ROBERT STOLZLE

CONSULTING PETROLEUM GEOLOGIST
AAPG Cert. # 3244
3211 S. 231st ST,W. Goddard, KS 67052 - 9240 (316) 794 - 2400

DRILLING TIME AND SAMPLE LOG

OPERATOR: *Murfin Drilling Co., Inc.*
LEASE: *WNRB* WELL NO.: *1-12*
FIELD: *Wildcat*
LOCATION: *NE¼,NW¼,NW¼ (330'FNL,990'FWL)*
SEC.: *12* TWP: *21S* RANGE: *19W*
COUNTY: *Pawnee* STATE: *KS*
API NO.: *15-145-21782*

ELEVATIONS
KB *2124'*
GL *2113'*
Measurements are all from KB

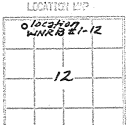
CONTRACTOR: *Murfin Drilling Co., Rig #21*
COMMENCED: *Sept. 6, 2014* COMPLETED: *9/13/14*
ROTARY TOTAL DEPTH: *4370'* LOG TOTAL DEPTH: *4373'*
GEOLOGICAL SUPERVISION FROM: *3200'* to: *T.D.*
MUD-UP DEPTH: ______ MUD TYPE: *Chemical/Polymer*

CASING RECORD
SURFACE: *New 8 5/8" @1024' W/400 SX. circ.*
PRODUCTION: *None-P&A*

WIRELINE SURVEYS
Pioneer:
CNL/CDL, DIL,
MEL, BHCS
logs were run

FORMATION	SAMPLE		LOG		STRUCTURAL COMPARISON
	TOP	SUBSEA	TOP	SUBSEA	
Stone Corral Anhy.	*1242*	*(+882)*	*1241*	*(+883)*	*+4'*
Base of Anhydrite	*1265*	*(+859)*	*1262*	*(+862)*	*+5'*
Topeka Fm.	*3316*	*(-1192)*	*3318*	*(-1194)*	*+5'*
Heebner Shale	*3650*	*(-1526)*	*3650*	*(-1526)*	*+3'*
Lansing Group	*3703*	*(-1579)*	*3703*	*(-1579)*	*+5'*
Stark Shale	*3949*	*(-1825)*	*3950*	*(-1826)*	*+7'*
Base KS City Gp.	*4018*	*(-1894)*	*4017*	*(-1893)*	*+10'*
Pawnee Ls.	*4117*	*(-1993)*	*4116*	*(-1992)*	*+13'*
Conglomerate Ss.	*4194*	*(-2070)*	*4196*	*(-2072)*	*+9'*
Miss. Osage Fm.	*4253*	*(-2129)*	*4255*	*(-2131)*	*+9'*
Kinderhook Ss.	*4297*	*(-2173)*	*4300*	*(-2176)*	*N.A.*
Viola Fm.	*4310*	*(-2186)*	*4314*	*(-2190)*	*N.A.*
Total Depth	*4370*		*4373*		

LOCATION MAP



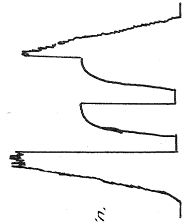
Reference Well For Structural Comparison: *Kern Drilling #1 Mezger (NWNENE Sec.11)*
Comments and Recommendations: *Recommended well be plugged & abandoned.*

DST # *1* ZONE: *Ft. Scott Sandstone*
INTERVAL: *4156'-4195*

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		*2278* psi	*10' Drilling Mud*
2. Initial Flow: Start	*0*	*38* psi	
3. Initial Flow: End	*30*	*53* psi	*Blow Desc:*
4. Initial Shut-in: End	*60*	*1291* psi	*I.F.-built to 3/4"*
5. Final Flow: Start	*0*	*53* psi	*I.S.I.-No blow*
6. Final Flow: End	*30*	*65* psi	*F.F.-Surface blow, died 10 Min.*
7. Final Shut-in: End	*60*	*1272* psi	*F.S.I.-No blow*
8. Final Hydrostatic		*1994* psi	

BHT: *120°F*
Rw: ______

DST # *1* *8159* Chart
Interval: *4156'-95'* Depth: *4192'*



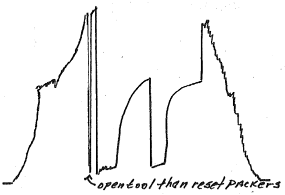
DST # *2* ZONE: *Conglomerate Sandstone*
INTERVAL: *4158'-4220'*

DST # *2* *8159* Chart
Interval: *4158'-4220'* Depth: *4218'*

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		1983 psi	276' Drilling Mud
2. Initial Flow: Start	0	98 psi	(collar at slips,
3. Initial Flow: End	30	177 psi	reset open tool)
4. Initial Shut-in: End	60	1301 psi	Blow Desc:
5. Final Flow: Start	0	174 psi	I.F.-built to 4"
6. Final Flow: End	30	214 psi	ISI-No blow
7. Final Shut-in: End	60	1262 psi	F.F.-built to 4"
8. Final Hydrostatic		1894 psi	FSI-No blow

