

Covey

The Well Watchers

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: LANDWEHR A #1
Location: Section 20 - Township 33 South - Range 9 West
License Number: 15-077-21,714 - 00-00 Region: Harper County, KS.
Spud Date: 6 November 2010 Drilling Completed: 19 November 2010
Surface Coordinates: 990' FNL & 990' FEL
(SW NE NE)
Bottom Hole Coordinates:
Ground Elevation (ft): 1,347' K.B. Elevation (ft): 1,356'
Logged Interval (ft): 3,100' MD To: 5,050' MD Total Depth (ft): 5,050' MD
Formation: LeCompton Limeston -----> Arbuckle
Type of Drilling Fluid: Chemical; Low Solids (non-dispersed)
Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: WOOLSEY OPERATING COMPANY, LLC
Address: 125 North Water, Suite 1000 Geologist:
Wichita, Kansas 67202 Marc Summervill
(316) 267-4379 Dean Patisson

GEOLOGIST

Name: Curtis Covey
Company: COVEY - The Well Watchers
Address: 6548 Bedford Circle wellsitegeo1@gmail.com
Derby, Kansas 67037
Office: (316) 776 - 0367 Cell: (316) 217-4679

FORMATION TOPS

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
LeCompton LS	3,208' (-1,852')	3,208' (-1,852')
Kanwaka SH	3,226' (-1,870')	3,224' (-1,868')
Elgin SD	3,280' (-1,924')	3,280' (-1,924')
Heebner SH	3,426' (-2,070')	3,428' (-2,072')
Toronto LS	3,439' (-2,083')	3,440' (-2,084')
Douglas Gp	3,456' (-2,100')	3,462' (-2,106')
Haskell Lm	3,681' (-2,325')	3,680' (-2,324')
Stalnaker Sd	3,730' (-2,374')	3,732' (-2,376')
KC	4,003' (-2,647')	4,004' (-2,648')
Stark SH	4,140' (-2,784')	4,140' (-2,784')
Hushpuckney SH	4,176' (-2,820')	4,178' (-2,822')
B / KC	4,210' (-2,854')	4,210' (-2,854')
Pawnee LS	4,328' (-2,972')	4,330' (-2,974')
Cherokee Gp	4,378' (-3,022')	4,376' (-3,020')
Mississippian	4,452' (-3,096')	4,448' (-3,092')
Kinderhook Sh	4,644' (-3,288') ?	4,646' (-3,390')
Woodford Sh	4,701' (-3,346') ?	4,704' (-3,348')
Viola	4,736' (-3,380') ?	4,740' (-3,384')
Wilcox Sand	4,816' (-3,460')	4,820' (-3,464')
McLish Sand	4,952' (-3,596')	4,956' (-3,600')
Arbuckle	4,983' (-3,627') ?	4,972' (-3,616')

RTD: 5,050' LTD: 5,053' ATD: 5,054'

E-Loggers: Halliburton
Liberal, Kansas

Rotary sample depth is 1' low to 4' higher than E-logger's depth.

DAILY DRILLING STATUS -- NOVEMBER

14-3/4" Hole	7-7/8" Hole	7-7/8" Hole
6 Nov -- Spud @ 10am. Drill to 245'. Run 10-3/4" casing. Set casing @ 245'. Cemented w/ 230 sx Class A (2% gel+3%CC). [Allied] Cement did circulate. Plug down @ 8pm. WOC.	9 Nov -- 6am @ 2,360'. 10 -- Displace Mud @ 3,050'. 6am @ 3,165'. 11 -- 6am @ 3,960'. 12 -- S/T: 20 stands @ 4,350'. Very Tite. 6am @ 4,350'. T/O to check for hole(s) in pipe. R/R draw-work's blocks.	15 Nov -- Resume Drilling @ 1:30am. 6am @ 4,537'. Reduced WOB 8-12M (uncorrected) @100-120+ RPM. 16 -- 6am @ 4,724'. WOB 8-12M (uncorrected) @ 100-120+ RPM. 17 -- 6am @ 4,824'. WOB 8-12M (uncorrected) @ 100-120+ RPM. DST #2: WILCOX SD (4,790'-4,824') 18 -- 6am @ 4,824'. Resumed Drilling @ 6:42am. WOB 8 -12M (uncorrected) @ 100-120+ RPM. 19 -- 6am @ 4,962'. WOB 8 -12M (uncorrected) @ 100-120+ RPM. RTD (5,050') @ 5:45pm. Start & 20 -- Finish E-LOG. [Halliburton]
7 Nov -- WOC. 7am @ 245'. Under surface casing @ 10am with PDC bit.	13 -- 6am @ 4,350'. Resumed drilling @ 9am. Reportedly hole crooked 2.5 deg @4,372' (twice). Reduced to WOB 15M (uncorrected) @ 100-120+ RPM.	
8 -- 6am @ 1,774'. Bit Trip @ 2,041'. 7-7/8" Hole PDC: 225' --> 2,041'.	14 -- Start & 6am @ 4,482'. Finish DST #1: MISS (4,462' - 4,482').	

DST #1 - MISS CHERT

Rotary Depth: 4,462' - 4,482'
Logger's Depth: 4,460' - 4,480'

IFP: 61# - 100# / 30"
ISIP: 1,188# / 60"
FFP: 72# - 155# / 60"
FSIP: 1,316# / 120"
128 deg F
MH: 2,295# - 2,067#

Recovery: 60' Gas in Pipe
60' OIL cut Wtr (7%,93%M)
60' SI Watry cut OILY Mud (10%W,40%O,50%W)
60' SI Mud & OIL cut Water (15%M,25%O,60%W)
60' SI OIL & Mud cut Water (10%O,20%M,70%W)

IF: BOB 3 minutes, Fair Steady Blow.
ISI: Weak Blow building to 1 inch.
FF: BOB in 30 seconds.
FSI: Weak Surface Blow.

Total Fluid: 240'

Recovery Water: (86,000 ppm)
System Water: (6,000 ppm)

Recovery Water -
Mud Engineer = (91,000 ppm)

Reported Rw =
0.12 ohms @ 67 deg F

Superior Testing, Inc.
Great Bend, KS.

DST #2 - WILCOX SANDSTONE

Rotary Depth: 4,790' - 4,824'
Logger's Depth: 4,792' - 4,826'

IFP: 57# - 105# / 30"
ISIP: 1,754# / 60"
FFP: 107# - 136# / 60"
FSIP: 1,715# / 90"
133 deg F
MH: 2,425# - 2,340#

Recovery: Gassy odor thorough out.
60' Muddy Water (40%M,60%W)
60' SI Watery Mud (10%W,90%M)
60' SI Watery Mud (5%M,95%W)
60' Watery Mud (15%W,85%M)

IF: Weak Blow, built to 3 inches.
ISI: No Blow back.
FF: Dead Blow;
then after 36 minutes, Very Weak Surface Blow.
FSI: No Blow back.

Total Fluid: 240'

Recovery Water: (31,000 ppm)
System Water: (6,000 ppm)

Recovery Water -
Mud Engineer = (33,000 ppm)

Reported Rw =
0.30 ohms @ 56 deg F

Superior Testing, Inc.
Great Bend, KS.

HOLE DEVIATION (245' - 5,050') & STRAPS

DEPTH / TVD	— INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
245' /	-- 0.50 (Surface)						
997' /	-- 0.25						
1,575' /	-- 1.25						
1,870' /	-- 0.75						
2,041' /	-- 0.75 (Bit Trip)						
2,526' /	-- 0.25						
3,031' /	-- 0.50						
3,534' /	-- 0.50						
4,039' /	-- 0.75						
4,382' /	-- 2.50 (Survey #1)						
4,382' /	-- 2.50 (Survey #2)						
4,414' /	-- 2.75						
4,446' /	-- 2.25						
4,482' /	-- 2.25 (DST #1)						
4,505' /	-- 2.25						
4,537' /	-- 2.50						
4,568' /	-- 2.50						
4,597' /	-- 2.75						
4,628' /	-- 1.75						
4,660' /	-- 1.50						
4,692' /	-- 3.00 (Survey #1)						
4,692' /	-- 2.50 (Survey #2)						
4,724' /	-- 2.25						
4,755' /	-- 1.25						
4,786' /	-- 2.25						
4,818' /	-- 1.50						
4,824' /	-- 1.00 (DST #2)						
4,849' /	-- 0.75						
4,880' /	-- 1.25						
4,912' /	-- 2.00						
4,943' /	-- 2.25 (not 2 as reported by contractor)						
5,036' /	-- 0.75						
5,050' /	-- 0.75 (RTD)						

STRAP OUT FOR DST #1

Board: 4,508.79'
Strap: 4,490.91'
Diff: 17.88'

STRAP IN FOR DST #1

Board: 4,508.79'
Strap: 4,505.77'
Diff: 3.02'

TOMCAT DRILLING, LLC.

100 South Main, # 508
Wichita, Kansas 67202

(316) 262-8554

Drilling Rig #1 - (620) 309-8164

Toolpusher: Glenn Payne (620) 282-9164

Mud Pump(s):
Main: Ideco MM-550
6" x 15" @ 60 SPM.

Standby: National K-538
6-1/2" x 14 @ 48 SPM.

Pump Pressure: 900 - 1,000 psi @ standpipe.

Dry Wt of Collars: 46,318#
[485' x 95.5#/ft = 46,318#]

Drill Collars: 6-7/16" OD x 2-3/8" ID
Buoyancy Wt of Collars: 39,972#
[46,318# x .863 (9.0ppg) = 39,972#]

Available WOB: 33,976#
[39,972# x .85 = 33,976#]

Contractor reports running
30 - 32M on bit
[At & See Conc @ 3,377' for details]
Tension on drill string - 5,996#
[15% Design Factor]
to keep drill string straight.

Weight Indicator light by 18%; therefore,
30-32M showing has true WOB 35,400 - 37,760M.

@ 4,372' on, WOB reduced from 32M to 8 - 15M (uncorrected).

On main hole (tri-cone), 80 RPM.

