

# ROBERT STOLZLE

## CONSULTING PETROLEUM GEOLOGIST

AAPG Cont # 4244

2211 G. 231st St W. Grand Rapids, MI 49508 - 0000 (616) 704 - 3400

DRILLING TIME AND SAMPLE LOG

OPERATOR: Prolific Resources LLC  
 LEASE: Froetschner WELL NO.: 1  
 FIELD: \_\_\_\_\_  
 LOCATION: NW 1/4 NW 1/4 NE 1/4  
 SEC.: 11 TWP: 22 S RANGE: 18 W  
 COUNTY: Palmer STATE: KS  
 API NO.: 15-145-21788

CONTRACTOR: Marlin Drilling Co., Rig 16  
 COMMENCED: Sept. 17, 2014, 5 PM. COMPLETED: 9/25/14  
 POTARY TOTAL DEPTH: 4343' LOG TOTAL DEPTH: 4341'  
 GEOLOGICAL SUPERVISION FEE: 3500' by T.D.  
 LWD-UP DEPTH: 3213' LWD TYPE: Chemical/Polymer

FORMATION	DEPTH		LOG		CORRECTION
	TOP	SECTA	TOP	SECTA	
Stone Coal Bank	119	(4927)	118	(4928)	-16'
Base of Anhydrite	138	(4908)	139	(4907)	-17'
Hebner Shale	3538	(1492)	3539	(1493)	-17'
Kansing Group	3633	(1587)	3633	(1587)	-17'
Stark Shale	3853	(1807)	3856	(1810)	-25'
Base KS Clay Gr	3924	(1878)	3923	(1877)	-20'
Palmer L.S.	4020	(1974)	4021	(1975)	-26'
Cherokee Shale	4059	(2013)	4057	(2011)	-23'
Miss. Osage fm.?	4126	(2080)	4124	(2078)	-26'
Volcan	4162	(2116)	4161	(2115)	-20'
Simpson Shale	4225	(2179)	4226	(2180)	-29'
Abuckle fm.	4277	(2231)	4276	(2230)	-44'
Total Depth	4343		4341		

ELEVATIONS  
 KB 2046'  
 CL 2041'  
 Measurements are all from KB

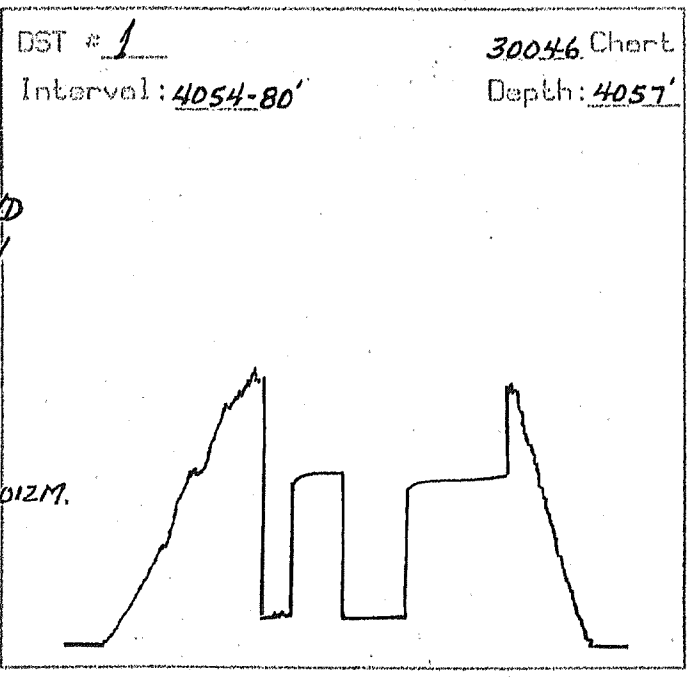
CASING RECORDED  
 SURFACE: 25/8" @ 1111'  
 CIRC.: \_\_\_\_\_  
 LOCATION: 4 1/2" 555'  
@ 4340' w/ 755' MRZ

PIPELINE SERVICES  
 Nabors - Comp. Del.  
 Dem. Svc. Dual  
 Ind. and Microlog  
 Wire Run.

LOCATION UP

916 casing			
7 1/2" casing			

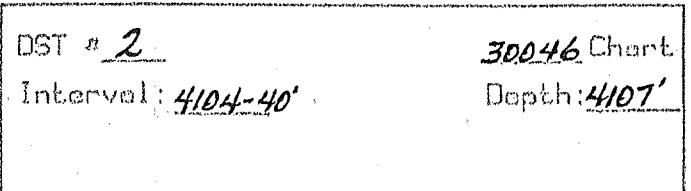
Reference Well for Structural Comparison: Prolific 1183154, 500' PL, Sec. 2  
 Comments and Recommendations: Recommended completion for gas production.