BHT: 120°F

Rw:



ABBREVIATIONS USED

ROCK TYPES:

Ls - Limestone
Sh - Shale
Ss - Sandstone
Slts - Siltstone
Cg - Conglomerate
Cht - Chert
Qtz - Quartzite
Gran - Granite
Dol - Dolomite
Chlk - chalky

COLOR:

Wh - White
Crm - Cream
Clr - Clear
Rd - Red
Grn - Green
Gry - Grey
Blk - Black
Mot - Mottled

HARDNESS:

Sft - Soft
M.Sft - Moderately soft
Hrd - Hard
V.Hrd - Very hard

FABRIC:

Fn.grn - finegrained
VFG - Very fine grained
Med - Medium
Crs - Coarse
Dst - Detrital
Foss - Fossiliferous
Xln - Crystalline
Mxln - Microcrystalline
Ool - Oolitic
Oom - Oomoldic
Mat - Matrix

OTHER TERMS:

fl - Fluorescence (of oil)
min fl - mineral fluorescence
pyr - pyritic
glau - glauconitic
carb - carbonaceous
stn - stain (of oil)
cut - oil cut
AA - as above
Ø - porosity
NSFOC - no stain, fluorescence, odor, or cut (of oil)
smpl - sample
perm - permeability
F.O. - free oil
vug - vugular
tr - trace
w/ - with

MODIFIERS:

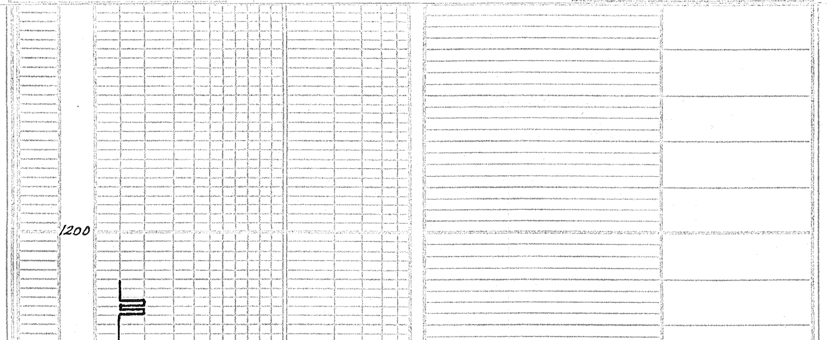
gd - Good
fr - Fair
pr - Poor
ex - excellent
v - very
w - well
tr - trace
occ - occasional
vis - visible
N - no
gran - granular
intgran - intergranular
pp - pinpoint
dd - dead
gsy - gassy

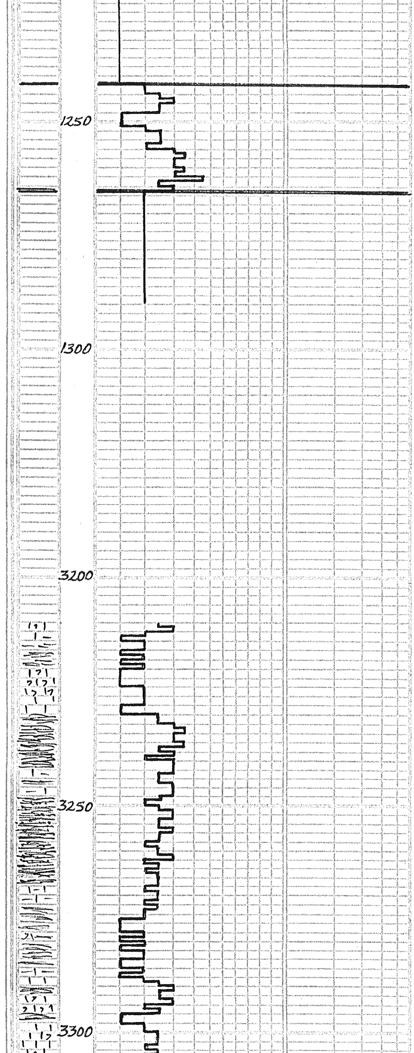
TEXTURE:

Dns - Dense
Cly - Clayey
Fri - Friable
Earth - Earthy
Hack - Hackly
Fiss - Fissile
Vit - Vitreous
Vug - Vugular
Mic - Micritic

OIL SHOWS

○ Weak Oil Show
◔ Fair Oil Show
◑ Good Oil Show
◕ Excellent Oil Show





Note: Hole drilled to 3200' w/ PDC bit.

Stone Corral Anhydrite (+882')

Base of Anhydrite (+859')

Mudcheck @3200'
M.W. 9.0 lb./gal.
Vis. 76 sec./qt.
WL. 9.2 ml./30min.
Chl. 7,600 PPM.
Solids. 4.6%
L.C.M. 2 lbs./bbl.

