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DRILLING TIME AND SAMPLE LOG

OPERATOR: Murfin Drilling Co., Inc.
LEASE: Frahm 'A' WELL NO.: 1-20
FIELD:
LOCATION: 2298' FSL, 1000' FEL (SW, NW, NE, SE)
SEC.: 20 TWP: 10S RANGE: 34W
COUNTY: Thomas STATE: KS
API NO.: 15-193-20838-00-00

CONTRACTOR: Murfin Drilling, Rig #25
COMMENCED: January 27, 2012 COMPLETED: 2/7/12
ROTARY TOTAL DEPTH: 4900' LOG TOTAL DEPTH: 4893'
GEOLOGICAL SUPERVISION FROM: 3800' to: T.D.
MUD-UP DEPTH: 3470' MUD TYPE: Chemical Polymer

ELEVATIONS

KB 3244'
GL 3231'
Measurements are all from KB

CASING RECORD

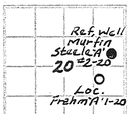
SURFACE: 8⅝" @ 270', circ.
PRODUCTION: 115 jts. 4½", 10.5# set @ 4852' w/ 225 sx P.C. @ 2748'

WIRELINE SURVEYS

Log-Tech: Dual Induction, Dual Compensated Porosity, BHC Sonic and Microresistivity Logs were run.

FORMATION	SAMPLE TOP	SAMPLE SUBSEA	LOG TOP	LOG SUBSEA	STRUCTURAL COMPARISON
Stone Corral Anh.	2750	(+494')	2748	(+496')	-2'
Base of Anhydrite	2778	(+466')	2776	(+468')	-5'
Topeka Fm.	3911	(-667')	3909	(-665')	-7'
Heebner Shale	4124	(-880')	4123	(-879')	-7'
Lansing Group	4162	(-918')	4165	(-921')	-6'
Stark Shale	4409	(-1165')	4392	(-1148')	-12'
Base KS. City Gp.	4459	(-1211')	4446	(-1202)	-6'
Marmaton Gp.	4500	(-1256)	4492	(-1248)	-6'
Pawnee Ls.	4589	(-1345')	4587	(-1343)	-9'
Myrick Station	4618	(-1374')	4615	(-1371)	-1'
Cherokee Sh.	4676	(-1432)	4670	(-1426')	-6'
Johnson Zone	4713	(-1469')	4711	(-1467)	-4'
Mississippian	4811	(-1567')	4806	(-1562)	-8'
Total Depth	4900		4893		

LOCATION MAP



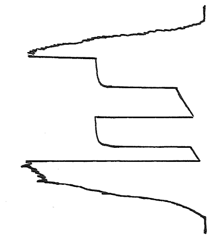
Reference Well for Structural Comparison: Murfin Steele 'A' #2-20, NW SE SE NE 20
Comments and Recommendations: Recommended Johnson Zone Completion

DST # 1 ZONE: Toronto Ls. and Lansing 'A' Zone
INTERVAL: 4102'-4180'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2027 psi	140' Sli. Oil cut
2. Initial Flow: Start	0	31 psi	Watery Mud
3. Initial Flow: End	30	146 psi	(1% oil, 25% Mud)
4. Initial Shut-in: End	60	1228 psi	570' Mud Cut Water
5. Final Flow: Start	0	137 psi	(10% Mud, Oil spots)
6. Final Flow: End	60	311 psi	
7. Final Shut-in: End	60	1214 psi	I.F. BOB 13 Min.
8. Final Hydrostatic		1962 psi	I.S.I. No blow

BHT: 122°F. F.F. BOB 19 Min.
Rw: .14 @ 56°F. F.S.I. No blow
Chl. 70,000 ppm Strap 1.40 short, Deviation 1.2°

DST # 1 8677 Chart
Interval: 4102'-4180' Depth: 4105'



DST # 2 ZONE: L-KC 'H', 'I' & 'J' Zones
INTERVAL: 4283'-4397'

DST # 2 8677 Chart
Interval: 4283'-4397' Depth: 4286'

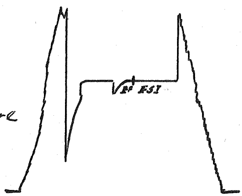
Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2104 psi	190' Mud Cut Water
2. Initial Flow: Start	0	336 psi	(30% Mud)
3. Initial Flow: End	30	1122 psi	2540' Muddy Water
4. Initial Shut-in: End	60	1281 psi	(3% Mud)
5. Final Flow: Start	0	1120 psi	2730' Total Fluid
6. Final Flow: End	30	1281 psi	±40 Min to reach
7. Final Shut-in: End	90	1281 psi	hydrostatic pressure
8. Final Hydrostatic		2029 psi	

BHT: 125°F

Rw: .099@50°F

115,000 ppm Chlorides

I.F.-BOB 1Min
I.S.I.-No blow
F.F.-BOB 2min.
F.S.I.-No blow



DST # 3 ZONE: L-KC 'K' Zone

INTERVAL: 4376'-4420'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2172 psi	510' Salt Water
2. Initial Flow: Start	0	33 psi	
3. Initial Flow: End	30	145 psi	
4. Initial Shut-in: End	60	1044 psi	I.F.-BOB 12 Min.
5. Final Flow: Start	0	137 psi	I.S.I-No blow
6. Final Flow: End	60	257 psi	F.F.-BOB 24 Min.
7. Final Shut-in: End	90	837 psi	F.S.I.-No blow
8. Final Hydrostatic		2093 psi	Slight plugging during initial flow.

