

KIM B. SHOEMAKER

CONSULTING GEOLOGIST

316-684-9709 * WICHITA, KS

GEOLOGIST'S REPORT

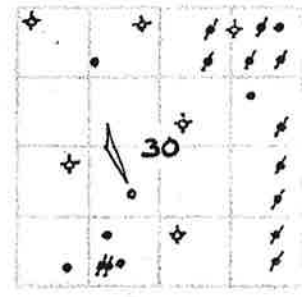
DRILLING TIME AND SAMPLE LOG

COMPANY L. D. DRILLING, INC.
 LEASE # 4 KELLI
 FIELD GATES
 LOCATION 1700' FSL & 2088' FWL
 SEC 30 TWP 21s RGE 12W
 COUNTY STAFFORD STATE KANSAS
 CONTRACTOR L. D. DRILLING, INC.
 SPUD 9-12-17 COME 9-20-17
 RTD 3760 LTD 3758
 MUD UP 2815 TYPE MUD CHEMICAL

ELEVATIONS
 KB 1870
 DF _____
 RL 1865
 Measurements Are All From 1870 KB
 CASING
 SURFACE 8 5/8" @ 334'
 PRODUCTION 5 1/2" @
 ELECTRICAL SURVEYS
 DUAL IND., DENS., N., MICRO

SAMPLES SAWED FROM _____ 3000 TO 3760
 DRILLING TIME KEPT FROM _____ 2800 TO 3760
 SAMPLES EXAMINED FROM _____ 3000 TO 3760
 GEOLOGICAL SUPERVISION FROM _____ 3200 TO 3760
 GEOLOGIST ON WELL KIM B. SHOEMAKER

FORMATION TOPS	LOG	SAMPLES
ANHYDRITE	682+1188	685+1185
B/ANH.	703+1167	706+1164
TOPEKA	2864-994	2867-997
HEEBNER	3156-1286	3159-1289
BROWN LIME	3287-1417	3290-1420
LANSING	3303-1433	3306-1436
B/KC	3519-1649	3522-1652
VIOLA	3552-1682	3554-1684
SIMPSON	3590-1720	3592-1722
ARBUCKLE	3642-1772	3644-1774



REMARKS
 9-12-17 SPUD
 9-13 @ 338'
 9-14 @ 1157'
 9-15 @ 2075'
 9-16 @ 2830'
 9-17 @ 3385'
 9-18 @ 3460'
 9-19 @ 3615'
 9-20 @ 3760'
 API: 15-185-23997

LEGEND

- Dolomite
- Chert
- Col. Lime
- Limestone
- Carb. sh
- Shale
- Sandstone
- Salt
- Anhydrite

DRILLING TIME IN MINUTES
 PER FOOT
 Rate of Penetration increases



DEPTH
 650
 700
 750

LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS

ANHYDRITE 685+1185

B/ANH. 706+1164

750

2800

2900

3000

TOPEKA 2867-997

Vis: 65
WT: 87
Wt: 88
CAL: 2700

Samples are Lagged

Δ wt.

LS. w/ Ta. Foss. vsli. shily.

LS. B. G. Foss.

Sh. G.

LS. H. G. vsli. Foss. vsli. G. shily.

Sh. G.

LS. T. wt. Foss. od. vsli. oor.

LS. LS. wt. H. G. Foss. vsli. shily.

Vertical line on the left side of the grid.

Vertical line above the TOPEKA label.

Vertical line through the center of the grid.



3100

3200

3300

3400

ls. G. V.Si. Foss.

ls. Tan. Si. Foss. Sil. A

ls. Tan. Bl. Sil. A

ls. Tan. V.Si. Foss. Sil. Chlly

ls. Tan. Bl. G. w/ Fe sh

HEEBNER 3159-1289

Sh. Bl. Carb.

ls. Bl. G. V.Si. Foss.