Sh: lt.gry.-gry., sft., earthy, occ. sndy -v. sndy + slty., occ. slts.-NØ

tr. Ls: crm.-gry., m.sft.-m.hrd., dns. VFG xln., rare foss. NØNSFOC

Ls: crm-gry., m.sft., dns., VFG xln. foss-v. foss., tr. sndy. NØNSFOC

Sh: lt.gry.-dk.gry., m.sft., earthy slty.-sndy

Ls: crm-gry., m.sft.-hrd., dns., VFG-mxln., foss., tr. sndy. NØNSFOC

Sh: gry., m.sft., dns., occ. slty.-sndy + mica, earthy

Sh: A.A.

Ls: crm.-tan-gry., hrd., dns., VFG-mxln., tr. mic., VFG-rexlzd., occ foss., tr. sndy + sh. stnd. NØNSFOC

Ls: crm.-tan-gry., hrd.-m.sft., VFG, occ. med.grnld., rexlzd., sh. stnd., tr. sndy., foss.-v. foss. NØNSFOC

Ls: A.A. NØNSFOC

Sh: gry.-dk.gry., m.sft., dns., occ. slty.-sndy., mica, earthy

Sh: lt.-dk.gry., m.hrd.-m.sft., occ. sndy.-v. sndy., earthy

Ls: crm-gry., m.hrd., dns., VFG-mxln., occ. foss + sh. stn. NØNSFOC

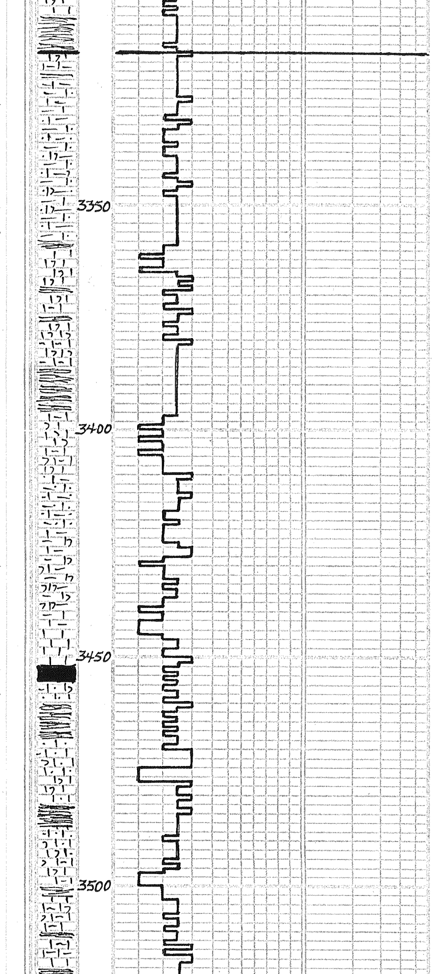
Sh: gry., m.sft., tr. slty., mica, earthy

Ls: crm.-tan, hrd.-m.sft., fn-VFG xln. foss., occ. sh. stnd. NØNSFOC

Ls: crm-tan-gry., hrd., dns., VFG-mxln., mic., occ. foss.-v. foss., tr. sndy. NØNSFOC

Sh: dk.gry., m.sft., slty., earthy

Sh: A.A.



Ls: crm.-tan-gry., m.sft.-m hrd. fn.
xln-mxln., occ. foss., tr. pr. Vug φ NSFOC
Ls: crm-tan-gry., hrd.-m.sft., dns.,
VFG-mxln., foss.-tr. pr. pp. φ NSFOC
Sh: gry-dk. gry., m.sft., earthy

Topeka Fm.
(-1192')

Sh: A.A.
Ls: crm.-tan-dk. gry., hrd., dns.,
fn. xln-rexlzd., mic., mxln., occ.
foss + sh. stnd., tr. pp. φ NSFOC

Ls: crm-tan-gry. hrd.-m.sft., dns.,
VFG-mxln., tr. rexlzd., tr. sndy.,
foss., tr. sh. stnd. NφNSFOC
Ls: A.A. NφNSFOC

Sh: gry.-dk. gry., m.sft., dns., occ.
slty., earthy
Sh: A.A.
Ls: crm.-tan-dk. gry., hrd.-m.sft.
dns., VFG-mxln., mic., occ. foss.
NφNSFOC
Sh: gry., m.sft., earthy
Ls: crm.-gry., m.sft.-hrd., dns.,
VFG-mxln., mic., occ. foss.
NφNSFOC
Ls: gry.-crm.-tan, hrd., dns., VFG-mxln.
mic., occ. foss. + sh. stnd.
NφNSFOC

Ls: gry.-crm.-tan, hrd., dns., VFG-
mxln., tr. mic., tr. rexlzd., occ.
foss-V. foss., sh. stnd.
NφNSFOC
Ls: crm.-gry., tr. tan, hrd.-m.sft.,
dns., VFG-mxln., tr. mic., occ.
foss., shly.-sh. stnd.
NφNSFOC
Ls: gry.-crm.-tan., hrd.-m.sft., tr.
chiky., VFG-mxln., mxle., occ.
foss., shly.-sh. stnd. NφNSFOC
tr. Sh: dgy., m.sft., earthy