DST # 1 ZONE: Cherokee Sandstone  
 INTERVAL: 4054'-4080'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		1979 psi	<u>GTS-1,012 MCF/D</u>
2. Initial Flow: Start	<u>0</u>	188 psi	<u>1' Drilling Mud</u>
3. Initial Flow: End	<u>15</u>	196 psi	
4. Initial Shut-in: End	<u>30</u>	1297 psi	<u>Blow Dasc:</u>
5. Final Flow: Start	<u>0</u>	198 psi	<u>I.F.-GTS-2 min.</u>
6. Final Flow: End	<u>30</u>	201 psi	<u>I.SI- Noblow</u>
7. Final Shut-in: End	<u>60</u>	1271 psi	<u>F.F.-GTS-MRX, 1,012 M.</u>
8. Final Hydrostatic		1941 psi	<u>F.SI- Noblow</u>

BHT: 106°F  
 Rw: \_\_\_\_\_  
Gas sample taken during F.F.

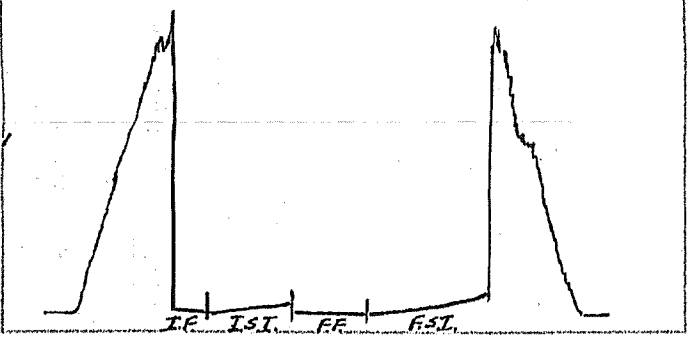


DST # 2 ZONE: Miss. Osage  
 INTERVAL: 4104'-4140'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic			
2. Initial Flow: Start			
3. Initial Flow: End			
4. Initial Shut-in: End			
5. Final Flow: Start			
6. Final Flow: End			
7. Final Shut-in: End			
8. Final Hydrostatic			

1. Initial Hydrostatic		2004 psi	40 Mud-5li.
2. Initial Flow: Start	0	28 psi	gas cut, oil specks
3. Initial Flow: End	30	26 psi	
4. Initial Shut-in: End	30	103 psi	Blow Desc:
5. Final Flow: Start	0	24 psi	I.F. - built to 5"
6. Final Flow: End	60	27 psi	I.S.I. - No blow
7. Final Shut-in: End	90	102 psi	F.F. - built to 3 1/2"
8. Final Hydrostatic		1976 psi	F.S.I. - No blow

EHT: 109°F  
Rw: \_\_\_\_\_

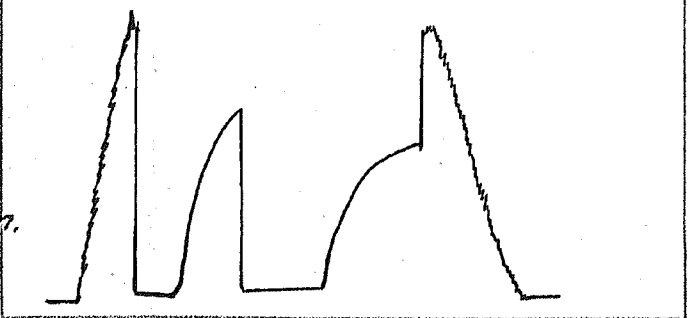


DST # 3 ZONE: Viola Fm.  
INTERVAL: 4141'-4180'

DST # 3 30046 Chart  
Interval: 4141'-4180' Depth: 4144'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2023 psi	560' Gas in Pipe
2. Initial Flow: Start	0	30 psi	50' Gas - Oil cut Mud
3. Initial Flow: End	30	40 psi	(15% gas, 5% oil)
4. Initial Shut-in: End	60	1140 psi	60' Mud cut water
5. Final Flow: Start	0	43 psi	(20% Mud)
6. Final Flow: End	60	71 psi	Blow Desc:
7. Final Shut-in: End	90	1129 psi	I.F. - BOB 5 min.
8. Final Hydrostatic		1984 psi	I.S.I. - Surf. blow

EHT: 116°F  
Rw: \_\_\_\_\_



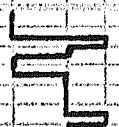
Chlorides 65,000 ppm (filterate 5,600 ppm)