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
6 Nov	14-3/4"	HTC GTX-91	14 - 16 - 16 - 16	0' / 245'	245'	7.00	35.0
7 Nov	7-7/8"	HTC DP506E	6 / 15's	245' / 2,041'	1,796'	29.00	61.9
8 Nov	7-7/8"	HTC EP-664S	15 - 15 - 15	2,041' / 5,050'	3,009'	144.75	20.8

ROCK TYPES

POROSITY

	Earthy
	Fenest
	Fracture
	Inter
	Moldic
	Organic
	Pinpoint
	Vuggy

LITHOLOGY

	Anhy
	Bent
	Brec
	Cht
	Clyst
	Coal
	Granite wash
	Congl
	Dol lmst
	Silty dol
	Calc dol
	Dol 2
	Dol
	Gyp
	Igne
	Lmst 2

	Lmst
	Meta
	Mrlst
	Salt
	Shale 3
	Shale 3
	Shale
	Shcol
	Shgy
	Sltst
	Ss
	Till
	Ss 2

MINERAL

	Mica
	Anhy
	Arggrn
	Arg
	Bent
	Bit
	Brecfrag
	Calc
	Carb
	Chtdk
	Chtlt
	Dol

	Feldspar
	Ferrpel
	Ferr
	Glau
	Gyp
	Hvymin
	Kaol
	Marl
	Minxl
	Nodule
	Phos
	Pyr
	Salt
	Sandy
	Silt
	Sil
	Sulphur
	Tuff
	Copper
	Ooliticastic
	Oolite
	Sucrosic
	Dark specks

	Silty dol
	Anhy
	Arg
	Bent
	Chert
	Coal
	Dol
	Dol ls
	Gyp
	Ls
	Mrst
	Calc dol
	Sltstrg
	Ssstrg
	Chalk

SHOW

	Oil
	Spotted
	Ques
	Dead
	Gas
	Oil/gas
	Bed contact

STRINGER

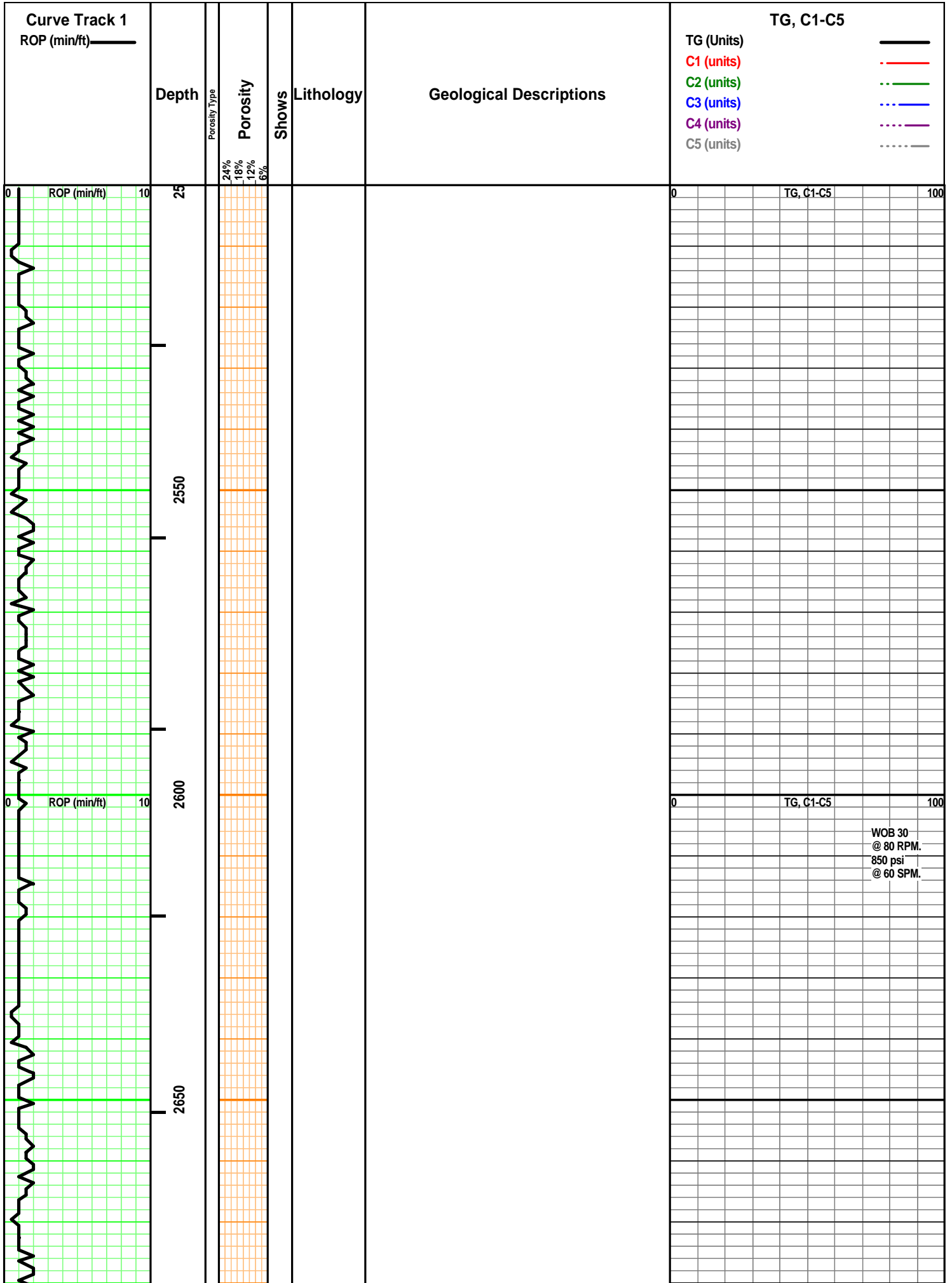
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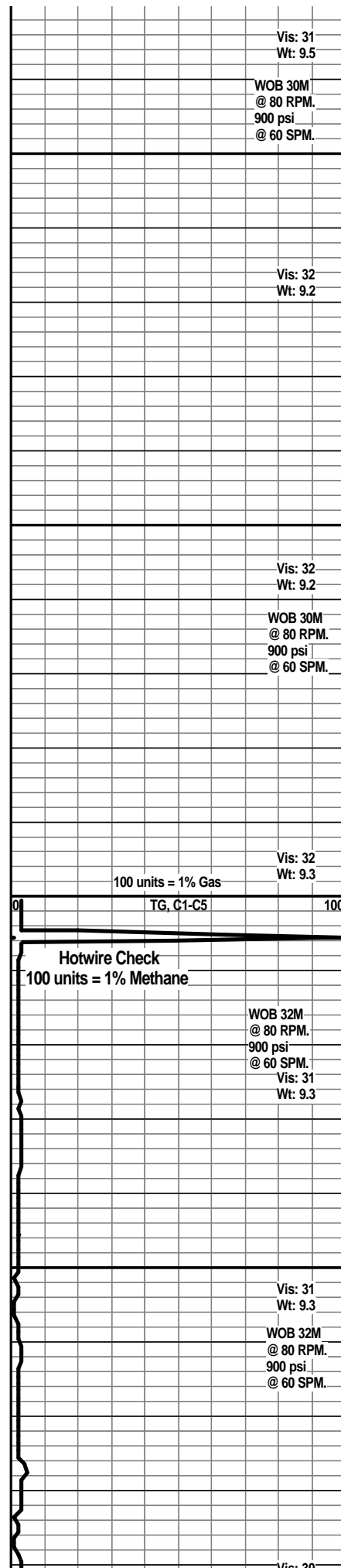
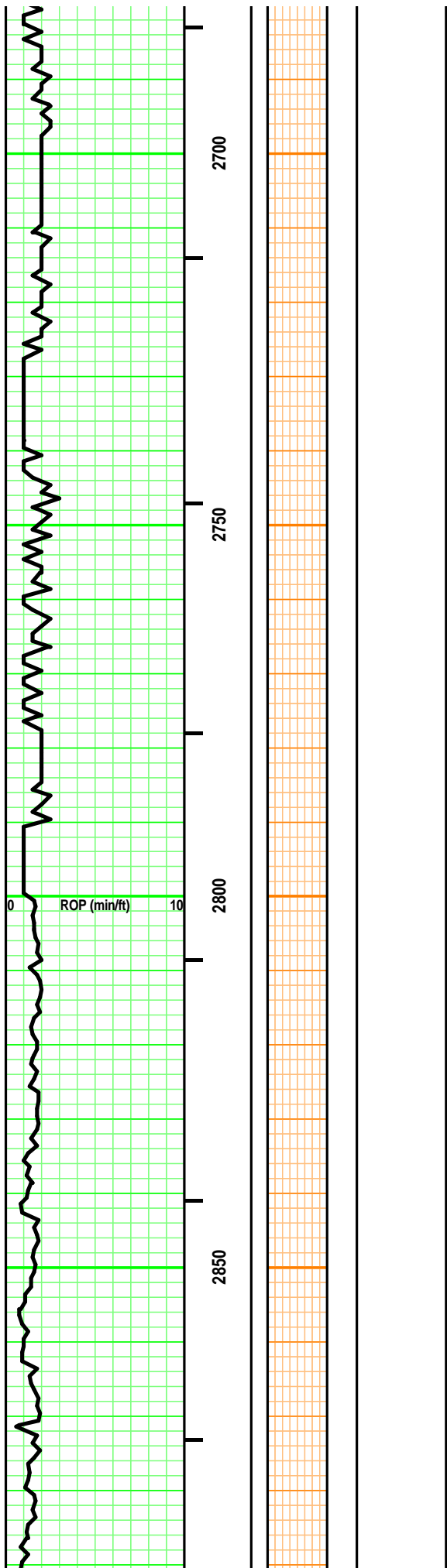
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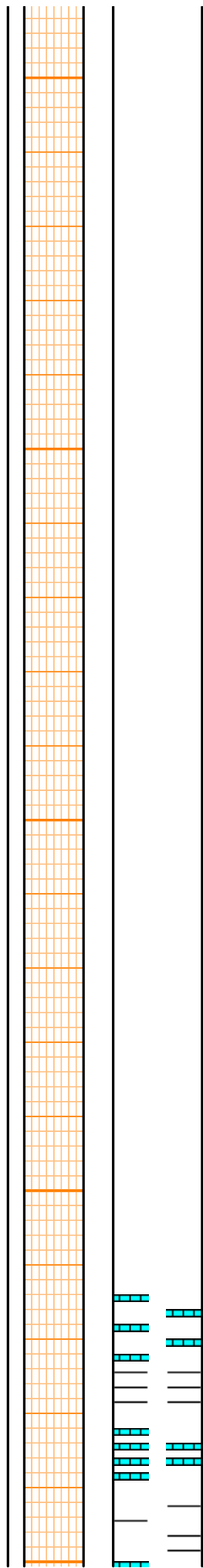
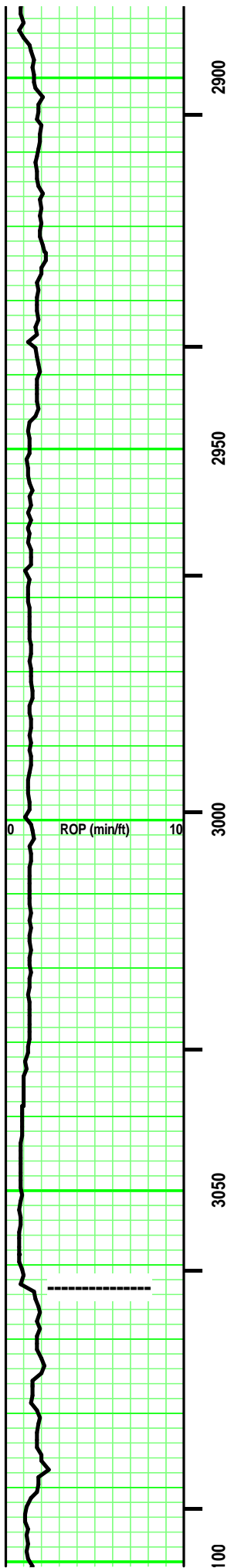
	Algae		Cephal		Foram		Pellet
	Amph		Coral		Fossil		Pisolite
	Belm		Spore		Gastro		Plant
	Bioclst		Crin		Oolite		Strom
	Brach		Echin		Ostra		
	Bryozoa		Fish		Pelec		