Ls: gry.-crm., hrd.-m.sft. + chiky.,
VFGxln-mxln., foss. + sh. stnd., tr.
sndy., tr. pr.-fr. moldic φ NSFOC

Ls: A.A. NφNSFOC
tr. Sh: gry., m.sft., earthy

Sh: gry.-dk. gry., m.sft.-m.hrd., earth.
Ls: crm-gry., hrd., dns.-tr. sft.
+ chik., Abun. foss. + sh. stnd.,
tr. ool. NφNSFOC
Ls: A.A. NφNSFOC

Sh: gry.-blk., m.sft.-sft., earthy

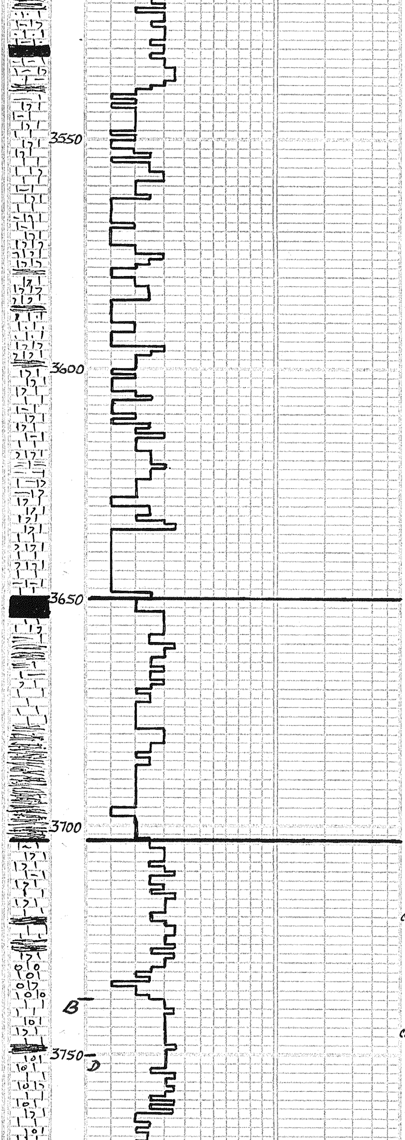
Sh: A.A.
Ls: crm-tan-gry., m.hrd.-hrd.,
dns., VFGxln., foss.-V. foss., sh.
stnd., tr. sndy NφNSFOC
Ls: crm.-tan, hrd., dns., VFG-mxln.
mic., occ. foss., Abun. sndy.
ls., occ. sh. stnd. NφNSFOC

Ls: A.A., less. sndy., tr. sft. +
chiky. NφNSFOC
Sh. gry.-dk. gry., m.sft., earthy

Ls: crm.-lt. gry., sft. + chiky-hrd.,
dns., VFG-mxln., mic., occ. foss.,
occ. sndy.-V. sndy., tr. sh. stnd.
NφNSFOC
Ls: crm., hrd., dns., occ. sft. + chiky
sh. stnd., foss. w/ occ. fr.-pr.
VFG pp. φ NSFOC

Sh: gry., m.sft.-sft., earthy
Ls: crm-tan-gry., hrd., dns., occ.
foss. + sh. stnd. NφNSFOC

Ls: crm.-gry.-tan, hrd., dns., occ.
sft. + chiky., VFG-mxln., mic.,
foss., Abun. sh. stn. NφNSFOC



Ls: crm-lt.gry, hrd-m.hrd, dns,
VFGXlN, foss, sh.stnd, occ.
sndy, tr. VFG pp Φ NSFOC
Sh: dk.gry, m.hrd, dns, earthy
tr. Sh: A.A.
Ls. crm-gry, hrd, dns, VFG-mxlN.
Abun. Sh.stN, occ. foss. tr. cht.
NΦ NSFOC

Ls: crm-lt.gry.-tan, hrd-sft.+
chiky., VFG-mxlN., occ. mic., sh.
stnd, occ. foss. w/ tr. pr. pp. vug
Φ NSFOC

Ls: crm.-gry, hrd-sft. sl. chiky.
VFG-mxlN., mic., foss. w/ tr.
pr.-fr. pp vug. Φ NSFOC

Ls: crm.-lt.gry.-tan, hrd-sft.+chik.
VFG-mxlN, occ. foss.+sh.stnd.,
tr. mic., tr. pr. pp. vug Φ NSFOC

Ls: A.A., occ. v. foss. w/ fr.-gd. vug
+ moldic Φ NSFOC
tr. Sh: gry., m.sft. dns., earthy

