

15-101-22100

27-19s-30w

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GEOLOGICAL REPORT

Larson Operating Company

Freeman No. 1-27
460' FNL & 708' FWL Sec. 27-19S-30W
SE NW NE NE
Lane County, Kansas

CONTRACTOR: H D Drilling, LLC
SPUDDED: 05-31-08
DRILLING COMPLETED: 06-11-08
SURFACE CASING: 8 5/8" @ 287 KBM/175 sx.
ELECTRIC LOGS: Log-Tech CDN DIL ML
ELEVATIONS: 2898 KB 2893 GL
FORMATION TOPS (Electric Log):

Anhydrite	2171 (+ 727)
Base Anhydrite	2229 (+ 669)
Heebner Shale	3931 (-1033)
Lansing-Kansas City Group	3974 (-1076)
Muncie Creek Shale	4154 (-1256)
Stark Shale	4265 (-1367)
Hushpuckney shale	4302 (-1404)
Base Kansas City	4347 (-1449)
Marmaton	4379 (-1481)
Altamont	4399 (-1501)
Pawnee	4474 (-1576)
Myrick Station	4493 (-1595)
Fort Scott	4516 (-1618)
Cherokee	4537 (-1639)
Mississippian	4601 (-1703)
Electric Log Total Depth	4700 (-1802)

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Samples were examined microscopically from 3800 to Rotary Total Depth. Samples were examined wet and dry and samples from potentially productive zones were viewed under a fluoroscope and checked for oil cut. Following is a description of zones of interest, Drill Stem Tests, etc. For a complete lithologic description of all formations, refer to the sample log in the back pages of this report.

Lansing-Kansas City Zones:

3979-3985 (A Zone)

Limestone, cream to buff, dense and chalky, some finely crystalline with poor intercrystalline porosity, no show of oil.

4016-4032 (B Zone)

Limestone, cream to buff, dense to finely crystalline and chalky, scattered very poor intercrystalline porosity with spotted dead stain, no live shows of oil.

4034-4061 (C-D Zone)

Limestone, cream, dense and chalky, trace of dead stain in upper portion, mostly tight, no show of live oil.

4064-4070 (E Zone)

Limestone, cream to buff, some tan, dense to finely crystalline and chalky, slightly fossiliferous, scattered poor intercrystalline and interfossil porosity with a trace of dead stain, no show of live oil.

4073-4096 (F Zone)

Limestone, cream to buff, dense and chalky, section from 4082-4085 is finely crystalline and chalky with a trace of very poor intercrystalline porosity and trace of dead oil stain. Electric log indicates zone is not clean, and no live oil shows were present. Zone contains scattered chert, light gray, fresh, opaque.

4100-4108 (G Zone)

Limestone, buff, finely crystalline and oolitic, poor to fair ooliticastic porosity, no show of oil.

4172-4178 (H Zone)

Limestone, cream to buff to brown, dense to finely crystalline with scattered chalky, trace of very poor intercrystalline porosity, no show of oil.

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4200-4227 (I Zone)

Limestone, tan to brown, dense to finely crystalline and partly oolitic, some scattered cream chalky, poor intercrystalline and interoolitic porosity, no show of oil. Section from 4212-4216 calculates borderline on the electric log but the zone contained no shows of oil.

4244-4251 (J Zone)

Limestone, buff to tan, finely crystalline and oolitic, fair ooliticastic porosity, no show of oil.

4282-4285 (K Zone)

Limestone, brown, dense, partly oolitic with dense-oolitic, zone is mostly tight with no shows of oil.

4305-4309 (Middle Creek Zone)

Limestone, buff to tan, dense to finely crystalline, slightly fossiliferous, zone is mostly tight with no shows of oil.

4314-4317 (L Zone)

Limestone, buff to tan, finely crystalline and fossiliferous, some oolitic, poor intercrystalline, interfossil, and interoolitic porosity, scattered poor spotted stain, slight show of free oil, faint fleeting odor, rainbow show of oil, no fluorescence, poor cut, rare crystal overgrowth attached to finely crystalline fragment.

