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DRILLING TIME AND SAMPLE LOG

OPERATOR: Murfin Drilling Co., Inc.

LEASE: Antholz WELL NO.: 19

FIELD: Wildcat

LOCATION: 1780' FSL, 700' FWL (NW 5E, NW 5W)

SEC.: 9 TWP.: 35 RANGE: 36W

COUNTY: Rawlins STATE: KS

API NO.: 15-153-20913-00-00

CONTRACTOR: Murfin Drilling Co, Rtg # 14

COMPLETED: February 23, 2013 DEPLETED: March 3, 2013

POHARY TOTAL DEPTH: 4830' LOG TOTAL DEPTH: 4832'

GEOLOGICAL SUPERVISION FROM: 3600' to: T.D.

LOG-UP DEPTH: 3619' LOG TYPE: Chemical Polymer

FORMATION

FORMATION	DEPTH		LOG		STRUCTURAL POSITION
	TOP	SECS	TYP	SECS	
Stone Corral Anhy.	3160 (4185)		3162 (4183)		442'
Base of Anhydrite	3198 (4147)		3199 (4146)		439'
Nava Ls.	3676 (-331)		3676 (-331)		428'
Foraker Ls.	3803 (-458)		3798 (-453)		426'
Topeka fm.	4048 (-703)		4050 (-705)		416'
Osad Ls.	4168 (-823)		4168 (-823)		419'
Lansing Group	4254 (-909)		4256 (-911)		418'
Stark Shale	4473 (-1128)		4470 (-1125)		427'
Base of Stark Sh.	4526 (-1181)		4524 (-1179)		420'
Marmaton Gp.	4560 (-1215)		4562 (-1217)		419'
Rawnel Ls.	4653 (-1308)		4652 (-1307)		420'
Cherokee Sh.	4725 (-1380)		4729 (-1379)		419'
Total Depth	4830		4832		

ELEVATIONS

KB 3345'
GL 3335'

Measurements are all from KB

CASING RECORD

SURFACE: NW 23E
85/8" @ 351' circ.

PRODUCTION: None
R.A.

WIRELINE SERVICES

Pioneer/Log Tech
Dual Comp. Porosity,
Dual Induction,
BHC Sonic and
Microresistivity
logs were run.

LOCATION MAP

Location			
01-9 Antholz			

Reference Well for Structural Comparison: Murfin CW 181B Ls. N 5W S 73S - R36W

Comments and Recommendations: Recommended well to be plugged and abandoned

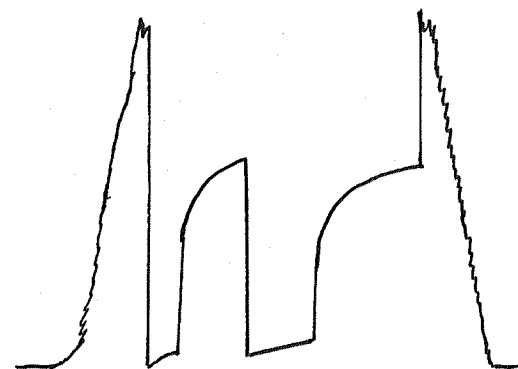
DST # 1 ZONE: Foraker Ls.
INTERVAL: 3771'-3840'

Pressure:	Time	Press.	RECOVERY
1. Initial Hydrostatic		1829 psi	200' Drilling Mud
2. Initial Flow: Start	0	16 psi	(100% Mud)
3. Initial Flow: End	30	57 psi	
4. Initial Shut-in: End	60	1095 psi	Blow Desc.
5. Final Flow: Start	0	60 psi	I.F. - 4"
6. Final Flow: End	60	127 psi	I.S.I. - No blow
7. Final Shut-in: End	90	1060 psi	F.F. - 3"
8. Final Hydrostatic		1793 psi	F.S.I. - No blow

BHT: 120°F

Rv: _____

DST # 1 8353 Chert
Interval: 3771-3840 Depth: 3772'



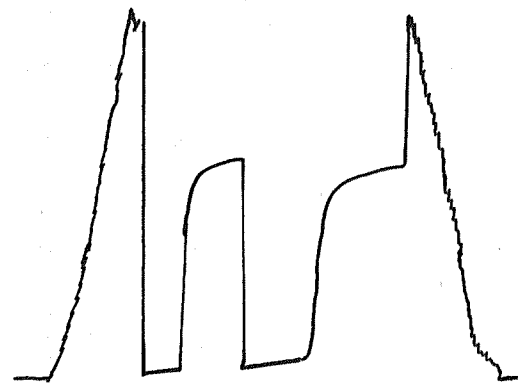
DST # 2 ZONE: Lansing 'A' Zone (up. + low.)
INTERVAL: 4245'-4295'