OTHER SYMBOLS

	Lost circluation		Bit trip		Jammed core		Sidewall
	Circulate for sample 2	INTERVAL		EVENT			
	Circulate for samples		Core		Connection		
	Rtd		Dst		Rft		



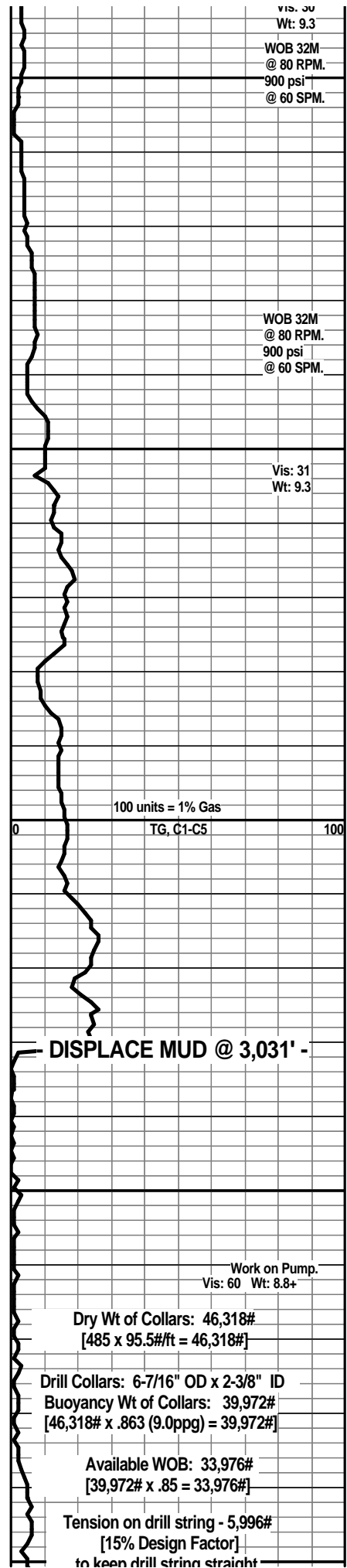




----- **TOPEKA 3,063' (-1,707')**

pcs LS - Tan/ some Lt Gray. Sing. VF/ XF-xln. xln por. tr Re-xln. some fossil frags. Firm. tr vis por.

lots SH - tr Lt/ mostly Med and some Dark Gray. Sing. tr silty in part.



vis. 30
Wt: 9.3
WOB 32M
@ 80 RPM.
900 psi
@ 60 SPM.

WOB 32M
@ 80 RPM.
900 psi
@ 60 SPM.

Vis: 31
Wt: 9.3

100 units = 1% Gas
TG, C1-C5

DISPLACE MUD @ 3,031' -

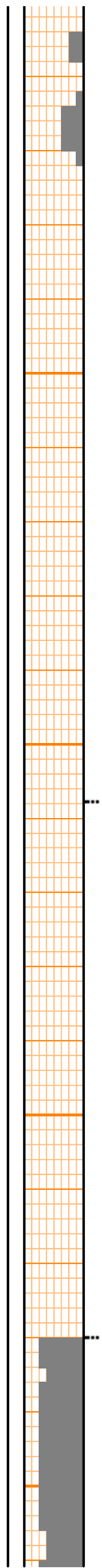
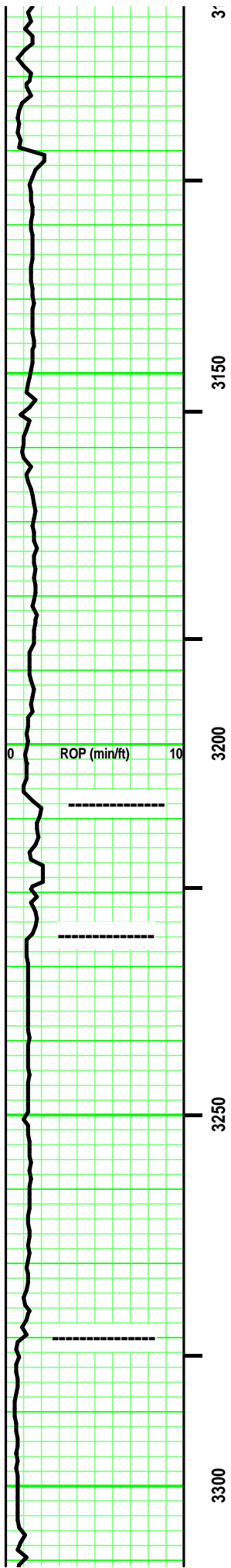
Work on Pump.
Vis: 60 Wt: 8.8+

Dry Wt of Collars: 46,318#
[485 x 95.5#/ft = 46,318#]

Drill Collars: 6-7/16" OD x 2-3/8" ID
Buoyancy Wt of Collars: 39,972#
[46,318# x .863 (9.0ppg) = 39,972#]

Available WOB: 33,976#
[39,972# x .85 = 33,976#]

Tension on drill string - 5,996#
[15% Design Factor]
to keep drill string straight



pcs LS - Tans/ tr Lt Gray. Sing/tr Mot. VF-/ XF-/ Micro-xln. xln & tr part por. some fossil frags. some subchalky. tr Re-xln. partly Friable. tr/ Fair vis por.

lots SH - tr Lt/ mostly Med and some Dark Gray. Sing. tr silty in part.

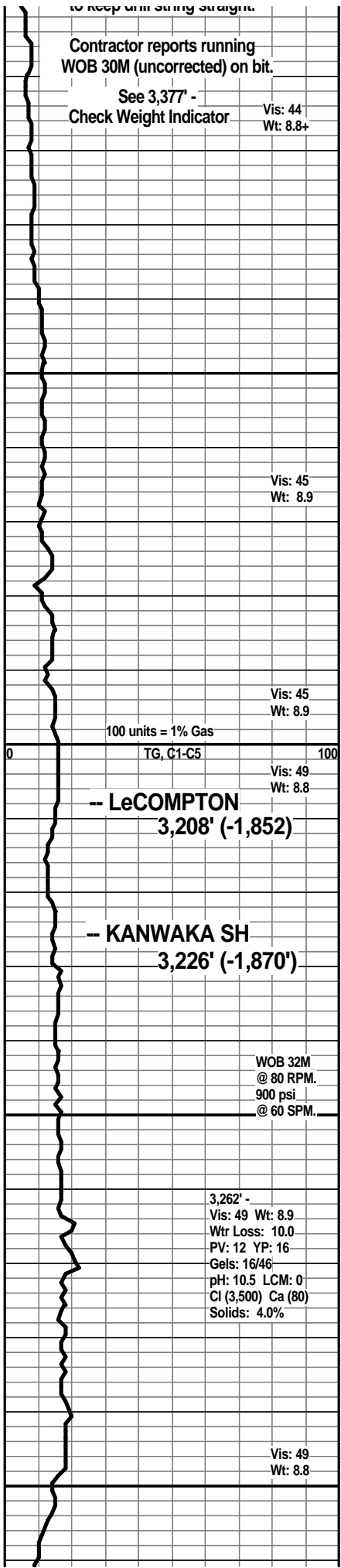
SH - mostly Med Gray/ tr to some Lt Gray. Sing. rare minute carb flecks. tr silty in part. Massive.

LS - Tan/ Lt Gray. Sing/ tr Mot. Micro-xln. xln por. argil/shaly in part. partly firm. No/ tr vis por

SH - Med/ Dark Grays. Sing. silty & sandy in part. Massive. Soft. Limy at depth

ELGIN SD 3,280' (-1,924')

SS- Clear/ Off White/ Pale Lt Gray. some Pale Green. Mot. Silt/ VF qtz and tr chlorite and/or glauc grains. SA/ some SR. Mod sort & sphericity. some point/ mostly sutured grain contact. Calc/ Si cement. intermixed Dark Gray, VF, SR argil/ shale frags. Friable. tr/ Fair vis por.



Contractor reports running WOB 30M (uncorrected) on bit.

