

# Robert C. Lewellyn

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## GEOLOGICAL REPORT

### Larson Engineering, Inc.

Joyce No. 1-17  
273' FNL & 2000' FWL Sec. 17-19S-28W  
Lane County, Kansas

CONTRACTOR: H D Drilling, LLC  
SPUDED: May 01, 2010  
DRILLING COMPLETED: May 14, 2010  
SURFACE CASING: 8 5/8" @ 261 KBM/175 sx,  
ELECTRIC LOGS: Log-Tech DIL CNL/CDL MEL  
ELEVATIONS: 2784 KB 2777 GL  
FORMATION TOPS (Electric Log):

|                           |              |
|---------------------------|--------------|
| Anhydrite                 | 2126 (+ 658) |
| Base Anhydrite            | 2153 (+ 631) |
| Heebner Shale             | 3957 (-1173) |
| Lansing-Kansas City Group | 3999 (-1215) |
| Muncie Creek Shale        | 4177 (-1393) |
| Stark Shale               | 4283 (-1493) |
| Hushpuckney shale         | 4322 (-1538) |
| Base Kansas City          | 4368 (-1584) |
| Altamont                  | 4412 (-1628) |
| Pawnee                    | 4487 (-1705) |
| Myrick Station            | 4508 (-1724) |
| Fort Scott                | 4535 (-1751) |
| Cherokee                  | 4558 (-1774) |
| Mississippian             | 4636 (-1852) |
| Electric Log Total Depth  | 4668 (-1884) |

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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:

4004-4012 (A Zone)

Limestone, cream to buff, dense with scattered finely crystalline, slightly fossiliferous, much chalky, trace of scattered gilsonite in very poor intercrystalline porosity, no show of live oil.

4037-4045 (B Zone)

Limestone, cream to buff, dense to finely crystalline with much chalk, fossiliferous with trace of oolitic, some black shale inclusions, poor scattered intercrystalline and interfossil porosity, no show of oil.

4054-4057 & 4072-4076 (C/D Zone)

Limestone, cream to buff, dense and chalky, some finely crystalline, slightly fossiliferous, scattered poor intercrystalline porosity, no shows of oil, much white, opaque, fresh chert with light gray, fresh, sub-translucent chert.

4090-4095 (E Zone)

Limestone, cream to buff, dense to finely crystalline, much chalk, partly fossiliferous, scattered poor intercrystalline porosity, no show of oil, trace of chert as above.

4100-4114 (F Zone)

Limestone, cream to buff, finely crystalline, much chalky, trace of scattered oolitic lime, trace of very poor intercrystalline porosity with scattered traces of dead stain, no shows of live oil.

4116-4136 (G Zone)

Limestone, cream to buff, some tan, finely crystalline and coarsely oolitic, fair to good ooliticastic porosity, no show of oil, some scattered white chert and dense to chalky limestone in lower portion.

4194-4226 (H Zone)

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Limestone, tan, some brown, dense, some cream chalky, some finely crystalline, zone is mostly tight with only a trace of very poor intercrystalline porosity, zone becomes dense in lower part, no show of oil.

4231-4246 (I Zone)

Limestone, very slightly dolomitic, buff to tan, dense to finely crystalline, partly fossiliferous, fair intercrystalline and interfossil porosity, poor to fair spotted stain, fair to good show of free oil, fair odor, poor to fair fluorescence, fair cut.

Drill Stem Test No. 1

4226-4240

15-30-15-30; weak surface blow on first flow; blow did not return on second flow; recovered two feet of oil spotted mud. ISIP 18# FSIP 16# IFP 14-16# FFP 15-16# IHP 2106# FHP 2067# BHT 117 degrees.

4218-4239 (J Zone)

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

4286-4304 (K Zone)

Limestone, buff to tan, dense to finely crystalline and fossiliferous in part, some slightly oolitic, fair intercrystalline porosity with scattered interoolitic porosity, poor to fair spotted stain, fair show of free oil, good odor, fair fluorescence, good cut, trace of coarsely oolitic limestone, some clusters of large oolites.