Pressure: _____ Time: _____ Press.: _____ RECOVERY

DST # 2 8353 Chert
Interval: 4245-95' Depth: 4246'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2055 psi	112' Mud Cut Oil
2. Initial Flow: Start	0	18 psi	(95% Oil)
3. Initial Flow: End	30	52 psi	93' Oil Cut Mud
4. Initial Shut-in: End	60	1254 psi	(10% Oil)
5. Final Flow: Start	0	57 psi	Blow Desc.
6. Final Flow: End	60	113 psi	I.F. - 4"
7. Final Shut-in: End	90	1211 psi	I.S.I. - No blow
8. Final Hydrostatic		2031 psi	F.F. - 3 1/2"
			F.S.I. - Surface blow

BHT: 129°F
Rv: _____

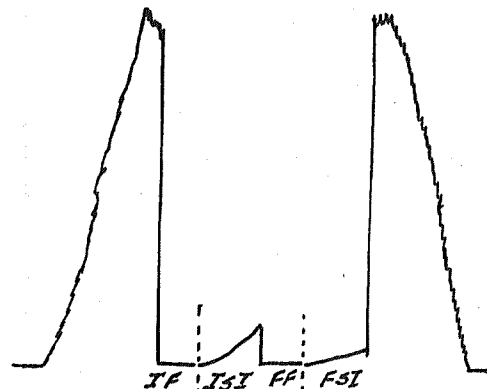


DST # 3 ZONE: Lansing-K.S. City J' Zone
INTERVAL: 4431'-4480'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2115 psi	Rec. 2' Mud
2. Initial Flow: Start	0	15 psi	
3. Initial Flow: End	30	17 psi	Blow Desc:
4. Initial Shut-in: End	60	290 psi	I.F. - surf. blow - 20 min.
5. Final Flow: Start	0	17 psi	I.S.I. - No blow
6. Final Flow: End	30	18 psi	F.F. - No blow
7. Final Shut-in: End	60	102 psi	F.S.I. - No blow
8. Final Hydrostatic		2108 psi	

BHT: 126°F
Rv: _____

DST # 3 8353 Chart
Interval: 4451'-80' Depth: 4432'

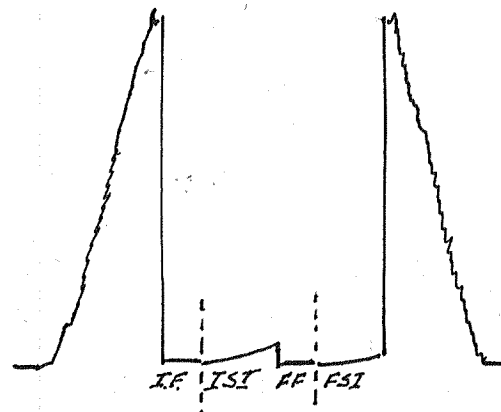


DST # 4 ZONE: Verdigris Ls.
INTERVAL: 4694'-4765'

Pressures:	Time	Press.	RECOVERY
1. Initial Hydrostatic		2291 psi	2' Drilling Mud
2. Initial Flow: Start	0	16 psi	
3. Initial Flow: End	30	18 psi	Blow Desc:
4. Initial Shut-in: End	60	111 psi	I.F. - 1/2" died to 1/8"
5. Final Flow: Start	0	19 psi	I.S.I. - No blow
6. Final Flow: End	30	21 psi	F.F. - No blow
7. Final Shut-in: End	60	61 psi	F.S.I. - No blow
8. Final Hydrostatic		2333 psi	

BHT: 131°F
Rv: _____

DST # 4 8353 Chart
Interval: 4694'-4765' Depth: 4695'



ABBREVIATIONS USED

ROCK TYPES:

Ls - Limestone

Gs - Gypsiferous

FABRIC:

Fn. grn - Finegrained

VEG - Very Fine grained

MODIFIERS:

gd - Good

fr - Fair

3200

3250

3600

3650

Base of
Anhydrite
(+147')

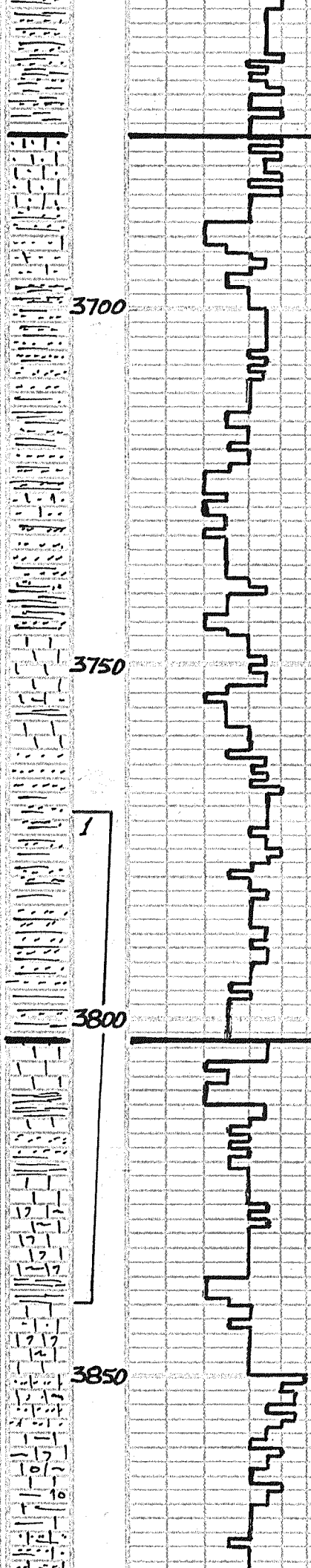
START 1' drilling time and
10' wet and dry samples
at 3600'