See 3,377' - Check Weight Indicator Vis: 44 Wt: 8.8+

Vis: 45 Wt: 8.9

Vis: 45 Wt: 8.9

100 units = 1% Gas TG, C1-C5

Vis: 49 Wt: 8.8

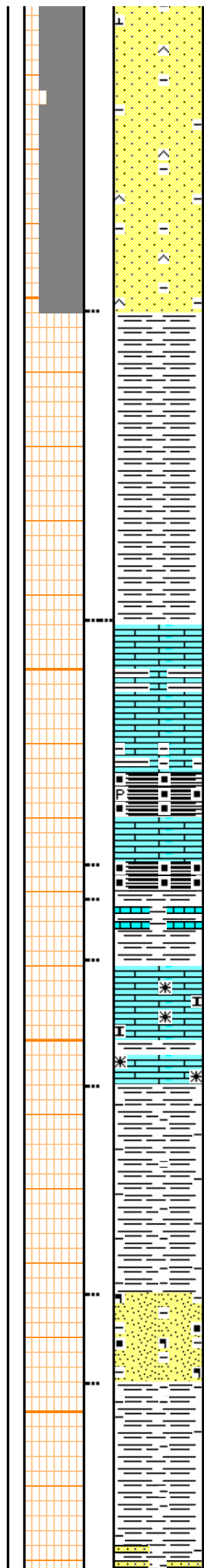
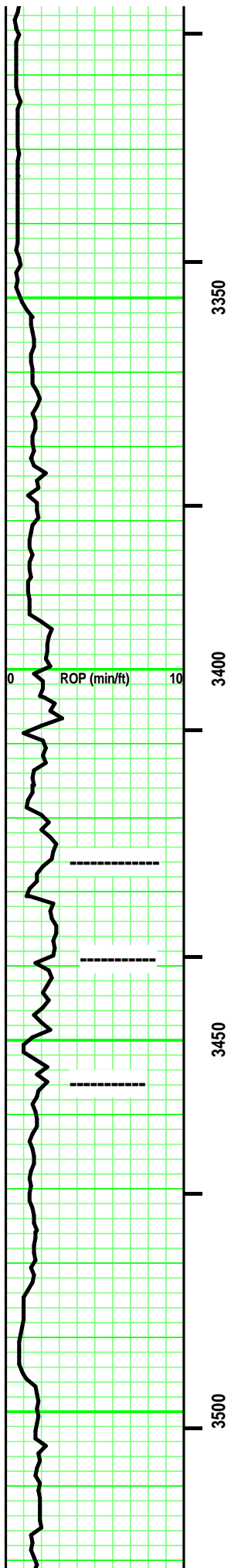
-- LeCOMPTON 3,208' (-1,852)

-- KANWAKA SH 3,226' (-1,870')

WOB 32M @ 80 RPM. 900 psi @ 60 SPM.

3,262' - Vis: 49 Wt: 8.9 Wtr Loss: 10.0 PV: 12 YP: 16 Gels: 16/46 pH: 10.5 LCM: 0 Cl (3,500) Ca (80) Solids: 4.0%

Vis: 49 Wt: 8.8



SH - Med/ Dark Gray. Sing. silty & soft. Massive. some limy streaks (in part) at depth.

Interbedded SH & LS:

LS - some Tans, tr Grays - Mot. Micro-/some XF-xln. xln por. argil/shaly in part. rare Re-xln. Firm. No/ tr vis por.

SH - Med / Dark Gray. Black, carb with depth. Sing. tr calc. some Black & carb with depth. tr pyritic.

SH - Black. Carb. Fissile. tr pyritic. Grays, limy streaks & in part with depth.

SH - Med/ Dark Gray. Sing. Firm.

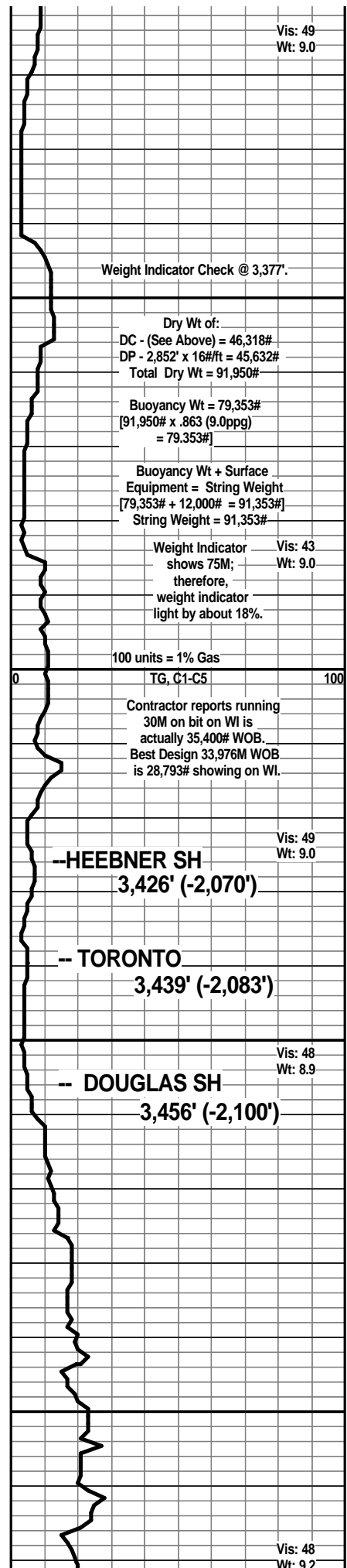
LS - Tans/ rare Lt Brown, rare Off White. Sing. Micro-/ XF-xln. xln por. tr Re-xln tr subchalky in part. Firm. No/ tr vis por.

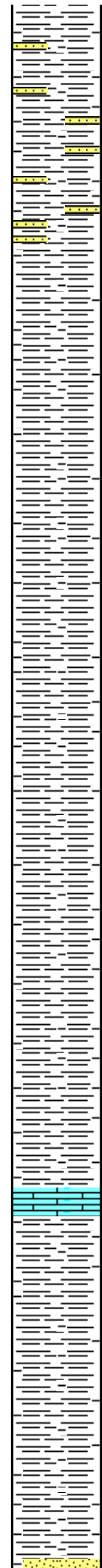
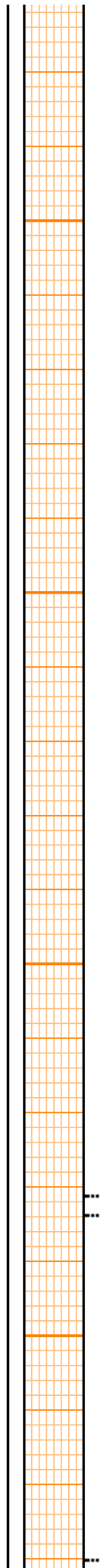
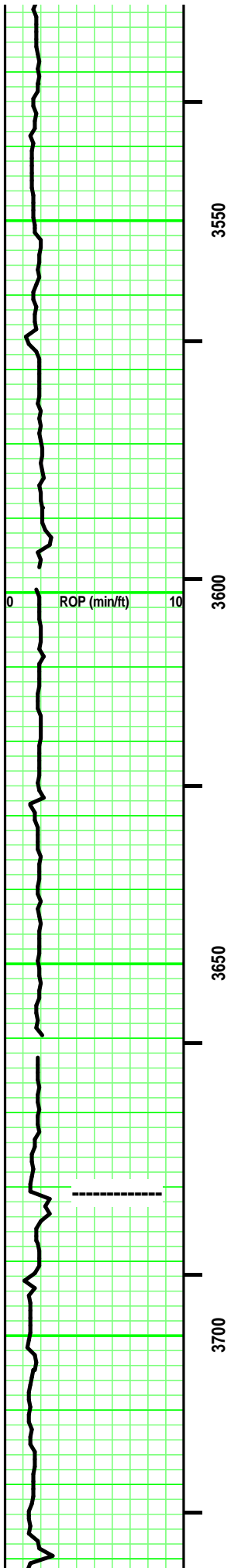
SH - some Med/ Dark Gray, Sing/ some Mot. Massive.

SS - Clear/ Lt Gray/ rare Tan, Off White. Mot. Sil/ some VF qtz grains. SA/SR. mod sort/ mod sph. Vitreous/ some frosted luster. Si/ some Calc cement. misc dark inclusions (carb flecks, argil, heavy minerals). friable. fair vis por.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive.

SS- Clear/ Off Whitish Gray/ Pale Lt Gray. Mot/





some mixed. Silt qtz grains. SA/SR. hi sort. mod sph. Sutured/ 'floating' grain contact. calc/ some Si cement (Re-xln). some intermixed argil/ shale VF, SA frags. some Black, carb flecks & lams. Friable. tr/ some Fair vis por.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive.

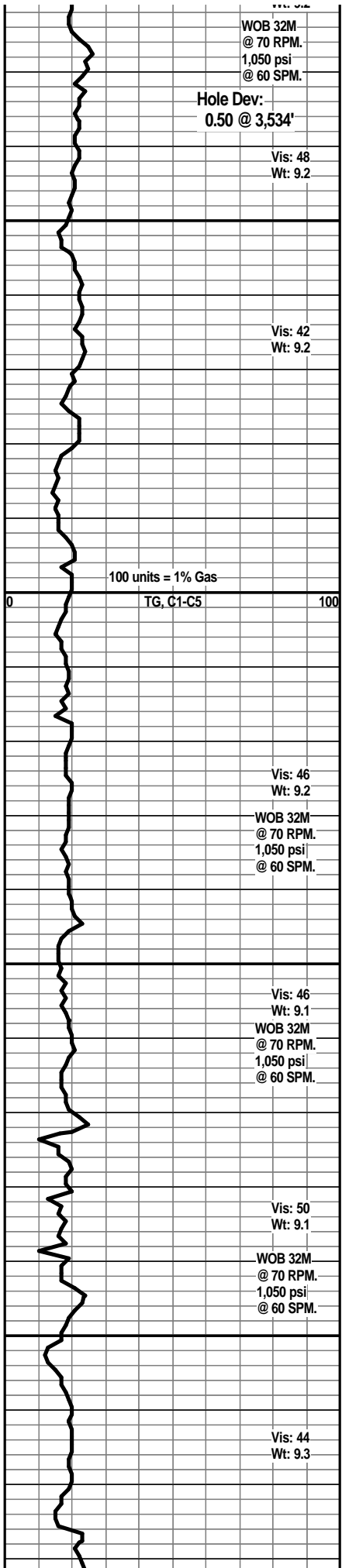
SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive. some soft/ ductile.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive. some soft/ ductile.

HASKELL LM 3,681' (2,325')
LS - Lt Gray. Sing. Micro-xln. xln por. Firm. No/ tr vis por.

SH - Lt/ Med/ tr Darkish Gray. Sing. Massive. soft. highly silty in part.

