

# Covey

## The Well Watchers

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

Well Name: DIEL 'D' #5

Location: Section 16 - Township 34 South - Range 11 West

License Number: 15-007-23,631. 0000

Region: Barber County, KS.

Spud Date: 21 December 2010

Drilling Completed: 4 January 2011

Surface Coordinates: 2,230' FNL & 1,865' FEL  
(Approximately NE SE SW NE)

Bottom Hole Coordinates:

Ground Elevation (ft): 1,334' K.B. Elevation (ft): 1,343

Logged Interval (ft): 4,300' To: 5,130' Total Depth (ft): 5,130'

Formation: Kansas City Group -----> McLish Shale

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

Wichita, Kansas 67202

(316) 267-4379

Geologist:

Dean Patisson

### GEOLOGIST

Name: Curtis Covey

Company: COVEY - The Well Watchers

Address: 6548 Bedford Circle

Derby, Kansas 67037

Office: (316) 776 - 0367 Cell: (316) 258-9976

### FORMATION TOPS

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Stark SH .....	4,316' (2,973') .....	4,314' (-2,941')
Hushpuckney SH .....	4,348' (-3,005') .....	4,346' (-3,003')
B / KC .....	4,396' (-3,053') .....	4,394' (-3,051')
Pawnee LS .....	4,488' (-3,145') .....	4,488' (-3,145')
Cherokee Gp .....	4,541' (-3,198') .....	4,543' (-3,200')
Mississippian .....	4,575' (-3,232') .....	4,578' (-3,235')
Kinderhook Sh .....	4,787' (-3,444') .....	4,778' (-3,435')
Woodford Sh .....	4,862' (-3,519') .....	4,862' (-3,519')
Viola .....	4,890' (-3,547') .....	4,890' (-3,547')
Wilcox SS .....	5,030' (-3,687') .....	5,026' (-3,683')

RTD: 5,130' LTD: 5,130' ATD: 5,126'

E-log is 0' - 4' high to rotary sample depth.

Loggers:

Superior Well Services  
Hays, Kansas

## DAILY DRILLING STATUS -- DECEMBER 2010 & JANUARY 2011

### 14-1/2" Hole

20 Dec --- Spud @ 3:15pm. Drill to 225'.  
 Run 10-3/4" casing.  
 Set casing @ 225'.  
 Cemented w/ 240 sx Class A  
 (2% Gel + 3% CC). [Allied]  
 Cement did circulate.  
 Plug down @ 9:45pm.  
 WOC.

### 7-7/8" Hole

21 - 26 Dec --- Off for Christmas.  
 27 --- Under surface casing @ noon.  
 28 --- 7am @ 1,061'.  
 29 --- 7am @ 2,046'.  
 30 --- 7am @ 2,899'.  
 31 --- 7am @ 3,580'. Drill to  
 3,631'. Collar Trip @ 3,631'.

1 Jan --- Resumed Drilling.  
 7am @ 3,900'.  
 2 --- 7am @ 4,296'.  
 3 --- 7am @ 4,720'.  
 4 --- 7am @ 5,070'.  
 RTD (5,130') @ 11:50am.  
 E-LOG ....  
 [Superior Well Services]

## HOLE DEVIATION (225' - 5,130')

DEPTH / TVD	INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
225' /	--- 1.25						
1,284' /	--- 1.00						
1,760' /	--- Misrun						
1,779' /	--- (3), then 1.00						
1,889' /	--- 1.00						
2,390' /	--- 1.00						
2,888' /	--- 0.25						
3,313' /	--- 0.25						
3,791' /	--- 0.75						
3,948' /	--- 1.75						
4,043' /	--- 0.75						
4,206' /	--- 0.75						
4,709' /	--- 0.50						
5,130' /	--- 1.00 (RTD)						

## CONTRACTOR

### H2 Drilling --- Rig #3

10,500 E. Berkeley Square Parkway, Suite 1000  
 Wichita, Kansas 67230  
 Office: (316) 636-2090

Rig #3 - (620) 388-1903

Randy - (620) 290-1672

Pump: EMSCO D-375  
 6" x 14" @ 60 SPM.  
 900 - 1,000 PSI @ Standpipe.

After Collar Trip @ 3,631',  
 20 - 35M on bit @ 100 RPM  
 while drilling main hole.