TRP to replace
PDC bit at 3619'

Strap .03' short
to board
Deviation 1/2°

Sh: rd.-rd. brn. 1 sft. - m. sft. 1 dns.
occ. sht. - sandy, earthy
tr. ss: cm, m. sft. 1 dns. vfg, mod.
pr. sft. 1, No Vis. P. NSFOC
tr. ss: A.A., occ. sht. 1, sp. A., 70
NSFOC
Shts: sh: rd.-rd. brn. 1 m. sft. -
sft. 1, occ. v. sandy, earthy

Shts: sh: rd.-rd. brn. m. sft. 1
dns. 1, occ. v. sandy, earthy
tr. ls: cm, hr d. 1 dns. NO NSFOC
tr. ls: A.A. NO NSFOC
sh: - shts: rd.-rd. brn. 1 v. sft. -
m. sft. 1, occ. v. sandy, earthy



Sh: sft. rd. - rd. brn., m. sft. -
 sft. dns., occ. v. sandy, earthy
 tr. gry. - dk. gry., earthy
 Ls: crm. - lt. gry., sft. + chiky. - hrd.,
 dns., v. fg. - mxln., occ. sandy -
 v. sandy., rare foss. NΦNSFOC
 Ls: A.A. NΦNSFOC
 Sh: rd. brn., sft., clayey - earthy
 Sh: rd. - rd. brn., sft. + clay. - m. sft.
 sandy, earthy.
 Ls: crm. - lt. gry., hrd., dns., v. fg. -
 mxln., occ. v. sandy. NΦNSFOC
 Ls: A.A., sandy, tr. foss. NΦNSFOC
 Sh: rd. brn., m. sft. - sft., v. sandy.
 earthy - clayey
 Sh: A.A., tr. gry. grn - dk. gry.
 tr. ss: crm., hrd., dns., fr. grnd.,
 mod. sftd., w. cmtd. NΦNSFOC
 Sh: A.A., monu. clayey.
 tr. ss: A.A., occ. sft. - sft. stn.
 NΦNSFOC
 tr. Ls: wh., sft., chik., NΦNSFOC
 Sh: rd. brn., v. sft., clay. - sandy.
 occ. Ls: crm. - tan, hrd., dns., v. fg.
 - mxln., foss. NΦNSFOC
 Ls: crm., hrd., dns., v. fg. - mxln.
 occ. chiky. - clayey, sandy -
 calc. ss., occ. foss. NΦNSFOC
 Ls: A.A. NΦNSFOC
 occ. Sh: rd. brn., v. sft., clayey
 - earthy
 tr. Sh: A.A.
 occ. Ls: crm. - gry., hrd., dns., sandy
 ss: gry. - crm., hrd., dns., v. fg. -
 v. fg., w. cmtd., rare sftd. NΦNSFOC
 tr. ss. + Ls: A.A. NΦNSFOC
 Sh: rd. brn., sft. + clay. - m. sft.
 earthy., sandy - v. sandy
 Sh: rd. brn. - tr. gry. grn., sft. +
 clayey. - m. sft., earthy,
 sandy - v. sandy - sft. stn.
 Sh: A.A.
 Ls: wh. - crm., sft. + chiky. - hrd.,
 dns., occ. v. sandy, tr. foss.
 NΦNSFOC
 Ls: A.A., tr. rd. chf., tr. v. sftd.
 less sandy, tr. foss. NΦNSFOC
 Sh: gry. - rd. brn. - mar. m. sft. - m. hrd.
 dns., tr. sandy, earthy
 Ls: crm. - gry., hrd., dns., v. fg. -
 mxln., foss. + sh. stnd., tr.
 sandy. NΦNSFOC
 Ls: crm. - gry., hrd. - m. sft. + chiky.,
 v. fg. - mxln., occ. foss., occ.
 sh. stnd. NΦNSFOC
 Ls: A.A., occ. pr. - tr. vug. φ (mg/dic?)
 w/ qd. bik., wh. sft., ex. cut
 fl., ?perm., No odor, No F.D.
 Ls: crm. - lt. gry., m. sft., chik. -
 hrd., dns., v. fg. - mxln., occ.
 sh. stnd., tr. foss. NΦNSFOC
 Ls: gry. - dk. gry., m. sft. - hrd., dns.,
 v. fg. - mxln., tr. chik., sh. stnd.,
 sandy - v. sandy. - calc. ss.
 NΦNSFOC
 Ls: A.A. NΦNSFOC
 Sh: rd. brn. - gry. - bik., m. sft. -
 m. hrd., dns., earthy - hacky
 tr. Sh: A.A.
 Ls: crm., hrd., dns., v. fg. - mxln.,
 mic., occ. foss. + act.

