



JERRY A. SMITH

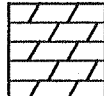
CERTIFIED PETROLEUM GEOLOGIST

GEOLOGIST'S REPORT

DRILLING TIME and SAMPLE LOG

COMPANY: PICKRELL DRILLING COMPANY, INC.		ELEVATIONS	
LEASE: #5 NORTON "B"		K.B. 2521	
FIELD: T & L		D.F. 2519	
LOCATION: 2250' FNL & 2110' FWL		G.L. 2514	
SEC. 12	TWSP. 18	RNG. 26 W	Measurements Are All From:
COUNTY: NESS	STATE: KANSAS	KB	
CONTRACTOR: COMPANY TOOLS, RIG #10		CASING	
SPUD: 1/14/13	COMP. 1/25/13	SURFACE: 8 5/8 " @ 27'	
RTD. 4500	LTD. 4554	PRODUCTION: 4 1/2 " @ 4552'	
MUD UP: 3424	TYPE MUD: CHEMICAL	ELECTRICAL SURVEYS NABORS: CDL/CNL, DIL, MEL/SON	
API No. 15-135-25523		TO: RTD	
SAMPLES SAVED FROM: 3500		TO: 1950/RTD	
DRILLING TIME KEPT FROM: 1750/3500		TO: 1950/RTD	
SAMPLES EXAMINED FROM: 3500		TO: RTD	
GEOLOGICAL SUPERVISOR FROM: 3690		TO: RTD	
GEOLOGIST ON WELL: JERRY A. SMITH			
FORMATION TOPS	LOG	SAMPLES	
ANHYDRITE	1853 (+668)	1855 (+666)	
HEEBNER	3825 (-1304)	3820 (-1299)	
LANSING	3867 (-1346)	3861 (-1340)	
STARK	4116 (-1595)	4112 (-1591)	
PAWNEE	4314 (-1793)	4310 (-1789)	
FT. SCOTT	4374 (-1853)	4370 (-1849)	
CHEROKEE	4399 (-1878)	4395 (-1874)	
MISSISSIPPIAN	4483 (-1962)	4480 (-1959)	
MISS. POROSITY	4493 (-1972)	4488 (-1967)	

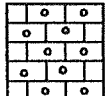
LEGEND



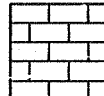
Dolomite



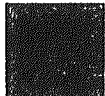
Chert



Ool. Lime



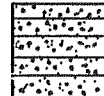
Limestone



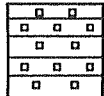
Carb sh



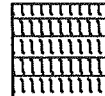
Shale



Sandstone



Salt



Anhydrite

LITHOLOGY	DEPTH	DRILLING TIME IN MINUTES PER FOOT Rate of Penetration Increases 	SAMPLE DESCRIPTIONS	REMARKS
				NO GAS DETECTOR DST'S (2) TRILOBITE MUD: ANDY'S MUD & CHEMICAL S.H.T.'s 276' ¾° 2316' ¾° 786' ½° 2815' 0°

1286' 1/2° 4396' 1°
1817' 3/4°

VERT. LOG SCALE: 2" = 100'

50

1800

50

ANHYDRITE
1855 (+666) SMPL
1853 (+668) LOG

B/ANHYDRITE
1880 (+641) SMPL
1879 (+642) LOG

1900

50

3500

VERT. LOG SCALE: 5" = 100'

SH - GY, GY - GN, RD.

SH - GY, GY - GN, RD.
SCAT GRM, FX, DSE LM.

LM - GRM, LT GY, FX, Foss.
DSE.

SH - M - DK GY.

LM - GRM, FX, Foss. w/
SCAT Foss Mid & N.S.

LM - AB, INC IN Ø. N.S.
SH UNKY.

MUD @ 3548':
8.8 WT, 55 VIS, 7.6 FILT,
3000 CHLOR, 2# LCM

3600

20

40

60

80

3700

20

40

60

80

3800

LM - CRM, Lr GY, FX.
DSE, SHLY,

LM - Lr GY, FX, SASKY
FOSS, DSE,

LM - AA, VSHLY,

LM - CRM, Lr GY, FX.
FR VGY, Q. NS.

LM - AA, FR → Gd VGY
Q. NS.

SH - DK GY → BLK, CARB.

LM - Lr → M GY, FX, SUR-
CHKY, FOSS IN PR, NO
VIS Q.

LM - AA w/ SCATT PR →
FR VGY & FOSS MID
Q. NS.

LM - AA, NS.

LM - AA, NS w/ ABD
M → DK GY SH.

SH - DK GY.

LM - CRM, Lr GY, FX
SUB - CRKY, FR VGY &
FOSS MID Q. NS.

LM - AA.

SH - M → DK GY.

LM - Lr → M GY, FX.
ABD SH - AA.

LM - Lr → M GY, SCATT PR
VGY Q. NS.

LM - M GY, FX, DSE.

LM - CRM, FX, FR VGY
Q. NS.

HEEBNER
2020 / 1200 / 0000

3820 (-1299) SMPL
3825 (-1304) LOG

SH - BLK, CARB.