Sh. Bl. G. G.

ls. Tan. V.Si. Foss. Sil. A. V.Si. Calc. M.

ls. Tan. V.Si. A

Sh. G. Sil. M.G. Sub. Bl.

ls. Sh. Bl. G. G. Silty

Sh. Bl. G. G. Silty

Sh. Bl. G. G. Silty

Sh. G. G.

Sh. Bl. G. G.

BROWN-LIME 3290-1420

ls. Tan. V.Si. Foss.

Sh. Bl. G. G.

LANSING 3306-1436

ls. Tan. V.Si. Foss. Sil. A

ls. Tan. V.Si. Foss. Sil. A. V.Si. Calc. M. Bl. G. G. Silty. V.Si. Foss.

ls. Tan. V.Si. Foss. Sil. Chlly.

ls. Tan. V.Si. Foss. Sil. Chlly. V.Si. Calc. M. Bl. G. G. Silty. V.Si. Foss.

ls. Tan. V.Si. Foss.

ls. Tan. V.Si. Foss. Sil. Foss.

Sh. Bl. G. G.

ls. Tan. V.Si. Foss.

Sh. G. G.

ls. Tan. V.Si. Foss. Sil. Chlly. V.Si. Calc. M. Bl. G. G. Silty. V.Si. Foss.

ls. Tan. V.Si. Foss. Sil. Chlly. V.Si. Calc. M. Bl. G. G. Silty. V.Si. Foss.

ls. Tan. V.Si. Foss.

ls. Tan. V.Si. Foss. Sil. Chlly.

ls. Tan. V.Si. Foss. w/ dk. G. mod. l.

ls. Tan. V.Si. Foss.

TORONTO

DOUGLAS

V.Si. 54
WT: 9.2
ML: 9.2
CML: 4800

DST (1)

DST (2)

DST (1) 3293-3385

1st Open: Bottom Bucket 45 Sec.

2nd Open: " " 10 "

30. 45-45-60

Rec. 129' GCM

(257.6, 767.1)

FP: 38-51 37-83 "

SIP: 691-639 "

Temp: 106 ° F

1st Open: Bottom Bucket 45 Sec.

2nd Open: " " 10 "

30. 45-45-60

Rec. 129' GCM

(257.6, 767.1)

FP: 38-51 37-83 "

SIP: 691-639 "

Temp: 106 ° F



DST (2) 3416-3460

1st Open: Bottom Bucket 35 Sec.

2nd Open: " " 5 Sec.

30. 60-60-90

Rec. 139' SWGMQ

(576.8, 918.0)

FP: 190'

SIP: 716-616 "

Temp: 106 ° F

1st Open: Bottom Bucket 35 Sec.

2nd Open: " " 5 Sec.

30. 60-60-90

Rec. 139' SWGMQ

(576.8, 918.0)

FP: 190'

SIP: 716-616 "

Temp: 106 ° F

1st Open: Bottom Bucket 35 Sec.

2nd Open: " " 5 Sec.