Drill Collars: 6" x 2.50" --- 482'. (79#/ft)  
 Dry Collar Weight: 38,078#  
 (@ 9.1 ppg / Buoyancy Factor 0.8615)  
 Bouyancy Collar Weight: 32,804#  
 Design Factor: 15%, therefore:  
 available WOB is 27,884#  
 Drill Pipe: 4-1/2"XH. (16#/ft - used)

## BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
20 Dec 2010	14-1/2"	VAREL L-117	3 / 15's	0' / 225'	225'	3.50	64.3
27 Jan 2011	7-7/8"	VAREL CH-29	14 - 15 - 14	225' / 5,130'	4,905'	174.00	28.2

## 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
	Ooloid
	Oolite
	Sucrosic
	Dark specks

### STRINGER

	Calc dol
	Silty dol
	Anhy
	Arg
	Bent
	Coal
	Dol
	Gyp
	Ls
	Mrst
	Calc dol
	Sltstrg
	Ssstrg
	Chalk
	New symbol

### SHOW

	Oil
	Spotted
	Ques
	Dead
	Gas
	Oil/gas
	Bed contact

## ACCESSORIES

### FOSSIL

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

	Pisolite
	Plant
	Strom

### 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
	Ooloid
	Oolite
	Sucrosic

	Dark specks
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### STRINGER

	Calc dol
	Silty dol
	Anhy
	Arg
	Bent
	Coal
	Dol
	Gyp
	Ls
	Mrst
	Calc dol
	Sltstrg
	Ssstrg
	Chalk
	New symbol

## OTHER SYMBOLS

### ACTIVITY

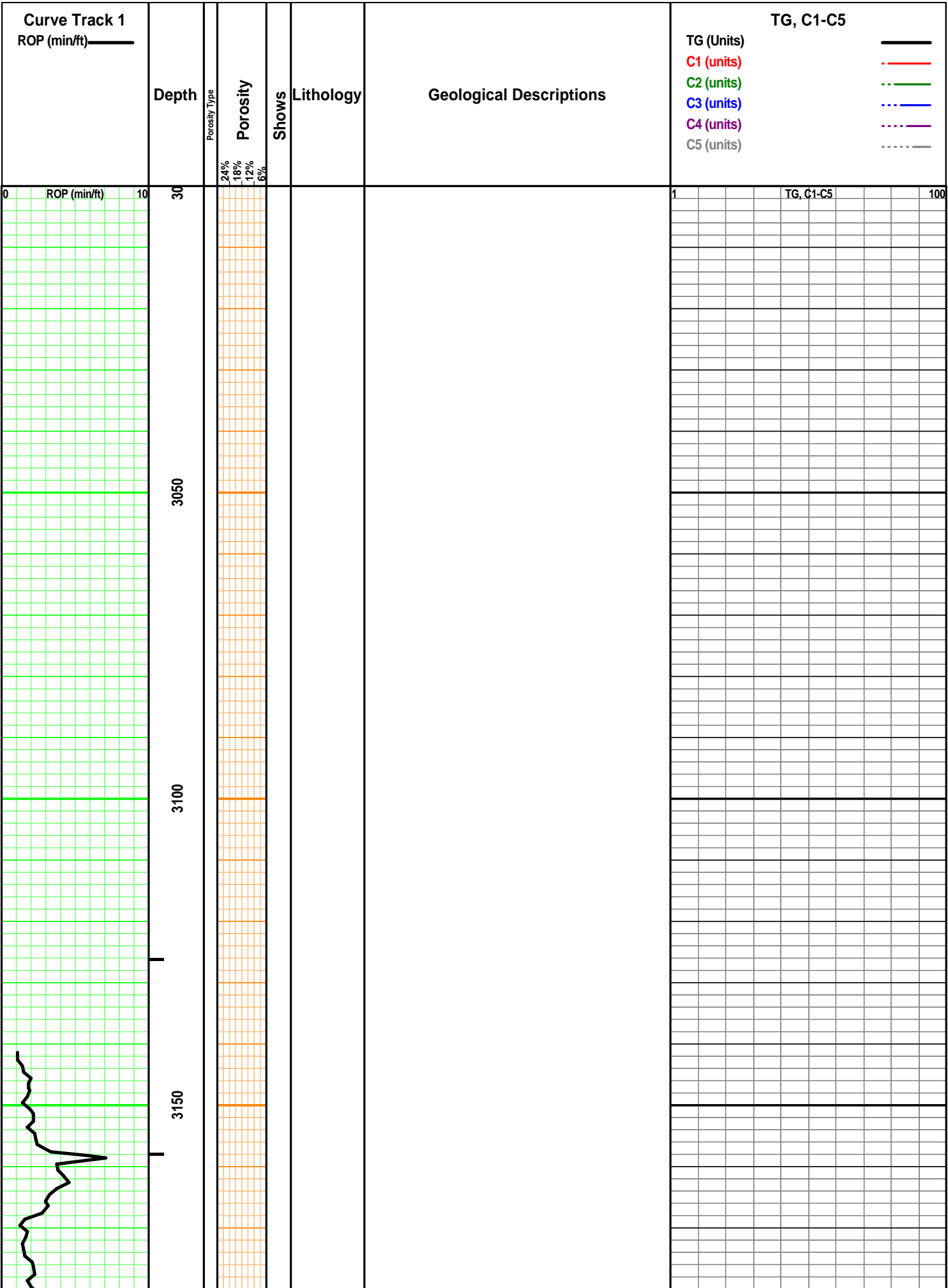
	Lost circluation
	Circulate for sample 2