STALNAKER SD 3,730' (-2,374')



WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Hole Dev: 0.50 @ 3,534'

Vis: 48
Wt: 9.2

Vis: 42
Wt: 9.2

100 units = 1% Gas

TG, C1-C5

Vis: 46
Wt: 9.2

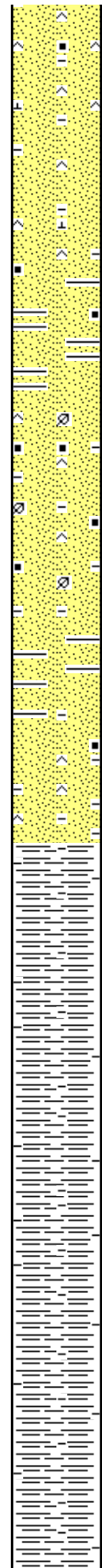
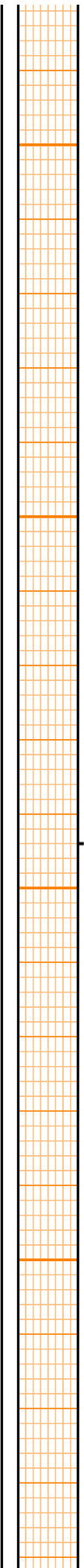
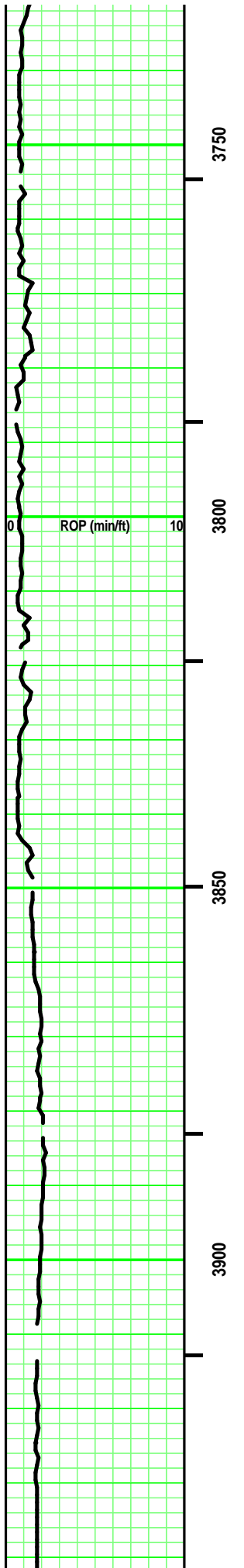
WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 46
Wt: 9.1
WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 50
Wt: 9.1

WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 44
Wt: 9.3



SS- Clear/ Off White/ Pale Lt Gray. Mot/ some mixed. mostly Silt/ tr VF qtz grains. SA/SR. hi sort. mod sph. Sutured/ 'floating' grain contact. calc/ some Si cement (Re-xln). some intermixed/ interbedded argil/ shale. some Black, carb flecks. some minute dark green specks. Friable. tr/ some Fair vis por.

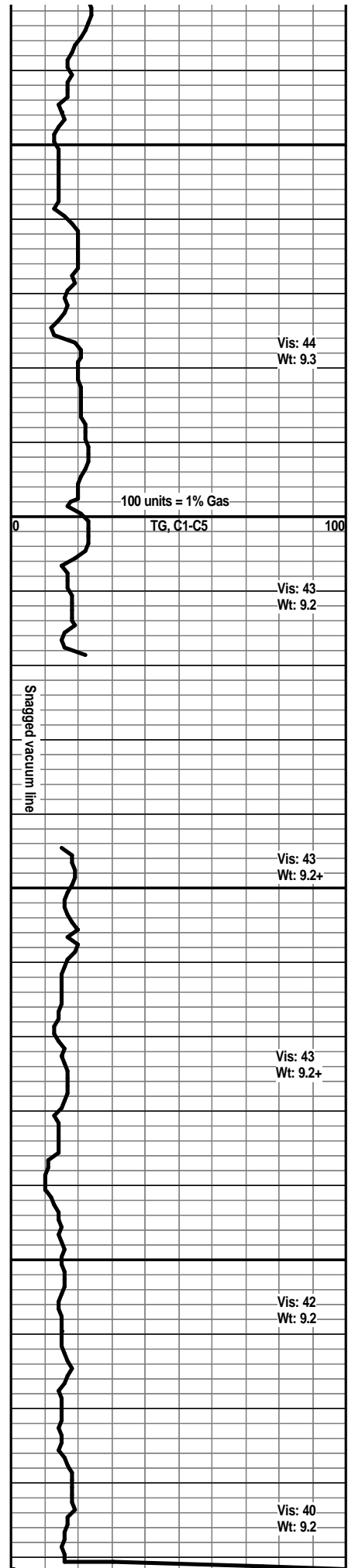
Add: SH - Med/ Dark Gray. Sing. Firm.

Add: plant frags.

Add: SH - Med/ Dark Gray. Sing. Firm.

SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.

SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.



Vis: 44
Wt: 9.3

100 units = 1% Gas

TG, C1-C5

Vis: 43
Wt: 9.2

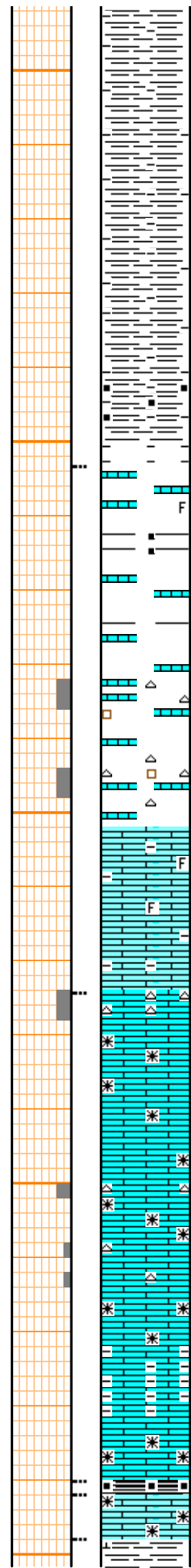
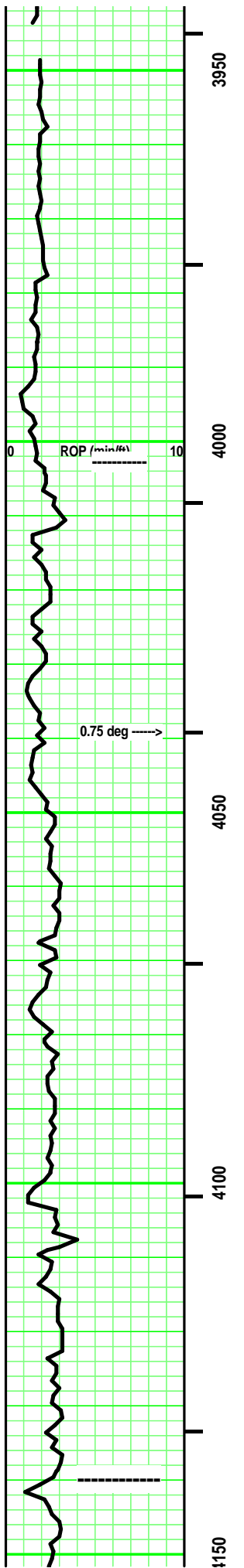
Snagged vacuum line

Vis: 43
Wt: 9.2+

Vis: 43
Wt: 9.2+

Vis: 42
Wt: 9.2

Vis: 40
Wt: 9.2



SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.

Add: SH - Black. Sing. carb. soft.

KC 4,003' (-2,647')

LS - Tans/ Lt Gray. Sing/ some Mot. Micro-/ Crypto-xln, some XF-xln. xln & tr part por. Re-xln. tr Lt Tan fossil frags. Firm. No/ tr vis por.

SH - Black. Sing. some carb. Soft.

LS - Tans. Sing/ some Mot. VF-/ XF-xln. xln & tr part, rare sucrosic por. some Re-xln. subchalky in part. [some Chert - Pale Lt Gray/ White/Clear. Mot. semitransparent. misc fossil frags. No tripolitic.] mostly Friable. Fair/ Good vis por.

LS - Tan/ tr Off White. Sing. XF-/ Micro-xln. xln por. tr Re-xln. rare fossil frag. Firm. No/ tr vis por.

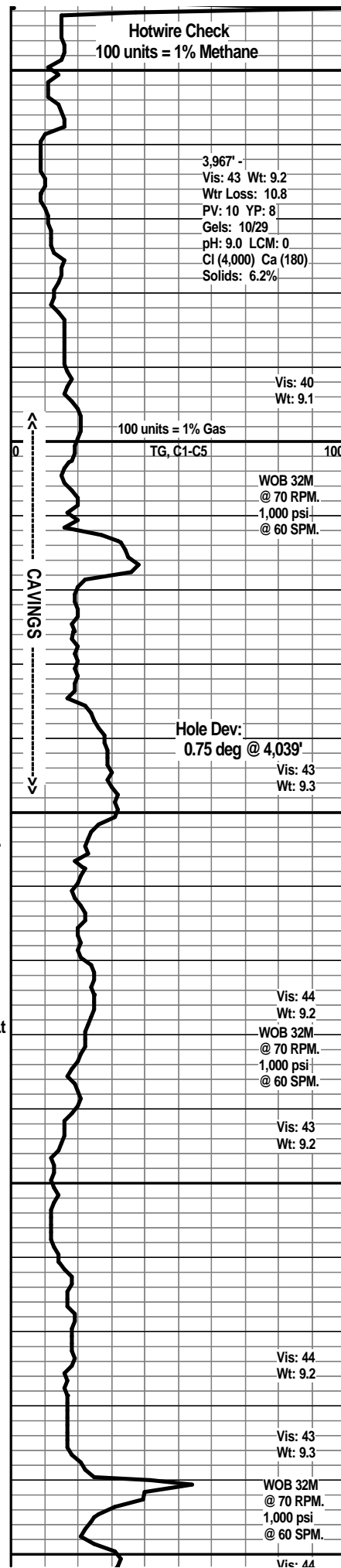
LS - Tans/ some Off White. tr Lt Gray. Sing/ some Mot. XF-/ Micro-xln. xln por. [some Chert - Clear/ Lt Gray/ tr Tan. tr Sing/ mostly Mot. semitransparent. some Inclusions. no tripolitic.) Re-xln in part. tr argil in part. Firm. No/ tr vis por.

STARK SH 4,140' (-2,784')

SH - Black. Sing. carb. soft.

LS - Lt Gray. Sing. Micro-xln. xln por. Firm. No/ tr vis por

SH - Med/ some Dark Gray. Sing. Firm. rare calc.



