

508122

WILLIAM R. ATKINSON

Geologist

P. O. Box 1142 Phone MAin 4-1673

14 West Second Street

Res. Ph. MAin 4-2257

LIBERAL, KANSAS 67901

GEOLOGICAL REPORT

Bruce Calder

Evans #1-29

C SW NE Sec. 29-34S-30W
Meade County, Kansas

by

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Commencement Date: 6/2/69
 Completion Date: 6/28/69
 Elevation: 2642 K.B.
 2632 G.L.
 Total Depth: 6460 Driller
 6461 Schlumberger
 Contractor: Sage Drilling Co., Rig #3
 Electrical Surveys: Schlumberger Dual Induction Laterolog, BHC
 Sonic Log, Gamma-Ray Caliper
 Casing: Surface: 8 5/8" @ 1421'
 Production: None
 Special Equipment: Baroid Gas Detecting Equipment from
 approximately 2900' to T.D.

Drilling of this hole was witnessed and samples examined by the writer from a depth of approximately 4350' to total depth. One foot drilling time was recorded and plotted from 2600' to total depth.

FORMATION TOPS AND STRUCTURAL COMPARISONS

	Bruce Calder Horizon Oil & Gas #1-29 Evans, C SW NE Sec. 29-34S-30W	Horizon Oil & Gas Adams #1-32, NE NE Sec. 32-34S-30W	Relative Position
Wreford	3020 (-378)	2992 (-357)	21' low
Council Grove	2076 (-434)	3047 (-412)	22' low
Heebner Shale	4394 (-1752)	4364 (-1729)	23' low
Toronto	4424 (-1782)	4392 (-1757)	25' low
Lansing	4548 (-1906)	4520 (-1885)	21' low
Lansing "A" Zone			
Porosity	4560 (-1918)	4530 (-1895)	23' low
Kansas City Drum	4831 (-2189)	4800 (-2165)	24' low

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Dewey	4850 (-2208)	4821 (-2186)	22' low
Dewey Porosity	4856 (-2214)	4829 (-2194)	20' low
Hodges	5046 (-2404)	5008 (-2373)	31' low
Checkerboard	5162 (-2520)	5128 (-2493)	27' low
Marmaton	5260 (-2618)	5234 (-2599)	19' low
Cherokee	5464 (-2822)	5442 (-2807)	15' low
Keating Zone	5604 (-2962)	5582 (-2947)	15' low
Morrow Shale	5806 (-3164)	5784 (-3149)	15' low
Mississippian Chester	5928 (-3286)	5888 (-3253)	33' low
Chester Correlation			
Point	5990 (-3348)	5952 (-3317)	31' low
Basal Chester Sand	6178 (-3536)	6144 (-3509)	27' low
Ste. Genevieve	6234 (-3592)	6176 (-3541)	51' low
St. Louis "A" Zone	6334 (-3692)	6280 (-3645)	47' low
St. Louis "B" Zone	6414 (-3772)	6337 (-3702)	70' low

SAMPLE DESCRIPTIONS

(All depths given are corrected to electric log depths.)

Toronto

4424-4444

Light to medium gray, fine to coarse crystalline, fossiliferous, slightly chalky limestone with good visible, small vug and intercrystalline porosity in part. Bright yellow fluorescence, which was believed to be mineral fluorescence, with no cut in carbontetrachloride was logged. Mud gas increases of 8-12 units of methane were logged at 4429 and 4440. Gas readings declined to zero from 4433-4437.

The above interval was covered by drill stem test no. 1.

D.S.T. #1 4401-4443; corrected log depths 4407-4449

Tool open 30 minutes with weak blow which increased to fair.

Shutin 40 minutes for closed in pressure.

Tool open 90 minutes with fair blow, no gas to surface.

Shutin 60 minutes for closed in pressure.

Recovered 3360 feet of gas in drill pipe, 120 feet gas cut mud, 120 feet oil and gas cut mud and 360 feet oil cut salt water.