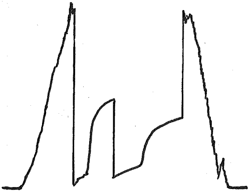
BHT: 127°F

Rw: .13@59°F

63,000 ppm Chlorides

DST # 3 8677 Chart

Interval: 4376'-4420' Depth: 4379'



DST # 4 ZONE: Lwr. Pawnee-Myrick Station

INTERVAL: 4612'-4635'

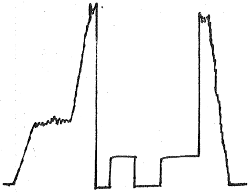
Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2385 psi	140' Mudcut Water
2. Initial Flow: Start	0	34 psi	(30% Mud)
3. Initial Flow: End	30	63 psi	w/oil on top-TSTM
4. Initial Shut-in: End	60	372 psi	
5. Final Flow: Start	0	67 psi	I.F.-3" blow
6. Final Flow: End	60	105 psi	I.S.I.-No blow
7. Final Shut-in: End	90	372 psi	F.F.-5" blow
8. Final Hydrostatic		2158 psi	F.S.I.-No blow

BHT: 128°F

Rw: .185@50°F 75,000 ppm. Chlorides

DST # 4 8677 Chart

Interval: 4612'-35' Depth: 4615'



DST # 5 ZONE: JohnsonZone

INTERVAL: 4673'-4740'

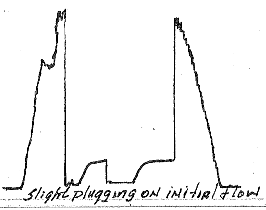
Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2418 psi	5' Clean Oil
2. Initial Flow: Start	0	29 psi	140' Gas+Mudcut Oil
3. Initial Flow: End	30	48 psi	(20% gas, 30% mud)
4. Initial Shut-in: End	60	360 psi	400' Gas in Pipe
5. Final Flow: Start	0	52 psi	
6. Final Flow: End	60	84 psi	I.F.-5" blow
7. Final Shut-in: End	90	355 psi	I.S.I.-No blow
8. Final Hydrostatic		2328 psi	F.F.-BOB 31 Min. F.S.I.-No blow

BHT: 122°F.

Rw:

DST # 5 8677 Chart

Interval: 4673'-4740' Depth: 4676'


slight plugging on initial flow

ABBREVIATIONS USED

ROCK TYPES:

Ls - Limestone
Sh - Shale
Ss - Sandstone
Sltst - 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
sty - sooty

TEXTURE:

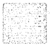
Dns - Dense
Cly - Clayey
Fri - Friable
Earth - Earthy
Blcky - Blocky
Fiss - Fissile
Vit - Vitreous
Vug - Vugular
Mic - Micritic

OIL SHOWS

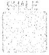
○ Weak Oil Show
◔ Fair Oil Show
◑ Good Oil Show
● Excellent Oil Show

