (Top 3544)

3544 to 3551

Tan to white rounded to angular quartz sand with a fair show of free oil in scattered sand clusters, multi-colored loose quartz sand clusters, sample had good odor.

DRILL STEM TEST NO. 8

3450 to 3551

TEST: 60-30-60-30. Gas to surface in 5 minutes gauged 1,064,000 CFPD.

20" 1,883,000 CFPD.

30" 1,450,000 CFPD.

40" 1,450,000 CFPD.

50" 1,450,000 CFPD.

60" 1,450,000 CFPD, with fine mist of mud.

SI 30".

2nd Opening.

10" 1,450,000 CFPD.

20" 1,450,000 CFPD.

30" 1,630,000 CFPD. Stabilized at 1,630,000

CFPD. SI 30". Recovered 375' black gas cut mud with smell of H₂S

PRESSURES: 311-311, 2415-415, 1032-1055 Bhps.

3554 to 3560

Clear to sub angular white dolomitic sand clusters with a trace of free oil and a good odor.

ARBUCKLE (Top 3561)

White glassy dolomite with a trace of free oil and a faint odor.

DRILL STEM TEST NO. 9

3551 to 3561

MISSRUN - Could not get to bottom with test tool.

DRILL STEM TEST NO. 9 (Rerun)
3551 to 3561

TEST: 60-30-60-30. Gas to surface in 16 minutes.

15" 10,000 CFPD.

30" 19,000 CFPD.

45" 19,000 CFPD.

60" 19,000 CFPD.

SI 30".

2nd Opening.

15" 26,890 CFPD.

30" 24,530 CFPD.

45" 26,890 CFPD.

60" 26,890 CFPD.

Recovered 50' of gas cut black mud with a scum of oil.

PRESSURES: 207-414, 207-414, 931-1039 Bhps.

3561 to 3571 (Arbuckle)

White glassy dolomite with traces of free oil and a faint odor.

DRILL STEM TEST NO. 10
3561 to 3571

TEST: 60-30-60-30. Strong blow in 10 minutes throughout. SI 30". Strong blow throughout. SI 30". Recovered 120' of heavy oil and gas cut mud, 180' clean gassy oil and 1230' salt water.

PRESSURES: 82-414, 430-660, 1116-1137 Bhps.

3571 to 3580

Loose clear to frosted rounded to angular sand with no show of free oil and a faint odor.

3580 to 3587

White medium crystalline dolomite with scattered shows of free oil and a faint odor.

3590 to 3596

White sand clusters with no show of free oil and a faint odor.

QUARTZ (Top 3600)
3600 to 3603

Scattered quartz with muscovite mica with no show of free oil and a faint odor.

3610 to 3620

Clear to frosted quartz with no show of free oil and no odor.

3620 to 3650

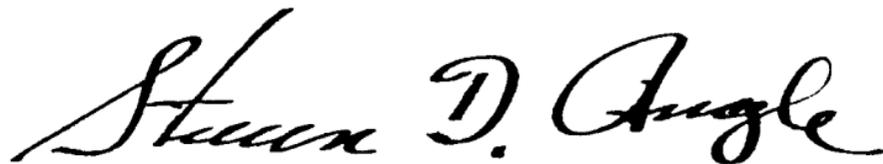
Clear to frosted, fractured quartz with no show of free oil and no odor.

ROTARY TOTAL DEPTH @ 3650

New 4½" casing was set at 3645.5', 45.5' into the quartz and 4.5' off bottom with 175 sx of 60/40 Pozmix, 2% Gel 3% CC.

The shoe joint is 41.90' in length and zero point is 5' above ground level.

Sincerely,

A handwritten signature in black ink that reads "Steven D. Angle". The signature is written in a cursive style with a large, sweeping initial "S".

Steven D. Angle