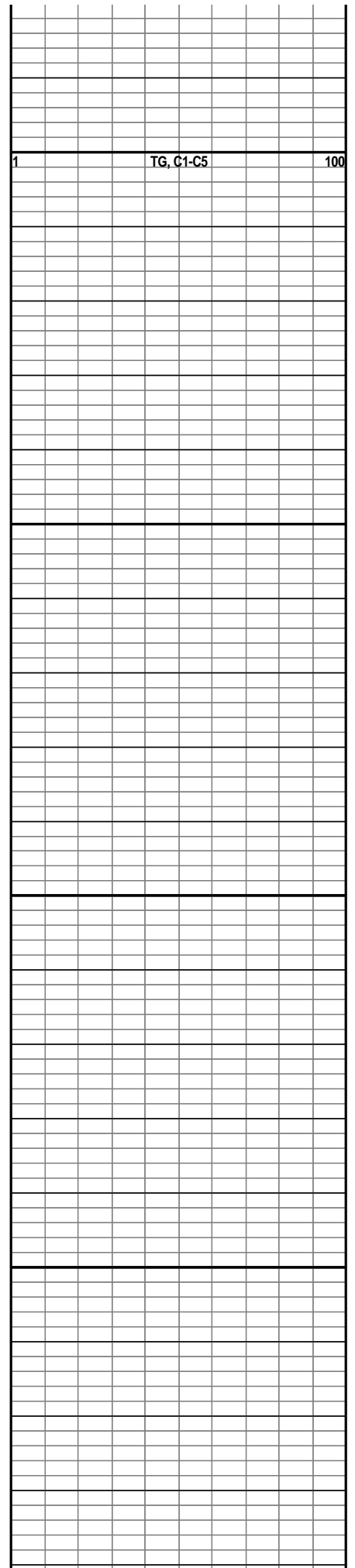
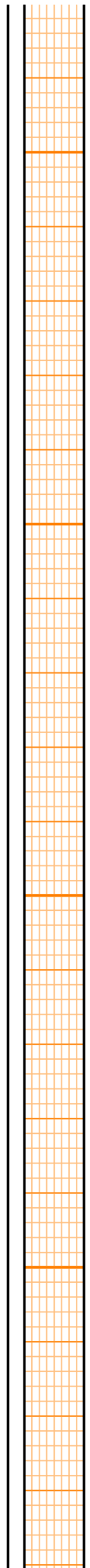
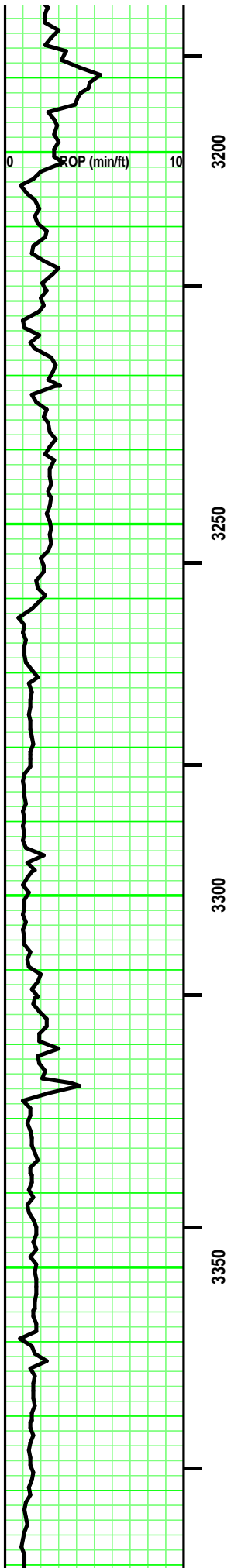
	Circulate for samples
	Rtd
	Trip

