

CONFIDENTIAL

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33-16-16W

Pl

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GEOLOGICAL REPORT

FRONTIER OIL COMPANY

NO. 1 HARTMAN "B"
SW SE NE, 33-16S-16W
RUSH COUNTY, KANSAS

RECEIVED
STATE CORPORATION COMMISSION

JUL 15 1982

CONSERVATION DIVISION
Wichita, Kansas

Commenced: February 15, 1982

Date of RTD: February 25, 1982

RECEIVED
STATE CORPORATION COMMISSION

JUL 15 1982

CONSERVATION DIVISION
Wichita, Kansas

Richard D. Parker

Frontier Oil Company
1720 Kansas State Bank Bldg.
Wichita, Kansas 67202

Re: Frontier Oil Company
No. 1 Hartman "B"
SW SE NE, 33-16S-16W
Rush County, Kansas

Dear Sir:

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

Drilling was supervised from 2600' to 3580', rotary total depth. Samples were examined from 2600' 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.

| Elevation | 1967 DF | -- 1970 KB |
|---------------------|---------|------------|
| Anhydrite | 1054 | (+ 916) |
| Brownville Lime | 2604 | (- 634) |
| Tarkio Lime | 2706 | (- 736) |
| Howard | 2894 | (- 924) |
| Topeka | 2960 | (- 990) |
| Heebner | 3194 | (-1224) |
| Toronto | 3210 | (-1240) |
| Lansing-Kansas City | 3248 | (-1278) |
| Base of Kansas City | 3481 | (-1511) |
| Cherty Conglomerate | 3518 | (-1548) |
| Arbuckle | 3530 | (-1560) |
| RTD | 3580 | (-1610) |
| 4½" at | 3577 | (-1607) |

Structurally on top of the Topeka, the No. 1 Hartman "B" ran flat with the Garcia No. 1, a dry hole, located approximately one half mile Northeast. On top of the Lansing-Kansas City the No. 1 Hartman "B" ran 4' higher than the Garcia No. 1. On top of the Arbuckle the No. 1 Hartman "B" ran 36' higher than the Garcia No. 1.

ZONES OF INTEREST

BROWNVILLE LIME (Top 2604)
2650-2654

Tan fine crystalline to slightly vuggy lime with some pin point porosity. Trace of oil stain. (Included in DST #1)

33-16-16w
#18 Hartman

TARKIO LIME (Top 2706)
2720 to 2726

Light grey, silty, micaceous sand with no show of oil.

DRILL STEM TEST No. 1 (FOC Test)
2612 to 2802

60-30 Open 60 minutes with a weak blow throughout. Recovered 30' mud. Initial flows 136 to 165#. Shut in pressure 787#.

HOWARD (Top 2894)
2894 to 2902

White to light tan fine crystalline lime with no show of oil. (Included in DST #2)

TOPEKA (Top 2960)
2960 to 2970

Tan chalky to sucrosic lime with no show of oil.

DRILL STEM TEST No. 2 (FOC Test)
2870 to 2978

120-30 Open 120 minutes with strong blow. Recovered gas to surface in 75 minutes (TSIM), 330' watery mud. Initial flows 104 to 136#. Shut in pressure 330#.

3152 to 3164

White chalky to slightly oolitic with no show of oil.

DRILL STEM TEST No. 3 (FOC Test)
3118 to 3170

60-30 Open 60 minutes with a weak blow for 2 minutes. Recovered 50' watery mud. Initial flows 41 to 62. Shut in pressure 1000#.

TORONTO (Top 3210)
3210 to 3222

White fine crystalline lime with no show of oil. (Included in DST #4)

LANSING-KANSAS CITY (Top 3248)
3248 to 3254

Tan chalky to fine crystalline lime with no show of oil. (Included in DST #4)

3273 to 3276

White oolitic lime with a trace of oil stain, trace of free oil and no odor. (Included in DST #4)

3384 to 3390

White chalky to fine crystalline lime with no show of oil.

33-16-16w
1'B' Hartman

DRILL STEM TEST No. 4 (FOC Test)
3190 to 3306

60-30-60-30 First open fair blow.
Second open fair blow. Recovered
400' muddy salt water. Initial flows
104 to 207#. Final flows 207 to 311#.
Initial shut in pressure 1024#. Final
shut in pressure 994#.

3316 to 3320

White oolitic lime with scattered show
of free oil, very spotted light stain
and a faint odor. (Included in DST #5)

3330 to 3336

Tan oolitic lime with scattered show
of free oil, spotted dark stain and
a fair odor. (Included in DST #5)

3342 to 3350

White oolitic to oolitic lime with
a trace of free oil and a faint odor.
(Included in DST #5)

3370 to 3376

White chalky to tan cherty lime with
no show of oil. (Included in DST #5)

3388 to 3396

Tan fine crystalline to dense, slightly
fossiliferous lime with traces of
free oil, trace of light stain and a
fair odor.