Hotwire Check
100 units = 1% Methane

3,967' -
Vis: 43 Wt: 9.2
Wtr Loss: 10.8
PV: 10 YP: 8
Gels: 10/29
pH: 9.0 LCM: 0
Cl (4,000) Ca (180)
Solids: 6.2%

Vis: 40
Wt: 9.1

100 units = 1% Gas

TG, C1-C5

WOB 32M
@ 70 RPM.
1,000 psi.
@ 60 SPM.

CAVINGS

Hole Dev:
0.75 deg @ 4,039'

Vis: 43
Wt: 9.3

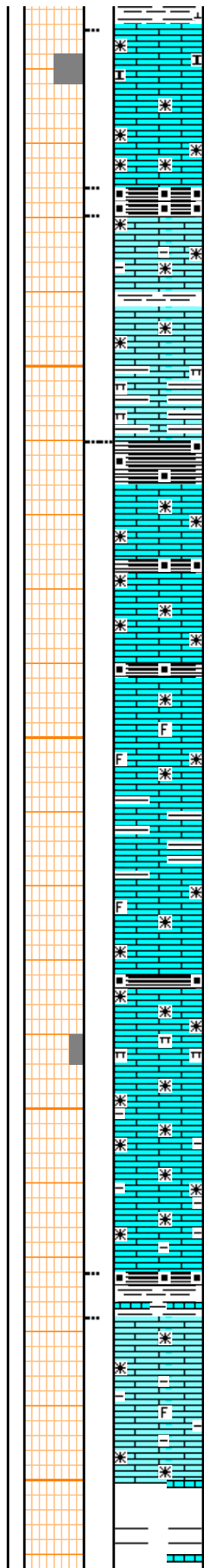
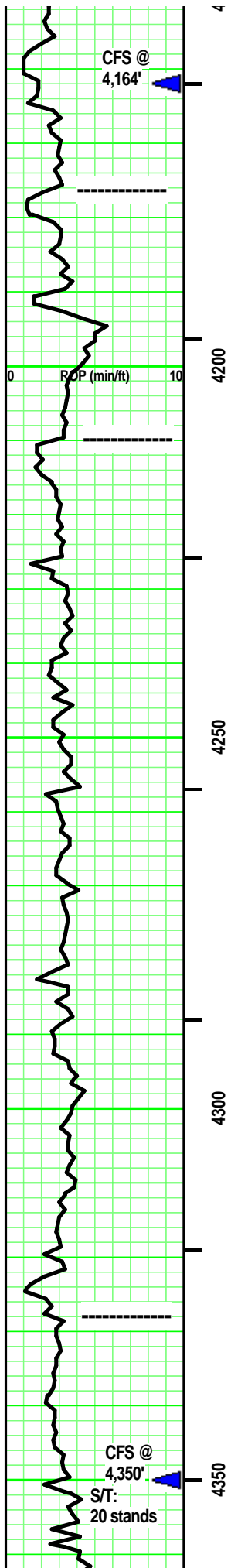
Vis: 44
Wt: 9.2
WOB 32M
@ 70 RPM.
1,000 psi.
@ 60 SPM.

Vis: 43
Wt: 9.2

Vis: 44
Wt: 9.2

Vis: 43
Wt: 9.3

WOB 32M
@ 70 RPM.
1,000 psi.
@ 60 SPM.



LS - Tans/ some Grayish Tan. Sing/ some Mot. XF-/ Micro-xln. xln por. some subchalky in part. tr argil in part. some Re-xln. partly Friable. mostly No/ tr vis por.

HUSHPUCKNEY SH 4,176' (-2,820')

SH - Black. Sing. carb. soft.
 LS - Tans/ Lt & Med Gray with depth. Sing/ some Mot. XF-/ Micro-xln. xln por. some Re-xln. some argil/ shale interbedded. rare subchalky/marly with depth. mostly Firm. No/ tr vis por.

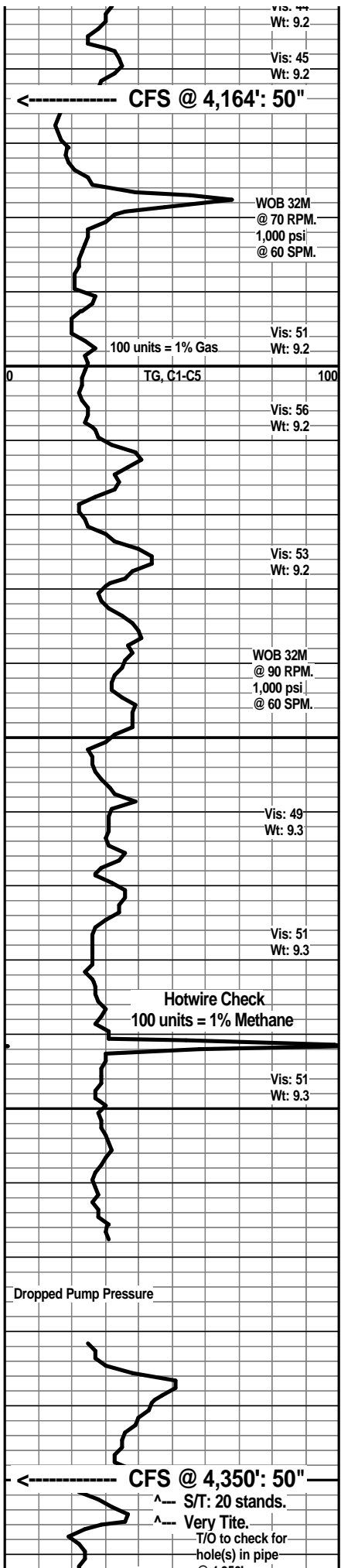
B / KC 4,210' 2,854')

Interbedded / Intermixed SH & LS
 SH - Med/ Dark Gray. Sing. some Black, carb. sing. tr fissile. some Firm.
 LS - Grays/ some Tan(s). Sing/ Mot. XF-/ Micro-xln. xln por. some Re-xln. argil in part. rare fossil frag. mostly Firm. No/ tr vis por.

Add: Pale Greenish Gray marl.

PAWNEE 4,328' (-2,972')

SH - Black. Sing. carb. soft.
 SH - Lt/ Med Gray. Sing. highly limy in part.
 LS - Lt/ Med Tan, tr/ some Lt Gray with depth. Sing. mostly XF-/ some Micro-xln. xln por. some Re-xln. tr argil in depth. rare fossil frag. Firm. No/ tr vis por.



Vis: 47

Wt: 9.2

Vis: 45

Wt: 9.2

CFS @ 4,164': 50"

WOB 32M @ 70 RPM, 1,000 psi @ 60 SPM.

Vis: 51

Wt: 9.2

100 units = 1% Gas

Vis: 56

Wt: 9.2

Vis: 53

Wt: 9.2

WOB 32M @ 90 RPM, 1,000 psi @ 60 SPM.

Vis: 49

Wt: 9.3

Vis: 51

Wt: 9.3

Hotwire Check 100 units = 1% Methane

Vis: 51

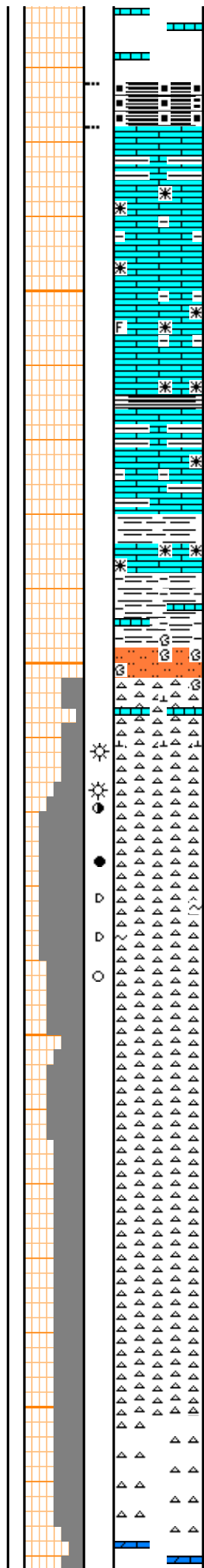
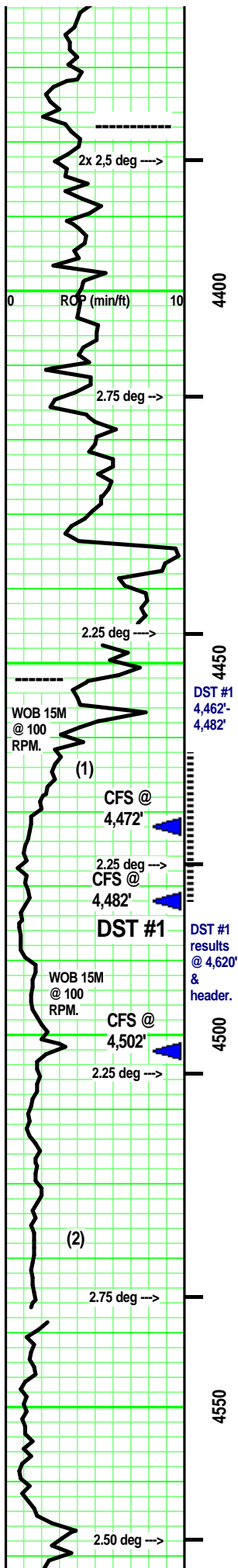
Wt: 9.3

Dropped Pump Pressure

CFS @ 4,350': 50"

S/T: 20 stands.

Very Tite. T/O to check for hole(s) in pipe



SH - Black, Carb. Sing. Soft

- CHEROKEE GP 4,378' (-3,022')

Interbedded & Intermixed SH & LS

LS - Lt & Med Tan/ some Lt Gray, Med Gray with depth. Sing/ tr Mot. XF-/ Micro-xln. xln por. some Re-xln. argil in part. tr fossil frags. some, minute limy frags. mostly Firm. mostly No/ tr vis por.

SH - Med/ Dark Gray, some Greenish Gray. some Black, carb, soft. tr pyritic. some limy streaks in part.

Add Siltstone - Pale Blue/ tr Greenish Blue/ Greens/ Grays/ Purple. Sing/ some highly limy. misc inclusions dark minute.