Drill Stem Test No. 1

4302-4317

Open 15 minutes, shut in 30 minutes, open 30 minutes, shut in 60 minutes; weak blow, died in 13 minutes. Recovered two feet of mud. ISIP 1157# FSIP 1156# IFP 16-17# FFP 18-21# IHP 2163# FHP 2137# BHT 122 degrees.

4347-4399 (Pleasanton-Marmaton Zones)

This interval consisted of buff to tan and brown limestones, dense to finely crystalline with occasional streaks of cream chalky limestone, section is mostly tight with no shows of oil.

4399-4421 (Altamont "A")

Limestone, cream to buff, finely crystalline and slightly fossiliferous, scattered poor intercrystalline and interfossil porosity, trace of poor spotted stain, very slight show of free oil, no odor, no fluorescence, poor cut.

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4423-4441 (Altamont "B")

Limestone, cream to buff, dense to finely crystalline, some oolitic, poor intercrystalline and interoolitic porosity, scattered poor light spotted stain, faint odor, very slight show of free oil, no fluorescence, poor cut.

Drill Stem Test No. 2 4371-4440

Open 15 minutes, shut in 30 minutes, open 30 minutes, shut in 60 minutes; quarter inch blow died back to a weak surface blow on first flow, did not return on second flow.

Recovered five feet of mud. ISIP 1098# FSIP 1101# IFP 23-28# FFP 30-37# IHP 2230# FHP 2159# BHT 121 degrees.

4445-4468 (Altamont "C")

Limestone, buff to tan, dense to finely crystalline, some scattered oolitic and dense-oolitic, some pyrite, zone is mostly tight with no shows of oil.

4474-4491 (Pawnee)

Limestone, cream, some buff, fine to medium crystalline and oolitic, partly fossiliferous, fair to good vugular and intercrystalline porosity, fair to good spotted stain, good show of free oil, good odor, fair fluorescence, good cut.

Drill Stem Test No 1 4457-4491

Open 15 minutes, shut in 30 minutes, open 30 minutes, shut in 60 minutes; weak blow, died in seven minutes, did not return on second flow. Recovered one foot of mud.

ISIP 97# FSIP 141# IFP 18-17# FFP 17-18# IHP 2305# FHP 2232# BHT 121 degrees.

4493-4510 (Myrick Station)

Limestone, brown to mottled brown, dense, some finely crystalline, mostly tight, very slight show of free oil, trace of poor spotted stain on fracture faces, no odor, no fluorescence, no cut.

4516-4537 (Fort Scott)

Limestone, buff, finely crystalline and fossiliferous, slightly oolitic, scattered poor to fair intercrystalline and interfossil porosity with scattered light spotted stain, very slight show of free oil, faint odor, no fluorescence, poor cut. Lower portion has poor spotted stain on fracture faces and in poor intercrystalline porosity in finely crystalline, dense and dense-oolitic limestone, very slight show of free oil, faint odor, no fluorescence, poor cut.

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4540-4554 (Cherokee Lime)

Limestone, buff to tan, some brown, dense to finely crystalline, fair intercrystalline porosity, fair spotted stain, slight show of free oil, faint odor, no fluorescence, poor cut.

4562-4591 (Johnson Zone)

Limestone, buff to tan, dense to finely crystalline, poor to fair intercrystalline porosity, some poor vugular porosity, poor to fair spotted stain, fair to good show of free oil, good odor, some spotted stain on fracture faces, poor fluorescence, fair to good cut.

Drill Stem Test No. 4 4519-4592

Open 15 minutes, shut in 30 minutes, open 45 minutes, shut in 90 minutes; one and one-quarter inch blow on first flow, built to two and one-quarter inch blow on second flow, no blowbacks. Recovered 80 feet of oil cut mud (20% oil, 80% mud). ISIP 1063# FSIP 1143# IFP 23-36# FFP 44-60# IHP 2357# FHP 2264# BHT 126 degrees.

4592-4601 (Detrital Zone)

Varicolored shale with trace of fine grained glauconitic sand, tight and well cemented, no show of oil.