ABBREVIATIONS USED

<b>ROCK TYPES:</b> Ls - Limestone Sh - Shale Sp - Sandstone Silts - Siltstone Co - Conglomerate Carb - Carbonate Qtz - Quartzite Gran - Granite Dol - Dolomite Chlk - Chalk	<b>FABRIC:</b> Fm. grn - fine grained VFG - Very fine grained Med - Medium Co - Coarse Dist - Disturbed Foss - Fossiliferous Crn - Crystalline M - Microcrystalline Col - Colitic Con - Conchoidal Mat - Matrix	<b>MODIFIERS:</b> gd - Good fr - Fair pr - Poor ex - excellent v - very w - well tr - trace occ - occasional vis - visible N - no gran - granular intergran - intergranular pp - pinpoint sd - sand gasy - gassy
<b>COLOR:</b> Wh - White Crn - Cream Clr - Clear Rd - Red Grn - Green Bru - Brown Blk - Black Mat - Mottled	<b>OTHER TERMS:</b> fl - Fluorescence (of oil) min fl - mineral fluorescence per - peritic oleo - oleonitic carb - carbonaceous oil - stain (of oil) cut - oil cut NA - no above N - none NSFOC - no stain, fluorescence, odor, or cut (of oil) oml - oomph perm - permeability F.O. - free oil vug - vugular tr - trace w/ - with	<b>TEXTURE:</b> Dns - Dense Sly - Sluggish Fri - Friable Earth - Earthy Fleck - Fleckly Fib - Fibrous Vit - Vitreous Vug - Vugular Mic - Micritic
<b>HARDNESS:</b> SFL - Soft M.SFL - Moderately soft Hd - Hard V.Hrd - Very hard		<b>OIL SHOWS</b> ○ Weak Oil Show ⊙ Fair Oil Show ⊕ Good Oil Show ⊗ Excellent Oil Show

Rate of Penetration  
in Minutes per foot  
0.5 1 2 3 4 5 6 7 8 9 10

1100



Stone Coral  
Anhydrite  
(+927) (log top)

Base of  
Anhydrite  
(+908)

1150

1208

Displace Native Mud with  
Drilling Mud at 3213'

Mud Check @ 3456'  
M.W. 8.8 lb./gal.  
Vis. 55 sec./qt.  
W.L. 7.6 ml./30 min.  
chl. 2,800 ppm  
Solids 3.5 %  
LCM 2 lbs./bbl.

Start drilling time 2nd  
10' wet and dry samples  
at 3500'

3500

Ls: cr. m. - m. hrd. - m. sft. - VFG x/N.  
V. foss.ool. - detrital, tr. chky  
occ. fr. - pr. moldic  $\phi$  NSFOC  
occ. sh. sft.  
Ls: cr. m. - tan, m. sft. - m. hrd. VFG  
x/N, V. foss.ool. - detrital, occ.  
chky, occ. sh. sft. tr. pr.  
pp.  $\phi$ . V. moldic  $\phi$  NSFOC  
Ls: cr. m. - tan, m. sft. - m. hrd. occ.  
chky, tr. ch. - V. foss.ool.  
sh. sft. - resembles oil sft. pr.  
pp.  $\phi$  NSFOC  
Ls: A.A. NSFOC

Sh: bk. m. sft. - m. hrd., carb.,  
earthy

Sh: bk. A.A. - gr. sft., clayey  
Ls: cr. - gr. hrd. dNS, VFG, mud.  
occ. foss. tr. sft. N $\phi$  NSFOC

Heebner Sh.  
(-1492)

Ls: cr. m. - gr. hrd. dNS, VFG, mud.  
tr. textured, foss. & sft.  
N $\phi$  NSFOC

Sh: lt. gr. - gr. m. sft. - clayey - earthy

Sh: lt. gr. - gr. sft. - v. sft. clay.  
tr. sft., earthy  
occ. Ls: A.A. N $\phi$  NSFOC

Sh: lt. gr. - gr. - gr. N, sft. earthy  
- v. sft. clayey, tr. sft., tr.  
MCA  
Ls: A.A.

3550

3600

Sh. ss. A.A. NΦ NSFOL  
occ. ss. gry. m. sft. - hrd. dns. jtr.  
f. n. A., VEG. mod. sft. Ang. sfb  
Ang. m. cmtd. mic. ? NΦ NSFOL  
Sh. sft. gry. sft. v. sft. occ.  
sft. jtr. m. h. , earthy clayey  
tr. ss. A.A. NΦ NSFOL

Sh. sft. gry. dk. gry. m. sft. -  
v. sft. jtr. clayey. mic. , earthy  
tr. ss. gry. m. sft. VEG. w. cmtd.  
pr. sft. mic. , NΦ NSFOL

Sh. gry. - dk. gry. m. sft. - m. hrd. ,  
dns. , occ. sft. sft. , earthy -  
hackly.  
Sh. A.A.