30. 60-60-90

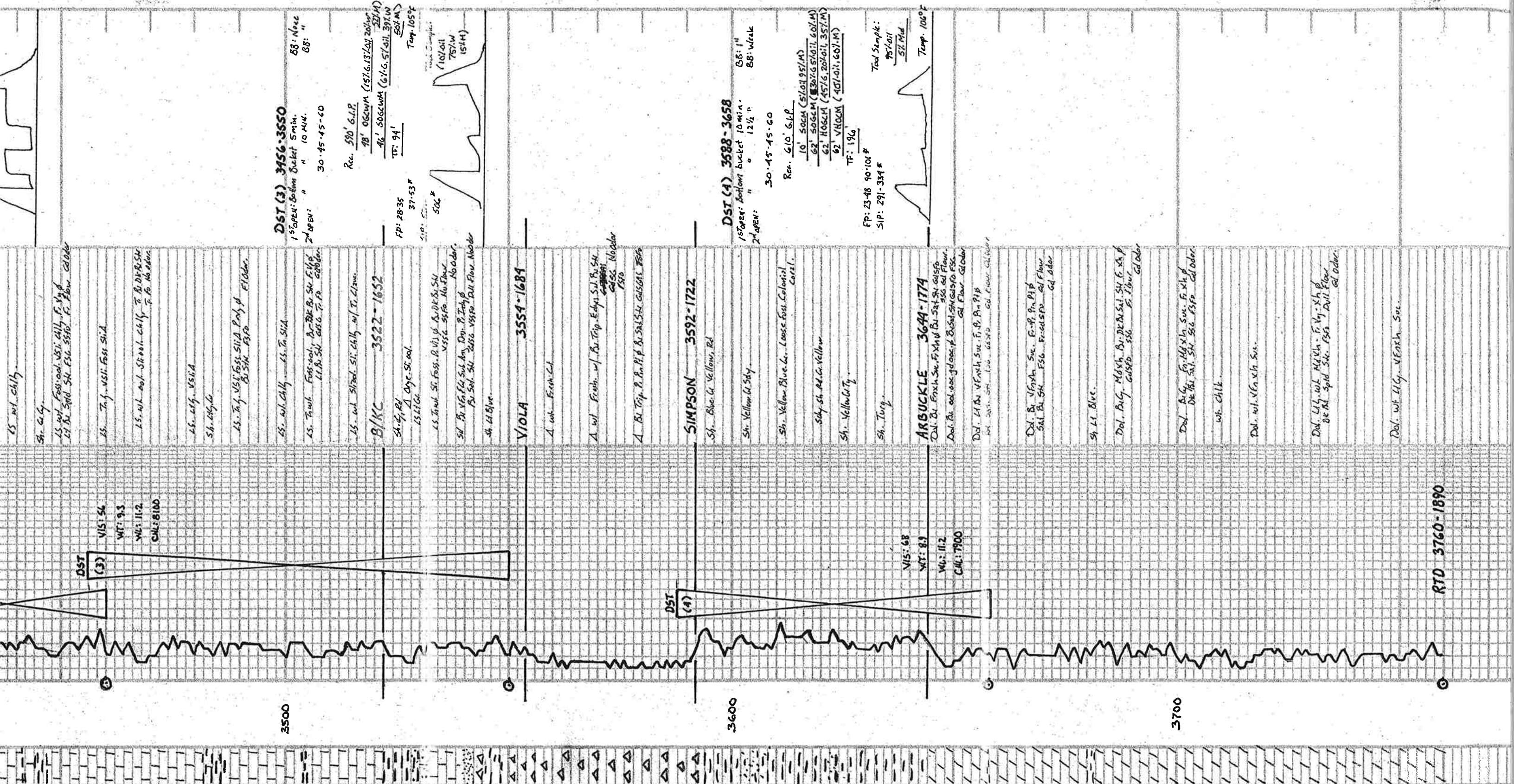
Rec. 139' SWGMQ

(576.8, 918.0)

FP: 190'

SIP: 716-616 "

Temp: 106 ° F



DST (3) 3456-3550
 1st open: Bottom bucket 5 min. 88: No. 4
 2nd open: " " 10 min. 88: "

Rec. 580' G.I.P.
 78' 062WPM (157.6.13/101.20/1.14)
 46' 506WPM (61.6.57/011.397.14)
 TF: 94' 50% M
 Temp: 105°F

FP: 28-35
 37-53 F
 50C
 75% W
 (57 M)

DST (4) 3588-3658
 1st open: Bottom bucket 10 min. 88: 1"
 2nd open: " " 12 1/2 " 88: weak

Rec. 610' G.I.P.
 10' 506M (57.01.95/1.14)
 62' 506M (30.7.57/011.607.14)
 62' 506M (45.7.6.20/011.357.14)
 TF: 196'

FP: 23-48 90-101 F
 SIP: 291-334 F
 Temp: 106°F

RTD 3760-1890