ROBERT STOLZLE

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DRILLING TIME AND SAMPLE LOG

OPERATOR: Murfin Drilling Co., Inc.
LEASE: Samson 'A'   WELL NO.: 1-24
FIELD:
LOCATION: 1345' FSL, 1400' FWL
SEC.: 24   TWP: 4S   RANGE: 33W
COUNTY: Rawlins   STATE: KS
API NO.: 15-153-21,132-00-00

CONTRACTOR: Murfin Drilling Co., Rig #7
COMMENCED: May 8, 2015   COMPLETED: 5/16/15
ROTARY TOTAL DEPTH: 4600'   LOG TOTAL DEPTH: 4600'
GEOLOGICAL SUPERVISION FROM: 3600' to: T.D.
MUD-UP DEPTH: 3007'   MUD TYPE: Chemical Polymer

ELEVATIONS

KB 3004'
GL 2999'
Measurements are all from KB

CASING RECORD

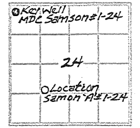
SURFACE: 8 5/8", 23# @ 218' w/215 sx, circ
PRODUCTION: None - P&A.

WIRELINE SURVEYS

Pioneer En. Services Dual Compensated Porosity, Dual Induction, BHC Sonic and Micro-resistivity Logs were run.

FORMATION	SAMPLE TOP	SAMPLE SUBSEA	LOG TOP	LOG SUBSEA	STRUCTURAL COMPARISON
Stone Corral Anhy.	2697	(+307)	2692	(+312)	-5'
Base of Anhydrite	2732	(+272)	2729	(+275)	-4'
Topeka Fm.	3727	(-723)	3724	(-720)	-14'
Heebner Shale	3892	(-888)	3892	(-888)	-16'
Lansing Group	3935	(-931)	3935	(-931)	-15'
Stark Shale	4111	(-1107)	4114	(-1110)	-14'
Base KS City Gp.	4162	(-1158)	4162	(-1158)	-15'
Marmaton Gp.	4206	(-1202)	4209	(-1205)	-21'
Pawnee Ls.	4287	(-1283)	4290	(-1286)	-19'
Cherokee Shale	4359	(-1355)	4359	(-1355)	-11
Mississippian	4502	(-1498)	4502	(-1498)	-0-
Total Depth	4600		4600		

LOCATION MAP



Reference Well for Structural Comparison: Murfin Samson #1-24 NW NW NW 24
Comments and Recommendations: Recommended well be plugged and abandoned.

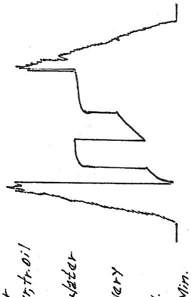
DST # 1   ZONE: Toronto Ls. + Lansing 'A' Zone
INTERVAL: 3893'-3960'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2081 psi	223' Watery Mud, tr. oil
2. Initial Flow: Start	0	52 psi	43% Saltwater
3. Initial Flow: End	30	383 psi	250' Muddy Water, tr. oil
4. Initial Shut-in: End	60	1244 psi	40% Mud
5. Final Flow: Start	0	382 psi	1077' Sli. Muddy Water
6. Final Flow: End	60	737 psi	4% Mud
7. Final Shut-in: End	90	1238 psi	1550' Total Recovery
8. Final Hydrostatic		1956 psi	Blow Desc.

BHT: 129°F.
Rw: .127@69.5°F.
Chlorides 62,000 ppm

Blow Desc.
I.F. - BOB 4½ Min.
I.S.I. - ½" blow
F.F. - BOB 5½ Min.
F.S.I. - No blow

DST # 1   8791 Chart
Interval: 3893'-3960'   Depth: 3894'

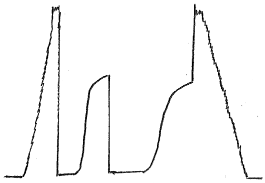


DST # 2   ZONE: Lansing 'B' & 'D' Zones
INTERVAL: 3960'-4005'

DST # 2   8791 Chart
Interval: 3960'-4005'   Depth: 3961'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2053 psi	10' sli. Mud Cut Oil
2. Initial Flow: Start	0	28 psi	(7% gas, 88% Oil)
3. Initial Flow: End	30	40 psi	64' Oil Cut Mud
4. Initial Shut-in: End	60	1203 psi	(5% gas, 13% Oil)
5. Final Flow: Start	0	42 psi	50' Gas in Pipe
6. Final Flow: End	60	58 psi	Blow Desc:
7. Final Shut-in: End	90	1127 psi	I.F.-1¾"
8. Final Hydrostatic		2029 psi	I.S.I.-No blow
BHT: 122°F.			F.F.-1"
Rw:			F.S.I.-No blow