Ls. crm. - tan, hrd. dns. , VEG -  
mxln. , mic. , tr. foss.  
NΦ NSFOL

Haskell Ls  
(Brown Lime)  
(-1577)

Ls. crm. - brn. , hrd. dns. , mxln. -  
mxln. , mic. , occ. foss. , tr.  
sh. std. , tr. chky. NΦ NSFOL

Lansing Group  
(-1587) top

Ls. crm. - tan, sft. - chky. - hrd. ,  
dns. , mic. , VEG - mxln. , tr. ch.  
occ. foss. NΦ NSFOL

3650

Ls. crm. , hrd. - m. hrd. , dns. , VEG -  
mxln. , tr. mic. , tr. ch. , occ.  
foss. , tr. sft. NΦ NSFOL

Sh. dk. gry. - blk. , m. hrd. , dns. , jtr.  
cr. b. , hackly - earthy

Ls. crm. - tan, hrd. , dns. , VEG -  
mxln. , mic. , tr. foss. NΦ NSFOL

Ls. crm. - tan, hrd. , dns. , VEG -  
mxln. , mic. , occ. ch. , occ. chky.  
tr. foss. NΦ NSFOL

Sh. dk. gry. m. sft. - m. hrd. , hackly.  
Ls. A.A. , abun. ch. NΦ NSFOL

Sh. dk. gry. - blk. , m. hrd. , dns. ,  
hackly - fissile

Ls. crm. - brn. , hrd. , dns. , mxln. -  
mxln. , mic. , ch. , foss. - v. foss.  
tr. chky. NΦ NSFOL

3700

Sh. gry. - dk. gry. , m. hrd. , hackly

Ls. crm. - brn. , hrd. , dns. , mxln. ,  
mxln. , mic. , tr. chky. , occ. ch.  
occ. foss. - v. foss. , tr. ool.  
sh. std. NΦ NSFOL

Lansing G' Zone  
Potosi Ls  
(-1662)

Ls. crm. , m. sft. - m. hrd. , VEG mxln. ,  
ool. w. l. qd. - ex. ool. NΦ NSFOL

Ls. crm. , m. sft. , VEG mxln. , tr.  
chky. , ool. w. l. ex. ool. NΦ NSFOL

Ls. crm. , m. sft. , VEG mxln. , tr.  
chky. , ool. w. l. ex. ool. NΦ NSFOL

Ls. A.A. w. Ls. crm. , hrd. , dns. ,  
VEG - mxln. , mic. , tr. ool. NΦ NSFOL

3750

Ls. crm. , hrd. , dns. , VEG - mxln. ,  
mic. , tr. ch. , rare foss. ,  
ool. NΦ NSFOL

Ls. crm. - tan, hrd. , dns. , VEG -  
mxln. , mic. , tr. foss. , tr. sh.  
std. NΦ NSFOL

Sh. dk. gry. - blk. , m. hrd. , hackly - fiss.  
Sh. A.A.

Ls. crm. , hrd. sft. , VEG - mxln. ,  
chky. , occ. ool. w. l. pr. - tr. ool.  
NΦ NSFOL