ISIP 1079 in 40 min.

FP 108-135 and 188-357

FSIP 1216 in 60 min.

HM 2370-2370

BHT 124°

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Chlorides of recovered mud and salt water

Top - 25,000 ppm cl

Middle - 47,000 ppm cl

Bottom - 140,000 ppm cl, Rw = .037 @ 110°

Lansing

4548

Lansing "A" Zone Porosity

4560-4574

Light gray, fine crystalline, rough to mealy textured, slightly chalky, slightly fossiliferous, slightly dolomitic limestone with good intercrystalline and small vug porosity. Coarsely calcitic in part. Trace of white opaque, sharp chert. Some visible fractures in the limestone.

Tan oil stain in dry samples, good fluorescence and good cut and very slight oil odor in wet samples. Poor to no show of free oil in wet samples.

A maximum mud gas increase of 7 units of methane was logged from 4460 to 4468 where drilling was suspended and drill stem test numbers 2 and 3 were conducted.

D.S.T. #2 4549-4558, corrected log depths 4557-4566
Misrun, tool would not go below approximately 4430'.

D.S.T. #3 4557-4566, corrected depths.

Tool open 30 minutes with fair blow.

Shutin 45 minutes.

Tool open 60 minutes with fair blow, which lasted throughout. No gas to surface.

Shutin 60 minutes.

Recovered 90 feet of gas cut mud, 60 feet of oil and gas cut mud and 480 feet of gas cut salt water.

ISIP 1271 in 45 minutes.

PSIP 1299 in 60 minutes.

FP 27-54 and 54-296

HH 2287-2261

Chlorides of recovered mud and water:

Top - 32,000 ppm cl.

Middle - 122,000 ppm cl.

Bottom - 140,000 ppm cl., Rw = .035 @ 110°

Mud system chlorides before test = 30,000 ppm cl.

Kansas City (Drum)

4831-4847

Light gray, cream and light tannish very fine crystalline, very chalky, finely colitic and oolitic limestone with

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fair to good porosity, slight spotted stain and very slight cut between 4833 and 4836. Remainder of interval was gray to light cream, very chalky, dense limestone with streaks of oolitic limestone as described above. No mud gas increases were logged.

Dewey

4850

Dewey Porosity

4856-4866

Light gray to light tannish very fine crystalline, rough to mealy textured slightly chalky limestone with small indistinct oolites and oolite casts. Fair visible porosity, a few visible fractures. Very light oil stain, slight fluorescence and cut, slight oil odor in wet samples. No mud gas increases were recognizable on the gas recorder chart.

A few pieces of dark gray, coarse crystalline, glauconitic, chalky, slightly oolitic limestone was noted throughout the interval. Drilling was suspended at 4862 and drill stem test number 4 was conducted at that depth.

D.S.T. #4 4849-4856, corrected log depths 4855-4862.

Tool open 30 minutes with good blow.

Shutin 45 minutes.

Tool open 60 minutes with good blow which decreased to fair. No gas to surface.

Shutin 45 minutes.

Recovered 60 feet of oil and gas cut mud and 1300 feet of salt water.

ISIP 1435 in 45 minutes.

FSIP 1351 in 45 minutes.

FP 228-323 and 393-642

HH 2401-2391

Chlorides of recovered fluid:

Top - 64,000 ppm cl.

Middle - 132,000 ppm cl.

Bottom - 132,000 ppm cl., $R_w = .034 @ 110^\circ$

Hodges

5046-5094

Gray dense, chalky, slightly fossiliferous, slightly oolitic limestone. No visible porosity, no shows.

5100-5118

Gray to tannish gray, fine crystalline, oolitic, fossiliferous limestone, fair to good intercrystalline and

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oolitic and some small vug porosity. Some tan pieces appeared to be oil stained, but displayed no fluorescence, cut, odor or mud gas increases. Some large, black centered oolites were logged.