Nova Ls.
 (-331')

Mud Check @ 3725'
 M.W. 8.9 lb/gal.
 Vis. 55 sec. 1 qt.
 W.L. 4.8 cc/30 min.
 Chl. 600 ppm
 Solids 4.3%
 L.C.M. 4 lb/bbl.

DST #1 3771-
 3840'
 Rec. 200' Mud

Foraker Ls.
 (-458')

Weak Show



3900

3950

4000

4050

Ls: cr.m., hrd., dns., VEG-mxln.,
foss.-v.foss. NΦNSFOC
Ls: gry., m.sft.-m.hrd., dns., sndy,
v.sndy-calc.ss. NΦNSFOC
Ls: cr.m.-lt.gry., hrd., dns., VEG-
mxln., mic. foss.-v.foss. NΦNSFOC
tr. sh: rd. brn.-dk.gry., sft.-m.
hrd., earthy-hackly
Ls: A.A., more sndy NΦNSFOC

Sh: rd. brn., sft.-m.sft., occ. sndy
earthy-clayey
Sh: rd. brn., sft.-m.sft., clayey-
earthy, occ. sndy, tr. dk.
gry. sh. itt. Ls: A.A. NΦNSFOC

Sh: A.A.
Ls: cr.m., sft. tech. - hrd. dns.,
VEG-mxln., occ. foss. NΦNSFOC

Ls: A.A. w/ Ls: gry.-dk.gry., hrd.
dns., sh. stnd., occ. sndy, tr. foss
NΦNSFOC
Sh: dk.gry., m.hrd., dns., tr. sndy, hack.
Sh: A.A., Ls: A.A., v.sndy, NΦNSFOC
occ. ss: gry., m.hrd.-m.sft., VEG.
mod.-w.c.mtd, mod. sft., calc. cat.
No Vis. Φ NSFOC

Sh: rd. brn.-mar.-dk.gry., m.sft.-
m.hrd., dns., earthy-hackly
Ls: cr.m., hrd.-m.sft., dns., VEG-mxln.
rd. sh. stnd., tr. sndy. NΦNSFOC
Ls: cr.m.-gry., m.sft.-hrd., dns.,
VEG-mxln., occ. foss. + sh.
stnd., tr. sndy. NΦNSFOC

Stot/Gr Ls.
(-617)

Ls: A.A. NΦNSFOC

Sh: rd. brn., sft., sft., clayey, occ.
dk.gry., m.hrd., dns., hack.
occ. Sh: A.A.
Ls: cr.m., hrd., dns., VEG-mxln.
foss.-v.foss., rd. sh. stnd.,
NΦNSFOC

Mud Check @ 3980'
M.W. 8.9
Vis. 55
WL. 5.2
Chl. 900
Solids 4.3%
LCM 4#

Ls: A.A., occ. sft. schik. NΦNSFOC
Sh: rd. brn.-dk.gry., sft. earthy-
m.hrd., dns., hackly
Ls: cr.m., hrd., dns., occ. wh. sft.
schiky., VEG-mxln., foss.-
v.foss. NΦNSFOC

Ls: A.A., Abun. rd. sh. stnd.
NΦNSFOC

Sh: rd. brn., sft.-v.sft., earthy
-clayey
Ls: cr.m., hrd., dns., VEG-mxln.,
mic. foss., abun. rd. sh.
stn. NΦNSFOC
Sh: A.A.

Ls: cr.m.-lt.gry., hrd., dns., VEG-
mxln., mic. occ. foss. occ.
rd. sh. stnd., tr. ylw. stnd.
NΦNSFOC
Ls: A.A. NΦNSFOC

Sh: rd. brn., sft., clayey, tr. grn-
blk., m.sft., hackly
Ls: wh.-cr.m., hrd.-m.sft., VEG
xln. occ. foss. w/ occ. VEG pp.
vug. moldic, dk. blk. dd. str.
wk. cut & fl. No odor, No F.O.
Ls: cr.m., sft.-hrd., dns., VEG-
mxln., foss.-v.foss. + ool.,
abun. rd. sh. stnd. NΦNSFOC