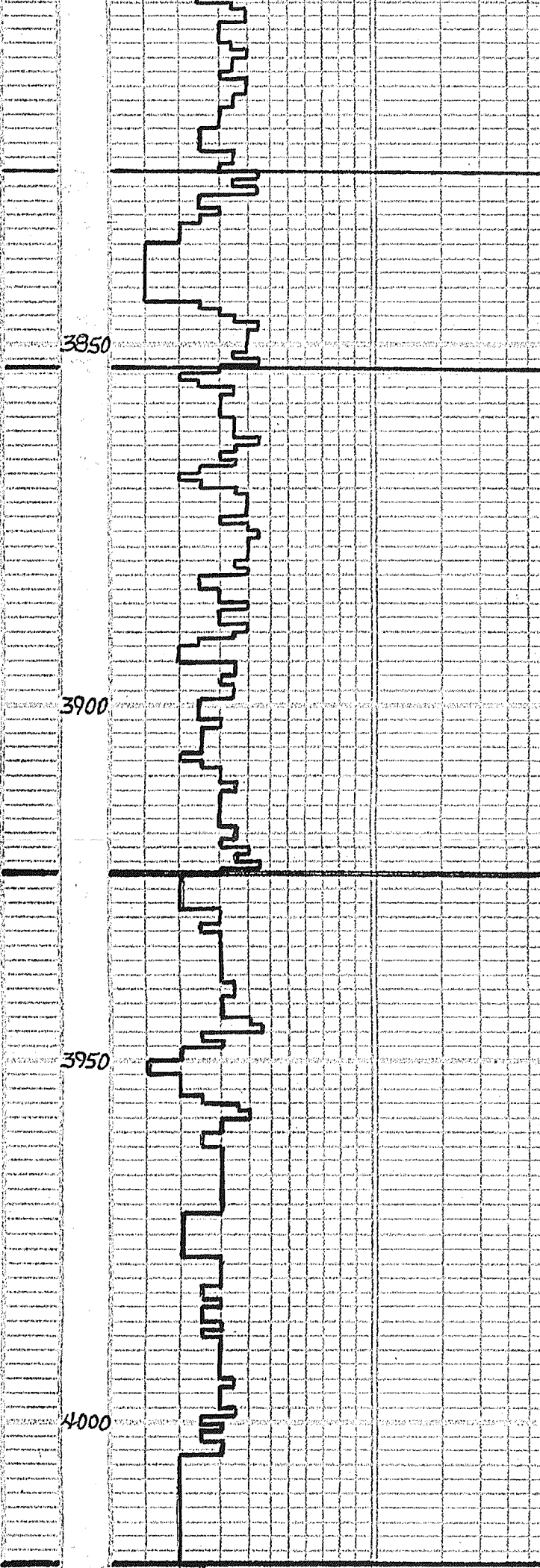
LKCA Zone  
(-1732)

Sh. dk. gry. , m. sft. , hackly  
Ls. crm. , m. sft. - m. hrd. , VEG mxln. ,  
ool. w. l. qd. - ex. ool. NΦ NSFOL

3800

Ls. crm. , hrd. , dns. , VEG - mxln. ,  
mic. , occ. ch. , tr. ool. , foss.  
NΦ NSFOL

Sh. dk. gry. - m. hrd. , dk. - grey - blk.