ROCK TYPE SYMBOLS

SHALE



CARBONACEOUS SHALE



QUARTZITE

SANDSTONE

LIMESTONE

SALT

OOLITIC LIMESTONE

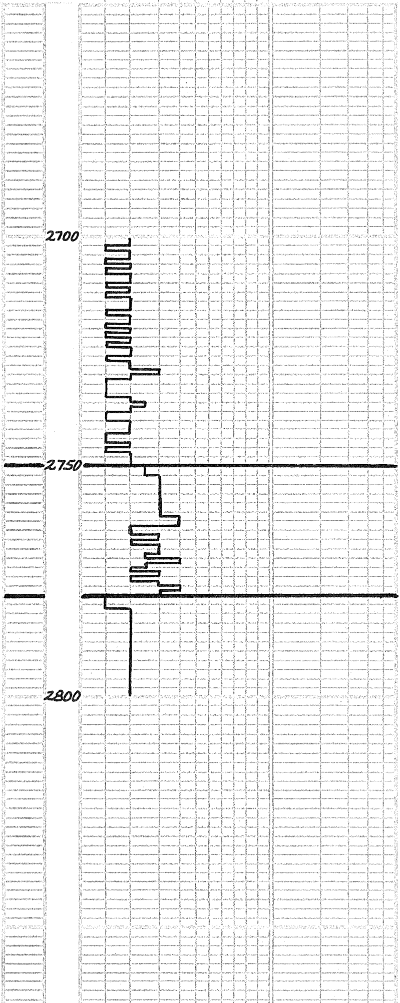
DOLOMITE

ANHYDRITE

CHERT

GRANITE

LITHOLOGY	DRILLING TIME	GAS SHOWS TOTAL GAS UNITS CHROMATOGRAPH UNITS	Oil Shows	SAMPLE DESCRIPTIONS	REMARKS



Stone Corral Anhydrite +494

Base of Anhydrite +466

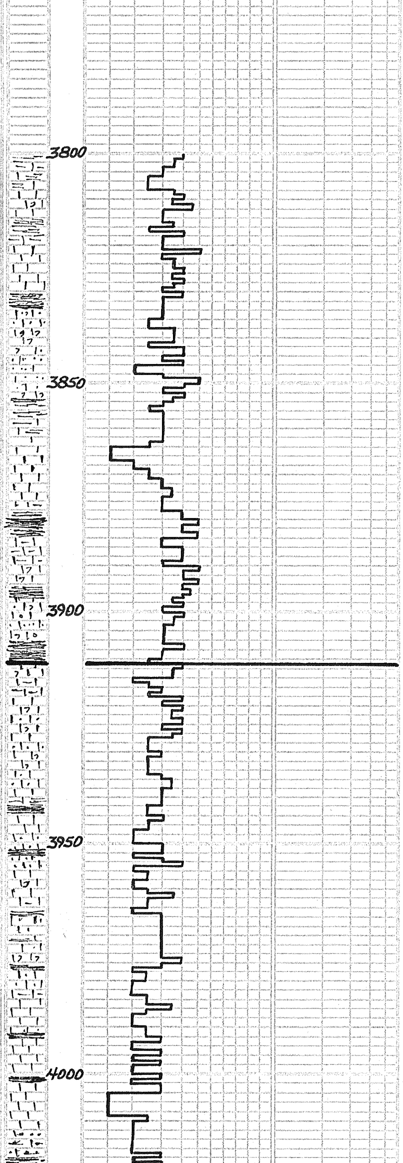
Average Wt. on Bit-38,000-40,000#

Pump pressure 1,000 psi

R.P.M. 80

Mud Check @ 3809'
M.W. 9.0 lb./gal.
Vis. 60 sec./qt.
W.L. 6.4 ml./30 min.
chl. 3,700 p.p.m.
solids 5%
LCM. 6.0 lb./bbl.

Start 1' drilling time
and 10' wet + dry samples
at 3800'



Ls: gry., sft.-m.hrd., dns., VFG xln.,
foss.-V.foss.-dk.gry. foss.
NØ NSFOC

Sh: gry.-dk.gry., m.sft.-m.hrd., hackly
Ls: A.A. w/ Ls: crm., hrd., dns., VFG-
mxln., tr. chlk., occ. foss. NØ NSFOC
Sh: gry. grn-dk. gry., sft., clay-
earthy.-m.hrd., dns., hack.
Sh: A.A., occ. maroon?, sft., earthy
Ls: gry.-dk.gry., hrd., dns.-m.
sft., occ. foss., tr. sft. + chlk.
NØ NSFOC

Sh: gry.-gry. grn., m.sft., sndy.-slty.
earthy
Ls: gry.-crm., sft. + chlk.-hrd., dns.,
VFG-mxln., tr. foss., sndy. NØ NSFOC
Ls: crm., hrd.-sft. + chlk., VFG-mxln.
sndy.-V.sndy., occ. V. foss.
NØ NSFOC

Ls: crm-gry., hrd.-m.sft., dns., VFG-
mxln., occ. V. sndy., foss., tr. mar.
NØ NSFOC
tr. Sh: rd. brn., sft., cavings?
Sh: A.A., occ. gry., m.sft., earthy
Ls: crm-gry., hrd., dns., VFG-mxln.
occ. foss. + sndy. NØ NSFOC

Ls: crm.-dk.gry., hrd.-sft. + chlk.
VFG-mxln., occ. rexlzd., foss.-
V.foss., occ. fr.-gd. vug. φ, some
moldic. NSFOC
Ls: A.A., tr. pr. moldic. vug. φ,
tr. sh. stnd. NSFOC
Sh: gry.-rd. brn., m.sft.-m.hrd.,
dns., tr. mica., earthy-hackly
Sh: A.A.
Ls: crm-gry., hrd., dns., VFG-mxln.
occ. foss., sh. stnd. NØ NSFOC

Sh: gry. grn., m.sft., sndy. earthy
Ls: crm.-gry., hrd., dns., fn.xln-
mxln., occ. V. foss., tr. ool., occ. V.
sndy. NØ NSFOC

Topeka Fm.
(-667')

Ls: crm.-gry., hrd.-m.sft., dns.,
VFG-mxln., tr. mic., foss., tr. sh.
stnd., tr. chlky NØ NSFOC
tr. Sh: gry. gry., m.sft., earthy