Ls: crm.-tan, tr. gry., m.hrd.-sft.,
occ. chiky., VFG-mxlN., tr. mic.
tr. sh. stnd., occ. foss-v. foss. w/
fr-gd. int. part. + vug. moldic Φ NSFOC
Ls. crm., hrd-sft. + chik., VFG-mxlN.
occ. sndy., occ. foss. w/ gd.-
ex. vug Φ NSFOC
tr. Sh. dk.gry., m.sft., earthy
Ls: crm.-tan-lt.gry, hrd-sft., VFG
-mxlN., tr. mic, occ. chik. foss.
w/ fr.-pr. VFG pp Φ NSFOC

Ls: crm.-tan-lt.gry. hrd-sft.+
chiky., VFG-mxlN., mic., occ.
foss., tr. sh. stnd., occ. fr.-pr.
p.p. vug Φ-VFG, NSFOC

Ls: crm-tan, hrd-sft + chiky.
VFG-mxlN., mic., tr. foss.
tr. sh. stnd. NΦ NSFOC

Ls: crm-tan, hrd-sft + chik.,
sh. stnd., VFG-mxlN., occ. mic.
foss. NΦ NSFOC

Ls: A.A., more sft., chiky, more
sh. stnd. NΦ NSFOC

Heebner Shale
(-1526')

Sh: dk.gry.-blk., m.sft.-m.hrd.,
dns., tr. carb., earthy
Ls. tan, hrd., dns., mxlN. mic.
sh. stnd., rare foss. NΦ NSFOC
Sh: gry.-dk.gry., m.sft, dns., slty.,
earthy.
Ls: crm.-tan, hrd, dns., VFG-
mxlN., rare foss. NΦ NSFOC
Ls: A.A. NΦ NSFOC

Sh: gry.-dk.gry., m.sft., dns., occ
slty., earthy

Sh: lt.gry. grn.-dk.gry., m.sft., dns.
earthy, occ. slty.-sndy.
Abun. ls. 'cavings' A.A.

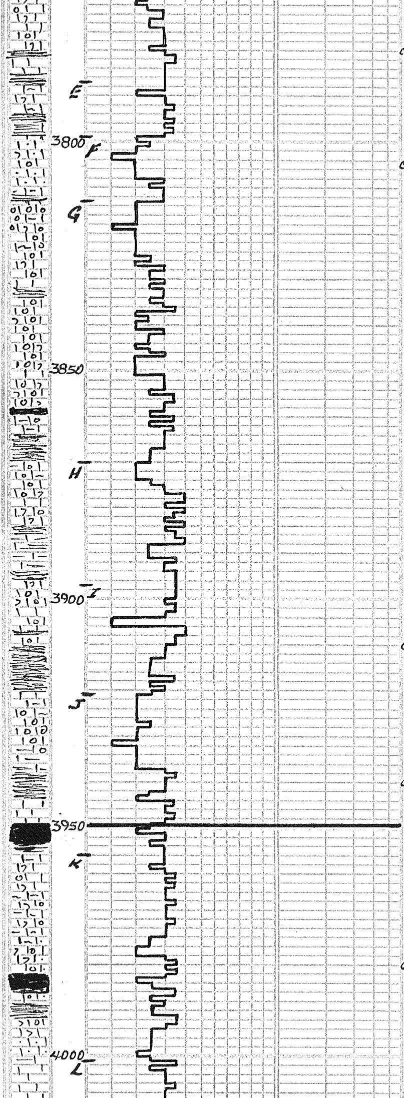
Sh: lt-dk.gry., sft. + clayey-m.sft.
earthy, tr. slty.
Abun. ls. 'cavings'
Ls. wh-crm., sft., chiky-hrd, dns.
VFG-mxlN., occ. foss. w. tr. pr.
int part. vug. Φ NSFOC

Lansing Group
(-1579')

Ls: crm.-tan, hrd, dns., VFG-mxlN.
mic., tr. rexlzd., occ. foss.+sh.
stnd., tr. pr. oom-Φ NSFOC

CFS

Ls: tan, hrd., dns., VFG-mxlN, mic.
pyr., rare foss. NΦ NSFOC
Sh: gry.-dk.gry., m.sft.-m.hrd.,
dns., earthy-hackly
Sh: A.A.
Ls: crm.-tan, hrd.-sft.+chiky.
VFG-mxlN., tr. foss. w/ 1-2 pc.
fr. oom./moldic Φ NSFOC
Ls: A.A., occ. chik., hrd., dns. mxlN
mic., rare foss. NΦ NSFOC
CFS
Sh: dk.gry.-blk., m.sft., earthy,
tr. carb.
tr. Sh: A.A.
Ls: wh-crm., hrd., dns., fnxlN-mxlN.
mic., tr. cht., occ. foss. + ool. w/ pr.
int part. Φ NSFOC
Ls: wh-crm., hrd-sft. + chiky.,
VFG-mxlN., occ. foss. + ool.
NΦ NSFOC



Ls: wh.-crm.-lt.gry., hrd.-sft.+chiky. fnxln-mxln., tr.rexlzd, occ.foss. +ool. w/tr.pr. intpart.φ NSFOC

