



JERRY A. SMITH

CERTIFIED PETROLEUM GEOLOGIST

GEOLOGIST'S REPORT

DRILLING TIME and SAMPLE LOG

COMPANY: PICKRELL DRILLING COMPANY, INC.		ELEVATIONS	
LEASE: #1 MAUCH "E"		K.B. 2539	
FIELD: ALDRICH		D.F. 2537	
LOCATION: 1170' FSL & 1800' FWL		G.L. 2532	
SEC. 18	TWSP. 18	RNG. 25W	Measurements Are All From: KB
COUNTY: NESS		STATE: KANSAS	
CONTRACTOR: COMPANY TOOLS, RIG #10		CASING	
SPUD: 9/2/14	COMP. 9/9/14	SURFACE: 8 5/8" @ 221'	
RTD. 4481	LTD. 4478	PRODUCTION : P & A	
MUD UP: 3495	TYPE MUD: CHEMICAL	ELECTRICAL SURVEYS NABORS: DIL, FDC-CNL, MICRO, SONIC	
API No. 15-135-25809		TO: RTD	
SAMPLES SAVED FROM: 3600		TO: 1900/RTD	
DRILLING TIME KEPT FROM: 1700/3600		TO: RTD	
SAMPLES EXAMINED FROM: 3600		TO: RTD	
GEOLOGICAL SUPERVISION FROM: 3495		TO: RTD	
GEOLOGIST ON WELL: JERRY A. SMITH			
FORMATION TOPS	LOG	SAMPLES	
ANHYDRITE	1796 (+743)	1798 (+741)	
HEEBNER	3814 (-1275)	3816 (-1277)	
LANSING	3851 (-1312)	3858 (-1319)	
STARK	4108 (-1569)	4110 (-1571)	
PAWNEE	4297 (-1758)	4298 (-1759)	
FT. SCOTT	4364 (-1825)	4364 (-1825)	
CHEROKEE	4388 (-1849)	4390 (-1851)	
MISSISSIPPIAN	4472 (-1933)	4471 (-1932)	

LEGEND

Anhydrite	Salt	Sandstone	Shale	Carb. sh	Limestone	Ool. Lime	Chert	Dolomite

LITHOLOGY	DEPTH	DRILLING TIME IN MINUTES PER FOOT Rate of Penetration Increases	SAMPLE DESCRIPTIONS	REMARKS
				NO GAS DETECTOR DST'S (2): TRILOBITE MUD: MUD-CO
				S.H.T.'S 223' ¾" 2244' ½"

714' 1/2° 2651' 3/4°
 1213' 3/4° 2557' 3/4°
 1745' 3/4° 4481' 1/2°

VERT. LOG SCALE: 2" = 100'

1700

50

1800

ANHYDRITE
 1798 (+741) SMPL
 1796 (+743) LOG

B/ANHYDRITE
 1829 (+710) SMPL
 1826 (+713) LOG

50

1900

BIT TRIP @ 3557'

VERT. LOG SCALE: 5" = 100'

3600

1m - CRM. LG. GY. FX.
 SPEAR LOSS. DSE.

PIPE STRAP @ 3557':
 3557.11 STRAP
 3557.02 BOARD
 .09 LONG

1m - CRM. GYATA. FX.
 LOSS - SCAM. FR. VBY.
 LOSS MED. Ø. VIS.

20

1m - CRM. FX. DSE. HD.

40

1m - AA.

60

1m - CRM. LG. GY. FX.
 DSE. NO VIS. Ø.

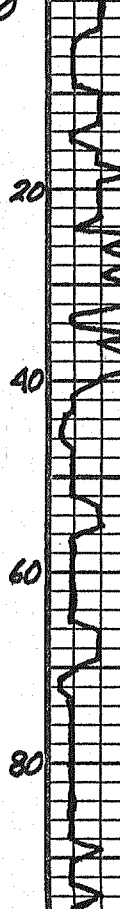
SH - DK. GY.
 1m - AA.