Topka Fm.
(-703)
Very weak show

Ls: cr.m., hrd., dns., VEG-mxln., mic.
occ. foss. + ool. w/ rd. sh. stn.
around foss. grns. NΦNSFOC

Ls: A.A. NΦNSFOC
Sh: rd. brn., sft., sndy, earthy
tr. ss: yly-brn., m.hrd., dns., VEG,
pr. sft., w.-pr. c.mtd. No Vis. Φ NSFOC
Sh: rd. brn., sft., sndy, earthy
Ls: cr.m.-lan., m.hrd.-sft., dns.,
foss. + rd. sh. stnd. NΦNSFOC

4100

4150

4200

4250

4300



Sh: rd. brn. - dk. gry., m. sft. - m. hrd.,
dns., earthy - crackly
Ls: crm. - tan, hrd., dns., vfg. - mxln.
mic., occ. foss., 001. NΦNSFOC
Ls: crm. - lt. gry., hrd., dns., vfg.
- mxln., tr. foss., occ. sandy.
V. sandy. NΦNSFOC

Ls: crm. - gry., hrd., dns., vfg. - mxln.
mic., occ. foss., occ. sandy.
V. sandy. - calc. Ss: vfg. NΦNSFOC

Ls: A.A., more gry., tr. sh. stand.
NΦNSFOC
Sh: gry. - mar., m. sft., dns.,
occ. silty, earthy
Sh: A.A.

Ls: gry., hrd., dns., vfg. - mxln., mic.
occ. sandy., tr. foss. NΦNSFOC
Ls: A.A. NΦNSFOC

Sh: dk. gry., m. hrd. - m. sft., dns.,
occ. silty, occ. mica, earthy
Sh: A.A.

Ls: crm. - gry., hrd., dns., vfg. - mxln.,
mic., rare foss. NΦNSFOC

Ls: wh. - crm., sft. + chik. - hrd., dns.,
vfg. mxln., tr. pr. vug. Φ w/ l. brn. stn.
ipc. chik. bldg. oil. No odor. 15-6
pc. tot. fr. cut + fl., V. perm.
Ls: crm. - lt. gry., hrd., dns., vfg. -
mxln., mic., 1-2 pc. w/ pr. vug. Φ
w/ dk. brn. - blk. stn., tr. wk. cut
+ fl., tr. oil stn. Very v. wk. show

Ls: crm. - tan - gry., hrd., dns., vfg. -
mxln., mic., rare foss. NΦNSFOC

Ls: A.A. NΦNSFOC

Sh: dk. gry. - blk., m. hrd., dns.,
carb., earthy
Sh: A.A.

Ls: crm., hrd., dns., occ. sft. + chik.
vfg. - mxln., mic. NΦNSFOC

Ss: gry., m. sft. - m. hrd. pr. vug., vfg.
sub ang., mod. - w. sand. tr. pr.
vis. Φ, blk. oil. f. (aky. oil stn.),
wk. cut + fl., No odor, V. wk. show
tr. Ss: A.A. w/ show A.A.
Sh: sft. brn. - m. sft., dns.,
sandy. - V. sandy., earthy

Sh: lt. gry. - rd. brn., clayey - earthy
Ls: crm., hrd., m. sft., 001. w/ pr.
tr. int. part. Φ w/ dk. oil stn., tr. dd.
oil. 1.9d. cut + fl., No odor, No F.O.

Ls: crm., hrd., dns., vfg. mxln., 001. - v. pol.
pr. - tr. int. 001. Φ w/ dk. brn. stn.
gd. cut + fl., wk. odor, No F.O.

Ls: crm., hrd., dns., vfg. - mxln.,
mic., rare foss. 001., 1-2 pc.
w/ pr. vug. Φ, dk. brn. stn., tr. cut
+ fl., No odor, No F.O. V. wk. show
Ls: crm., hrd., dns., mxln., mic.
NΦNSFOC

Ls: crm., hrd., dns., vfg. - mxln., occ. gd.
- pr. vug. Φ, dk. stn., wk. odor, gd. - v. cut
Ls: A.A., tr. pr. vug. Φ w/ dk. stn.
fl. - gd. cut + fl., very weak show

Sh: rd. brn., sft. - clayey - earthy
tr. Ss: gry., m. sft. No vis. ΦNSFOC

Sh: A.A., tr. Ss: A.A. NΦNSFOC

Ls: A.A., tr. vug. Φ w/ show A.A.
Sh: rd. brn., m. hrd., dns., sandy. - V. sandy.
earthly

Sh: A.A., occ. sft. + clayey
Ls: crm., hrd., dns., vfg. - mxln., mic.
rare foss., tr. pr., occ. pebb. surf.
sh. stand. NΦNSFOC