CFS

Sh: gry-blk., m.sft., dns., carb, earthy

Ls: crm.-wh.-lt.gry., hrd.dns., VFG-mxln., occ.rexlzd, occ.sft.+chiky., tr.foss., tr.sh.stnd. Nφ NSFOC

Ls: crm-wh.-gry., hrd.-sft.+chiky VFG-mxln., tr.rexlzd., tr.foss.+ sh.stnd. Nφ NSFOC

Ls: A.A., chiky., tr.ool. w/gd.oom φ NSFOC

CFS

Ls: crm-tan, hrd., dns., occ.ool., occ. sndy, tr.chiky Nφ NSFOC

Ls: crm-brn, hrd.-sft.+chiky., VFG-mxln., tr.cht., tr.ool. w/ gd.oom.φ, sh.stnd. NSFOC

Ls: crm-brn, hrd.-sft.+chiky., VFG-mxln., mic., tr.foss.+ool. sh.stnd. Nφ NSFOC

Ls: crm.-brn.-lt.gry., hrd.-m.sft., dns., VFGxln-mxln., tr.chiky., occ. foss.+ool. w/ tr.gd.-ex.oom.φ tr.sndy NSFOC

Ls: crm.-tan, hrd., dns., occ.sft.+ chiky., occ.foss.+ool., VFG-mxln. tr.cht., tr.pr-tr.oom.φ tr.sndy NSFOC

Ls: crm.-tan., hrd.-m.sft., VFG-mxln., mic., occ.foss.+ool. w/ occ.gd.-ex.oom.φ NSFOC

Ls: A.A. sli. more oom.φ NSFOC

Sh: gry.grn-dk.gry., m.sft., dns., earthy-hackly

Sh: A.A.

Ls: crm., hrd., dns., VFG.xln., occ.ool. w/.gd.oom.φ NSFOC

Ls: crm-gry., hrd., dns., occ.sft. +chiky., occ.sh.stnd., VFG-mxln., tr.ool. w/ pr.oom.φ tr.sndy NSFOC

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

Ls: crm-tan-brn., hrd., dns., VFG.xln., ool. w/tr.ft.oom.φ NSFOC

Ls: crm.-tan, hrd., dns., VFG.xln. occ.ool.+foss. w/ gd.-ex. oom.φ NSFOC

CFS

Ls: A.A., tr.oom.φ NSFOC

Sh: gry.-blk., sft.-m.sft., occ. slty, tr.carb., earthy

Mud Check @ 3907'
M.W. 9.2
Vis. 62
W.L. 8.8
Chl. 6,800
Solids 6.1%
LCM 2#

Sh: gry., m.sft., earthy, tr.slty

Ls: crm.-tan, hrd., dns., VFG-mxln. tr.chiky., tr.sh.stnd., occ.ool. w/tr.-gd.oom.φ NSFOC

Ls: crm., hrd., dns., fn-VFGxln., occ.foss.+ool. w/ Abun. gd.-ex.oom.φ NSFOC

CFS

Ls: crm.-tan, hrd., dns., fnxln-mxln. tr.chik., occ.ool., tr.foss., pr.-fr. oom.φ NSFOC

Sh: dk.gry.-blk., m.sft., earthy, carb.

Stark Shale
(-1825')

Sh: blk., sft., carb., earthy

Ls: tan, hrd., dns., fnxln-mxln. sh.stnd., occ.foss.+ool. w/tr. oom.φ NSFOC

Ls: crm.-tan-lt.gry., hrd., dns., fn. xln-mxln., foss.+ool., sh.stnd., tr.chiky, tr.sndy. occ.pr.-fr. oom.φ NSFOC

Ls: crm.-gry., hrd.-sft.+chiky., fnxln-mxln., tr.cht., sh.stnd. occ.foss.+ool. w/ tr.pr.oom.φ tr.sndy. NSFOC