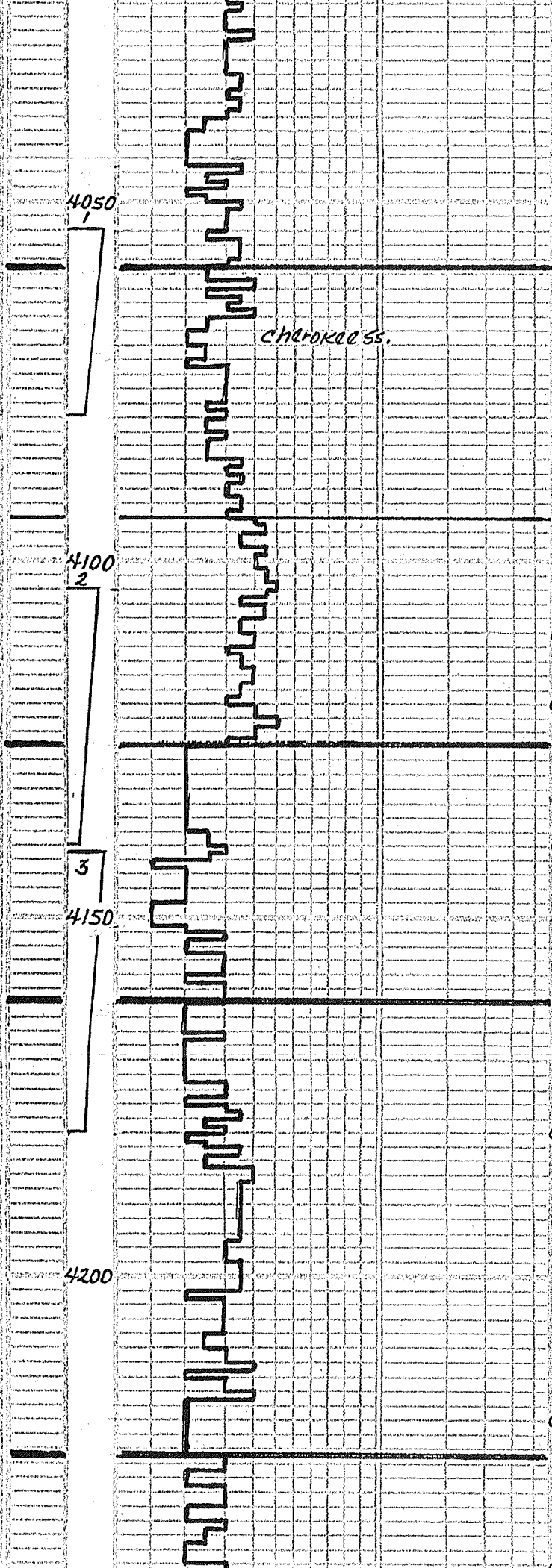


Ls. crm. - lt. gry. - hrd. - st. -  
 CHIK. VEG. - mxln. - mic. - chky.  
 occ. foss. NΦ NSFOC  
 Ls. A. A. occ. ool. w/ pr. - fr. oom. φ  
 sh. - stnd. NSFOC  
 sh. dk. gry. - rd. brn. - m. sft. - m. hrd.  
 dns. - earthy - hackly  
 sh. A. A.  
 Ls. crm. - hrd. - dns. - VEG. - mxln. - tr.  
 v. xld. - occ. ool. - tr. mic. NΦ NSFOC  
 Ls. crm. - lt. gry. - m. hrd. - m. sft. - VEG.  
 xln. - occ. ool. - w/ pr. - fr. oom. φ  
 tr. chky. NSFOC  
 Ls. crm. - m. sft. - m. hrd. - VEG. xln. - ool.  
 w/ pr. - ex. oom. φ NSFOC  
 Ls. crm. - tan. - hrd. - dns. - VEG. - mxln. -  
 mic. - occ. foss. - ool. NΦ NSFOC  
 sh. gry. - blk. - m. sft. - occ. carb.,  
 earthy - hackly  
 Ls. crm. - lt. gry. - hrd. - dns. - VEG. - mxln.  
 - occ. chky. - rare foss. NΦ NSFOC  
 sh. A. A.  
 Ls. crm. - lt. gry. - hrd. - sft. - chky. -  
 VEG. - mxln. - tr. foss. - ool. - tr.  
 sh. - stnd. NΦ NSFOC  
 Ls. crm. - lt. gry. - hrd. - dns. - VEG.  
 - mxln. - occ. sft. - chky. - tr. mic.  
 occ. foss. - sh. - stnd. NΦ NSFOC  
 Ls. crm. - lt. gry. - hrd. - sft. - chky.  
 VEG. - mxln. - occ. foss. NΦ NSFOC  
 sh. blk. - dk. gry. - m. sft. - carb.,  
 earthy  
 Ls. crm. - tan. - hrd. - m. sft. - chky.  
 tr. foss. NΦ NSFOC  
 Ls. crm. - tan. - lt. gry. - hrd. - m. sft.  
 - chky. - VEG. - mxln. - occ. foss. NΦ NSFOC  
 Ls. crm. - hrd. - m. sft. - VEG.  
 - mxln. - mic. - tr. chky. - occ. chky.  
 occ. ool. w/ pr. - oom. φ NSFOC  
 abun. sh. - carb. -  
 Ls. crm. - lt. gry. - hrd. - sft. - chky. - VEG.  
 - mxln. - tr. foss. - sh. - stnd. NΦ NSFOC  
 sh. gry. - blk. - m. sft. - earthy - tr.  
 carb.  
 sh. gry. - rd. brn. - m. sft. - earthy  
 Ls. crm. - lt. gry. - hrd. - m. sft. - VEG.  
 - mxln. - tr. chky. - tr. chky. - occ.  
 foss. - sh. - stnd. NΦ NSFOC  
 sh. A. A.  
 Ls. crm. - brn. - hrd. - m. sft. - dns. -  
 tr. xln. - mxln. - tr. mic. - tr. chky.  
 occ. foss. NΦ NSFOC  
 sh. gry. - grn. - rd. brn. - sft. - m. sft.  
 earthy. - occ. pebb.  
 Ls. crm. - brn. - hrd. - dns. - tr. xln. -  
 mxln. - occ. chky. - occ. foss. NΦ NSFOC  
 Ls. A. A. - occ. sh. - stnd. NΦ NSFOC  
 sh. gry. - rd. brn. - m. sft. - sft. - occ.  
 sandy. - earthy - clayey  
 sh. rd. brn. - gry. - grn. - dk. gry. - m. sft.  
 - sft. - occ. sandy. - earthy - clayey  
 Ls. crm. - hrd. - m. sft. - VEG. - mxln. -  
 occ. chky. - tr. foss. NΦ NSFOC  
 sh. A. A. - occ. pebb. -  
 Ls. crm. - lt. gry. - m. sft. - hrd. - dns.  
 VEG. - mxln. - mic. - tr. chky. - rare  
 foss. - occ. sh. - stnd. NΦ NSFOC  
 sh. gry. - gry. - grn. - rd. brn. - m. sft.  
 tr. sandy. - earthy  
 Ls. crm. - hrd. - m. sft. - dns. - VEG.  
 - mxln. - mic. - tr. chky. NΦ NSFOC  
 Ls. A. A. - occ. sh. - stnd. NΦ NSFOC  
 sh. gry. - rd. brn. - m. sft. - dns. -  
 earthy  
 sh. gry. - grn. - gry. - rd. brn. - m. sft. -  
 sft. - occ. st. - ty. - clay - earthy  
 sh. A. A.