5126-5142

Tan and gray, fine crystalline, oolitic and oolitic porous lime. No oil in wet samples, no fluorescence, no cut, no gas increases. Dry samples displayed what appeared to be spots of dark oil stain, but as mentioned above, displayed none of the characteristics of live oil residue.

Drilling was suspended and samples circulated out of the hole at 5107 and again at 5136.

Because slight shows of oil, such as described above, have been logged in the Hodges in other wells in this immediate area without there being any methane mud gas increases logged by gas detecting equipment on the subject wells, the gas unit on the #1 Evans was operated so as to record methane gas and total gas rather than methane gas and 0.65 readings as is normal or customary procedure in the area. Although the Hodges, where productive, is known to display methane gas in productive intervals, it was felt that in the immediate area of the #1 Evans the Hodges could possibly contain oil which contained only wet gases heavier than methane.

Although the recorded total gas readings varied somewhat while drilling the Hodges interval, no fluctuations large enough to be the result of anything other than normal variations in the mud system were recorded.

Checkerboard

5162-5180

Light tan, fine crystalline limestone with fine to medium size oolites and oolitic. Good oolitic and inter-crystalline porosity. Some interbedded streaks of dense, chalky nonporous limestone. No shows, no mud gas increases.

Marmaton

5260-5276

Brown microcrystalline, dense, nonporous limestone interbedded with traces of brown, fine crystalline, soft limestone and white to gray, chalky, slightly oolitic limestone. No shows, no gas increases.

- 5282-5304 White to gray, coarse crystalline, chalky, oolitic limestone. Medium to large oolites. Small vug, collicastic and intercrystalline porosity. No shows, no gas increases.
- 5384-5390 Gray, very fine crystalline, mealy textured, chalky limestone with very small vug and some very small collicastic porosity. Light tan oil stain, fair fluorescence and cut. Three unit methane mud gas increase. Log calculations: 6 $\frac{1}{2}$ -7 $\frac{1}{2}$ % porosity; 100% water saturation.
- 5400-5409 Medium gray, slightly mottled, fine crystalline to coarsely chunky, slightly chalky limestone with very small collicastic porosity. Slight spotted oil stain. Very slight fluorescence with a trace of cut. One unit methane mud gas increase. Log calculations: 6-7% porosity; 87-89% water saturation.

Cherokee Keating Zone

- 5604-5618 Gray and brown microcrystalline, calcitic, fossiliferous, slightly chalky, nonporous limestone with a few visible fractures. From 5612-5616 the zone consisted of light gray, very fine crystalline, calcitic, slightly fossiliferous limestone with only fair, small intercrystalline, vug and fossilcast porosity with good fluorescence and cut and light oil stain. A 15 unit methane gas increase was logged between 5612-5616.

Because of the small amount of relatively low quality porosity developed in the above interval, which is oil productive in the Horizon Oil and Gas #1-32 Adams well offsetting the #1-29 Evans, it was decided to drill the next limestone bed below the Keating zone in hopes that there might be some additional porosity developed in it and then drill stem test both zones together.

- 5624-5636 Mostly light gray, very fine crystalline, slightly chalky, fossiliferous limestone with only a trace of poor to fair vug and fossilcast porosity with good fluorescence and cut. Some dark brown to gray, dense, nonporous, cherty limestone interbedded with above described light gray limestone. No mud gas increases.

D.S.T. #5 5603-5632, corrected log depths 5607-5636.
Tool open 30 minutes with fair blow.
Shut in 30 minutes.
Tool open 60 minutes with fair blow, decreasing to weak at end.

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Shutin 45 minutes.

Recovered 2,500 feet GIP, 60 feet slightly gas and oil cut thin watery mud and 180 feet slightly oil cut salt water.

IRIP 1191 in 30 minutes.

FSIP 1191 in 45 minutes.