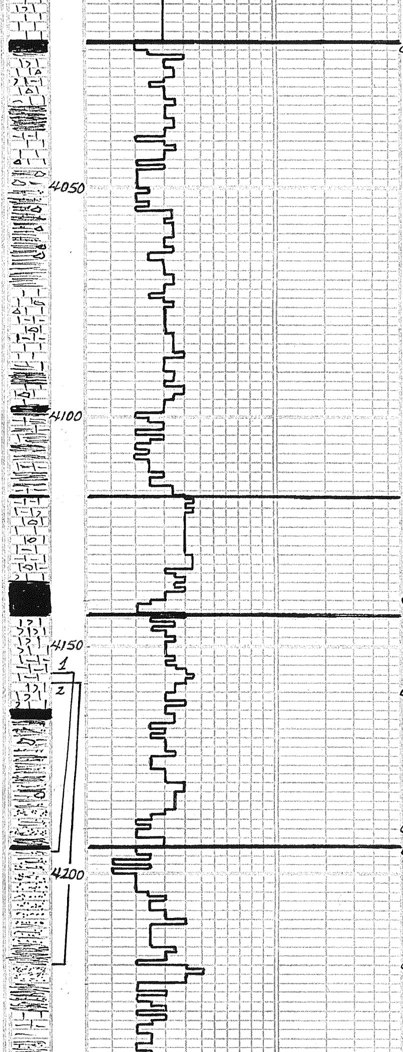
CFS

Ls: A.A., tr.oom.φ A.A. NSFOC

Sh: blk-dk.gry., m.sft., carb., earthy

Ls: crm.-lt.gry., hrd., dns., fnxln-mxln., mic., occ.wh., sft.+chiky tr.sndy., tr.foss.+ool. Nφ NSFOC

Ls: crm.-lt.gry., hrd., dns., VFG-mxln., mic., tr.chiky., tr.rexlzd. rare foss. Nφ NSFOC



Ls: crm-tan-lt. gry., hrd.-m.sft. +chiky., VFG-mxln., occ. foss. tr. Sh. stnd., tr. pr. opm. φ NSFOC

CFS Sh: dk. gry.-blk., m.sft. carb., earthy tr. Sh: AA.

Base of Kansas City Gp. (-1894')

Ls: crm-tan-gry., hrd., dns., VFG-mxln., tr. cht., sh. stnd., tr. foss. NØNSFOC

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

Ls: tan-gry., hrd., dns., occ. sft. +chiky., foss. NØNSFOC

Sh: gry., m.sft., dns., hack-earthy

Ls: crm-tan-gry., hrd.-sft. +chik., VFG-mxln., mic., occ. pebb. surf., tr. foss. NØNSFOC

Sh: rd. brn.-gry., sft.-m.sft., occ. clayey, occ. sndy., earthy

Ls: crm-tan-gry. A.A. NØNSFOC

Sh: rd. brn.-gry. grn., m.sft.-sft., sndy, earthy

Ls: crm-gry., hrd., dns, VFG-mxln. mic., occ. pebb., rare foss. NØNSFOC

Ls: crm.-brn.-gry., hrd., dns., fn xln-mxln., mic., sh. stnd., occ. foss. NØNSFOC

DST #1
4156-4195
Rec. 10' Mud
Deviation 3/4°

Ls: A.A. occ. pebble NØNSFOC

Sh: rd. brn-gry. grn., sft., occ. sndy., earthy

Sh: rd. brn-mar.-dk. gry.-blk., sft.-m.sft., earthy

Ls: gry. sh. stnd. pebb., hrd. dns. VFG-mxln. NØ NSFOC

Sh: rd. brn-gry. grn., sft.-m.sft., dns. earthy, occ. pebble-ls.

Sh: rd. brn-gry. grn., m.sft.-sft., tr. sndy., earthy

Ls: crm-brn-gry., hrd., dns., VFG-mxln. sh. stnd., occ. foss. NØNSFOC

Pawnee Ls. (-1993')

Sh: A.A.

Ls: crm-tan, hrd., dns., VFG-mxln. mic., pyr., sh. stnd., occ. pebb. surf., rare foss. NØNSFOC

Ls: A.A. NØNSFOC

Sh: gry.-gry. grn-rd. brn, mottled, m.sft-sft., earthy, occ. sndy.

CFS Sh: A.A., occ. blk., carb., earthy

Ls: crm-brn., hrd., dns., VFG xln., foss-v. foss. NØNSFOC

lower Pawnee (-2019')

Ls: crm-brn, hrd., dns., VFG xln., tr. rexled, foss.-v. foss., tr. pr. vug. moldic φ NSFOC

CFS Sh: blk., m.sft., dns., carb., earthy

Sh: A.A.

w/ Sh: rd. brn-gry. grn.-ylw., v.sft.+ clayey-sft., earthy, tr. sndy.

MudCheck @ 4195'
M.W. 9.6
Vis. 65
W.L. 8.0
Chl. 7,800
Solids 8.8%
LCM 2#

Sh: rd. brn, sft., clayey, occ. loose sd.-fn. grnd., w-modw. rnd.

Ls: crm-wh., hrd., dns., VFG xln., sndy NØNSFOC

Sh: rd. brn, sft., clayey, sndy?

Ls: crm., m. hrd, dns., VFG xln. sndy. NØ 1-2 pc. Ss: wh., wcmtd., fria., mod. rnd, med-fn. grnd., calc. NØNSFOC

CFS Ss: wh-clr., 2-3 pc. /tray w/. stn., wk. cut+fl., abun. loose sd., No F.O., No odor

Very weak Show

CFS Ss: tr. med. grnd, pr. srtd., mod. cmtd. mod rnd, pr. φ, dk. stn., fr. cut+fl.

Conglomerate Ss.
Weak show
(-2070')

Cg: / Sh: rd. brn, m.sft., earthy, sndy tr. cht., occ. lg. sd. grns. NØNSFOC occ. rough grn w/ dk. stn. & nit. wk. cut+fl.

