

KIM B. SHOEMAKER

CONSULTING GEOLOGIST

316-684-9709 * WICHITA, KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

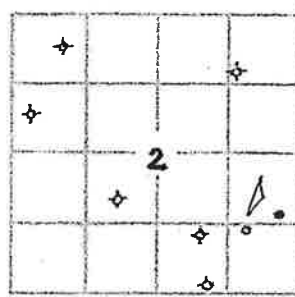
COMPANY L. D. DRILLING, INC.
 LEASE 1-2 ILENE
 FIELD Maurice NORTHEAST
 LOCATION 1291 FSL & 1070 FEL
 SEC 2 TWP 14s RGE 32w
 COUNTY LOGAN STATE KANSAS
 CONTRACTOR L. D. DRILLING, INC.
 SPUD 8-28-18 COMP 9-9-18
 RTD 4681 LTD 4681
 MUD UP 3410 TYPE MUD CHEMICAL

ELEVATIONS
 KB 2860
 DF _____
 GL 2855
 Measurements Are All From 2860 KB

CASING
 SURFACE 8 5/8" @ 258'
 PRODUCTION _____
 ELECTRICAL SURVEYS
 DUAL IND., DENS-N., MICRO

SAMPLES SAVED FROM 3500 TO 4681
 DRILLING TIME KEPT FROM 3400 TO 4681
 SAMPLES EXAMINED FROM 3500 TO 4681
 GEOLOGICAL SUPERVISION FROM 3700 TO 4681
 GEOLOGIST ON WELL Kim B. SHOEMAKER

FORMATION TOPS	LOG	SAMPLES
ANHYDRITE	2338 + 522	2340 + 520
B/ANH.	2359 + 501	2362 + 498
STOTLER	3491 - 631	3492 - 632
HEEBNER	3848 - 988	3847 - 987
LANSING	3888 - 1028	3888 - 1028
STARV	4136 - 1276	4138 - 1278
MARMATON	4250 - 1390	4250 - 1390
FORT SCOT	4401 - 1541	4401 - 1541
CHEROKEE	4428 - 1568	4430 - 1570
MISSISSIPPI	4559 - 1699	4561 - 1701
MISS. SPERGEN	4660 - 1800	4664 - 1804

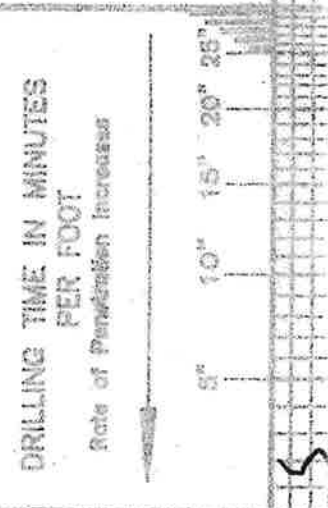


REMARKS
 8-28-18 SRUD
 8-29 @ 261'
 8-30 @ 1500'
 8-31 @ 2595'
 9-1 @ 3285'
 9-2 @ 3785'
 9-3 @ 3932'
 9-4 @ 4072'
 9-5 @ 4158'
 9-6 @ 4285'
 9-7 @ 4450'
 9-8 @ 4575'
 9-9 @ 4681'