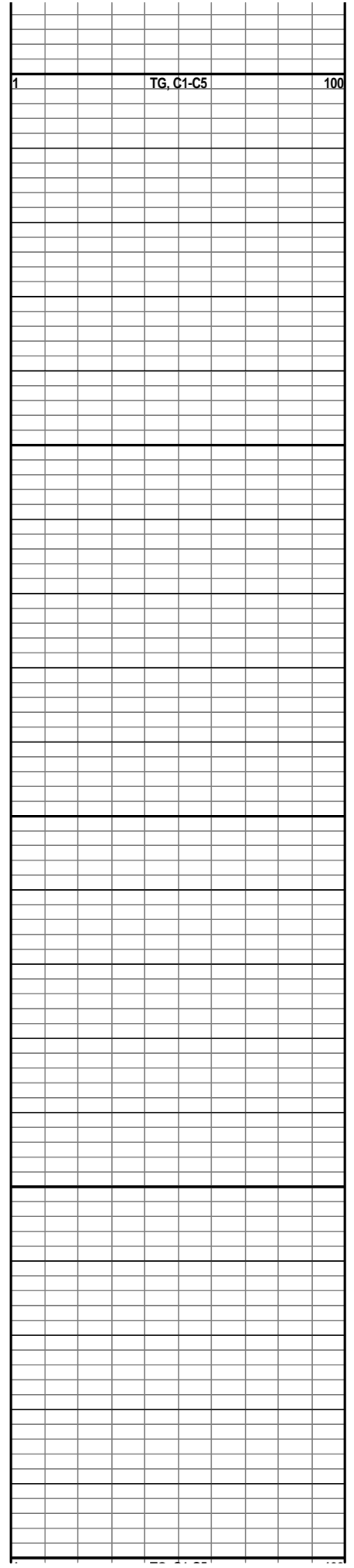
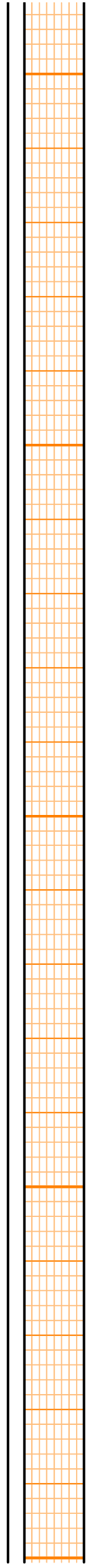
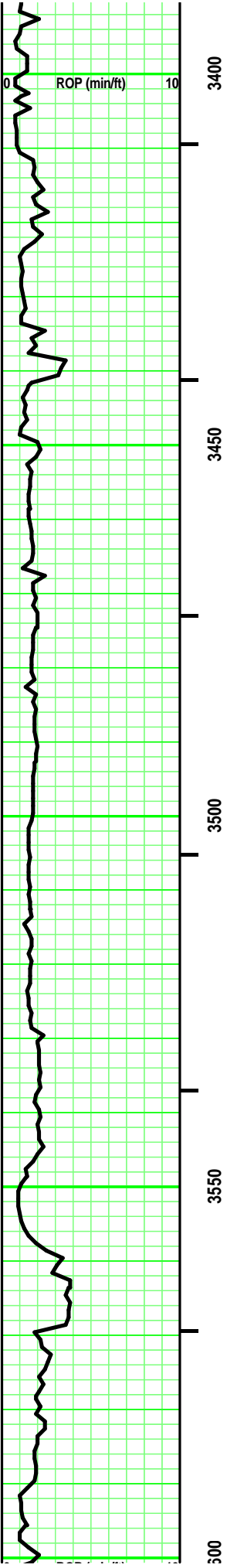
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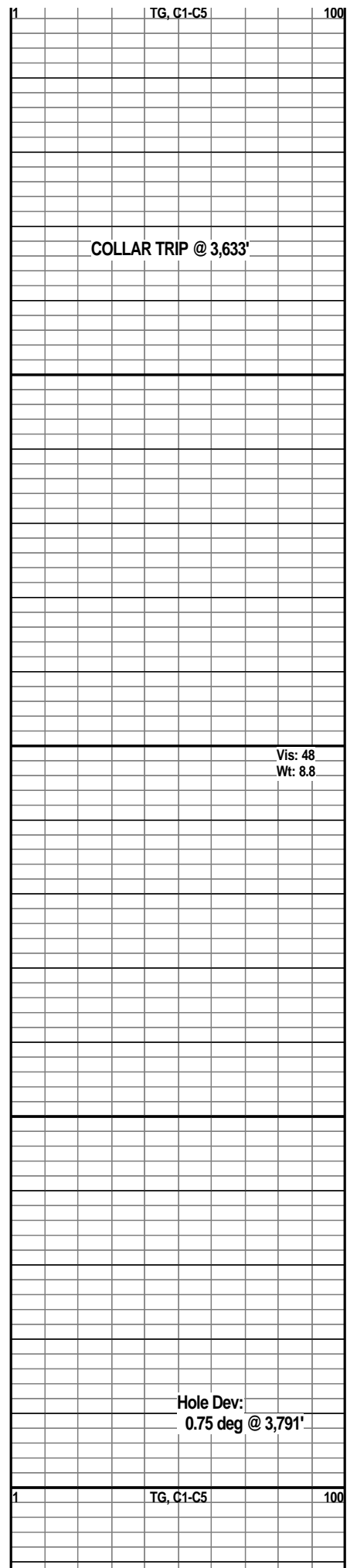
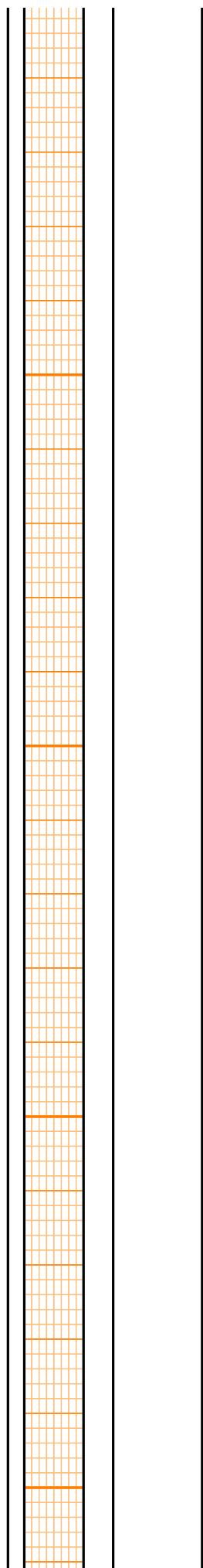
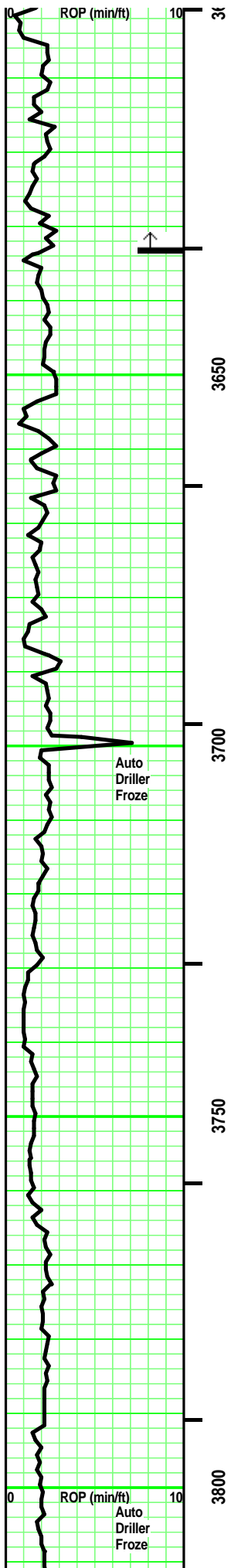
	Connection
	Rft