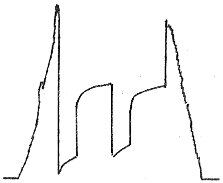
Oil Gravity 25.2°



DST # 3 ZONE: Lansing 'F' & 'G' Zones
INTERVAL: 3998'-4035'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2130 psi	166' Water cut Mud
2. Initial Flow: Start	0	34 psi	(40% Salt Water)
3. Initial Flow: End	30	284 psi	189' Water cut Mud
4. Initial Shut-in: End	60	1233 psi	(50% Salt Water)
5. Final Flow: Start	0	292 psi	564' Mud cut Water
6. Final Flow: End	30	444 psi	(90% Salt Water)
7. Final Shut-in: End	60	1171 psi	Total Recovery 919'
8. Final Hydrostatic		1982 psi	Blow Desc:
BHT: 134°F.			I.F.-BOB 6 Min.
			I.S.I.-surface blow
Rw: .24 @ 61°F.			F.F.-BOB 8 Min.
46,000 ppm Chlorides			F.S.I.-No blow

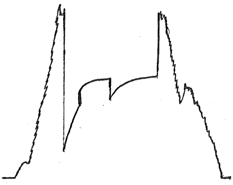
DST # 3
8366 Chart
Interval: 3998'-4035'
Depth: 3999'



DST # 4 ZONE: L-KC 'H' & 'J' Zones
INTERVAL: 4046'-4125'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2020 psi	567' Drilling Mud
2. Initial Flow: Start	0	224 psi	945' Mud cut water
3. Initial Flow: End	30	870 psi	(10% Mud)
4. Initial Shut-in: End	60	1211 psi	879' Mud cut water
5. Final Flow: Start	0	896 psi	(5% Mud)
6. Final Flow: End	30	1107 psi	Total Recovery 2391'
7. Final Shut-in: End	60	1205 psi	Blow Desc:
8. Final Hydrostatic		1981 psi	I.F.-BOB 2 Min.
BHT: 132°F.			I.S.I.-No blow
Rw: .16 @ 86°F			F.F.-BOB-3 Min.
Chlorides 42,000 p.p.m.			F.S.I.-No blow

DST # 4
8366 Chart
Interval: 4046'-4125'
Depth: 4047'



ABBREVIATIONS USED

ROCK TYPES:

Ls - limestone
Sh - Shale
Ss - Sandstone
Slts - Siltstone
Cg - Conglomerate
Cht - Chert
Qtz - Quartzite
Grn - 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
Dtt - Detrital
Foss - Fossiliferous
Xln - Crystalline
Mxln - Microcrystalline
Ool - Oolitic
Oop - 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:

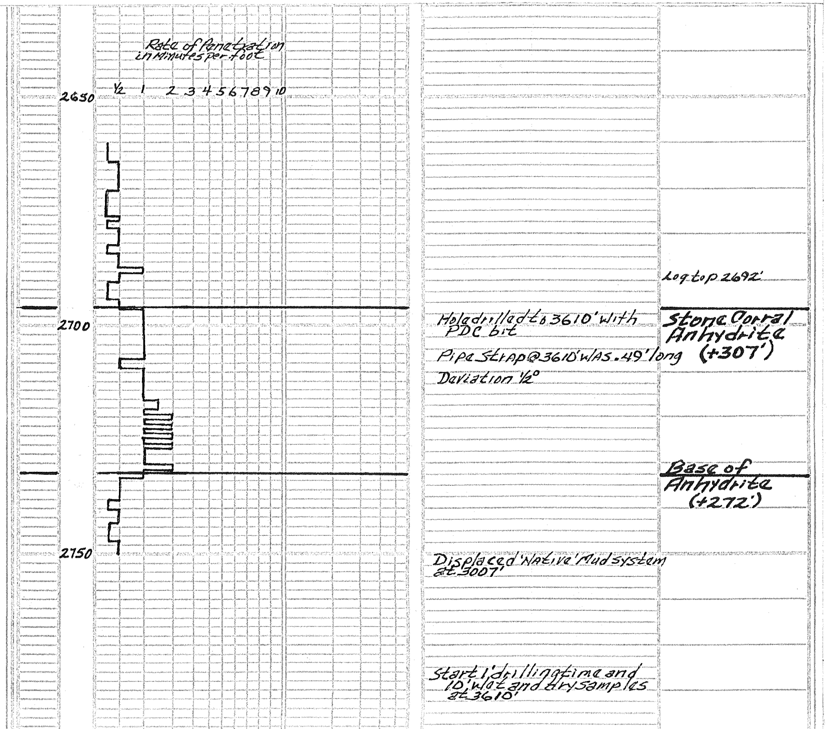
gd - Good
fr - Fair
pr - Poor
ex - excellent
v - very
w - well
tr - trace
occ - occasional
vis - visible
N - no
gran - granular
intgran - intergranular
PP - pinpoint
dd - dead
gsy - gassy

TEXTURE:

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

OIL SHOWS

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



Log top 2692'