FP 33-48 and 65-119.

HH 2834-2800

BHT 126°

Chlorides of recovered water = 128,000 ppm cl.

Rw = .038 @ 110°

Mud system chlorides = 36,600 ppm cl.

Upper Morrow Sand

5826-5836

Clear, fine grained, angular quartz sandstone. No visible porosity, but friable clusters in part. No fluorescence or cut. Eleven unit methane gas increase from 5829-5834.

Middle Morrow Sand Zone

5849-5864

Tan to dark brown, coarse crystalline, coarsely crinoidal, glauconitic sandy limestone with interbedded gray to greenish-gray, glauconitic, tight, fine grained, lime cemented sandstone. No visible porosity, no shows, no gas increases.

A few scattered pieces of brown, very very fine crystalline, dense limestone which displayed bright yellow oil fluorescence and good cut, but no visible porosity were logged in this interval.

The above Morrow zones were covered by drill stem test number 6.

D.S.T. #6 5799-5870, corrected to log depths, 5802-5873.

Tool open 90 minutes with weak steady blow throughout.

No gas to surface.

Shutin 60 minutes.

Recovered 510 feet GIP and 30 feet GCM

IRIP 110 in 60 minutes.

FP 44-44

HH 2969-2946

BHT 128°

Upper Chester Limestone

5954-5964

Gray to tan, medium crystalline, chalky, crinoidal, slightly oolitic limestone. Very little to no visible

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porosity, no fluorescence or cut. Twelve unit methane gas increase from 5955-5962.

Because of the poor porosity and relatively small gas increase logged in this zone, it was not deemed worthy of drill stem testing.

Basal Chester Sand

6178-6206

White, gray and clear, fine grained, angular, quartz sand. White where lime cemented, clear where clean. Good show of live brown oil in clean portions. Fair visible porosity from 6172 to 6178. Cuttings would bubble live oil and gas on fresh breaks. Spotted dark oil stain, fair fluorescence and good cut, poor visible porosity in limey portion. Thirteen units of methane logged between 6179 and 6188 and 6 units from 6194-6206.

D.S.T. #7 6176-6209, corrected to log depths 6180-6213.

Tool open 30 minutes with very weak blow.

Shutin 45 minutes.

Tool open 15 minutes with a few bubbles and died in 5 minutes.

Shutin 45 minutes.

Recovered 10 feet mud.

ISIP 33

PSIP 33

FP 33-33 and 33-33

HH 3080-3074

ENT 134°

Ste. Genevieve

6234-6308

White to light gray, chalky, fine crystalline, finely sandy, micro-oolitic tight limestone.

6308-6322

White to light gray, fine crystalline, slightly sandy, chalky limestone with a few fine to medium sized oolites. Much gray subtranslucent sharp chert. No visible porosity. Slight spotted stain on a few pieces in dry samples, no free oil in wet samples. Fair fluorescence and cut in part. One to two unit methane gas increase from 6311-6321.

The above described show was not judged worthy of drill stem testing.

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St. Louis
6334-6354

Gray to tannish gray, medium crystalline, tight, medium oolitic limestone. Very cherty, white, gray, tan, translucent to opaque, sharp, slightly fossiliferous, speckled chert. No visible porosity. No shows.

6354-6390

White to gray, very fine crystalline, finely sandy, micro-oolitic, chalky limestone. Much like Ste. Genevieve above. Becoming darker gray and less sandy at bottom of interval. No shows. No gas increases.

6390 to T.D.

Medium to dark gray, dense, medium crystalline, tight, slightly chalky, slightly cherty limestone. Orange and tan sharp chert. No visible porosity. No shows.

Conclusion:

Due to the lack of favorable results or shows in the several drill stem tests, poor log calculations and relatively low structural position of all prospective producing horizons, the #1-29 Evans was plugged and abandoned as a dry hole.

Original signed by:
W. R. Atkinson

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