Drill Stem Test No. 2

4281-4302

15-30-30-60; blow built to bottom of bucket in 5 ½ minutes, no blowback; blow built to bottom of bucket in nine minutes, no blowback; recovered 270 feet of muddy water (70% water, 30% mud) and 450 feet of muddy water (95% water, 5% mud). ISIP 547# FSIP 547# IFP 52-204# FFP 212-372# IHP 2107# FHP 2969# BHT N/A

4330-4335 (L Zone)

Limestone, buff to tan, trace of brown, finely crystalline with scattered dense, mealy in part, fair intercrystalline porosity, some small vug porosity, fair spotted stain, fair to good show of free oil, good odor, fair fluorescence, good cut.

Drill Stem Test No. 3

4323-4335

15-30-30-60; built to eight-inch blow on first flow; no blowback; blew off bottom of bucket in 28 minutes of second flow, ¾ inch blowback died in 29 minutes; recovered 145 feet of gas in drill pipe, 217 feet of clean gassy oil (10% gas, 90% oil, 38 gravity), 58 feet of gassy oil cut mud (5% gas, 3% oil, 92% mud). ISIP 454# FSIP 437# IFP 18-62# FFP 69-101# IHP 2135# FHP 2120# BHT 127 degrees.

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4340-4353 (Middle L Zone)

Limestone, buff to tan, finely crystalline and mealy, partly fossiliferous and oolitic, fair intercrystalline and interoolitic porosity, some ooliticastic porosity, some scattered dead stain, no shows of live oil.

4363-4368 (Lower L Zone)

Limestone, buff to tan, some grey, dense to finely crystalline, poor intercrystalline and vugular porosity, poor to fair spotted stain, slight show of free oil, faint to fair odor, poor to fair fluorescence, poor to fair cut.

4368-4394 (Pleasanton Zone)

Limestone, buff to tan, finely crystalline with scattered dense, fair to good intercrystalline porosity, fair spotted stain, fair to good show of free oil, fair odor, fair fluorescence, fair cut, some re-crystallized cherty limestone.

4394-4406 (Lenapah Zone)

Limestone, tan to brown, dense to finely crystalline, scattered poor intercrystalline porosity, poor to fair spotted stain, very slight show of free oil, faint questionable odor, poor fluorescence, poor cut.

4449-4452 (Altamont Zone)

Limestone, buff to tan, some cream, dense to finely crystalline and partly fossiliferous, few pieces with poor scattered intercrystalline and small vug porosity, poor spotted stain, very slight show of free oil, faint odor, poor fluorescence, poor cut.

Drill Stem Test No. 4

4363-4462

15-30-30-60; lost 10 feet of mud on opening tool, one-inch blow diminished to ½ inch blow; blow did not return on second flow; recovered 60 feet of oil spotted mud. ISIP 402# FSIP 358# IFP 44-45# FFP 46-47# IHP 2197# FHP 2168# BHT N/A

4487-4506 (Pawnee Zone)

Limestone, tan, some brown, dense to finely crystalline, some sub-lithographic, scattered very poor intercrystalline porosity with no show of oil.

4508-4530 (Myrick Station Zone)

Limestone, buff to tan, some brown, dense to finely crystalline, partly fossiliferous, trace of very poor intercrystalline porosity, rare trace of very poor spotted stain, no free oil, no odor, no fluorescence, no cut.

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4535-4558 (Fort Scott Zone)

Limestone, partly cherty, buff to tan, dense to finely crystalline, partly oolitic with some oolitic chert, zone is mostly tight with no show of oil. Lower portion is limestone, tan to brown, dense to finely crystalline and partly oolitic, zone is mostly tight with no show of oil.

4581-4616 (Johnson Zone)

Limestone, buff to tan and brown, dense to finely crystalline, partly oolitic, few pieces with poor to fair intercrystalline and interoolitic porosity, fair spotted stain, fair show of free oil, faint to fair odor, poor fluorescence, fair cut.

4616-4636 (Detrital Zone)

This section contained mostly cream chalky to dense, tight limestone. Some scattered white chert was present in the section, but very little sand or sand grains were found.

4636-4670 (Mississippian Zone)

The Mississippian section consisted of dolomitic limestone, buff to tan, finely crystalline and slightly fossiliferous. The section contained only poor intercrystalline porosity and no shows of oil.