80

SH - DK. GY.
 1m - AA. ADD DK. GY.
 SH.

1m - CRM. FX. SCAM. FR.
 VBY. Ø. VIS. ADD DK.
 GY. SH.

3700



Lm - CRM, Lr Gy, FX.
DSE → SUB - CHKY.

Lm - CRM, Lr Gy, FX.
DSE, HD. ABD DK
Gy SH.

Lm - AA.

Lm - CRM, Lr Gy, FX.
DSE, VgY & Foss No. 10
No.

Lm - AA. CHKY IN PT.

Lm - AA, / SCATT DK
Gy SH.

SH - DK Gy.

Lm - AA.

Lm - Lr → M Gy, FX.
DSE.

MUD @ 3773':
8.9 WT, 51 VIS, 8.0 FILT,
4200 CHLOR, 2# LCM

3800



Lm - M Gy, FX. DSE.
SH - DK Gy.

SH - BK, CARR.

SH - DK Gy, Gy - GN, CARR
IN PT.

Lm - CRM, FX. DSE →
SUB - CHKY.

SH - DK Gy, Gy - GN.

Lm - CRM, Lr Gy, FX.
DSE.

Lm - CRM, Lr Gy, FX.
DSE.

SH - DK Gy.

Lm - CRM, Lr Gy, FX.
DSE.

Lm - CRM, Lr Gy, FX. DSE.
SCATT DK Gy SH.

HEEBNER
3816 (-1277) SMPL
3814 (-1275) LOG

LANSING
3858 (-1319) SMPL
3851 (-1312) LOG

3900

Lm - CRM, Lr Gy, FX.
DSE, FEW Foss
No Vis.

Lm - CRM, Lr Gy, FX.
DSE, FEW Foss
No Vis.

20
40
60
80
4000
20
40
60
80
4100
20
40

USE CHIT. MGD DR BY SH.

LM - L₁ - M Gy Gy-TN FX DSE. MD.

SH - DR Gy.

LM - CRM, Gy-TN FX DSE. MD.

SH - DR Gy.

LM - M Gy, Gy-TN FX DSE.

LM - AA - / M - DR Gy SH.

LM - CRM, Gy-TN FX SCATT FER. V.G.Y. B. TR. COMED. P. NB.

LM - CRM, L₁ Gy FX DSE. SCATT Gy-BAN SH.

LM - CRM, L₁ Gy L₂ TN FX DSE. SCATT FER. LOSS.

LM - L₁ - M Gy FX DSE.

SH - DR Gy, Gy-BAN.

LM - CRM, FX, FAST, CRM, CPG, SCATT LHT - SH, DSE.

LM - AA. SHLY.

LM - AA.

LM - CRM. FX DSE.

SH - DR Gy, Gy-BAN.

LM - L₁ - M Gy FX DSE.

LM - AA.

SH - BAN, CARB.

SH - DR Gy, LMY.

LM - L₁ - M Gy FX DSE - LMY.