API: 15-109-21563

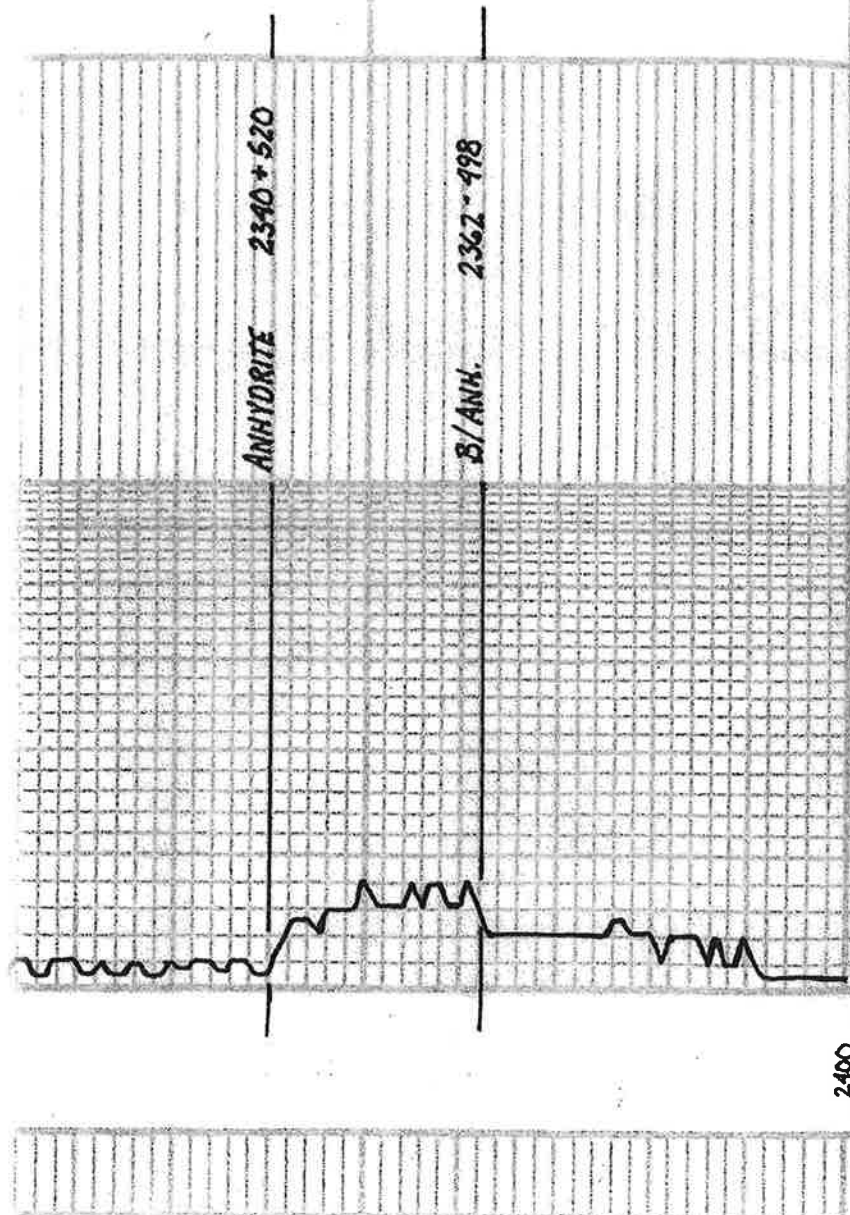
LEGEND

- Anhydrite
- Salt
- Sandstone
- Shale
- Curb sh
- Limestone
- Coll. Lime
- Chert
- Dolomite



LITHOLOGY

REMARKS



2400

3400

3500

VIS: 69
WT: 816
WT: 618
CAL: 2000

Samples are Lagged

SH. LG. Silty
STOTLER 3492-632

LS. To SL. Foss.

3600

3600

LS. Toq. Foss. Dolomite

SH. G.

LS. To VSI. Foss.

SH. G.

LS. To SL. Foss.

SH. LG. G.

LS. w/ L. Foss. and cherty

LS. w/ SL. Foss. cherty

SH. Rd.

LS. To w/ VSI. A

SH. G. DK G.

SH. Rd.

LS. SL. G. SL. Foss.

LS. w/ SL. Foss. Foss.

LS. w/ VSI. Foss. SL. Ch. G.

LS. wt. 5.0g

LS. wt. Foss. Sil. A

LS. wt. Sil. Foss. Chilly

Sh. Bluey

Sol. G. G. V. F. W. L. Sil. A

LS. wt. Foss. Sil. A

Sh. Bluey

LS. R. V. Sil. Foss.

LS. wt. Foss. Calcitic Sil. A

Δ W. G.

LS. wt. Foss.

LS. wt. Foss. Sil. A

LS

HEEBNER 3847-987

Sh. Bluey

Sh. Bluey

LS. wt. V. Sil. Foss. (Sil. Calcitic)

Sh. R.

LANSING 3888-1028

LS. wt. Sil. A

LS. wt. V. Sil. Foss. Sil. A

Sh. Bluey

LS. wt. Sil. Foss. Sil. A

LS. wt. Sil. Foss. Sil. A

LS. wt. Sil. Foss. Sil. A

LS. wt. V. Sil. Foss. Sil. A

Sh. Bluey

LS. wt. Foss. Sil. A

Sh. G.