Ls: crm., hrd.-sft. + chlk., VFG-mxln.
occ. foss. NØ NSFOC

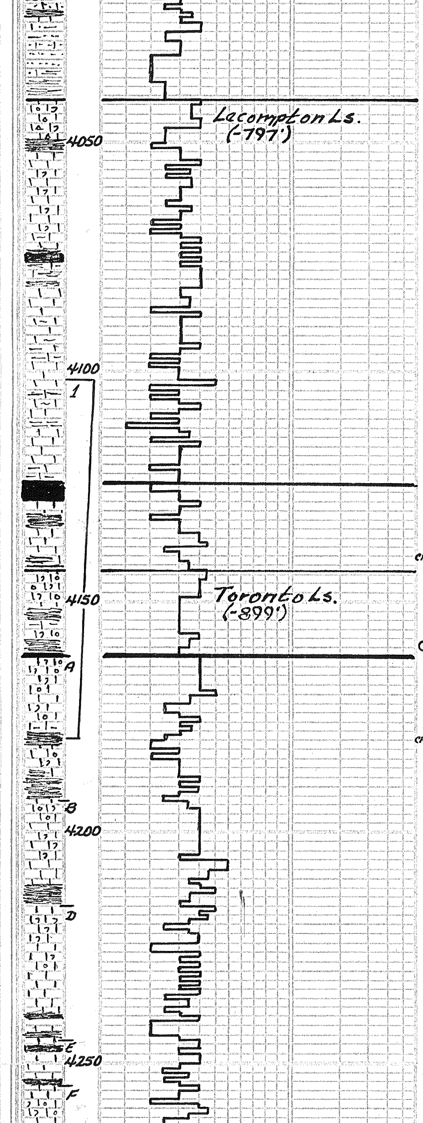
Ls: crm-wh., sft. chlky.-hrd., dns.,
fnxln-mxln., tr. sndy., tr. pr. int
part. + vug. φ NSFOC

Ls: A.A., tr. rexlzd., sndy. NØ NSFOC

tr. Sh: gry.-dk. gry., m.hrd., dns.,
hackly
Ls: crm., sft.-m.hrd., dns., VFG-
mxln., occ. sndy-V.sndy., occ.
foss., less chlky. NØ NSFOC

Ls: crm., sft. + chlk.-hrd., dns.,
mic., VFG-mxln., tr. foss.
NØ NSFOC
Abundant red shale cavings

Ls: crm-wh., sft. + chlky.-hrd., dns.
VFG-mxln., occ. V. sndy., tr. foss
tr. pr. vug. φ NSFOC
Ls: wh.-crm-lt. gry., sft. + chlky.-
hrd., dns., VFG-mxln., tr. foss.,
tr. sndy. NØ NSFOC
tr. Sh: gry.-dk. gry., m.hrd., hackly
Ls: A.A., sli. less sft. + chlk.
NØ NSFOC
Sh: gry.-dk. gry., m.hrd.-m.sft.,
dns., tr. sndy., hackly
Ls: crm., hrd. dns.-sft. + chlk.,
VFG-mxln., tr. sndy., tr. pr.
vug. φ NSFOC
tr. Sh: dk. gry.-blk., earth-hack
Ls: crm., sft.-V.sft., chlky.-clayey
sndy., tr. gry. Ss.-cavings??
VFG., fria., pr. vis. φ NSFOC



Ss: gry., m.sft.-m.hrd., fn.-VFG. pr. Vis Φ poss. cavings NSFOC

Ls: crm., sft.-hrd., dns., tr. sft. + chik., occ. sndy., foss. NΦNSFOC

tr. Ss: A.A. NSFOC

Ls: crm., sft., chik., occ. hrd., dns., VFG-mxln., foss. NΦNSFOC

Ls: crm., hrd., dns., occ. sft. + chik., foss.-V. foss., tr. Sh. stnd. NΦNSFOC

Ls: crm-tan, sft. + chik.-hrd., dns., mic., tr. cht., foss., tr. ool. NΦNSFOC

tr. Sh: dk. gry., m. hrd., dns., hack.

Sh: dk. gry., tr. blk., carb., m. hrd., hack.-earthy.

Ls: crm.-lt. gry., sft. + chik.-hrd., dns. occ. foss. NΦNSFOC

Ls: crm-lt. gry., sft + chik-hrd., dns. VFG-mxln., tr. mic., occ. foss. + sh. stnd. NΦNSFOC

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

Ls: crm-tan-lt gry., sft. + chik-hrd., dns., VFG-mxln., tr. mic., occ. foss. NΦNSFOC

DST #1 4102-80'
Rec. 140' SO+WCM
510' MCW
Strap 1.4 short
Dev. 1.2°

Ls: crm.-brn.-lt. gry., hrd., dns., occ. sft. + chik., occ. pyr. foss. + sh. stnd. NΦ NSFOC

Ls: A.A., more sft. + chik., tr. pr. pp. Vug. Φ NSFOC

Ls: A.A., occ. sh. stnd. NΦNSFOC

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

Sh: A.A.

Ls: crm., hrd., dns., VFG-mxln., abun. sft. + chik., tr. sndy.? NΦNSFOC

Heebner Shale
(-880')

Ls: crm-tan, m. hrd-sft., dns., tr. chiky., VFG-mxln., 1-2 pc. pr. pp. Vug. Φ, ? intxln Φ NSFOC

CFS Sh: lt. gry., v. sft., clayey

Ls: wh-crm., hrd., dns., VFGxln., tr. foss. + ool., 2 pc. w/ fr. int. ool. Φ dk. brn. stn., fr. cut + fl., thin zone No odor

Very Weak Show

Ls: wh.-crm., hrd.-m. sft., VFG-mxln, tr. foss. + ool. w/ pr.-fr. int. part. + pr. Vug. Φ., dk. brn. stn., fr. cut + fl. No odor, No free oil, thin zone

O

Weak Show

Lansing Group
(-918')

Ls: wh-crm., hrd., dns., VFG-mxln. occ. foss. + ool., 1-2 pc. w/ pr. pp. Vug. Φ, dk. brn. stn., wk. cut + fl., No odor, No F.O.