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

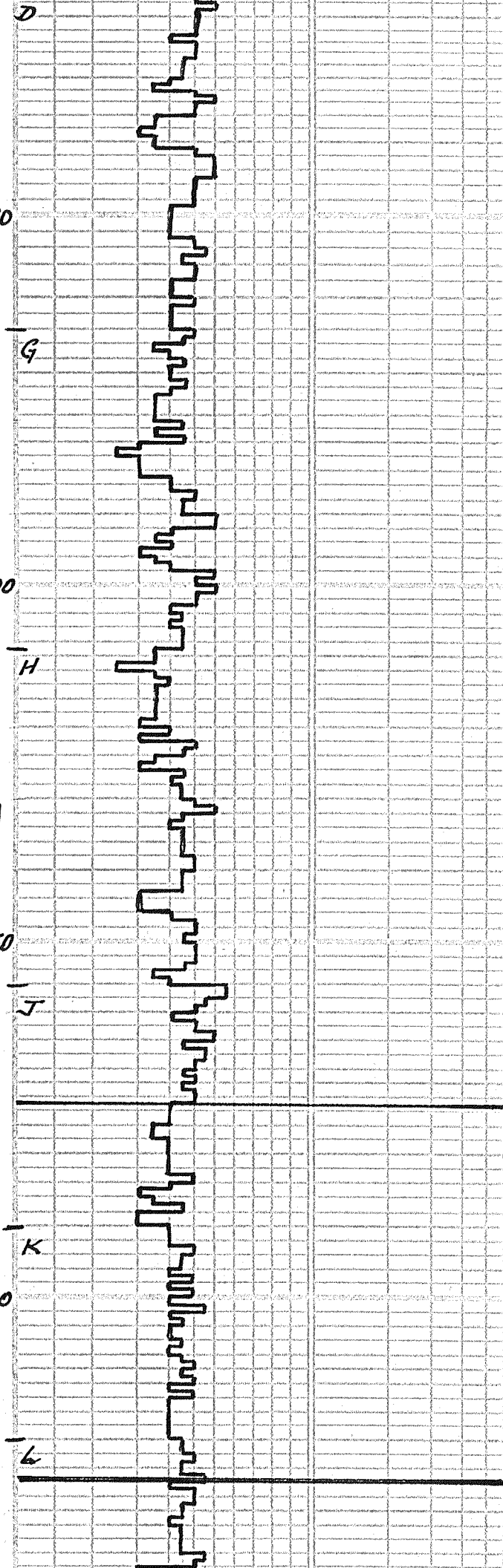
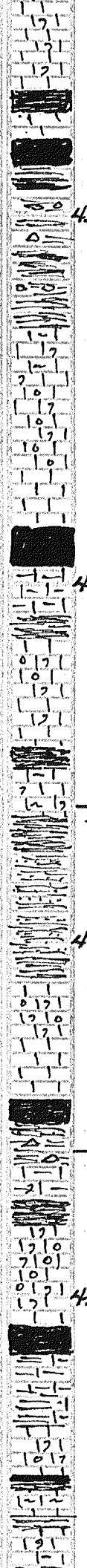
Orled Ls.
(-823')
Very weak show

DST #2 4245-95'
REC: 112' MCO
93' OCM

Heebner Sh.
(-856')

Weak show
Lansing Co.
(-909')
Good show

Mud Check @ 4295'
M.w. 9.3 chl. 900 ppm
Vis. 68 solids 7.1%
w.L. 5.6 LCM 6#



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

Ls: A.A., occ. gry. - dk. gry., NΦNSFOC

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

Sh: A.A.
Ls: crm. - gry., hrd., dns., VFG - mxln.,
mic., occ. foss. + sh. std., occ.
sft. + chiky. NΦNSFOC

Ls: A.A., tr. pebb. surf., fr. rexld.
NΦNSFOC

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

Ls: crm., hrd., dns., VFG - mxln.,
mic., fr. rexld., tr. foss., tr.
sh. std., occ. chiky, NΦNSFOC

Ls: crm. - gry., hrd., dns., VFG - mxln.,
mic., occ. sft. + chiky, tr. foss. +
ool. w/ tr. vug. moldic
NSFOC

Ls: crm. - lt. gry., hrd., sft. + chiky.
VFG - mxln., mic., tr. rexld.,
rare foss., tr. pr. vug. moldic
NSFOC

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

Ls: gry. - dk. gry., hrd., dns., VFG - mxln.,
foss. + sh. std. NΦNSFOC

Sh: A.A., occ. rd. brn., earthy

Ls: crm. - brn., hrd., dns., VFG -
mxln., mic., foss. + ool., tr.
rexld. NΦNSFOC

tr. Sh: A.A.
Ls: wh. - crm., sft. + chiky (50%) -
hrd., dns., VFG - mxln., mic.
tr. foss. NΦNSFOC

Ls: crm. - tan, A. brn. wh. + chiky.,
hrd., dns., VFG - mxln., mic.
occ. foss. NΦNSFOC