LS. wt. Sil. Foss. Sil. A

VIS: 54
WFI: 9.8
WCI: 6.4
CHL: 2000

TORONTO

DST (1)

VIS: 56
WFI: 9.2
WCI: 9.6
CHL: 3700

DST (2)

DST (1) 3912-3932

150cm: Blow count to 4 1/2'

200cm: " " " 5 1/4'

30-95-95-60

Rec. 100 MW (30/14.70/14)

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

DST (2) 3962-3982

150cm: Surface Blow

200cm: No Blow

30-30-30-30

Rec. 1' Mid

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

Temp. 17.0°

3700

3800

3900

25. To out. Sil. A. Dm.
45. To wt. Chalk.
45. G. Dm.
45. G. 2 lg.

MUNCIE CREEK 4053-4193

65. Bl. V. Sil. Foss. Sil. A. P. 10 lg.
Sp. Sil. Sil. Sil. V. Sil. Sil. Dull Flour.
Sh. Sil. F. Col. odor

45. wt. 4 lg. Foss. Sil. F. P. 10 lg.
Bl. Sil. Sil. Sil. Dull Flour. F. Odor

45. To wt. V. Sil. chalk.
Sh. Dk. 45. G. Sil. Foss.
Sh. Blue G.

STARK 4138-4278

45. To wt. V. Sil. Foss. Sil. A.
45. wt. Foss. Sil. Foss. Sil. Chalk. P. 10 lg.
45. Bl. Sil. Sil. Sil. Foss. Dull Flour.
F. Col. odor

45. To wt. V. Sil. Foss. Sil. A. P. 10 lg.
Bl. Sil. Sil. Sil. Foss. Dull Flour. V. Col. odor

HUSHPUCKNEY 4180-4320

45. To wt. V. Sil. Foss. Sil. A.
Sh. Blue chalk.

45. To wt. V. Sil. Foss. Sil. A. P. 10 lg.
Sh. Blue chalk.

45. To wt. V. Sil. Foss. Sil. A. P. 10 lg.
Sh. Blue chalk.

B/KC 4210-4350

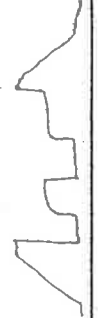
45. To wt. V. Sil. Foss. Sil. A.
Sh. Blue chalk.

SHARP 4310-4350

45. To wt. V. Sil. Foss. Sil. A.
Sh. Blue chalk.

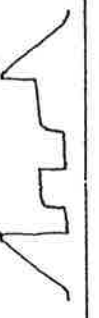
DST (3) 4052-4126

STOP: Bottom bucket 22 min. 48: None
START: " " 20 " 48: "
30. 45. 45. 60
Rec. 65' Med (002M2)
63' MW (502M 502M)
126' SHW (252M 752M)
126' VSMW (102M 902M)
TR: 380
FP: 1594 96-186 F
SIP: 1107-1083 F
Temp 119 F



DST (4) 4108-4158

STOP: Blow ball to 11-1/2" 88: None
START: " " Bottom bucket 38 min. 88: "
30. 45. 45. 60
Rec. 108' WM (602M 902M)
63' MW (402M 602M)
126' SHW (102M 902M)
TR: 297
FP: 1470 72-117 F
SIP: 888-874 F
Temp ... F



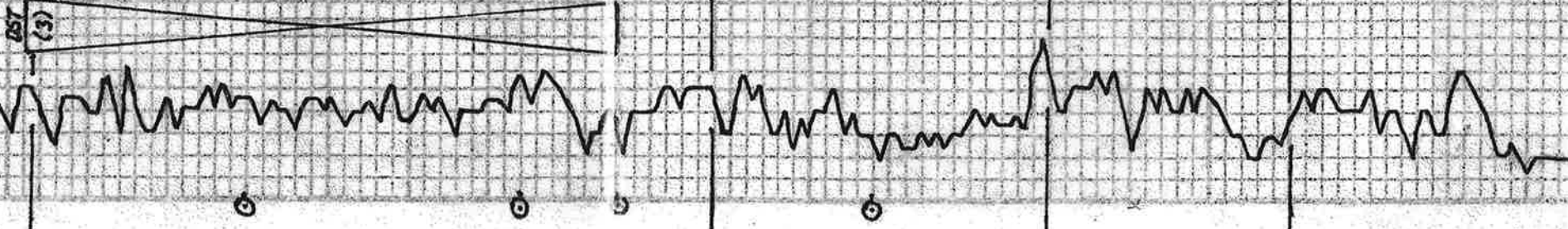
4100

4200

VIS: 60
WT: 89
ML: 8.0
CHL: 3000

DST (4)