STARK
4110 (-1571) SMPL
4108 (-1569) LOG

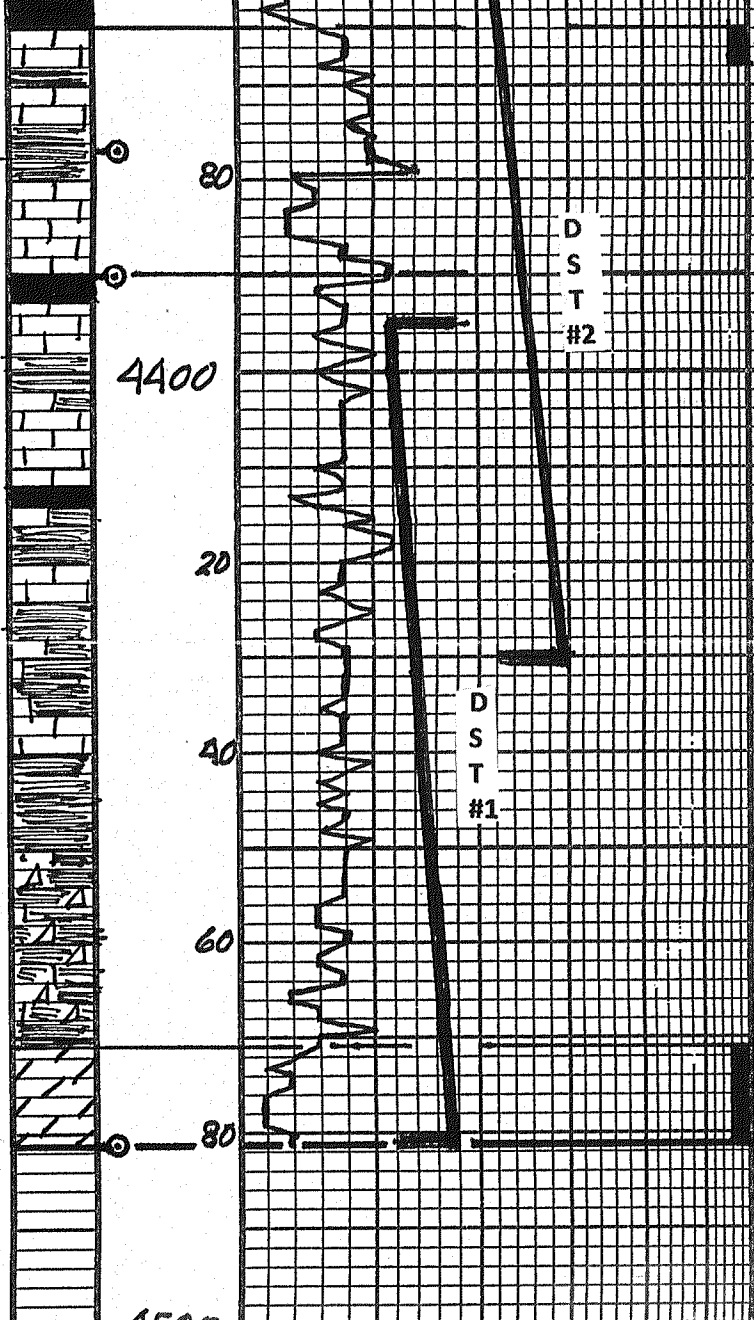
60
80
4200
20
40
60
80
4300
20
40
60

SH - Blk, CARB.
LM - Lt - M Gy. FX.
DSE.
LM - Com. Lt - M Gy.
FX. DSE - SUB -
CHKY.
SH - M - DK Gy. Gy -
GRN, BLN, RD.
LM - Lt - M Gy. FX.
DSE. APP. M - DK Gy.
Gy - Gray, DK Rd. SH.
SH - DK Gy, Gy - GRN.
LM - Lt Gy. FX. DSE.
LM - Lt - TN. FX. DSE.
LM - AA. SCAT. DK Gy.
LM - Lt Gy. Lt TN. FX.
DSE. SCAT. DK Gy.
SH.
LM - Com. Lt TN. FX. No
Vis. P.
LM - Com. FX. DSE.
CHKY. SCAT. TN -
Lt Gy. APP. SH. DSE.
LM - Lt - M Gy. FX.
DSE.
SH - Blk. CARB. w/ DK Rd,
DK Gy - GRN. SH.
LM - Com. Lt - M Gy.
FX. DSE - SUB - CHKY.
LM - Com. Lt - M Gy. Gy -
TN. FX. DSE. SUB - CHKY.
TN. FX.
LM - AA.
LM - Com. Lt - M Gy. Lt
TN. FX. DSE - SUB -
CHKY. TN. FX.
LM - AA. w/ Linc. Lt. SH.
M - DK Gy, Gy - GRN,
DK Rd.
SH - Lt - M Gy.
LM - AA.
SH - Blk. CARB. w/ DK Rd.