Ls: crm. - gry., hrd., dns., VFG - mxln.,
mic., tr. chiky, occ. foss. +
sh. std. NΦNSFOC

Sh: gry. - rd. brn., m. hrd., dns., hack.
Sh: A.A., sandy - v. sandy

Ls: crm., hrd., dns., occ. chiky., VFG -
mxln., occ. foss. + ool.
NΦNSFOC

Ls: crm. - lt. gry., hrd., dns., VFG - mxln.,
mic., tr. chiky., 1-2 pc. w/ VFG
pp. vug. φ, dk. brn. sft., wk. cut +
fl., No F.O., No odor. V. Very weak show

Ls: crm., hrd., sft. + chiky., VFG - mxln.,
tr. ool. + foss. w/ tr. pr. - fr. vug.
moldic φ, brn. sft., wk. - fr. cut + fl.
mott. sft., th. F.O., No odor. ? perm

occ. Ls: show A.A., 1 pc. qd. φ ? perm

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

Sh: blk., m. sft. - m. hrd., dns.,
carb., earthy - hackly

Sh: rd. brn. - blk. gry. - blk., m. hrd.
sft., dns., earthy - hackly

Ls: crm., hrd., dns., VFG - mxln., mic.
occ. foss. + ool. w/ tr. moldic φ NSFOC

Ls: wh. - crm., hrd., dns., occ. m. sft. +
chiky, VFG - mxln., foss. + ool. w/

tr. VFG pp. φ w/ blk. sft., wk. cut +
fl., 1-2 pc. tr. ray, No odor. V. WK show

Sh: rd. brn. - gry. - grn. - blk., m. hrd.
- v. sft. + clayey, occ. carb.
hackly - earthy

Ls: crm., hrd., dns., VFG - mxln., mic.
foss. - v. foss., 1-2 pc. pp. vug. φ
NSFOC

Ls: crm. - lt. gry., hrd., dns., VFG -
mxln., mic., foss. + ool., tr.
sney, tr. sh. std. NΦNSFOC

Ls: A.A., more sh. std. NΦNSFOC

occ. Sh: gry. - rd. brn., m. hrd., dns.

Ls: A.A., more sh. std. NΦNSFOC

Mud Check @ 4480'
M.W. 9.2 Solids 56.4%
Vis. 57 LCM 4#
Wt. 5.6
Chl. 900ppm

DST # 3-4431-80'
Rec. 2' Mud

Weak Show
Very Weak Show
Stark Shale
(-1128')

Base of Kansas
City Group
(-1181')



4550

4600

4650

4700

4750

earthy
 Ls: A.A., sh. stand, occ. pebb. surf.
 NØNSFOC
 Sh: rd. brn.-gry., m. sft., dns.,
 earthy
 Sh: rd. brn.-gry., m. sft., dns., earthy
 Ls: crm.-tan, hrd.-m. sft., dns., VEG
 xln., tr. foss., abun. sh. stand,
 occ. pebb. surf. NØNSFOC
 Sh: gry.-rd. brn., m. sft., m. hrd., dns.
 sily.-sandy, earthy
 Ls: crm.-tan-gry., hrd., dns.,
 sandy-sily., marl. NØNSFOC
 Sh: gry.-mar., m. sft., dns., sily.,
 earthy
 Ls: gry.-tr. rd. brn., hrd., dns., chky
 sandy, pebb. surf. NØNSFOC
 Sh: rd. brn.-mar., m. sft., sily.-
 sandy, earthy
 Ls: crm.-tan, hrd., dns., rd. sh. stand.
 VEG-mxln., rare foss. NØNSFOC
 Sh: rd. brn., m. sft., sandy.-v. sandy,
 tr. gry., earthy, occ. Ls: pebb.
 sh. stand. NØNSFOC

Marmaton Gr.
 (-1215')

Ls: gry., hrd.-m. sft., dns., VEG xln.
 sily.-sandy, sh. stand. NØNSFOC
 tr. Sh: gry., m. sft., dns., earthy-
 hackly
 Ls: gry.-tr. crm., hrd.-m. hrd.,
 dns., VEG xln., occ. sandy, tr.
 foss., tr. sh. stand. NØNSFOC
 Ls: A.A., marly/sily. NØNSFOC
 Sh: lt.-dk. gry., m. sft., dns., sily.,
 earthy
 Sh: dk. gry.-blk., m. sft.-m. hrd., dns.
 carb., earthy-hackly
 tr. Ls: crm., hrd., dns., VEG-mxln.
 mic., rare foss. NØNSFOC
 Ls: crm., hrd., dns., VEG-mxln.,
 mic., occ. foss.-v. foss.
 NØNSFOC
 Sh: gry.-dk. gry., m. sft., earthy
 Sh: A.A.