4601-4653 (Mississippian)

Limestone, cream to buff, finely crystalline, flaky and chalky, trace of finely oolitic with trace of dead stain, zone mostly tight, no show of live oil.

4653-4700

Dolomite, buff to tan, finely crystalline and fossiliferous, slightly oolitic, poor to fair intercrystalline porosity, no show of oil.

Conclusions and Recommendations:

The following zones should be perforated and production tested:

Johnson Zone	4588-4590
Cherokee Lime	4549-4551
"I" Zone	4211-4215
"F" Zone	4181-4185

Respectfully submitted,

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Petroleum Geologist

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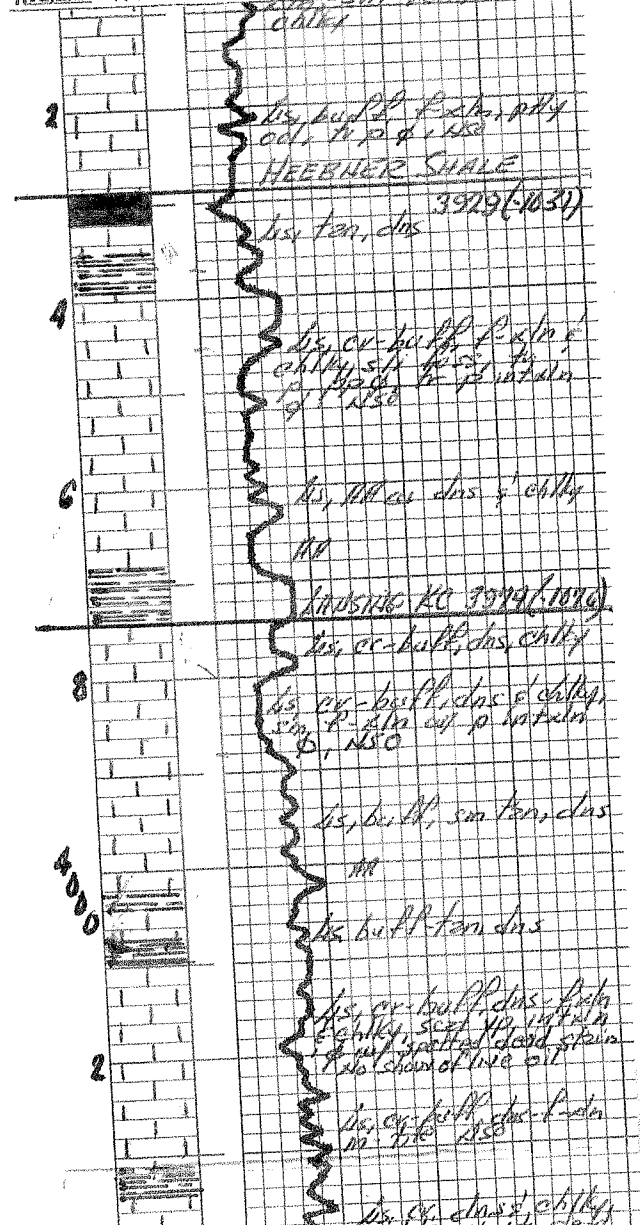
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STATE **KANSAS** COMPANY **LARSON ENGINEERING, INC.**
 COUNTY **LANE** FARM **FREEMAN** WELL NO. **1-27**
 BLOCK **160' FNL & 708' FEL** SURVEY
 SEC. **27** TOTAL DEPTH **4700**
 T. **19S** R. **30W**
 CONTRACTOR **H D Drilling, LLC**
 COMMENCED **05-31-08**
 COMPLETED **06-11-08**

ALTIMITUDE **2898 KB** REMARKS **Robert C. Jewell, Geol**
 PRODUCTION **Oil**

CASING RECORD
8 5/8" @ 287 KBM / 195.5x

SHOT QUARTS BETWEEN
 TIME RATE SCALE: 1/10" = MINUTES
Heaterbill 450-A TULSA, OKLAHOMA 74101 PRINTED IN U.S.A.



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