MUD @ 4225':
9.6 WT, 51 VIS, 10.8 FILT,
3000 CHLOR, 1 # LCM

PAWNEE
4298 (-1759) SMPL
4297 (-1758) LOG

FT SCOTT



D
S
T
#2
 D
S
T
#1

Lm - Lcm, FX, DSE - Chkx - 1/4" -
 M Gy, FX, DSE - VPS VBY/NT -
 XAN D. 12 DU BEN - BLE STN.
 NO F.O. WA, FRETTING ODOR.

Lm - Cam, M Gy, FX, DSE, BE -
 COILING SHLY
 SH - DK Gy, Gy - BEN, DK RD.

Lm - Lcm, FX, SUB - CNK, No VISA
 1/4" - M Gy, FX, 1/2" VBY D
 No V.R. SHO. 1/4" ODOR.
 SH - BLK, CARB.

Lm - Lcm, LT - M Gy, FX,
 DSE.

SH - M - DK Gy, Gy - BEN,
 DK RD.

SH - AA.

Lm - Lcm, Gy - 21, FX, DSE -
 SUB - CNK - 1/4" - SH - DK
 Gy, Gy - BEN, DK RD.

Lm & SH - AA.

Lm & SH - AA, ADD WA,
 SET CNK.

Lm & SH - AA, WA, SET,
 CNK, 1/4" - SH - 1/2" Gy,
 ODOR, SH, DSE.

Lm, SH, CNK & CNT - AA.

Lm, SH, CNK & CNT - AA.

Data - 1/2" Gy, 1/4" FX, 1/2" - 1/4"
 VBY D. 1/2" - 1/4" ODOR, 1/4" SH
 1/2" - M BEN F.O.

FT. SCOTT
 4364 (-1825) SMPL & LOG

CHEROKEE
 4390 (-1851) SMPL
 4388 (-1849) LOG

MISSISSIPPIAN
 4471 (-1932) SMPL
 4472 (-1933) LOG

TOTAL DEPTH
 4481 (-1942) ROTARY
 4478 (-1939) LOG

MUD @ 4481':
 9.4 WT, 57 VIS, 11.2 FILT,
 2500 CHLOR, 0 LCM

DST #1: 4395 - 4481
 30-60-90-90

IF: BOB IN 13 1/2 MIN.
 ISI: NO RETURN
 FF: BOB IN 17 MIN.
 FSI: NO RETURN

RECOVERY:
 219' MUD W/ OIL SCUM
 126' WCM W/OIL SCUM
 (40% W, 60% M)
 189' MCW W/OIL SCUM
 (90% W, 10% M)
 252' WATER
 786' T.F.

50,000 CHLOR.

SIP'S: 1215-1210 #
 FP'S: 33-137/138-370 #

DST #2: 4350-4430
 STRADDLE PACKERS
 30-60-30-60

IF: 1" BLOW
 ISI: NO RETURN
 FF: 1/2" BLOW
 FSI: NO RETURN

RECOVERY:
 20' OCM
 (5% O, 95% M)

SIP'S: 688-234#
 FP'S: 48-54/55-55 #
 HP'S: 2230-2151 #
 BHT: 119° F

HP'S: 2197-2164 #
BHT: 128° F

4600

LITHOLOGY

DEPTH

5" 10" 15" 20" 25"
DRILLING TIME MINUTES/FOOT

←
Rate of Penetration Increases

SAMPLE DESCRIPTIONS

REMARKS

COMPANY: PICKERELL DRILLING COMPANY, INC.

ELEVATION: 2539 KB

LEASE: #1 MAUCH "E"

LOCATION: 1170' FSL & 1800' FWL

SEC 18

TWP 18

RGE 25 W

COUNTY: NESS

STATE: KANSAS