4670

Rotary Total Depth

Conclusions and Recommendations:

Pipe was cemented in the No. 1-17 Joyce. Completion should be accomplished with treatment as necessary to facilitate production as per Tom Larson.

Respectfully submitted,

Robert C. Lewellyn  
Petroleum Geologist

RCL:me

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**KANSAS** COUNTY **LANE** BLOCK **17** SEC. **17**

COMPANY **BARSON ENGINEERING, INC.** FARM **Joyce** WELL NO. **1-17**

SURVEY **273' ENL 5' 2000' ENL**

T. **19S** R. **28W** TOTAL DEPTH **4670**

CONTRACTOR **H.D. Drilling, LLC**

COMMENCED **05-01-2010**

COMPLETED **05-14-2010**

REMARKS

ALTITUDE **2784 KB**

PRODUCTION **Oil**

**Robert C. Lawellon - Geologist**

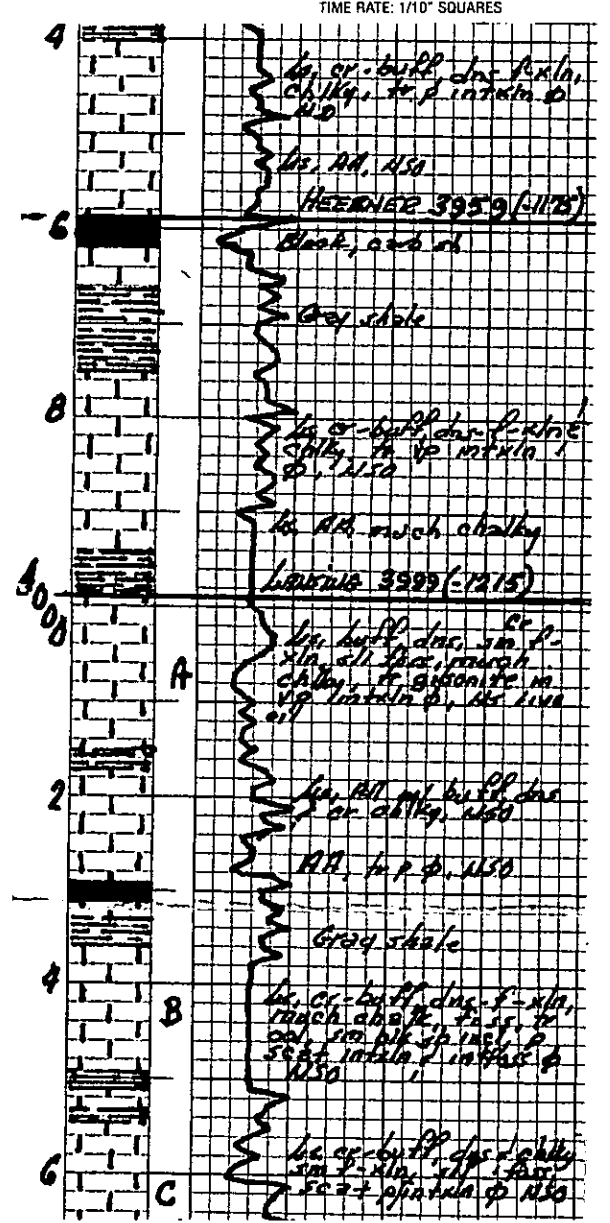
**CASING RECORD**

**8 3/8" @ 261 KBM/175 sx.**

SHOT QUARTS BETWEEN

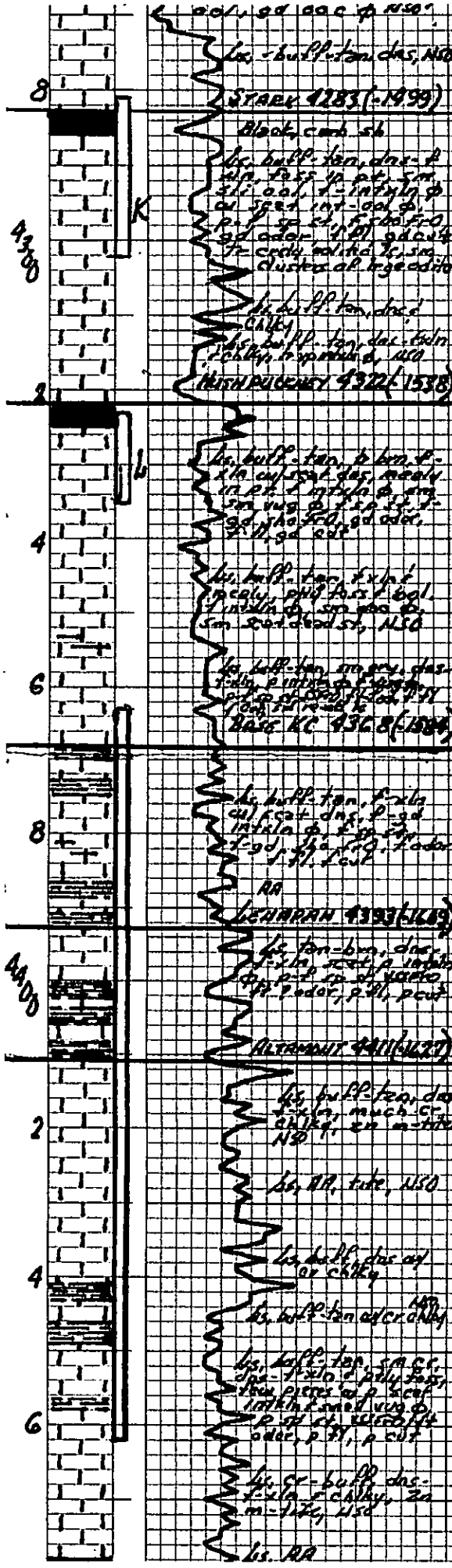
TIME RATE SCALE: 1/10" MINUTES

**KRAFTBILT 450-A** 1-800-331-7290 WWW.KRAFTBILT.COM

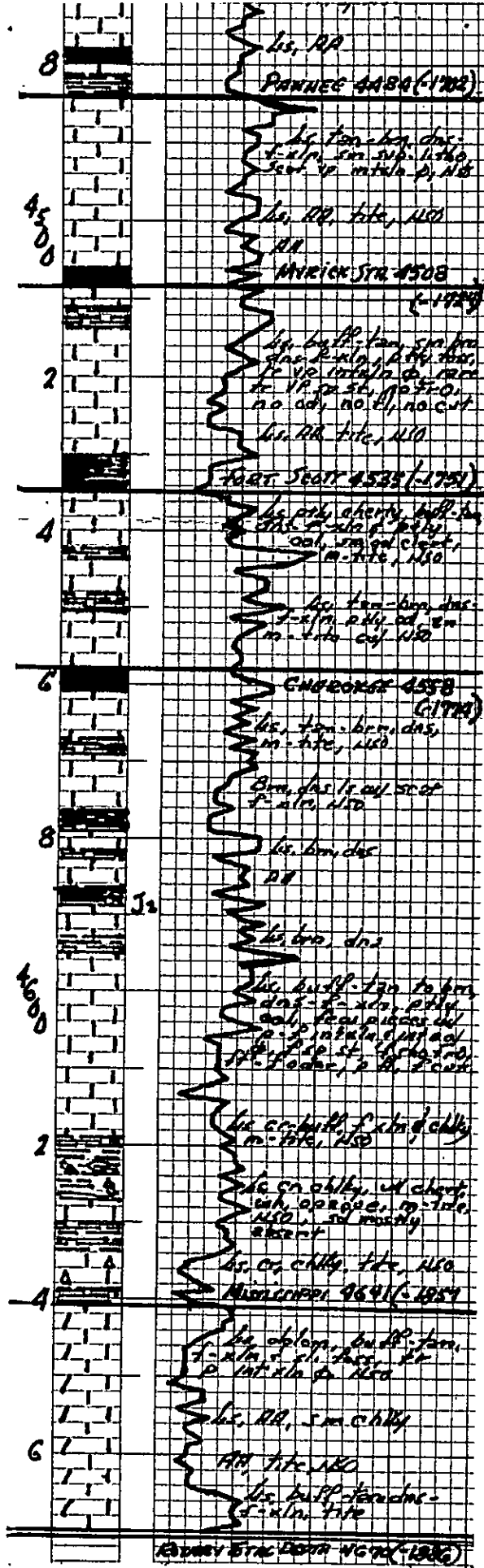


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