Hole drilled to 3610' with PDC bit

Pipe Strap @ 3610' was .49' long

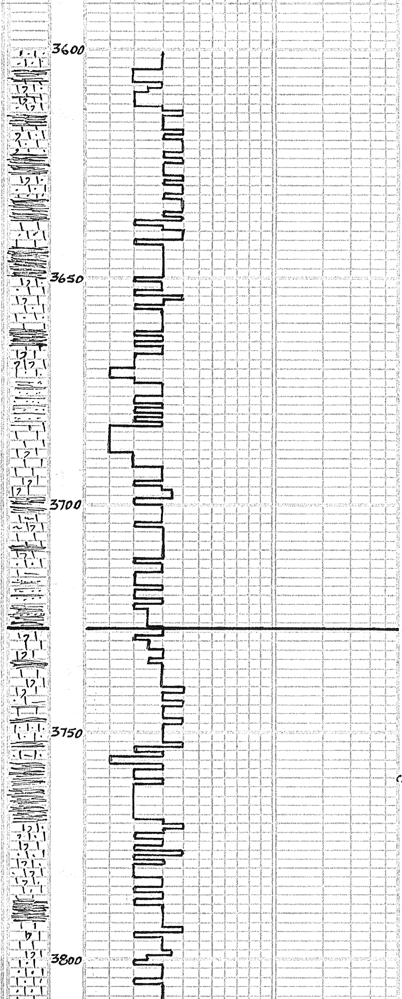
Deviation ½°

Stone Corral Anhydrite (+307')

Base of Anhydrite (+272')

Displaced 'Native' Mud system at 3007'

Start 1' drilling time and 10' wet and dry samples at 3610'



Sh:gry-gry.grn.-rd.brn.,sft.-v.sft., slty.-sndy,earthy-clayey

Ls:crm,hrd.,dns.,sndy-v.sndy. NØ NSFOC

Sh:A.A.,more clayey.

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

Ls.crm.,hrd.,dns.-v.sft.,chiky.-clayey.,tr.foss.,tr.sndy. NØNSFOC

Sh:rd.brn-gry.,m.sft,earthy.-v.sft.&clayey.,tr.sndy.

Sh:A.A.

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

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

Ls:crm.,sft.,chiky.-clayey,occ.m.hrd.,VFGXln.,tr.sndy. NØNSFOC

Ls:crm.-lt.gry.,hrd.,dns.-v.sft.&chiky.-clayey.,VFG-mxln.,tr.foss.,tr.sndy. NØ NSFOC

Ls:crm.,hrd.,dns.-sft.&chiky.,VFG-mxln.,occ.foss. NØNSFOC

tr.Ls:A.A.

Sh:rd.brn.-tr.gry.,v.sft.&clayey.-m.sft.,earthy

Sh:rd.brn.,v.sft.,clayey.,tr.gry.,sft.dns.,earthy,sndy.

tr.Ls:crm.,sft.-m.sft.,VFG-mxln.,rare foss. NØNSFOC

Ls:wh.,sft.,chikyy.-crm.,m.hrd.,dns.,VFG-mxln.,occ.foss. NØNSFOC

Ls:crm.-lt.gry.,sft.&chiky.-hrd.dns.,sh.stnd.,occ.foss. NØNSFOC

tr.Sh:rd.brn.-maroon.,sft.&clayey-m.sft.,earthy,tr.sndy.

Ls:crm.-gry.-tan,hrd.,dns.,VFG-mxln.,occ sft.&chiky.,tr.foss.tr.sndy. NØNSFOC

tr.Sh:A.A.occ.sndy.

Sh:rd.brn.,sft.,earthy.-clayey.,tr.sndy.

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

occ.Sh:A.A.

Ls:crm.-lt.gry.,hrd.,dns.-sft.&chiky.VFGXln-mxln.,occ.foss. NØNSFOC

Topeka Fm.
(-723')

Ls:crm.-gry.,hrd.,dns.,VFG-mxln.,occ.sft.&chiky.,foss.-v.foss.,dk.gry.foss.grns. NØ NSFOC

Ls:crm,hrd.,dns,,VFG-mxln.,less foss.,occ.sndy.-v.sndy.,tr.chiky. NØNSFOC

CFS Sh:rd.brn.,sft.,earthy.-clayey.

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

tr.Ls:crm,hrd.,dns.,VFGXln.,foss.NØNSFOC

Ls:wh.,sft.,-v.sft.,chiky.,occ.crm-gry.m.hrd.,VFG-mxln.,occ.foss.,occ.sndy NØNSFOC

Mud Check @ 3760'
M.wt. 9.0 lb./gal,
Vis. 76 sec./qt.
W.L. 7.6 cc./30min.
Solids 5%
Chlorides 4100ppm
L.C.M. 9.0 lbs./bbl.