Very Weak Show

Ls: crm., hrd.-sft. + chiky., VFG-mxln., occ. foss + ool., tr. VFG Vug. Φ NSFOC

CFS tr. Sh: gry., m. hrd., dns., hackly

Mud Check @ 4180'
M.W. 9.1 Chl. 4,000
Vis. 72 Solids 5.7%
W.L. 6.0 LCM 6#

Sh: lt.-dk. gry., v. sft. + clayey.-m. hrd., dns., hack., tr. sndy.

Ls: crm., hrd.-sft. + chik., VFG-mxln., occ. foss. NΦNSFOC

Sh: A.A. still abun. cavings

Ls: crm-tan, hrd., dns., VFG-mxln occ. chik., occ. ool. + foss., tr. pyr. NΦ NSFOC

Sh: gry.-dk. gry., m. hrd., dns., hack.

Ls: crm., hrd., dns., VFG-mxln., mic., occ. foss., tr. pr.-fr. Φ around foss. grns., tr. Vug. Φ., wk. odor, fr. cut + fl. No F.O. occ. wk. stn.

Very Weak Show

Ls: crm., hrd., dns., VFG-mxln., mic. occ. cht., tr. pr. VFG Φ A.A. blk. stn., fr. cut + fl. No odor, No F.O.

Very Weak Show

Ls: A.A., tr. pr. VFG. intpart. Φ around foss. grns., dk. brn-blk. stn., wk. cut + fl., V. wk. odor, No F.O., V. ? perm

Very Weak Show

Ls: crm., hrd.-sft. + chiky., tr. cht., occ. foss., w/ tr. pr.-fr. vug. Φ lt. stn., fr.-wk. cut + fl., V. wk. odor No F.O., tr. barren Φ, poss. wet

Very Weak Show

Ls: A.A., occ. chiky, tr. foss. w/ pr. VFG pp Φ, tr. Vug. moldic Φ brn.-V. lt. brn. stn., tr. barren Φ V. wk. odor, No F.O., poss. wet

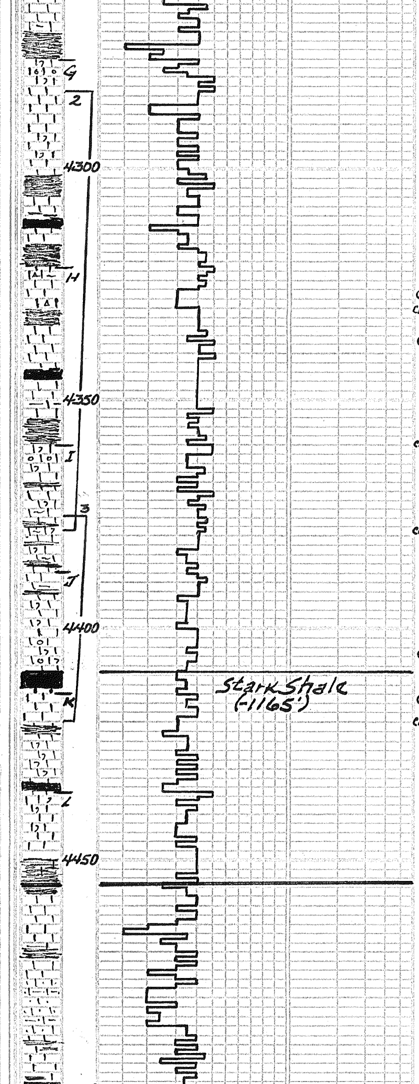
Very Weak Show

Ls: crm-tan, hrd., dns., -sft. + chik., tr. cht., occ. fr-pr vug. Φ w/ blk oil stn. A.A., No odor, No F.O.

Very Weak Show

Sh: gry. grn., m. sft., hackly

Ls: crm.-wh., sft. + chik.-hrd., dns.



VFG-mxln., fr. pp. vug. Φ w/ blk.
stn., No odor, wk. cut + fl., No F.O.
V. ? perm. V. Very Weak Show
Ls: A.A., V. chiky, tr. foss. w/
Vug. moldic? Φ, blk. oil stn.,
No odor, gd. cut + fl., No F.O.
Thin Zone - 6-8 pc. w/ show

Very Weak Show

Ls: crm-tan-lt. gry., hrd, dns.-
sft. + chiky, VFG-mxln., mic.
tr. cht., rare foss. NØNSFOC
tr. Sh: gry. grn-blk., m. sft., earthy
Sh: A.A.
Ls: crm-wh-lt. gry., sft. + chik-hrd.
dns., mic., rare foss. NØNSFOC

DST #2 4283-
4397
Rec.
2730' M.W.
115,000 ppm Chl.