VIS: 53
WT: 92
ML: 9.6
CHL: 3000



4300

VIS: 58
WT: 91
ML: 7.2
CHL: 3000

45. Bl. V. Sil. Foss. Sil. A.

45. Bl. V. Sil. Foss. Sil. A.

45. wt. 4 lg. of Bl. Sil. Foss.

45. To wt. chalk.

Sh. Bl.

45. wt. Sil. A. Colitic

Sh. G. 6 lg.

45. 2 lg. V. Sil. A.

45. Bl. to out. Sil. D.

Sh. Dk. Blk. G. G.

PAWNEE 4348-1488

DST (S) 4340-4450

1st Open: Blow Drill to 1'4"

2nd Open: No Blow

30-30-30-30

Rec. 20' Mud

Tools Sample:
100% Mud
w/ Speed Oil

FP: 13-16 16.12 *

SIP: 533-231" *
Temp. 119°

Sh. Blk. Carb.

SS. Dk. Blk. G. Sl. F. G.

MYRICK STATION 4385-1525

LS. To 1' 1/2' from surface. F. G. Blk. Carb. Sl. F. G. Dull Flour. F. G. Dull Flour. F. G. Dull Flour.

Sh. Blk. Carb.

FORT SCOTT 4401-1541

LS. Bl. carb. Sil. A

LS. Bl. carb. - / G. carb. Sil. A

LS. w. ch. G.

LS. To 1' 1/2' Sil. A

CHEROKEE

4430-1570

LS. Bl. carb. Sil. A. Bl. carb. L. Bl. carb. Sil. A. No Flour. F. G. Dull Flour.

LS. G. To 1' 1/2' from surface. Sil. A. F. G. Dull Flour. F. G. Dull Flour. F. G. Dull Flour.

Sh. Dk. Blk. G.

SS. Dk. Blk. G.

JOHNSON

4472-1612

LS. To 1' 1/2' from surface. Sil. A. F. G. Dull Flour. F. G. Dull Flour. F. G. Dull Flour.

LS. To 1' 1/2' from surface. Sil. A. F. G. Dull Flour.

DST (S)

VIS: 53
WT: 90
WL: 8.0
CGR: 3300

4400



DST (S)

Sh. L. Blue-G. Yellow

Sh. G. Blue-G. Yellow

2nd Open: Surface Blow

30-30-30-30

Rec. 20' V50CM (L. Oil. 99% M)

FP: 13-19 20-22 *

SIP: 748-588 *
Temp. 117°

Tools Sample:
2% Oil
98% M

Sh. L. Blue-G. Yellow

Sh. L. Blue-G. Yellow

Sh. L. Blue-G. Yellow

Sh. L. Blue-G. Yellow

MISSISSIPPI 4561-1701

LS. w. carb. carb. sil. ch. G.

LS. To 1' 1/2' Sil. A

LS. w. carb. carb. sil. ch. G.

LS. To 1' 1/2' from surface. Sil. A.

LS. w. carb. carb. sil. ch. G.

LS. w. carb. carb. sil. ch. G.

LS. w. carb. carb. sil. ch. G.

LS. To 1' 1/2' Sil. A

MISS. SPERGEN 4664-1804

LS. To 1' 1/2' from surface. Sil. A.

VIS: 54
WT: 83
WL: 8.3
CGR: 4000

4600



V 106

LS. not chg. and w/ to show.

LS. w/ to and chg.

LS. w/ and sl. chg.

LS. to B. sl. A

MISS. SPERGEN 4664-1804

D. 1. B. V. F. A. S. U.

D. 1. B. V. F. A. S. U. sl. F. A. S. U. '1899

A. 4.

V. 106

RTD 4087-1821

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