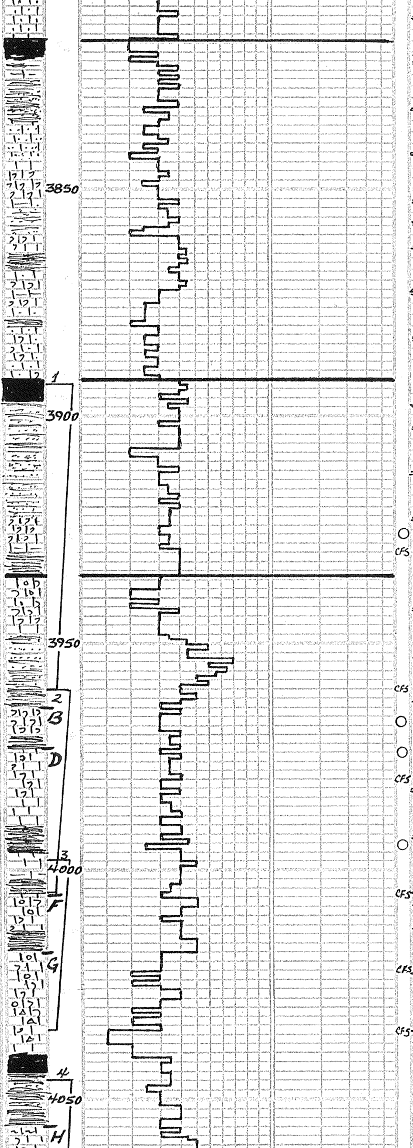
tr.Sh:dk.gry.,m.hrd.,dns.,hackly

Ls:wh.,sft.-v.sft.,mxln.,chiky.-clayey tr.m.hrd.,dns.,VFGXln.,tr.foss. NØNSFOC

Ls:A.A.,sli.less chiky. NØNSFOC

occ.Sh:rd.brn.-brn.,m.sft.,earthy

Ls:wh.-crm.,lt.gry.,sft.&chiky.-hrd.,dns.,VFG-mxln.,occ.sndy.-v.sndy.tr.foss. NØNSFOC



Ls: A.A., V. sndy NØNSFOC,
tr. Ss: wh., m.hrd., fn.grnd., w.cmtd.,
calc. NØNSFOC
Sh: dk.gry.-blk., m.sft., occ. carb., earthy
Sh: A.A. w/Sh: rd.brn., sft., earthy-
clayey, occ. sndy.
Ls: crm., m.sft.-hrd., dns., VFG-mxln.,
occ. sndy., tr. foss. NØNSFOC
Sh: rd.brn., sft., earthy-clayey, sndy.
occ. Ls: crm., A.A., sndy.-V. sndy.
occ. calc. Ss: crm.-tan, hrd., dns.,
VF-fn.grnd., mod-pr.srtd., w.cmtd.
Sh: rd.brn., sft., clayey-earthy, slty.
Ls: crm., hrd., dns., VFG-mxln., occ.
chiky., occ. sndy., tr. foss.
NØNSFOC

King Hill Sh.
(-813')

Ls: crm.-lt.gry., hrd., dns., VFGxln.,
occ. V. foss., tr. sndy. NØNSFOC
Sh: dk.gry.-blk., m.sft., earthy,
occ. carb., tr. rd.brn. Sh: A.A.
Ls: crm.-maroon (sh.stnd.) hrd., dns.
VFGxln., occ. foss.-V. foss., occ.
sndy-V. sndy.-calc. Ss:
NØ NSFOC
Ls: crm-wh., sft.+chiky.-hrd., dns.,
VFGxln., sndy., occ. foss-V. foss.
w/ tr. pr. pp. vug. φ NSFOC

Ls: crm.-wh., hrd., dns., VFG-mxln.,
abun. wh. chiky., foss.+sndy.
NØNSFOC
tr. Sh: gry.grn.-dk.gry., earthy-hackly
Ls: crm.-tan-gry., hrd., dns., VFG-
mxln. tr. chiky., occ. foss. NØNSFOC
Sh: gry.-blk., m.sft., occ. carb., flaky,
earthy
Sh: blk., carb., earthy, m.sft. w/ Sh:
lt.gry., sft.+clayey-m.sft., sndy.-
V. sndy.-VFG. shly. Ss: NØ NSFOC

Heebner Shale (-888')

Sh: rd.brn., sft., clayey-earthy, occ. sndy.
tr. Ss: gry., hrd.-m.hrd., dns., fn.-VFG.,
pr. srtd., w.cmtd., ang. NØ NSFOC

DST #1
3893'-3960'
Rec: 1550' MCW
Devation ½°

Ls: crm., hrd., VFGxln., occ. foss., tr. ool. w/
fr.-pr. vug. φ around foss. grns., blk. oil
stn., wk. odor, FSFO., gd-ex. cut + fl.
? perm., thin zone
Sh: rd.brn.-gry.grn.-gry., sft.+clayey
-m.sft., earthy

Weak-Fair Show

occ. Ls: crm., hrd.-m.hrd., dns., VFG-
mxln., tr. foss. NØNSFOC
Ls: crm.-gry., abun. sft.+chiky.-hrd.,
VFG-mxln., occ. foss.+ool. w/ tr. pr.
fn.grnd., moldic φ NSFOC

