

GEOLOGICAL REPORT

Helmerich & Payne, Inc.  
 # 1 Leighton "B"  
 C NW NW, Section 3-17S-27W  
 Lane County, Kansas

Elevations: 2689' KB.  
 2686' DF.  
 2681' GL.

ELECTRIC LOG TOPS

Heebner	3914'	(-1225')
Toronto	3935'	(-1246')
Lansing	3952'	(-1263')
EKC	4326'	(-1637')
Pawnee	4423'	(-1734')
Ft. Scott	4477'	(-1788')
Cherokee Shale	4509'	(-1820')
Conglomerate	4548'	(-1859')

OWLL

Total Depth 4565' (-1876') in the Conglomerate Formation.

POROSITY ZONESToronto 3935'.

3938'-3942' Limestone, white-tan, fine crystalline porosity, soft.  
 10 %  $\emptyset$ , 58 % SW.

Lansing 3952'.

3958'-3964' Limestone, white-cream, fine crystalline & fossiliferous porosity.  
 11 %  $\emptyset$ , 80 % SW.  
 3992'-3995' Limestone, white-cream, chalky.  
 4009'-4014' Limestone, white, fine crystalline-chalky.  
 8 %  $\emptyset$ , 89 % SW.  
 4043'-4044' Limestone, white, fine crystalline & Vuggy porosity, slight show of free oil, scattered staining.  
 25 %  $\emptyset$ , 28 % SW.  
 4044'-4048' Limestone, as above.  
 7 %  $\emptyset$ , 60 % SW.

DRILL STEM TEST # 1, 4034'-4059', Tool open 1 hour, with few bubbles & died. Bypassed in 15 Minutes, with a weak blow for remainder of test.  
 Recovered: 180' Mud with a few oil specks on top.  
 ISIP 1262#/30 min.  
 IFP 22#  
 FFP 66#  
 FSIP 1219#/30 min.  
 IH 2023#  
 FH 2023#

4065'-4076' Limestone, cream-tan, oolitic with oolitic porosity.  
 16 %  $\emptyset$ , 87 % SW.  
 4085'-4091' Limestone, tan, oolitic with some oolitic porosity.  
 4120'-4123' Limestone, tan, fine crystalline porosity, very scattered show of free oil, very scattered staining. 5 %  $\emptyset$ , 70 % SW.  
 4123'-4124' Limestone, as above.  
 20 %  $\emptyset$ , 19 % SW.  
 4124'-4126' Limestone, as above.  
 5 %  $\emptyset$ , 59 % SW.  
 4130'-4132' Limestone, cream-tan, fine crystalline porosity, scattered show of free oil, scattered staining.  
 15 %  $\emptyset$ , 34 % SW.  
 4132'-4134' Limestone, as above.  
 28 %  $\emptyset$ , 28 % SW.  
 4134'-4138' Limestone, as above.  
 9 %  $\emptyset$ , 76 % SW.

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DRILL STEM TEST # 2, 4114'-4138', tool open 1 hour.

15 minute pre-flow with a weak blow, tool open with a weak blow throughout.

Recovered: 10' Slightly oil cut mud.  
240' Watery mud.

ISIP 1262#/45 min.

IFP 66#

FFP 131#

FSIP 1177#/45 min.

IH 2045#

FH 2045#

- 4156'-4159' Limestone, white, fine crystalline & vuggy porosity, poor-fair show of free oil, tite.
- 4193'-4197' Limestone, tan, oolitic porosity, good show of free oil, good staining.  
5 %  $\emptyset$ , 100 % SW.
- 4197'-4198' Limestone, as above.  
30 %  $\emptyset$ , 20 % SW.
- 4198'-4202' Limestone, as above.  
10 %  $\emptyset$ , 82 % SW.
- 4202'-4204' Limestone, as above less show & staining.  
13 %  $\emptyset$ , 67 % SW.
- 4204'-4207' Limestone, as above.
- 4207'-4211' Limestone, as above.  
14 %  $\emptyset$ , 90 % SW.

DRILL STEM TEST # 3, 4179'-4208', tool open 1 hour & 15 minutes.

15 minute pre-flow with a good blow, tool open with a good blow throughout.

Recovered: 2480' Salt Water.

ISIP 1072#/45 min.

IFP 438#

FFP 1051#

FSIP 1072#/45 min.

IH 2066#

FH 2066#

- 4228'-4233' Limestone, gray-tan, oolitic & crystalline porosity, scattered slight show of free oil, scattered staining.  
13 %  $\emptyset$ , 60 % SW.
- 4236'-4240' Limestone, as above.  
9 %  $\emptyset$ , 92 % SW.

DRILL STEM TEST # 4, 4219'-4237', corrected to 4221'-4239'. Open 1

hour. 15 minute pre-flow with a weak blow. Tool open with a weak to good blow in 30 minutes.

Recovered:

440' Slightly gas cut muddy salt water.

ISIP 1241#/45 min.

IFP 110#

FFP 219#

FSIP 1177#/45 min.

IH 2130#

FH 2130#

- 4277'-4287' Limestone, tan, oolitic porosity, very slight show of free oil. Less than 6 %  $\emptyset$ ,
- 4321'-4323' Limestone, gray-white, fine crystalline, tite, slight dead oil staining.
- 4371'-4374' Limestone, white, fine crystalline porosity, slight oil staining.
- 4382'-4384' Limestone, As above, scattered staining.

Pawnee 4423'.

- 4440'-4444' Limestone, white-gray, fine crystalline porosity.  
11 %  $\emptyset$ , 65 % SW.

Ft. Scott 4477'.

- 4480'-4482' Limestone, gray, oolitic & fossiliferous porosity.  
24 %  $\emptyset$  ?, 42 % SW.

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4482'-4484' Limestone, as above,  
10 %  $\emptyset$ , 39 % SW.

4502'-4504' Limestone, buff-gray, oolitic & fossiliferous porosity.  
9 %  $\emptyset$ , 35 % SW.

### CONCLUSIONS

It is recommended that the # 1 Leighton "B" be plugged and abandoned because of its low structural position, negative drill stem tests, and electric log calculations.

Charles E. Nelson  
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Garden City, Kansas

### SPECIAL SERVICES

	<u>Firm</u>	<u>Type</u>	<u>Interval</u>
E-log	Welex	Gamma Guard	290'-4560'.
		Detail	3800'-4560'.
		Acoustic	3800'-4560'.
		FORΛO-Caliper	3800'-4562'.
DST	Bomin Testing Co.	DST # 1	4034'-4059'.
		DST # 2	4114'-4138'.
		LST # 3	4179'-4208'.
		LST # 4	4219'-4238'.