SH - DK GY - GN.

LM - CRN. FX. CHRY.

SH - DK GY, GY - GN.

LM - CRN, Lr GY. FX.
DSE.

LM - AA.

LM - AA.

SH - GY.

LM - M GY, GY - TN, FX.
DSE. No Vis Ø.

SH - DK GY.

LM - CRN, V CHRY. No
Vis Ø.

LM - AA. SHLY.

LM - Lr GY. FX. DSE.
w/ HBD DK GY, GN
GN SH.

LM - Lr → M GY. FX.
DSE.

LM - CRN, Lr TN, FX.
GD VGY Ø, VLS.
SCATT COMID Ø.

LM - CRN. FX. DSE →
SUB - CHRY.

SH - DK GY, GY - GN.

LM - CRN, Lr TN, FX. DSE.
SPSLY POSS.

SH - DK GY.

SCATT MGY, FX, DSE LM.

SH - DK GY.

LANSING
3861 (-1340) SMPL
3867 (-1346) LOG

3900

4000

LM - CRM, FA, FOSSE, DSE,
w/ CHY - CRM, CIPQ,
DHP, DSE.

LM-AA.

LM-AA.

LM-CRM, FX, DSE, HD.

SH-DK GY, GY-GN.

LM-MGY, FX, DSE.

LM-MGY, FX, FR DONALD
D. NS.

LM-AA, No Vis D.

SH-BLK, CARB.

LM-MGY → GY-TN, VE
→ FX, DSE, HD.

LM-AA.

LM-Lt → MGY, FX,
DSE, w/ ABD W/H,
SET CHK.

LM-AA, Mostly DSE,
RARE, SCAT VGY D.
NS.

SH-BLK, CARB.

LM-CRM, SUB-CHKY →
CHKY, w/ LM-Lt → M
GY, FX, DSE.

LM-CRM, Lt → MGY-AA.

LM-AA, B'CMING SHLY.

ABD SH-M → DK GY,
GY-GN, BLK, VE
RD SH.

LM-CRM, Lt → MGY, FX,
SUB-CHKY → DSE, ABD
SH-M → DK GY, BLK.

LM, SH-AA, DEC IN
SH.

LM-CRM, Lt → MGY, FX,
SUB-CHKY → DSE,
w/ SCAT MGY, GN,
BLK SH.

SH-DK GY, GY-GN.

LM-MGY, GY-TN, FX,
DSE, ABD SH-AA.

SH-DK GY.

LM-CRM, FX, SUB-CHKY,
DSE, ABD DK GY SH.

MUD @ 4055':

9.1 WT, 56 VIS, 8.8 FILT,
4000 CHLOR, 1.5# LCM

STARK

4112 (-1591) SMPL

4116 (-1595) LOG

BASE KANSAS CITY

4181 (-1660) SMPL

4184 (-1663) LOG

DST #1: 4344-96

30-60-30-30

IF: 1/2" BLOW

ISI: No BLOW BACK

FF: WK SURF BLOW,

DIED IN 5 MIN.

4300

4400

D
S
T
#1D
S
T
#2LM - CRM. FX. SUB-CHKY.
DSE. w/ ABD GY SH.LM - CRM. FX. DSE.
SHLY.

LM - AA.

LM - AA.

SH - BLK, CARB.

LM - CRM, LG GY. FX.
SUB-CHKY. DSE. Foss.LM - LG → M GY. FX.
DSE.

LM - AA ARGILL.

LM - CRM, LG → M GY. FX.
DSE. SHLY. → M →
DK GY, GY - GRN SH.

SHLY LM - AA.

SH - DK GY → BLK, CARB.

LM - LG GY. FX. SCAT PR
→ LG VGY GY. VIK
ODOR. PR SHO DK FQ.LM - M GY. FX. DSE. No
VIS. GY. AS. VIK ODOR.

SH - DK GY, GY - GRN.

LM - CRM LG GY. FX. TIL. FX.
PR → LG VGY GY. PR ODOR. DK
STAIN. SHO FQ.
SH - BLK, CARB.

LM - DK GY, GY - IN. FX. DSE.

SH - DK GY.

LM - CRM, SUB-CHKY → GY -
IN. FX. DSE.SH - DK GY, RD. GRN. LG
SD - GY - GRN. PG. WRD, PR JARLM - GY - IN. FX. DSE. w/ ABD
DK GY. SH. SCAT RD.
GRN SH.LM - CRM, CHKY → M → DK GY
FX. DSE. w/ ABD SH - M →
DK GY, GRN. RD.LM - SH - AA. w/ ABD CNT -
CRM, LG GY. IN. REDDISH
TIL. ODOR. SENITRSL. SHP.
DSE.CNT - AA w/ BLK, DEAD SYN.
SCAT LM & SH - AA.PREDDM CNT - CRM, LG → M GY.
ODOR. SHP. DSE. → PART WEA.
PR ODOR. GY. SH. SS. FQ. WEA
PG'S.CNT - AA. PR SHO GAS BUBB.
GO SHO FQ.

CNT - AA. GO ODOR. GO SHO.