Lansing Gp.
(-931')

Ls: A.A., sli. more p.p. vug. modic? φ
NSFOC
Sh: rd.brn.-gry.grn., sft., clay.,-m.sft.
dns., hack., occ. sndy.-V. sndy
Sh: A.A. more gry. Sh.
Ls: crm.-gry., m.hrd., dns., foss.+detrital
pr.-fr. fn.-VFG vug. φ int. part. φ, No odor
gd. stn., wk. SFO, gd. fl.+cut, thin zone
Ls: crm., hrd.-m.hrd., dns., VFG xln., occ.
foss. w/ pr.-fr. intpart vug. φ tr. moldic
φ, dk brn. stn., fr. cut+fl., No F.O., No
odor

Mud Check @ 3960'
M.W. 9.3
Vis. 56
W.L. 8.4
Solids 7.1%
Chl. 4,700 ppm
L.C.M. 8#

Weak Show

Weak Show

Sh: rd.brn.-dk.gry., sft.+clay.-earthy
Ls: crm-lt.gry., sft.+chiky.-hrd., dns.
VFG-mxln., tr. mic., rare foss.
NØNSFOC
Ls: A.A., VFGxln., foss., w/ pr. VFG. pp. φ
around grns., bldg. oil, tr. F.O., wk.
odor, fr.-gd., mott-unif. brn. stn.
gd. cut + fl., V. ? perm.
tr. Ls: A.A. w/ lite show A.A.

DST #2
3960'-4005'
Rec: 10' SMCO
64' OCM

Weak Show

Sh: rd.brn-gry.grn., clayey-earthy
Sh: rd.brn-gry.grn.-dk.gry., sft.+
clayey-m.sft., earthy, occ. slty.
Ls: crm., hrd., occ. sft.+chiky., ool.+
foss. w/ occ. VFG. pp. φ betw. foss.
grns., dk.brn. stn. in φ, No odor, No
F.O., wk. cut+fl., V. ? perm.

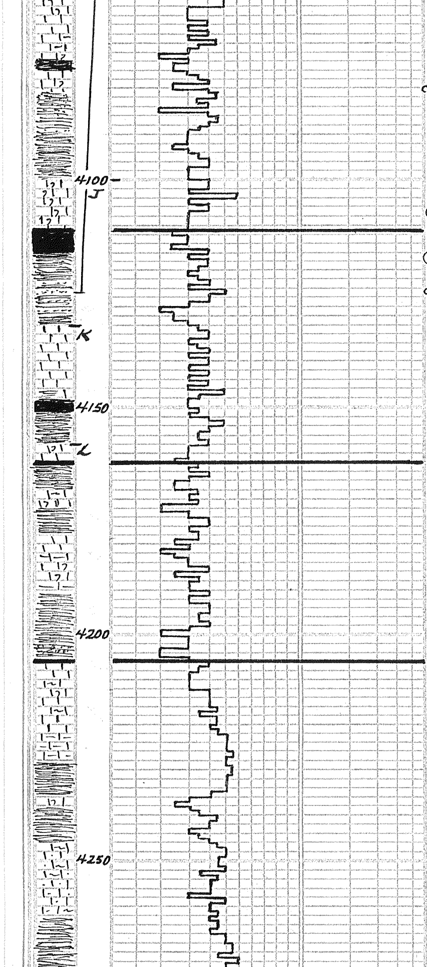
DST #3
3998'-4035'
Rec: 355' WCM
564' MCW

Very Weak Show

Sh: rd.brn.-dk.gry., sft-V.sft., earthy-hackly
Ls: wh.-crm.-lt.gry., ±50% chiky+V.sft.
hrd., dns., VFGxln., tr. foss.
NØNSFOC
Ls: wh-crm., sft.+chiky.-hrd., dns., mxln.
mic., occ. cht. NØNSFOC
Ls: crm-wh., sft., chiky., occ. m.hrd., dns.
VFG-mxln., abun. sh. cavings NØNSFOC
Ls: crm., hrd.-m.hrd., dns., VFG-mxln.
rare foss. NØNSFOC
Sh: dk.gry.-blk., m.sft., carb., tr.
slty.
Sh: dk.gry.-gry.grn.-rd.brn., sft.-m.hrd.
dns., tr. sndy., earthy-hackly
tr. Ls: crm., hrd., dns., VFG-mxln.
tr. foss. NØNSFOC