LKC 'Zone (-1780')

Stark shale (-1810)

Base of Kansas City Group (-1878')



Sh. Crm., hrd. dns., VEG-MXN.,  
 Ls. Crm., hrd. dns., VEG-MXN.,  
 mic., rare foss., tr. pebb.  
 surf. NQNSFOC

Ls. Crm.-tan-ft. gry., hrd. dns.,  
 tr. sft. & chiky., VEG-MXN.,  
 mic., rare foss., tr. sh. sand.  
 NQNSFOC

Sh. dk. gry.-rd. brn., m. hrd.-m. sft.  
 dns., earthy.

Ls. Crm., sft. & chiky.-hrd. dns. mic  
 VEG-MXN., rare foss. NQNSFOC

Ls. Crm.-tan-brn., VEG-MXN., hrd.  
 dns., mic., occ. foss., sh. sand.  
 occ. sft. & chiky. NQNSFOC

Sh. dk. gry.-blk.-rd. brn., m. sft.-  
 m. hrd., dns., occ. sft. & chiky.,  
 tr. sily

SS: wh.-cl., m. hrd.-sft. & fri. A., med-  
 w. sft., subang., silt. No. 1, w. l. l.,  
 -pr. cmt., tr. brn.-blk. silt., No odor  
 No F.O., tr. cut & fl., tr. F.O. on brk

Cg: Sh. dk. gry.-rd. brn.-blu. grn., m. sft., occ.,  
 sily, occ. pebb., tr. SS: wh., sh. sand.  
 tr. q. rd., w. cmt., med. sily, sub.  
 ang. NQNSFOC

Cg: Sh. rd. brn.-gry.-blu. grn., m. sft.,  
 m. hrd., dns., tr. sft. & sily.,  
 tr. pebbles

Cg: Sh. dk. gry.-rd. brn.-blu. grn.,  
 m. sft.-m. hrd., dns., occ. sily,  
 occ. ls. pebble. No ss., No loose sd.

CFS

Cg: Sh. dk. gry.-rd. brn.-blu. grn., w.  
 m. sft., earthy, tr. sily, tr. ls.  
 ch. pebb., rare pc. SS: VEG, pr. sft.  
 sily, clayey, sily. NQNSFOC

CFS

Cg: Sh. A.A., sft. SS: wh. sily, fri. A.  
 Cht: wh., hrd., vit.-m. sft., tr. p., occ.  
 VEG P.P. φ, unif. tan silt., tr. F.O. on  
 brk, wk. poor, gd. cut & fl., few pt.  
 ch. wh., hrd., dns., occ. v. ch.-m. hrd.  
 tr. VEG pp. w. brn. silt.-3-4 pt.  
 tray, tr. F.O. on brk, wk. gas. odor.  
 gd.-ex. cut & fl., perm. thin zone.

CFS

Sh. lg. gry.-rd. brn.-blu. grn., earthy  
 Cht: wh., hrd.-m. hrd., dns., vit.-  
 sily, tr. p. NO VIS. φ, brn. mat.  
 silt., wk. cut & fl., v. wk. show

Cht: Dol. wh.-crm., hrd., VEG, lvs.,  
 occ. pr.-tr. pp. vug. φ, unif. tr. brn.  
 silt., F.SFO, wk. odor, gd. cut & fl.,  
 perm.

Cht: Dol. A.A., fri. xly, gd. vug. φ, occ.  
 tr. φ in cmt., mat. unif. silt.,  
 tr. odor, tr. F.O., gd.-ex. cut & fl.

tr. Dol. w/ shows A.A. Cht: wh.-crm.  
 hrd.-m. hrd., sily, tr. p.-vit., occ.  
 pr.-fr. vug. φ, mat., brn. silt.,  
 No F.O., wk. odor, tr. cut & fl., perm.

CFS

Cht: wh.-crm., hrd., dns., vit.-sily,  
 tr. p. NQNSFOC

Sh. dk. gry.-gry. grn.-rd. brn., m. hrd.  
 dns., occ. sily, earthy-hackly

Sh. A.A.