DRILL STEM TEST No. 5 (FOC Test)
3300 to 3400

60-30-60-30 First open fair blow.
Second open fair blow. Recovered 240'
mud with a few specks of oil on top
of tool. Initial flows 83 to 145.
Final flows 145 to 166. Initial shut
in pressure 1117#. Final shut in
pressure 1076#.

3404 to 3412

White oolitic lime with a trace of
free oil, trace of dark stain and no
odor. (Included in DST #6)

3422 to 3426

Tan fine crystalline lime with a
trace of oil stain. (Included in DST#6)

3440 to 3445

Tan oolitic lime with scattered
show of free oil, spotted dark stain
and no odor.

33-16-16w p1
1'8' Hartman

DRILL STEM TEST No. 6 (FOC Test)
3396 to 3444

60-30-60-30 First open strong blow. Second open strong blow. Recovered 1480' gas in pipe, 470' heavy oil and gas cut mud. Initial flows 51 to 134. Final flows 145 to 186. Initial shut in pressure 1086#. Final shut in pressure 1076#.

3454 to 3460

Tan, dense lime with no show of oil.

DRILL STEM TEST No. 7 (FOC Test)
3436 to 3460

60-30-60-30 First open strong blow. Second open strong blow. Recovered 1420' gas in pipe, 20' heavily oil and gas cut mud, 250' heavy oil. Initial flows 41 to 83. Final flows 145 to 166. Initial shut in pressure 994#. Final shut in pressure 1034#.

3464 to 3472

White chalky lime with no show of oil.

DRILL STEM TEST No. 8 (FOC Test)
3452 to 3490

60-30-60-30 First open weak blow. Second open weak blow to no blow in 20 minutes. Recovered 60' mud. Initial flows 41 to 62. Final flows 62 to 83. Initial and final shut in pressure 104#.

ARBUCKLE (Top 3530)
3530 to 3535

White medium to coarse crystalline dolomite some slightly sandy with a scattered show of free oil faint odor and spotted light stain. Along with the dolomite was well rounded to sub rounded sand grain that were clear to frosted. No visible oil on the loose sand grains.

DRILL STEM TEST No. 9 (FOC Test)
3452 to 3535

60-30 Open 60 minutes with a weak blow for 30 minutes. Recovered 10' mud. Initial flows 62 to 83. Shut in pressure 1044#.

33-16-16w
1 'B' Hartman

P1

4-1/2" pipe was set at 3577', 47' in the Arbuckle and 3' off bottom with 275 sacks of common cement 10% added salt. A Halliburton DV tool was set at 1070', with 550 sacks of 50-50 pozmix cement. Zero point is 5' AGL and the shoe joint is 38-60' long.

Sincerely,

Richard D. Parker
Richard D. Parker *se*

DRILLING INFORMATION ON THE HARTMAN "B" NO. 1

Drilling Contractor: Red Tiger Drilling Co.

Drillers: Ochs
Ogle
Bates

Tool Pusher: W. C. Ogle

Spud Date: February 15, 1982

Date of RTD: February 25, 1982

Surface Pipe: 8-5/8" at 245'/160 sx

Casing: 4-1/2" at 3577'/275 sx
DV at 1070'/550 sx

TOTAL FOOTAGE DRILLED PER DAY

Under surface at 2:15 AM on February 16, 1982

| | Feet | At | 7:00 A.M. | On | |
|------|------|----|-----------|----|---------|
| 1025 | " | " | " | " | 2-16-82 |
| 2100 | " | " | " | " | 2-17-82 |
| 2665 | " | " | " | " | 2-18-82 |
| 2888 | " | " | " | " | 2-19-82 |
| 3098 | " | " | " | " | 2-20-82 |
| 3265 | " | " | " | " | 2-21-82 |
| 3400 | " | " | " | " | 2-22-82 |
| 3444 | " | " | " | " | 2-23-82 |
| 3490 | " | " | " | " | 2-24-82 |
| 3580 | " | " | 6:20 A.M. | " | 2-25-82 |

BIT RECORD

| <u>Bits</u> | <u>Type</u> | <u>Footage</u> |
|-------------|-------------------|----------------|
| #1 | Smith - DTJ | 246 to 1766 |
| #2 | HTC - J22 | 1766 to 3170 |
| #3 | HTC - J22 (ReRun) | 3170 to 3580 |

33-16-16w
1'B' Hartman

MUD RECORD

| | |
|----------|---|
| Surface: | 20 sx aquagel, 3 sx lime, 4 sx hulls |
| 2665 | 40 sx zeogel, 30 sx starch, 5 sx hulls, 2 sx aldacide |
| 2978 | 15 sx zeogel, 10 sx starch, 2 sx hulls |
| 3170 | 15 sx zeogel, 10 sx starch |
| 3326 | 30 sx zeogel, 25 sx starch, 2 sx hulls |
| 3490 | 25 sx zeogel, 15 sx starch, 2 sx hulls |
| 3500 | 15 sx zeogel, 10 sx starch, 2 sx hulls |