Ls: crm, hrd, dns.-sft. + chiky, VFG
-mxln., mic., tr. foss. NØNSFOC
Sh: dk. gry., m. sft. dns., earthy
tr. blk., carb.
Ls: crm-brn, hrd, dns., VFG-mxln
mic., tr. cht., occ. sh. stnd. tr. foss.
w/ pr-fr. vug + moldic Φ, tr. odor,
rare Φ, gd. cut + fl., No F.O., ? perm

Very Weak Show

Ls: A.A., tr. pyr., lt. ool., occ. fr-
gd. int part. Φ, tr. vug. Φ - most
VFG, gd. dk. stn., fr. odor, gd.
cut. + fl., No F.O., ? perm.

Fair Show

CFS Ls: crm, m. sft.-hrd, dns., fnxln-
mxln., mic., tr. chik., occ. foss.
+ ool. w/ pr-fr. int part. Φ, tr.
tr. vug. Φ, dk. brn. stn., gd. odor.
gd. cut + fl., No F.O.

Fair Show

Ls: A.A., occ. gry., tr. cht., 1-2 pc.
w/ Φ + stn. A.A., less Φ
Sh: blk. m. hrd., dns., carb., earthy

Very Weak Show

Ls: crm-tan, hrd-m. sft., dns.,
fnxln-mxln., mic., tr. foss.
tr. chik. NØNSFOC
CFS Sh: gry-blk., m. hrd., dns., earthy
Ls: crm, hrd-m. sft., dns., fn-VFG
xln., occ. foss. + ool., tr. fr-pr. VFG
int. part. Φ, tr. vug. Φ, brn. stn.,
wk. odor, No F.O., fr. cut + fl., ? perm

Weak Show

Ls: A.A., Φ + shows A.A., more
fn-VFG p.p. vug. Φ. V. ? perm

CFS Kelly Down at 4379'

Very Weak Show

Sh: gry. grn-dk. gry., tr. blk., carb.
earthy-hackly
Ls: crm-gry., hrd, dns., VFG-mxln.
tr. foss., tr. sh. stnd. NØNSFOC

DST 3 4376'-
4420'
Rec: 510' S.W.

Sh: gry., m. sft-m. hrd, dns., earthy
Ls: crm-tan-gry., hrd, dns., VFG-mxln.
mic., pyr. tr. foss., occ. chiky-?
cavings? NØNSFOC

Mud Check @ 4380'
M.W. 9.1 Chl. 4800
Vis. 53 Solids 5.7%
W.L. 5.6 LCM. 8.0

Ls: crm-tan, hrd, dns., VFG-mxln,
occ. ool. + foss. w/ pr.-fr. vug Φ
in rare pc., tr. int part. Φ, lt. brn
stn., strong odor, fr-gd. cut + fl. ? perm

Weak Show

Ls: A.A., occ. pyr., foss-v. foss. +
ool., tr. ex. vug. + int. part. Φ, lt.
brn. stn., Ex. odor, No F.O.
most Φ. fn-VFG., thin zone?

Fair Show

CFS Sh: lt. gry.-blk., m. sft.-m. hrd. dns.,
occ. carb.
Ls: crm-tan, hrd, dns., VFG-mxln., tr.
mic., occ. foss. NØNSFOC

Mud Check @ 4420'
M.W. 9.2 Chl. 6900
Vis. 56 Solids 6.4
W.L. 6.0 LCM. 8

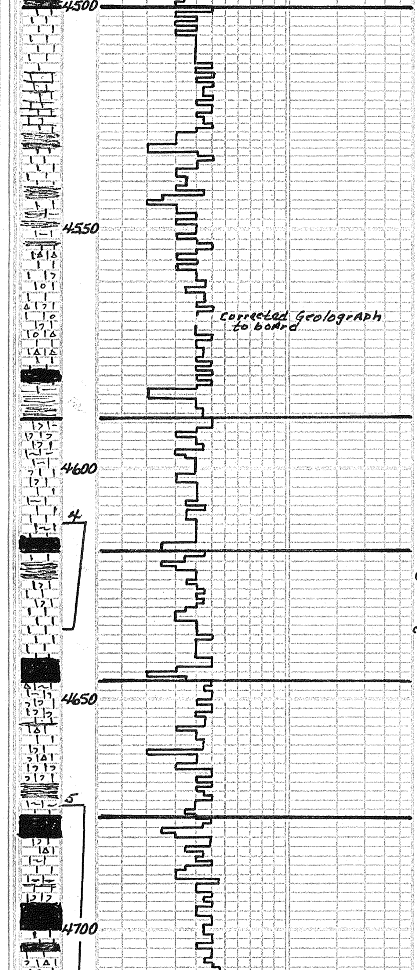
Ls: wh-tan, hrd, dns., VFG-mxln.,
mic., occ. sft. + chik., occ. foss.
tr. pyr. NØNSFOC

Ls: A.A. NØNSFOC
Sh: gry. grn.-blk., m. sft., occ.
sndy., earthy

Sh: A.A., tr. rd. brn., sndy
Ls: crm.-tan, hrd, dns., VFG-mxln,
mic., rare foss., occ. sh. stnd.
tr. pebble surf. NØNSFOC

Base of Kansas
City Group
(-1211')