MISS 4,452' (-3,096')

CHERT (1) -mostly Off White/ rare pcs Clear. mostly Opaque/ rare Transparent. mostly No/ few fossil incl. tr to some Tripolitic. Faint odor. spotted/ rare uniform yellow fluorescence. On own, rare minute gas clinging to tripolitic por. No free oil. some barren/ some spotted/ rare uniform Med Brown stain. Weak Pos/Pos cut & residual. Weak Pos/ Pos acid & residual.

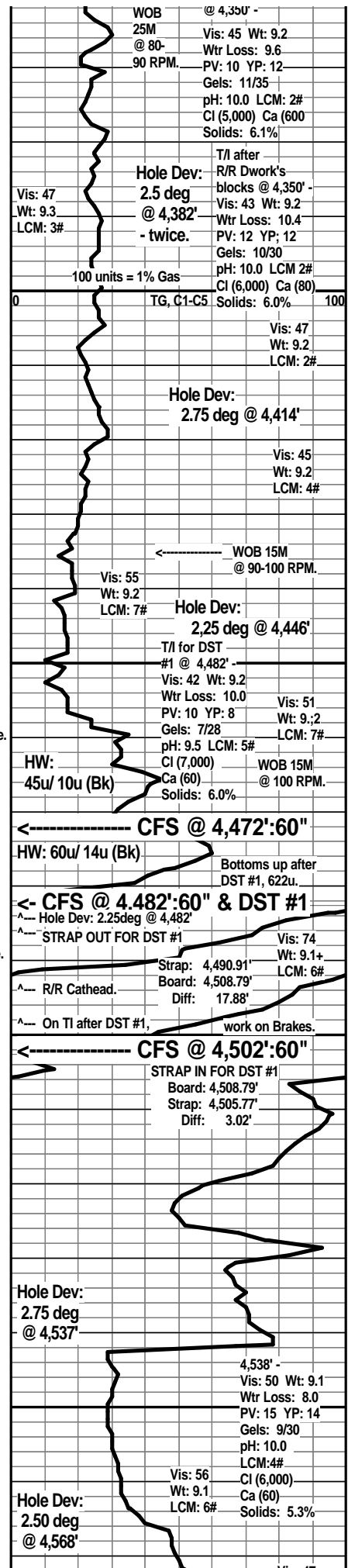
Add: On own, rare, minute V Dark Brown sphere floating in wash water. rare pcs: Black, asphaltic flecks increasing with depth.

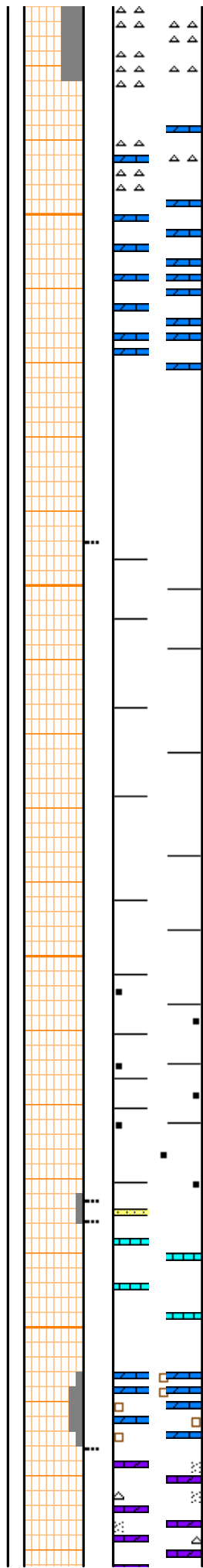
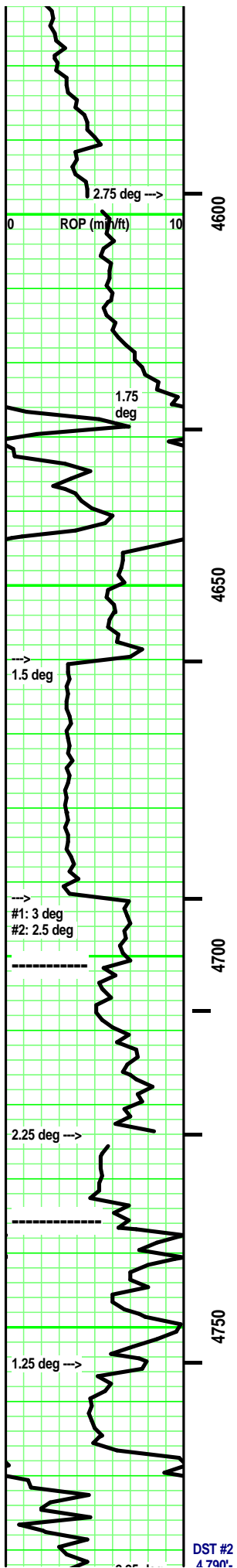
Add: rare, minute glauc grains.

No/? odor. rare, sptd yel fluorescence. One minute gas bubble. No free oil. tr black, asphaltic flecks. mostly barren/ tr spotted Lt Brown (Tan) stain. No/? cut/acid & residual.

rare, 'ghost' fossil frags.

CHERT (2) -mostly Off White/ rare Tan. Opaque/ rare semi-transparent. rare fossil incl. tr/ some Tripolitic. rare minute, irregular vuggy por. rare, minute spotted Dark Tan stain/ nothing else.





LS (Dol) - Pale Grayish Tan/ Pale Gray. Sing. rare XF-/ mostly Micro-xln. xln por. some Re-xln. some, minute dark specks. some intermixed CHERT - similiar to above.

Contractor wrote Vis: 45 on chart/drilling time sheet. Geo witnessed Vis:43 on pits with Evening Tour derrick man. Pusher did not know Geo witnessed mud check @ 4,627.

KINDERHOOK SH 4,644' (-3,288') ?

SH - Med/ some Dark Gray. some Greenish Gray. Sing.

SH - Dark/ V Dark Gray, Greenish Gray. Black & carb at bottom. Sing/ tr Mot. Firm.

WOODFORD SH 4,701' (-3,345') ?

SH - Black. Sing. carb. (Brown hue scratch.) Massive. some blocky. tr, minute pyrite.

SH - Dark Brown, Brownish Black. Sing. silty in part. Firm.

SS - Clear/ Off White/ Lt Gray. Mot. Silt/ tr VF qtz grains. SR/SA. Mod sort. Mod sph. Vitreous luster. sutured/ 'floating' grain contact. hi calc. some argil. tr vis por.

VIOLA 4,736' (-3,380') ?

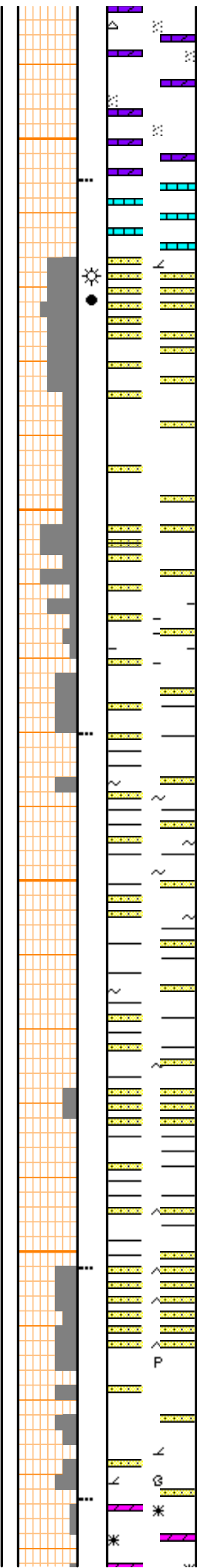
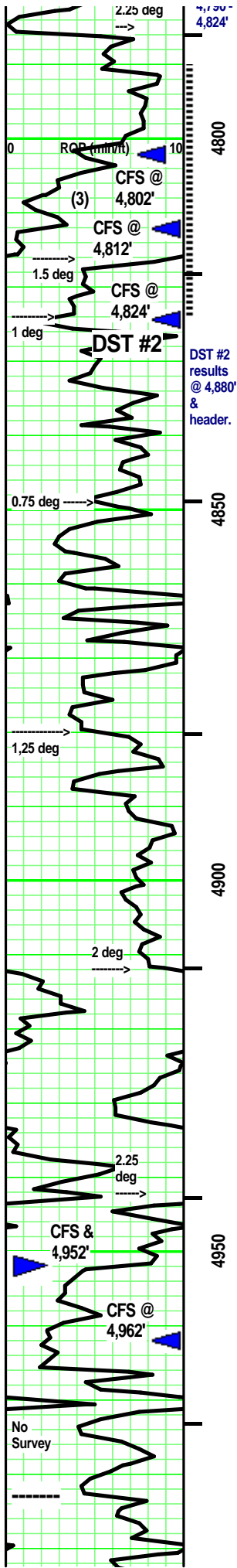
LS - Tan/ Pale Lt Gray. Sing/ tr Mot. XF-/ some Micro-xln. xln por. tr Re-xln. tr argil. No/ tr vis por.

DOL (calc) - Lt Tan/ Pale Off Grayish White/ Pale Lt Gray. Mot/Mixed. VF-Re-xln. xln & sucrosic por. tr argil. Fair/ tr Good vis por.

LS (dolo in part) - Off White/Tans. Sing/ Mot. mixture of some Crypto-/ Micro-xln/ some XF-xln. xln por. some/ lots highly dol in part. some Re-xln. (some CHERT - Clear/ White/ Off White/ tr Tan. Mottled-or- Mixed. Opaque to mixed semitransparent. rare, mionute pyrite. No tripolitic) tr/ some minute dark specks. Firm. No/ tr vis por.