Cg: / Ss: abun. sh. A.A., abun. sd. grns. med-fn., mod. rnd, 1-2 mod-wemtd. clusters w/ dk. stn., fr.-pr. cut+fl. occ. stnd. rough grn. A.A. No odor, No F.O.

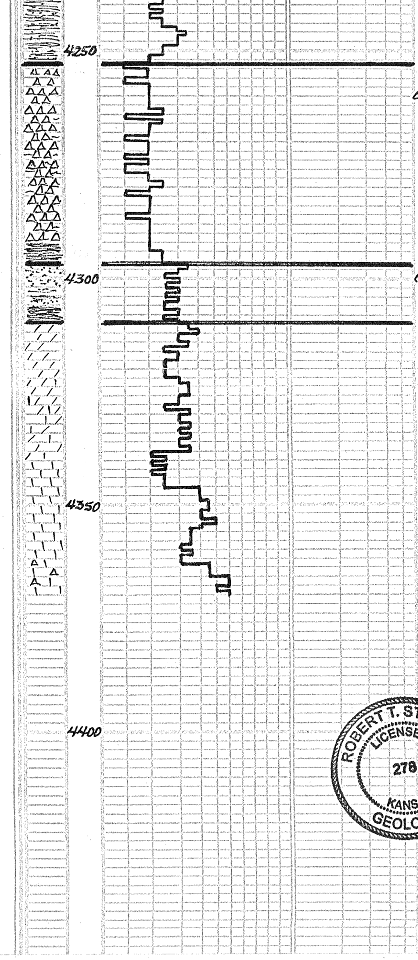
Weak show

CFS Cg: / Sh: rd. brn.-dk. gry. m.sft., occ. sndy., tr. ls. pebb. earthy

Ss: wh., hrd., dns., fn. grnd., w. cmtd. x φ

DST #2
4158'-4220'
276' Mud

Cg: / Sh: rd. brn.-gry. grn.-dk. gry. m.sft., tr. sndy. earthy



Cg: Sh. rd. brn-gry. grn-dk. gry., mott. m. sft, tr. sNdy., earthy

Cht: wh.-crm., hrd., dns., Vit., 1-2pc devit-sli. weA. NØNSFOC

Cht: A.A., Abun. cg. Sh. w/ tr. cht. wh., m. hrd., wea. trip. pp. Vug Φ lt. stN., wk. cut, tfl., 2-3pc./tray much barren.

(-2129')

Miss. Osage Fm.

Very weak show

Cht: wh., hrd.-m. hrd., vit-sli. trip. occ. pr-fr. VFG-pp. Vug Φ, most unwea. cht. NSFOC

Cht: wh-crm., hrd., devit.-trip. tr. pr. Vug. Φ, tr. sh. stnd. NSFOC

Cht: wh.-crm., hrd., vit-trip, tr. pr. p.p. Vug Φ, tr. sh. stnd. (gry.-grn.) tr. sNdy. NSFOC

Cht: A.A. tr. pr. pp. vug. Φ NSFOC

Ss: wh.-clr., hrd. dns. w. cmtd., tr. friA., pr. srtd. med-fngrnd. rnd-subang., tr. pr. Φ NSFOC

Ss: A.A. tr. friA., pr. Φ NSFOC
Abun. Cg. Sh. cavings

Kinderhook Ss. (-2173')

Sh: gry., m. hrd-m. sft., earthy-hack

Ls. crm., hrd., dns., VFGXlN. NØNSFOC

Viola Fm. (-2186')

Dol: tan, hrd., dns., VFG-mxlN., mic. NØNSFOC
Abun. cavings

Dol: tan, hrd., dns., VFG-mxlN. mic. NØNSFOC

Calc. Dol: crm.-wh., hrd., dns., VFG xlN. NØNSFOC

calc. Dol: crm., m. hrd.-hrd., dns VFGXlN., tr. pr. Vug. Φ NSFOC

Sh: gry., m. hrd., dns, occ. sNdy., earthy

Ls: wh.-crm., sli. calc., VFG-mxlN., mic., tr. chlky., occ. pr. vug Φ NSFOC

MudCheck@4260'
M.W. 9.4
Vis. 65
W.L. 18.4
Solids 6.8%
Chl. 17,000 ppm
LCM. 1#

(still ±50% Cg. cavings)

Ls: gry., hrd., dns., VFG-mxlN., mic. NØNSFOC

Ls: crm-wh. m. sft., chlk., VFG-mxlN. NØNSFOC

Ls: crm-gry., hrd., dns., VFG-mxlN. mic., tr. chlky, occ. sli. dolo., tr. cht. wh. NØNSFOC

D.T.D. 4370'
L.T.D. 4373'

Deviation ¼°

Robert Stolzle
9/12/14

ROBERT T. STOLZLE
LICENSED
278
KANSAS
GEOLOGIST