FSI: No BLOW BACK

RECOVERY:
20' MUD

SIP'S: 78-49#

FP'S: 35-38/33-37#

HP'S: 2299-2159#

BHT: 120° F

PAWNEE

4310 (-1789) SMPL

4314 (-1793) LOG

MUD @ 4370':

9.2 WT, 51 VIS, 8.0 FILT,
5000 CHLOR, 2.5# LCM

FT. SCOTT

4370 (-1849) SMPL

4374 (-1853) LOG

CHEROKEE

4395 (-1874) SMPL

4399 (-1878) LOG

PIPE STRAP @ 4396':

4411.79 STRAP

4408.25 BOARD

3.54 LONG

CONGLOMERATE

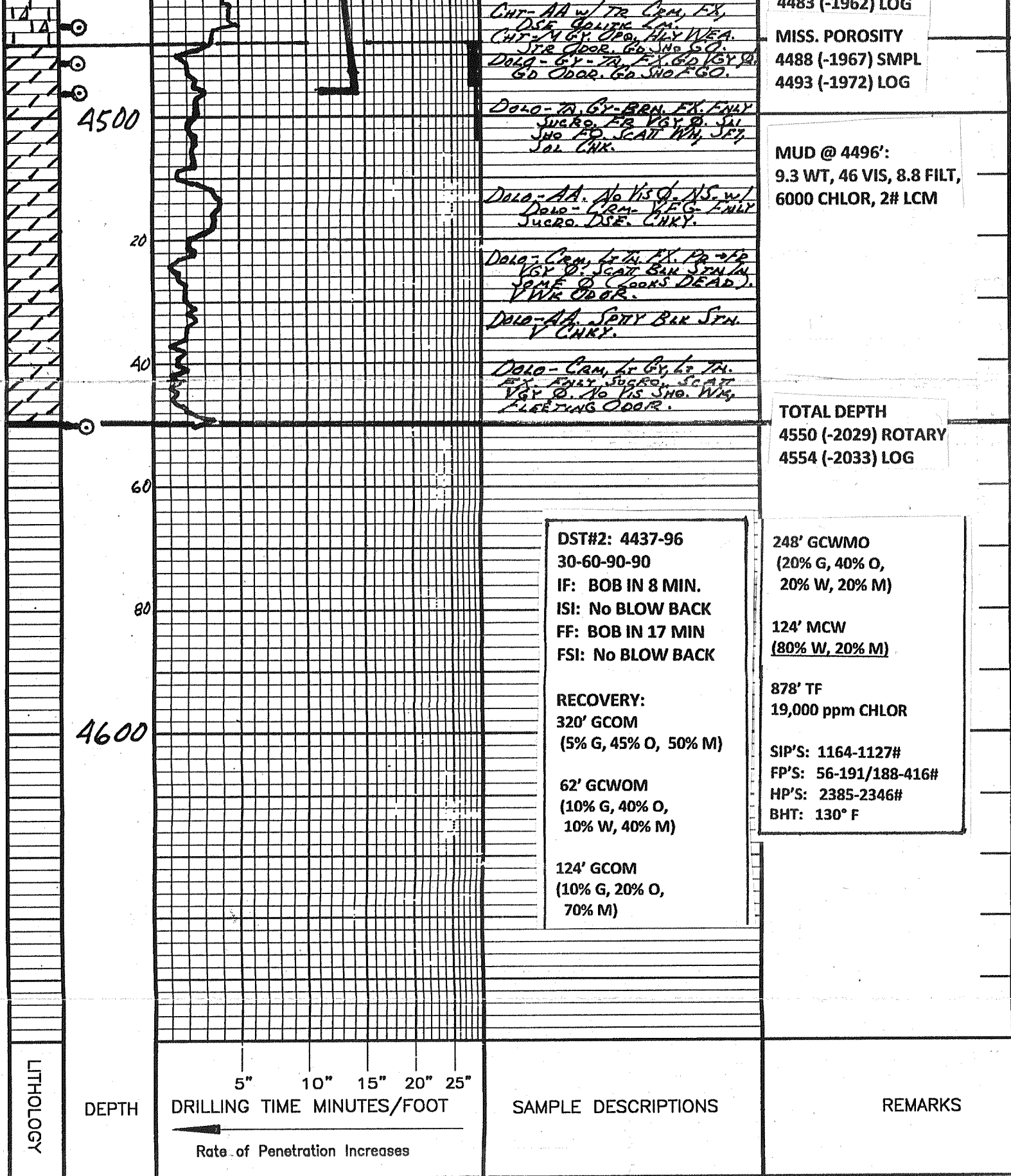
4460 (-1939) SMPL

4464 (-1943) LOG

MISSISSIPPIAN

4480 (-1959) SMPL

4482 (-1962) LOG



COMPANY: PICKRELL DRILLING COMPANY, INC.		ELEVATION: 2521 KB	
LEASE: #5 NORTON "B"			
LOCATION: 2250' FNL & 2110' FWL	SEC 12	TWP 18	RGE 26W
COUNTY: NESS	STATE: KANSAS		