DST #2 4700'

WOB: 10-12M @ 115+ RPM. 1,000 psi @ 60 SPM.	Vis: 47 Wt: 9.0 LCM: 6#	
	Vis: 54 Wt: 9.2 LCM: 6#	
	Hole Dev: 2.75 deg @ 4,597'	WOB: 8M @ 120 RPM. 1,000 psi @ 60 SPM.
	100 units = 1% Gas	
Vis: 51 Wt: 9.1 LCM: 6#	TG, C1-C5	100
Vis: 45 Wt: 9.1 LCM: 6#	WOB 8M @ 120+ RPM. 1,000 psi @ 60 SPM.	DST #1 - MISS 4,462' - 4,482'
Vis: 45 Wt: 9.1 LCM: 4#		Rec: 60' Gas in Pipe (7%,93%M)
Vis: 43 Wt: 9.1 LCM: 5#		60' SI Wtry cut OILY Mud (10%W,40% O,50%W)
	Hole Dev: 1.75 deg @ 4,628'	60' SI Mud & OIL cut Water (15%M,25% O,60%W)
Vis: 53 Wt: 9.0 LCM: 7#		60' SI OIL & Mud cut Water (10%O,20% M,70%W)
WOB 14M @ 100 RPM. 1,000 psi @ 60 RPM.	Vis: 56 Wt: 9.1 LCM: 7#	IFP: 61# - 100# / 30" ISIP: 1,188# / 60" FFP: 72# - 155# / 60" FSIP: 1,316# / 120" 128 deg F MH: 2,295# - 2,067#
Vis: 50 Wt: 9.0 LCM: 7#		
WOB: 18-20M. 1,000 psi @ 60 SPM.	Hole Dev: 1.5 deg @ 4,660'	Vis: 54 Wt: 9.0 LCM: 7#
	Evening	
	Morning	Vis: 48 Wt: 9.3 LCM: 5#
		Vis: 57 Wt: 9.2 LCM: 5.5#
	Hole Dev: 3 deg & 2.5 deg @ 4,692'	(Corrected WOB 9.6-12M)
WOB 8-10M @ 100 RPM. 1,000 psi @ 60 RPM.		Vis: 51 Wt: 9.1 LCM: 6#
	Hole Dev: 2.25 deg @ 4,724'	Vis: 51 Wt: 9+ LCM: 6#
4,724' - Vis: 49 Wt: 9.1 Wtr Loss: 8.0 PV: 16 YP: 12 Gels: 9/28 pH: 10.0 LCM: 7# CI (6,000) Ca (40) Solids: 5.3%	Morning	Vis: 51 Wt: 9.0 LCM: 6#
	Daylight	Vis: 51 Wt: 9.0 LCM: 6#
		WOB 8-10M @ 100+ RPM. 950 psi @ 60 SPM.
	Hole Dev: 1.25 deg @ 4,755'	Vis: 50 Wt: 9.0 LCM: 8#
Vis: 49 Wt: 9.0 LCM: 8#		WOB 10M @ 100+ RPM. 950 psi @ 60 SPM.
Vis: 54 Wt: 9.0+ LCM: 8#		
	Hole Dev: 2.25 deg @ 4,786'	Vis: 50 Wt: 9.1 LCM: 8#
WOB 10M		Vis: 53



LS (3) - White/ some Tan. Mot. F-VF- xln. xln & frag por. [tr/ some Med Gray (XF, rodlike, SA) shale frags. blotchy texture.] some Re-xln. No tr vis por. spotted, irregular Med Brown stain. No odor/flourescence. No oil or gas. No cut/residual. No / ? acid & residual.

WILCOX SS 4,816' (-3,460')
SS - Clear/ Off White. some Pale Lt Gray at top (dolomitic). Mot/Mixed. some VF-/ some silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ frosted luster. dol (at top)/ sil cement with depth. some sutured/ some point grain contact. rare argil in part. partly Friable. Fair/ good vis por.

Faint/ Fair odor. mix of spotted/ uniform floures- ence. some free V Lt Brown (transparent) oil. Gas bubbles clinging to rx chip. rare spotted, irregular V Lt Brown stain. Pos cut/ residual. Pos acid/ residual. transparent Oil bleeds on wash water.

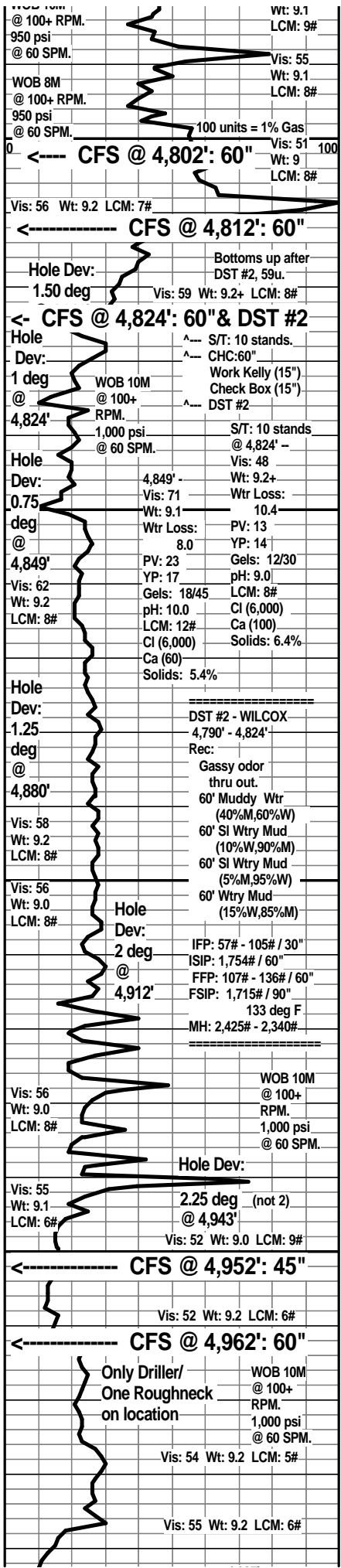
SS - Clear/ Lt Gray/ some Off White, Tan. Mot. VF-/ tr silt & F sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ some frosted grain contact. Calc/ tr sil cement. Point/ some sutured grain contact. some argil in part. some Black, carb flecks. partly Friable. Fair/ good vis por.

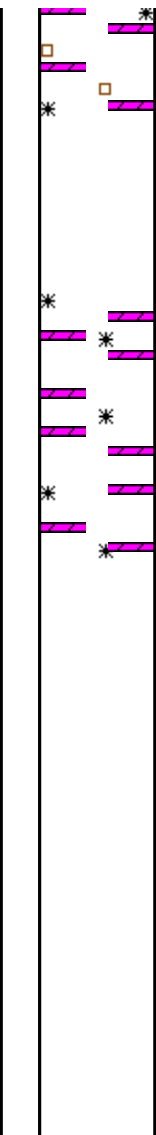
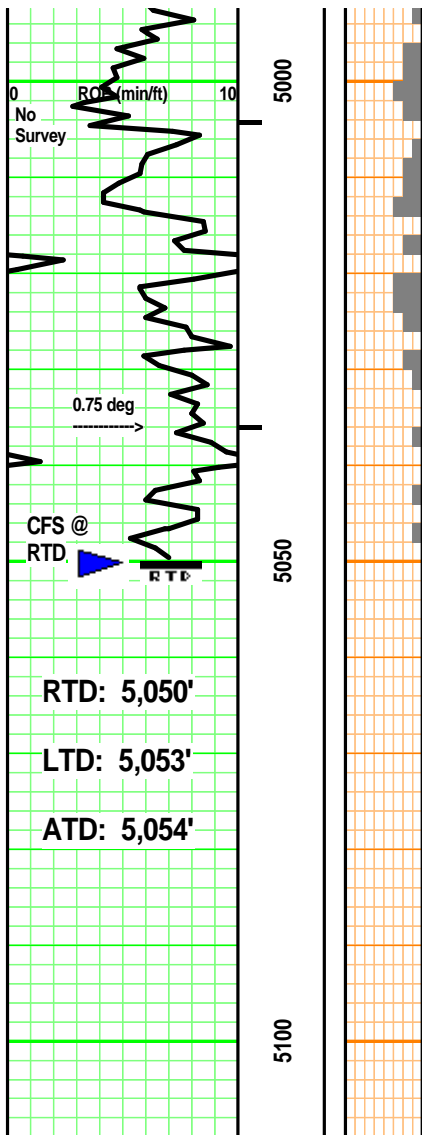
Interbedded / Intermixed SH & SS
SH - Grays/ Greens. some Pale Greenish Gray. Sing/ tr Mot. highly sandy in part (similar to immediately above). mixture of 'crumbly' / grainy / blocky / some waxy. Massive. tr ductile in part.

SS - Clear/ Off White/ Grays. Mot/Mixed. VF/ silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous luster. sutured grain contact. silt sized, SA glauc grans. Sil/ tr calc cement. some argil/shale frags in part. Friable. tr vis por

McLish SS 4,952' (-3,596')
SS - Clear/ mostly Off White & Lt Tan/ tr pale Lt Gray. Mot. VF-/ mostly silt sized qtz grains. SR/SA. Hi sort. Mod sph. Vitreous/ frosted grain contact. Calc/ sil cement (infill & Re-xln). mostly sutured/ tr point grain contact. tr argil in part. Friable. tr/ Fair vis por.

ARBUCKLE 4,983' (-3,627') ?
DOL - Lt & Med Tan/ tr Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. tr argil (VF, SA) frags. mixture of: mostly partial friable & dense. tr/ mostly fair/ rare





good vis por.

5,020' Sample Missed

DOL - Med & Dark/ Dark Brown. tr Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. Firm. tr/ most fair vis por.

LANDWEHR A #1
 Harper County, Kansas
 990' FNL & 990' FEL 20-T33S-R9W

WOOLSEY OPERATING CO., LLC.
 Wichita, Kansas

		4,997' -
	100 units =	Vis: 53 Wt: 9.3
	1% Gas	Wtr Loss: 9.6
0	TG, C1-C5	PV: 12 YP: 21
		Gels: 19.52 100
Vis: 53		pH: 9.5
Wt: 9.3		LCM: 6#
LCM: 6#		Ca (4,500)
		Solids: 6.8%
	Vis: 54 Wt: 9.3	
	LCM: 7#	
Hole Dev:		
0.75 deg @ 5,036'		
	Part of Morning Tour	
	Double over	Vis: 52 Wt: 9.2
		LCM: 6#
Vis: 45		
Wt: 9.1		
LCM: 8#		
	Evening Tour showed up early.	
		WOB 8-10M @ 100+ RPM.
		Vis: 45 Wt: 9.1 1,000 psi @ 60 SPM.
		LCM: 8#
		Vis: 47 Wt: 9.1 LCM: 8#
XXXXXXXX RTD XXXXXXXX		
^-- CFS @ RTD: 60"		
^-- S/T: 10 stands.		
7 - 11 stand pulled tite. (Balled Bit).		
R/R Drive Chain on D/W.		
^-- CHC: 60" +		
Work Kelly slowly (15")- No shake.		
Sample Box (15") for Volume/Type of fill.		
^-- Hole Dev: 0.75 deg @ RTD.		
Wellsite Geologist: Curtis Covey		
COVEY - The Well Watchers		
Well Number: 1,106		