Mud Check @ 4035'
M.W. 9.3
Vis. 50
W.L. 8.0
Solids 7.1%
Chl. 6,000 ppm
LCM. 8.0#

D.S.T. #4
4046'-4125'
Rec: 567' Mud
1824' SMCW



Sh.A.A.
Ls:crm.-tan.,hrd.-m.hrd.,dns.,VFG-mxln.,tr.chlky.,occ.foss. occ.sh.stnd. NO NSFOC
Ls:crm.-lt.gry.,hrd.-sft.+chlky.,VFG-mxln.,1-2 pc/tray w/VFG RP φ around foss.grns.,brn-blk.stn.,wk.cut+fl. No odor, No F.O.,V.?perm. V. Very wk.Show
CFS Ls:crm-lt.gry.,hrd.-sft.+chlky.,VFG-mxln.,tr.foss. NO NSFOC
Sh:rd.brn.-gry.,m.sft.,dns.,earthy -hackly
tr.Sh.A.A.,occ.sft.+clayey
Ls:crm-gry.,hrd.,dns.,tr.sft.+chlky.,VFG-mxln.,tr.mic.,tr.foss.+sh.stnd. NONSFOC
Ls:crm.-lt.gry.,hrd.,dns.,VFGxln., occ.foss.w/pp+sl.lrgr.Vug.φ around grns.,dk.brn.stn.,wk.odor.,tr.F.O.on break go.cut+fl.

Weak Show

Ls:crm.-lt.gry.,hrd.,occ.sft.+chlky.,VFG-mxln.,foss.w/pr.-fr.,fn-VFG RP.φ Around foss.grns,dk.brn.stn in φ, No odor,tr.bldg.oil+gas.,fr.cut+fl. ?perm

Stark Shale
(-1107')
Weak Show

Ls:A.A.,less.foss.,tr.show A.A.
CFS Sh:dk.gry.,m.sft.,earthy,w/cavings
Sh:dk.gry.,tr.blk.,sli.carb.,Abun. rd.brn Sh.earthy-hackly
Sh:rd.brn.-gry.grn.-dk.gry.,m.sft.-m.hrd.,dns.,occ.sndy.-slty.,earthy -hackly

Mud Check@4125'
M.W. 9.1
V.S. 49
W.L. 8.0
Solids 5.7%
Chl. 5,500ppm
L.C.M. 6#

Sh:A.A.
Ls:crm.-lt.gry.,hrd.,dns.-occ.sft.+chlky.,VFG-mxln.,tr.mic.,tr.foss. NONSFOC
Ls:crm.,hrd.,dns.,VFG-mxln.,mic,occ.sft.+chlky.,tr.foss. NONSFOC
Sh:rd.brn.-gry.-gry.grn.,m.sft.,earthy -hackly,tr.sndy.
Sh:A.A.
Ls:crm-lt.gry.,hrd.,dns.,VFG-mxln. tr.mic.,tr.chlky.,rare foss. NONSFOC

Base of Kansas City Group
(-1158')

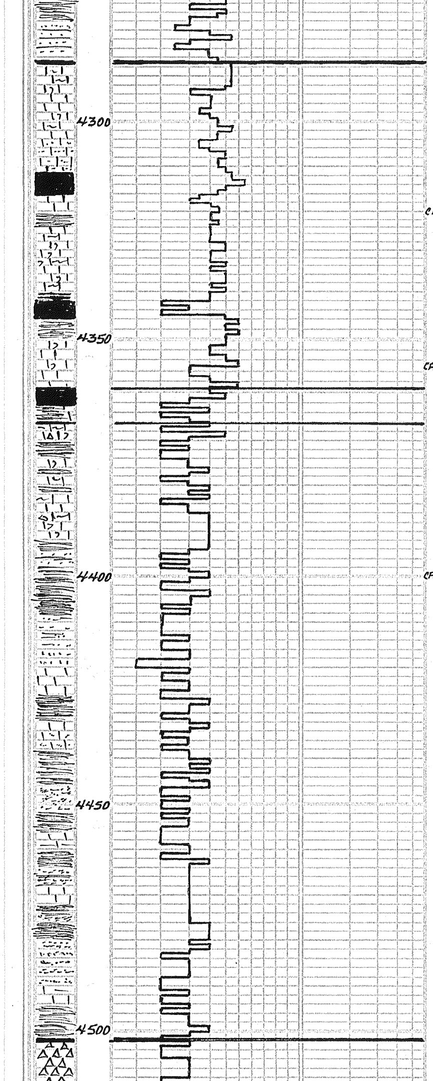
Ls:crm.-gry.,hrd.,dns.,VFG-mxln.,tr.mic.,tr.chlky.,occ.foss.,tr.sh.stnd. NONSFOC
Sh:rd.brn.-gry.grn.,m.sft.,earthy-hack.
Sh:A.A.,occ.dk.gry.
Ls:crm,hrd.,dns.-m.hrd.,sli.chlky. tr.foss.,tr.sh.stnd. NONSFOC

Ls:crm.,hrd.-sft.+chlky.,VFG-mxln. tr.foss.,tr.ool. NONSFOC
Sh:rd.brn.-lt.gry.-gry.grn.,v.sft.clayey-m.sft.,earthy
Sh:rd.brn.-dk.gry.,sft.+clayey-m.sft. earthy, occ.sndy.-v.sndy
tr.Ls:A.A. NONSFOC