	Sidewall
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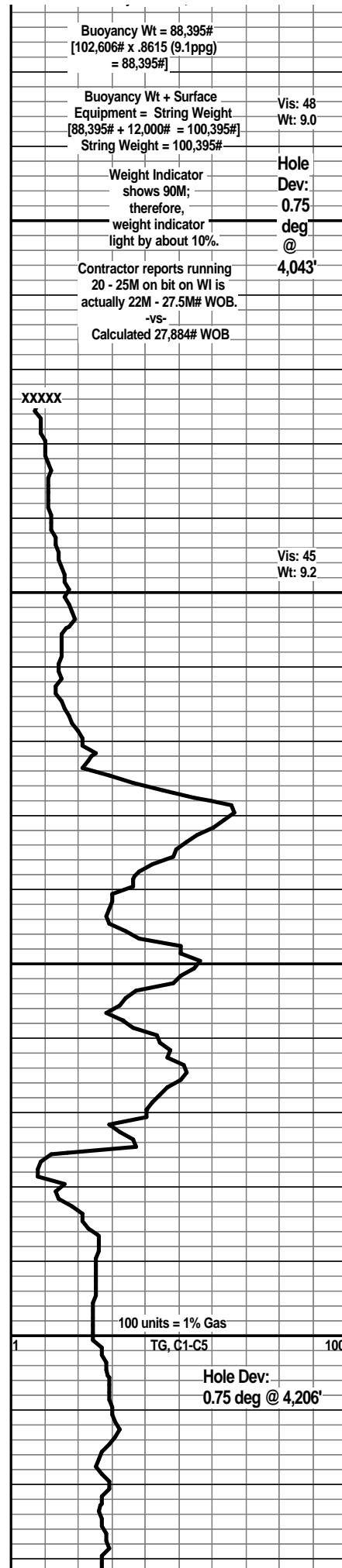
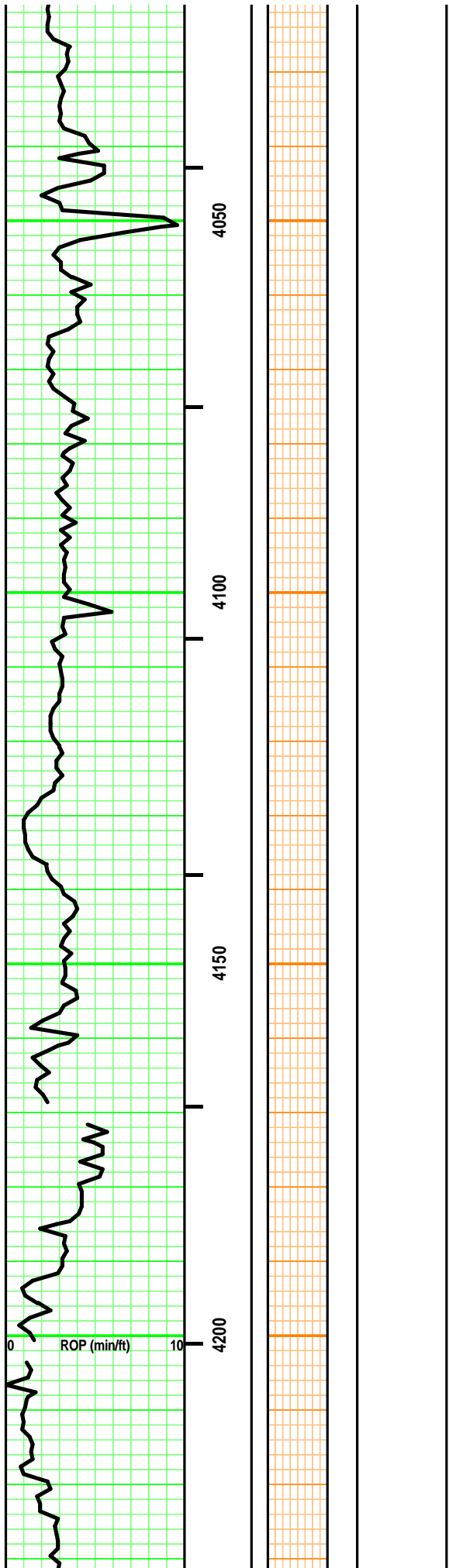