Pawnee Ls.
 (-1308')

Ls: crm.-tan, hrd., dns., VEG-
 mxln., mic., tr. chky, occ. foss.
 tr. pyr. NØNSFOC
 Ls: crm.-lt. gry., hrd., dns., VEG-mxln.
 tr. mic., occ. chky, tr. m. sft., occ.
 foss.-v. foss., tr. pyr. NØNSFOC
 tr. sh. stand.
 Ls: A.A., less chky, NØNSFOC
 Sh: blk., m. sft.-m. hrd., carb., earthy
 Sh: A.A., occ. dk. gry., earthy
 Ls: crm.-brn., hrd.-m. sft., chky,
 occ. foss., VEG-mxln., mic.,
 abun. sh. stand., pyr. NØNSFOC
 Ls: crm.-gry., hrd., dns., VEG-mxln.
 mic., abun. sh. stand., occ. foss.
 Sh: dk. gry., m. sft., dns., earthy-
 hackly
 Sh: blk., m. hrd., dns., carb.,
 earthy
 Sh: A.A.
 Ls: crm.-gry., hrd., dns., VEG-mxln.
 mic., occ. chky., NØNSFOC

Mud Check @ 4699'
 M.W. 9.2
 V.S. 62
 W.L. 5.6

Ls: crm.-tan-lt. gry., hrd., dns., VEG-
 mxln., mic., sh. stand., tr. foss.,
 tr. pyr. NØNSFOC
 Sh: blk., m. hrd., dns., carb., hack.
 Ls: crm.-tan, hrd., dns., VEG-mxln.
 mic., occ. foss., sh. stand., occ.
 sft. & chky. NØNSFOC

Chl. 600
 Solids 6.4%
 LCM 4#

Ls: crm.-tan-gry., hrd., dns., VEG-
 mxln., mic., occ. sft. & chky., occ.
 foss. & sh. stand. NØNSFOC

Cherokee Sh.
 (-1380')

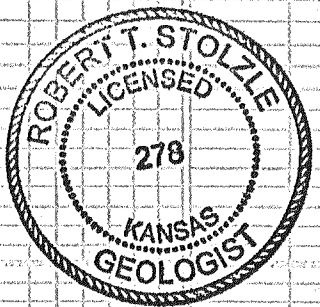
Ls: wh.-crm., hrd., dns., sily.-VEG xln.,
 occ. sft. & chky., occ. tr. pyr. w/ brn.
 moth. stn in VEG int xln. tr. pyr. VEG.
 No odor, No F.O. str-wk chky & fl.
 Ls: wh.-brn., hrd., dns., sily.-VEG xln. w/
 tr. mxln., mic., rare foss., table
 pg. brn. moth. stn. tr. pyr. VEG. No foss

Very weak show



4800

4850



frac., blk. cut st., blk. D., No odor
 sh. gry - blk, m. sft., dns., i. pack - earthy.
 Fr. Calc. ss: wh. v. w. cmtd. No NSFOC
 cfs- sh. rd brn - gry grn - dk. gry, m. sft. - m. hrd
 dns., earthy - hack. sandy
 sh. A, A, sandy - v. sandy
 ss: cl., m. sft., fria. - m. hrd, dns., fri.
 gnd., mod. sftd., mod. - w. cmtd.,
 sub ang. fr. - pr. phi, sh. sftd. NSFOC
 Cgl: sh. A, A, mot., sandy.
 occ. ss: A, A, w. cmtd., NSFOC
 Ls: cr. m. hrd, dns., veg. - mx in, mic.,
 sh. sftd., occ. pebb. surf. No NSFOC
 Ls: A, A, abun. sh. sftd. pebbles, sandy
 occ. sh. variegated, m. hrd., earthy
 occ. ss: wh. - ylw. m. hrd. - pr. dns.:
 veg. - fria. gnd., w. cmtd. No NSFOC
 sh: A, A, ss: cl., rd. sh. sftd. hrd. - m. hrd.
 dns.: med. crs. gnd., pr. sftd., sub
 ang. - sub. rhd., w. cmtd., pr. - No
 vis. phi NSFOC
 tr: ss: A, A, occ. sh. ly. No NSFOC
 sh: rd brn - gry. grn. m. hrd - m. sft.
 sandy - v. sandy, earthy, occ.
 lg. sub rd. sd. gns.
 occ. ss: A, A, mod. pr. sftd., sh. ly.,
 w. cmtd. No NSFOC
 cgl: sh: rd - ylw - gry. grn., m. sft. -
 m. hrd., dns., sandy, earthy

cfs

DST #4
 4694' - 4765'
 Rec. 2' Mud

Mud Check @ 4830'
 M. W. - N.C. Solids - N.C.
 Vis. - N.C. LCM - N.C.
 W.L. - N.C.
 Chl. - N.C.

D.T.D. 4830'
 L.T.D. 4832'

Deviation 1°

Robert Stolze
 313113