Cht: wh.-ft. gry., hrd., dns., vit.  
 Ls. Crm., hrd., VEG-MXN.-MXN.,  
 mic. NQNSFOC

Sh. dk. gry.-rd. brn., poss. cavings  
 Ls. Crm., hrd., dns.-sft. & chiky.  
 VEG-MXN., Not foss. NQNSFOC

Ls. sft. & chik.-hrd., dns., mic., VEG  
 -MXN., occ. foss. NQNSFOC

tr. Cht: wh.-crm., hrd., dns., vit.  
 Sh. dk. gry.-rd. brn., cavings, tr.  
 brn. gry., m. hrd., earthy-hack.

CFS

Sh. A.A.

SS: cl.-wh., m. sft., med.-fn. q. rd.  
 hrd.-fri. A., pr.-w. cmt., pr.  
 φ, w. sft. NQNSFOC

SS: A.A. pr. φ NQNSFOC w/ ss., tan,  
 hrd.-sft., VEG, w. cmt., subang.  
 -ang, calc. cmt. NQNSFOC

CFS

Sh. dk. gry., m. sft., hack-waxy  
 sily, dip. and bit. med. calc.

Pawnee ls.  
 (-1974')

DST #1  
 4054'-80'  
 Rec: 1.012  
 MCF 6/D  
 dev. 340  
 strap 1.13 short

Cherokee Sh.  
 (-2013')

Fair Show  
 Mud Check @ 4080'  
 M.W. 9.1 Solids 55.5%  
 Vis. 52 LCM 2#  
 W.L. 8.0  
 Chl. 4,300

Conglomerate  
 shale

DST #2  
 4104'-4140'  
 Rec: 40' Mud  
 sli. Gas cut

Miss. Osage fm.

Weak Show  
 (Poss. reworked)

Weak Show  
 Mud Check @ 4140'  
 M.W. 9.4 Chl. 5,200  
 W.L. 9.2 Solids 57.5%  
 Vis. 46 LCM 1#

Good Show

Viola fm.  
 (-2116)

Weak Show

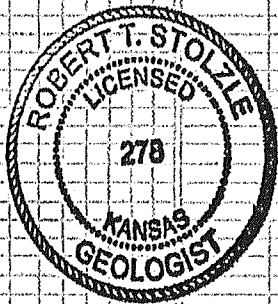
DST #3  
 4141'-4180'  
 Rec: 560' GIP  
 50' G + DCM  
 60' MCW

Simpson Sh.  
 (-2179')

4250



4300



Sh: dk. gr. - q. f. q. c. - q. d. D.N. dns. v.  
 m. hrd. - m. sff. - tr. s. ndy. j. earth  
 - packly.  
 tr. Dol. A. A. NSFOC

Sh: dk. gr. - q. f. q. c. - q. d. D.N. dns. v.  
 m. hrd. - m. sff. - tr. s. ndy. j. earth  
 - packly.  
 tr. Dol. A. A. NSFOC

Sh: dk. gr. - r. d. b. n. m. o. f. l.  
 m. hrd. - m. sff. - tr. s. ndy.  
 tr. ls. p. o. b. b. - black - fissile

Sh: A. A.  
 Dol. crm. hrd. dns. v. g. x. n. No  
 vis.  $\phi$  NSFOC  
 + 90% CAVINGS

Dol. crm. hrd. dns. v. f. n. g. nd. tr.  
 ch.  $\phi$  NSFOC  
 90% CAVINGS

Dol. wh. - crm. hrd. f. n. - med.  
 g. nd. occ. pr. - tr. int. x. n.  $\phi$   
 80% CAVINGS NSFOC

Dol. wh. - crm. hrd. f. n. - med. x. n.  
 occ. int. x. n.  $\phi$  occ. ch. k. filled  
 $\phi$  50% CAVINGS NSFOC

Dol. wh. - crm. tr. pink. f. n. - med.  
 x. n. hrd. - m. hrd. occ. q. d. - ex.  
 v. g. x. int. x. n.  $\phi$  10% CAVINGS NSFOC

Dol. wh. - crm. tr. pink. f. n. - med. g. nd.  
 x. n. med. dns. - tr. pr. int. x. n.  $\phi$   
 10% CAVINGS NSFOC

Dol. crm. tan. hrd. dns. f. n. - med. x. n.  
 tr. fr. v. g.  $\phi$  tr. ch. tr. wh. x.  
 ch. k. 5% CAVINGS NSFOC  
 Dol. A. A. tr. mx. n. mic. NSFOC

Mud Check @ 4268'  
 M. w. 9.2  
 Vis. 49 solids 6.1%  
 W.L. 8.4 LCM 2#  
 chl. 5,600

Ar-buck 12. Fm.  
 (-2231')

D.T.D. 4343'  
 L.T.D. 4341'  
 Deviation 1°

Robert Stolze  
 9/25/14