Marmaton Gp.
(-1202')

Sh:A.A.
Ls:crm.-lt.gry.-gry.,hrd.,dns.,VFG-mxln.,mic.,rare fossiliferous occ.sh.stnd. NONSFOC
Ls:A.A.,occ.sndy NONSFOC
Sh:rd.brn.,v.sft.clayey-gry.grn.-dk.gry.,m.sft.,dns.,earthy.-hackly
Sh:gry.-maroon-rd.brn.,m.sft.,dns.,earthy-hackly,tr.sndy
tr.Ls gry.,hrd.,dns.,VFGxln. NO NSFOC
Ls:crm.-gry.,hrd.-m.sft.,sli.chlky.,tr.sndy.,rare foss.,mxln. NONSFOC
Sh:rd.brn.-mar.-gry.,sft.+clayey.-m.sft.,earthy.,tr.slty.
Sh:A.A.
Ls:crm.-lt.gry.,hrd.,dns.,VFG-mxln. mic,rare foss.,tr.sh.stnd.,tr.sndy NONSFOC
Ls:A.A. NO NSFOC
Sh:rd.brn.-maroon-gry.,m.sft.,dns.,earthy.,tr.sndy

tr.Ls:A.A. NO NSFOC



Sh:gry.-rd.brn.-maroon,sft.-m.sft.
eArthy.,slty-sndy.,occ.clAtey

Sh:gry.-rdbrn.,sft.,slty.-sndy-shly.
Ss.gry.,VFG.,w.cmtd. NØNSFOC

Pawnee Ls.
(-1283')

Sh:-shly.Ss:A.A. NØNSFOC

Ls:crm-lt.gry.,hrd.,dns.,VFG-mxln.,
tr.chiky.,rArefoss,,sh.stnd.NØNSFOC
Ls:crm.-lt.gry.,hrd.,dns.,occ.sft.+
chiky.,VFG-mxln.,occ.foss.,tr.sh.
stnd.,tr.sndy.-V.sndy NØNSFOC

Ls:A.A.,tr.tan NØNSFOC
Sh:gry.-blk.-rd.brn.,m.sft.-V.sft.,
tr.cArb.,clAy.-eArthy.
tr.Ss:gry.,hrd.,dns.,VFG.w.cmtd. NØ

Ls:crm.-tan-gry.,hrd.,dns.,VFG-mxln.,
tr.mic.,tr.foss.,tr.sh.stnd.
NØNSFOC
tr.Sh:dk.gry.-blk.-rd.brn.,m.sft.,dns.,
tr.cArb.,eArthy
Ls:crm-gry.-brn.,hrd.,dns.,VFG-mxln.
tr.mic.,tr.foss.sh.stnd. NØNSFOC
Ls:crm.-tan-gry.,hrd.,dns.,VFG-mxln.
tr.chiky.,tr.foss.,occ.sh.stnd.
NØNSFOC

Ls:A.A.dk.gry.foss.,sli.morefoss NØNSFOC
Sh:blk,m.sft.,eArthy,cArb.
Ls:crm-tan-lt.gry.,hrd.,dns.,VFG-
mxln.,tr.chiky.,tr.foss. NØNSFOC

Cherokee Sh.
(-1355')

Sh:dk.gry-blk.,m.sft.,eArthy,cArb.
Ls:crm-gry.,hrd.,dns.,VFG-mxln.,mic,
tr.cht.,tr.chik.,rAre foss.,sh.stnd.
NØNSFOC

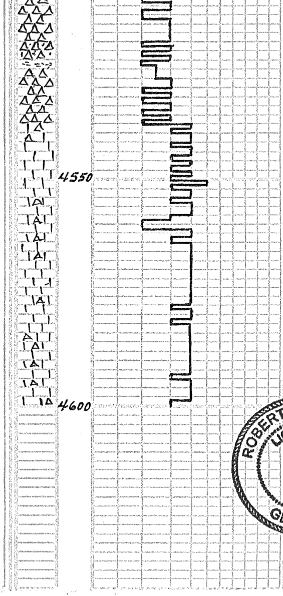
Verdigris Ls.
(-1362')

Sh:gry.-rd.brn.,m.sft.,eArthy
Ls:crm.-gry.-tan,hrd.,dns.,VFG-mxln.,
mic.,tr.cht.,tr.chiky.,occ.foss.,sh.
stnd.,tr.pebb.surf. NØNSFOC
Sh:gry.-blk.,m.sft.,eArthy
Ls:crm.-tan-gry.,hrd.,dns.,VFG-mxln.
occ.mic.,rArefoss.,occ.sh.stnd.,
occ.pebblesurface NØNSFOC
Ls:A.A.more mic.+sh.stnd.,Abun.
pebb.,occ.sli.chiky NØNSFOC
Sh:gry.-blk.-rd.brn.,m.sft.,eArthy.
tr.cArb.
Ls:A.A NØNSFOC
Sh:gry.-mar.,mottled,m.sft.,eArthy
occ.sndy.,tr.rd.brn.