Ls: crm.-tan, hrd, dns, fnxln-mxln.
+ mic., tr. rexlzd., tr. sft. + chik.
occ. rd. brn-gry. grn. sh. stnd.
tr. pebb. surf. NØNSFOC
Ls: A.A. NØNSFOC
Sh: gry., sft., sndy, earthy.
Ss: wh-gry., v. sft., fn-V.FG, w. rnd.
v. sft. + fria., No vis. Φ NSFOC
Sh: + tr. Ss: A.A.
Ls: crm.-tan, sft. + chik.-hrd, dns.
VFG-mxln., mic., sh. stn.,
rare foss. NØNSFOC
Ls: crm-lt. gry., hrd, dns., fnxln-
mxln., tr. rexlzd., tr. chik.?, tr.
sh. stnd., rare foss. NØNSFOC



Ls: crm-tan-lt.gry., hrd., dns., fn xln-mxln., mic., rare foss. tr. sft. + chlk.-cavings?, tr. sh. stnd. NØ NSFOC
Ls: crm-lt. gry., hrd., dns., fnxln-mxln., mic., occ. sft. + chlky., tr. foss.-v. foss. NØNSFOC
Sh: gry., sft., dns., earthy
Ls: A.A., tr. cht., tr. pebb rare foss. NØNSFOC
Sh: gry.-blk., m. sft., dns., earthy
Sh: gry-blk., m. sft., earthy., tr. sndy., earthy
Ls: crm-gry., m. sft.-hrd., dns., fn xln-mxln, tr. chlky? NØNSFOC
Sh. dk. gry., m. sft., dns., earthy-hackly
Ls: A.A. NØNSFOC

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

Ls: crm-gry., hrd., dns., VFG-mxln., mic., abun. cht., tr. foss. + ool. NØNSFOC
Sh: dk. gry., m. sft., dns., earthy

Ls: tan, hrd., dns., VFG-mxln., mic., rare foss. NØNSFOC

Sh: blk., m. hrd.-m. sft., dns., carb.
Ls: tan-brn-dk gry., hrd., dns., VFG-mxln., mic., occ. foss., sh. stnd. NØNSFOC
Sh: dk. gry.-blk., m. hrd., dns. earthy
Ls: crm-gry., hrd., dns., VFG-mxln., mic., occ. cht., occ. foss. + sh. stnd. NØNSFOC
Ls: crm-tan-gry., hrd., dns., VFG-mxln., mic., occ. v. foss., sh. stnd. NØNSFOC

Ls: A.A., tr. dk. gry. cht. NØNSFOC

Sh: dk. gry.-blk., m. hrd., dns., carb., hackly
○ Ls: crm-tan, hrd., dns., fnxln-mxln tr. rexled., tr. pr.-tr. vugØ, w/ lt. brn. stn., v. wk. odor, No F.O., tr. cut + fl., v. thin zone
Ls: A.A., 2 pc. w/ shows A.A.
CFS Sh: blk., m. hrd., dns., carb., earthy

Ls: brn., hrd., dns., v. foss. NØNSFOC
Sh: blk., hrd., dns., carb. earth-hack.
Ls: crm-brn., hrd., dns., VFGxln., foss.-v. foss. NØNSFOC

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

Ls: A.A., occ. sft. + chlk. NØNSFOC
Sh: gry.-blk., m. sft.-hrd., dns., occ. carb., earthy-hackly

Sh: A.A.
Ls: crm-tan-gry., hrd., dns., VFG-mxln. mic., tr. cht., occ. v. foss. + sh. stnd., occ. chlky. NØNSFOC
Ls: A.A., tr. cht., sl. more foss. + sh. stnd. NØNSFOC
Sh: gry-dk. gry., m. hrd., dns., earthy-hackly
Sh: A.A., occ. blk., carb., earthy
Ls: crm.-brn.-gry., hrd., dns. fnxln-mxln., mic., tr. cht., occ. foss. + sh. stnd. NØNSFOC
Ls: crm-brn.-gry., hrd., dns., fnxln-mxln., tr. rexled., tr. cht., foss. + sh. stnd. NØNSFOC

Marmaton Gp.
(-1256')

Pawnee Ls.
(-1345)

DST # 4 4612-35'
Rec. 140' MCW
SSO

Myrick Station
(-1374')

Weak Show
Mud Check @ 4635'
M.W. 9.1 Chl. 8200
Vis. 53 Solids 5.7
W.L. 6.4 LCM 8

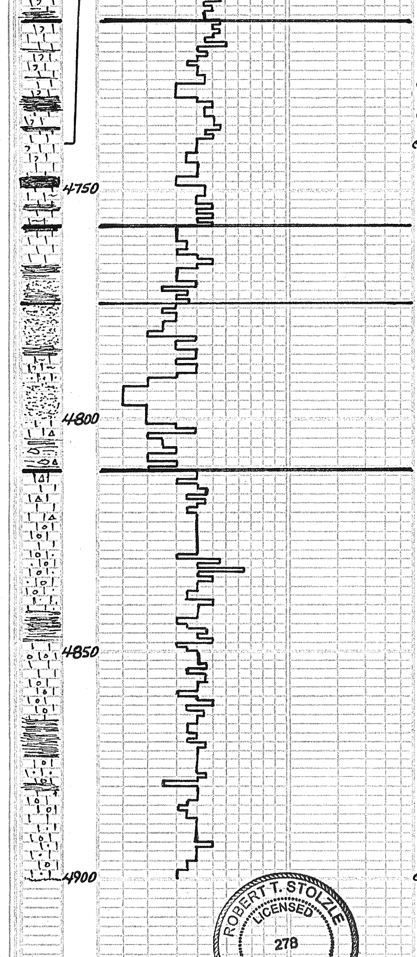
Ft. Scott Ls.
(-1402')