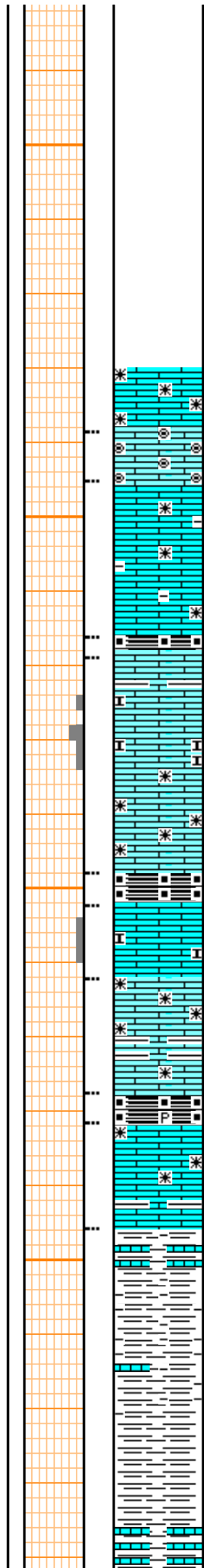
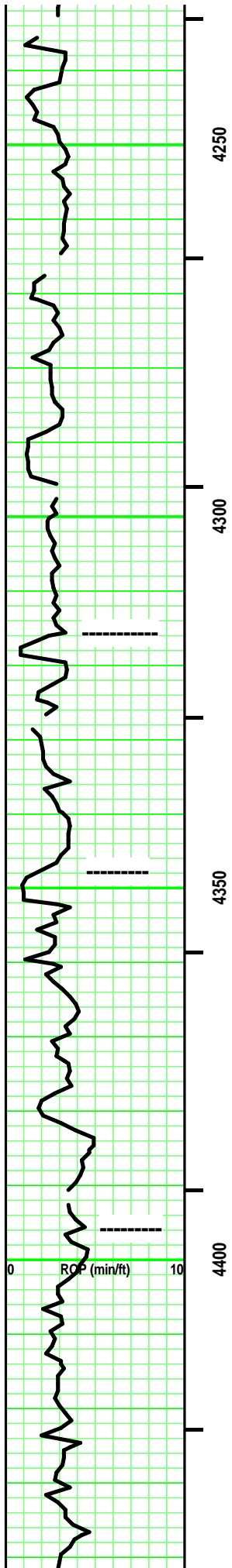