Mud Check@4,400'
M.W. 9.1 lb./gal.
Vis. 65 sec./qt.
W.L. 8.8 ml./30min.
Solids. 5.7 %
Chl. 7,000 ppm
LCM. 7 lbs./bbl.

Sh:gry.-gry.grn.-mar.-rd.brn.,mott.,
m.sft.-m.hrd.,dns.,occ.sndy.-
V.sndy.,eArthy-hackly,occ.ls.
pebble
Sh:A.A.,more sndy Sh:
tr.Ss:?wh.,m.hrd.,w.cmtd.,med-
fn.grnd.,mod.w.rnd.,pr.srtd.,No
Vis.Φ,No loose sd. NSFOC
Sh:-V.shly.Ss:rd.brn-gry.grn.-
dk.gry.,m.sft.,eArthy.
tr.Ss.wh.,sft.,friA.,fn.grnd.,mod.
srtd.,subrnd.,pr.Vis.Φ NSFOC
Sh:rd.brn.-gry.-gry.grn.,m.sft.,eArth.
sndy.-V.sndy.-tr.shly.Ss:brn.,
m.hrd.,w.cmtd.,fn.grnd.,NoΦ
NSFOC
Cg:/Sh:rd.brn-gry.,tr.ylw.,mott.,occ.V.
sndy.Abun.fn-med.loose sd.in tray
1-2pc.Ss:wh.,sft.,fn.grnd.,sub.rnd.
-rnd.,w.srtd.,pr.cmtd.No Vis.Φ NSFOC
Cg:/Sh:VAricolored sh.mottled,m.sft.
-m.hrd.,dns.,occ.sndy-V.sndy.
tr.Ss:wh.,hrd.,dns.,fn.grnd.,w.cmtd.
No VisΦ,some loose sd. NSFOC
Cg:/Sh:A.A.
Ss:wh-tan,hrd.-m.sft.,friA.,fn.-
VFG.,subAng.-subrnd.mod.srtd.
w.cmtd.-pr.cmtd.,pr.VisΦ NSFOC
tr.Ss:A.A.,occ.lg.loose sd.grns.
Cg:/Sh:rd.brn.-gry.grn.,m.sft.,sndy.
earthy.occ.Cht:hrd.,dns.,V.t.,
ylw.,tr.cht.+ls.pebbles
tr.Ss:wh.-ylw.,hrd.,dns.,w.cmtd. NØNSFOC
Cg:/Sh:rd.brn.-gry.,m.sft.,earthy.,occ.
sndy.,Abun.ylw.Cht:hrd.,dns.,V.t.
occ.ls.+cht.pebbles
tr.Cg:/Sh:A.A.
Cht:ylw.-wh.-blu.gry.,hrd.,dns.,
V.t. NØNSFOC

Mississippian
(-1498')



Cht. A.A.
Cg. Sh: rd. brn-gry. grn, m.sft, earthy
tr. Ls: crm, hrd, dns, VFG xln.
No foss. NONSFOC
Cht: wh-blu. gry, hrd, dns, Vit. NO
tr. Ss: wh.-tan, m.sft, fn-VFG, pr.
cmtd, mod.w.srtd, pr. V.s. ONSFOC
Cg. Sh: rd. brn.-gry, m.sft, sndy, earth,
Cg. Sh: A.A., occ. brn.-mar, m.hrd
-m.sft, sndy, earthy
Ls: crm.-wh, hrd, dns, VFG xln,
occ. glauc. NONSFOC
Abun. Cg. Sh. A.A., poss. cavings
Cht: wh-blu. gry, hrd, dns, V.t-sli. devit
Ls: crm.-wh, hrd, dns, VFG xln.
NONSFOC
tr. Cg. Sh: rd brn.-gry. grn. poss. cavings
Ls: wh.-crm, hrd, dns, VFG xln.
NONSFOC
Cht: wh.-lt. gry, hrd, dns, vit.
Ls: wh.-tan, hrd, dns, VFG-mxln.
mic, tr. chlky NONSFOC
occ. Cht: wh.-clr, hrd, dns, v.t.
tr. glauc.
Ls: tan.-crm, hrd, dns, VFG-mxln.
mic, occ. chlky. NONSFOC
tr. Cht: A.A.
occ. Cg. Sh: cavings
Ls: crm.-wh, hrd-m.sft, VFG xln, occ.
sli. chlky NONSFOC
tr. Cht: wh-lt. gry, hrd, dns, vit.

Ls: wh.-crm.-tan, hrd.-sft & chlky, VFG
-mxln, tr. mic. NONSFOC
tr. Cht: wh-lt. gry, hrd, dns, vit.
still ± 10% cavings

ROBERT T. STOLZLE
278

D.T.D. 4600'
L.T.D. 4600'

Robert Stolzle
5/16/15

Deviation 1°