(-1432')
Cherokee Shale

DST # 5 4673-4740'

Rec. 5' CO
140' G+MCO
400' GIP

Mud Check @ 4702'
M.W. 9.2 Chl. 9,700
Vis. 56 Solids 6.4
W.L. 7.2 LCM 8



Ls: A.A., tr. (5-6pc./tray) pr-fr. vug Ø w/ lt-dk. brn stn, poss. VFG intxln. Ø, tr.-wk. cut+fl., wk. odor, No F.O., ?perm, thinzone	Johnson Zone (-1469') Very Weak Show
● Ls: tan-gry., hrd., dns., VFG-mxln. mic, occ. foss, occ. pr-fr. vug Ø w/ lt-dk. oil stn., fr.-gd. cut+fl. wk. odor, F.S.F.O., ? perm.	Fair Show
○ Ls: A.A., more sh. stnd., tr. fr.-gd. vug. Ø, some moldic, gd. dk. brn. stn., tr. F.O., gd. cut + fl., V. wk. odor, thinzone	Weak Show
CFS Sh: dk. gry.-rd. brn-ylw., m. hrd., dns. earthy-hackly	
Ls: crm., sft-hrd., dns., VFG-mxln., tr. foss., pyr., tr. cht. NØNSFOC	
tr. Sh: A.A.	
Ls: crm-tan, m. sft.-hrd., dns., VFG-mxln., tr. rexlzd., rare foss., pyr., sh. stnd. NØNSFOC	Morrow Fm. (-1514')
Ls: A.A. NØNSFOC	
tr. Ss: wh., m. sft., fria.-hrd., dns., w/ cmtd., med-fn. grnd., w/ srtd w/ cmtd., pyr., No Vis. Ø NSFOC	
Sh: gry.-rd. brn., m. hrd., dns., hack.	
Ss: wh.-gry., hrd.-sft., med.-fn. grnd., subang.-subrnd., mod-w. srtd., w. cmtd., tr. shly., tr. fr-prØ NSFOC	Morrow Sandstone (-1531')
Ss: A.A., hrd., dns., w. cmtd. NØNSFOC	
Ls: crm.-gry., hrd., dns., mxln., mic rare foss., sh. stnd. NØNSFOC	
Sh: gry. grn-rd. brn., m. sft., earthy	
Ls: A.A., occ. cht. NØNSFOC	
Ss: wh., m. sft.-hrd., med-fn. grnd. subang-rnd., mod-w. srtd., fr-No Vis. Ø, occ w. cmtd. NSFOC	
Ss: A.A., occ. fr. Ø. NSFOC	
Cht: orng-ylw., pebbles, vit. NØ	
Sh. gry.-rd. brn., m. sft.-m. hrd., dns., earthy-hackly	
Ls: crm-wh.-ylw., hrd., dns, VFG-mxln., mic., occ. wh. cht. NØNSFOC	Mississippian (-1567')
Ls: wh-tan, hrd., dns., VFG-mxln. occ. ool., tr. cht. NØNSFOC	
Ls: crm-tan, hrd., dns., VFG-mxln. mic., tr. sndy?, occ. ool. NØNSFOC	
Ls: crm.-tan, hrd., dns., VFG-mxln. mic., tr. sndy., occ. ool. NØNSFOC	
Sh: gry. grn., sft-m. sft., occ. sndy? earthy	
Ls: crm., hrd., dns., VFG-mxln., tr. mic., occ. chlky, occ. ool. NØNSFOC	
tr. Sh: A.A.	
Ls: crm.-tan, hrd., dns., VFG-mxln., mic., tr. sft. + chlk., occ. dol.-brn. ool. NØNSFOC	Mud Check @ 4875' M.W. 9.5 lbs./gal. Vis 55 sec./qt. W.L. 8.4 ml./30min. Chl. 10,200 ppm Solids 8.5 % LCM 7 lbs./bbl.
tr. Sh. gry. grn., m. sft., sndy, earthy	
Ls: crm.-tan, hrd., dns, VFG-mxln., mic., tr. chlk., tr. sndy., occ. ool. NØNSFOC	
tr. Sh. A.A.	
Ls: crm-tan, hrd., dns., VFG-mxln, occ. mic., occ. chlky., tr. sndy. occ. ool. NØ NSFOC	
Ls: crm.-tan, hrd., dns., fnxln-mxln., mic., occ. sndy., occ. ool. tr. rexlzd., tr. pr. intxln. Ø NSFOC	D.T.D 4900' L.T.D. 4893' Deviation 1.2°
CFS	

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LICENSED
278
KANSAS
GEOLOGIST

Robert Stolzle
2/7/12