LS - Tan. Sing. Crypto-/ mostly Micro-xln. xln por. tr Re-xln. Firm. No/ tr vis por.

LS - Off White/ Tan VF Oolitest. some clear/ Tan matrix. Opaque to semitransparent. Friable. Tr vis por.

LS - Tans/ some Off White, tr Lt Gray. mostly Sing/ some Mot. some Crypto- mostly Micro-xln & XF-xln. xln por. some Re-xln. some argil in part. rare minute off white fossil frags. Firm. No/ tr vis por.

**STARK SH 4,316' (-2,973')**

SH - Black. Sing. Carb. Blocky.

LS - Off White/ some Tan. Sing. Micro-xln. xln por. Subchalky. partly Friable. some interbedded Med Gray shale. Tr vis por.

**Hushpuckney Sh 4,348' (-3,005')**

SH - Black. Sing. Carb. Soft.

LS - Tan/ Lt Gray. Sing/ Mot. Micro-xln. xln por. Subchalky in part. some Firm. No/ tr vis por.

LS - Lt Gray/ tr Brown/ Tan. Sing. Crypto-/ Micro-xln. xln por. Re-xln. some interbedded Lt Gray argil/ shale. mostly Firm. No/ tr vis por.

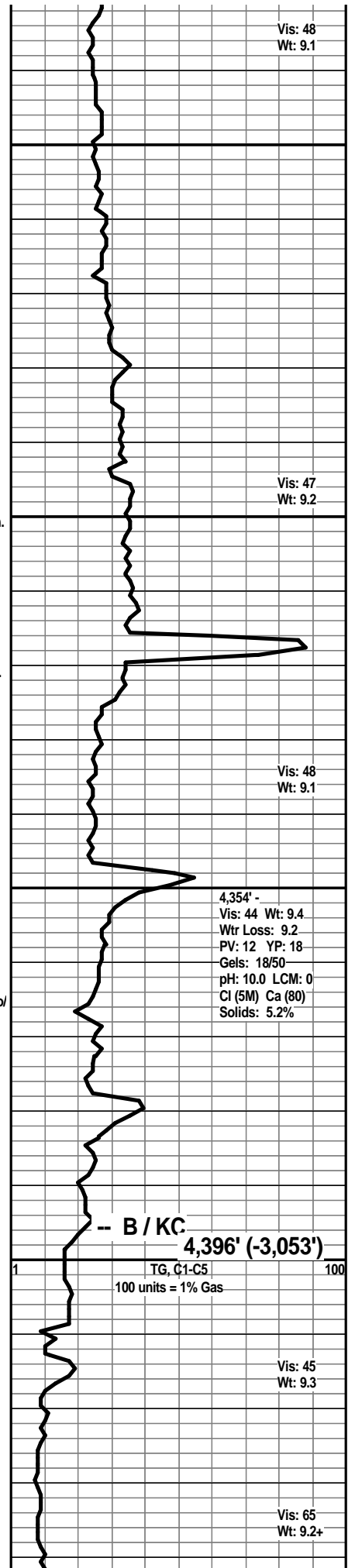
SH - Black, Carb. rare pyritic. partly fissile. partly soft.

LS - Tans/ some Off White & Grays. Sing/ tr Mot. XF-/ Micro-xln. xln por. some argil/ shaly in part. some Re-xln. Firm. No/ tr vis por.

SH - Med/ Dark Grays, Black - carb. Sing. some Ls interbedding / rare rubble.

LS - Tan/ Grays, rare Off White. Sing. Micro-/ tr crypto-xln. xln por. some Re-xln. some argil. Firm. No/ tr vis por. -- intermixed & interbedded with --

SH - Grays, Greenish Grays, Silverish Gray. Black & Carb. Sing. tr silty.



Vis: 48  
Wt: 9.1

Vis: 47  
Wt: 9.2

Vis: 48  
Wt: 9.1

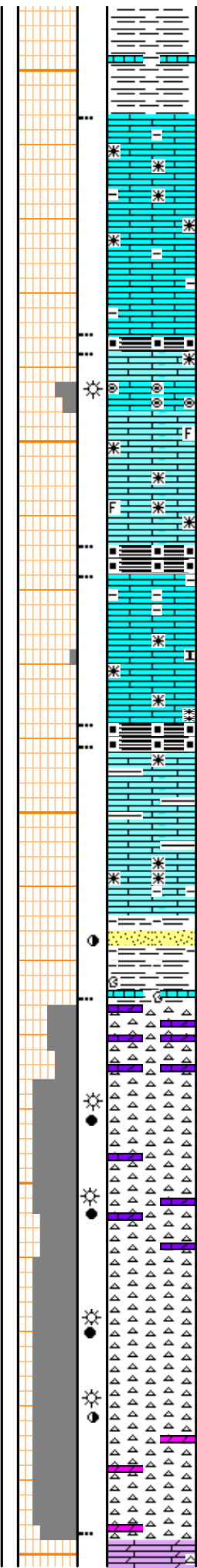
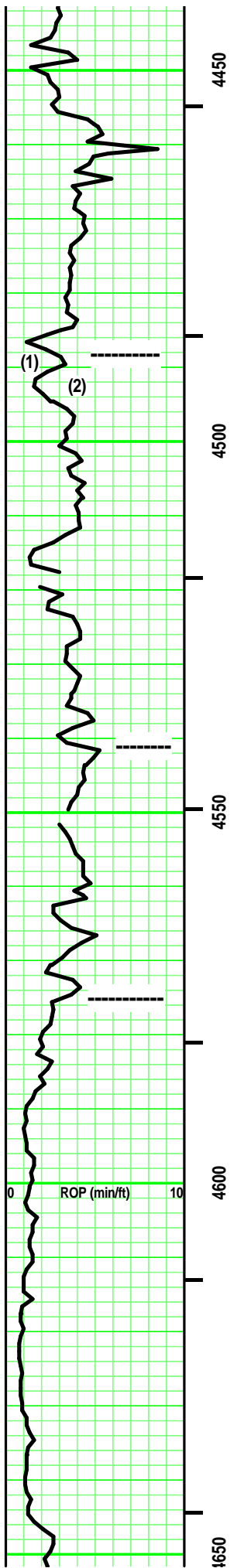
4,354' -  
Vis: 44 Wt: 9.4  
Wtr Loss: 9.2  
PV: 12 YP: 18  
Gels: 18/50  
pH: 10.0 LCM: 0  
Cl (5M) Ca (80)  
Solids: 5.2%

**B / KC 4,396' (-3,053')**

TG, C1-C5  
100 units = 1% Gas

Vis: 45  
Wt: 9.3

Vis: 65  
Wt: 9.2+



LS - Tans/ Grays. tr Off White. tr Sing/ mostly Mot. mostly Micro-xln, tr XF-xln. xln por. some argil/shaly in part. Firm. No/ tr vis por.

SH - Black. Carb Soft.

LS (1) - Tans/ some Off White. Sing/ tr Mot. some Crypto-/ mostly Micro- & XF-xln. xln por. some Re-xln. tr fossil frags. Firm. No/ tr vis por.

LS (2) - Tan, tr Dark Tan/ mixed with Off White Micro- Oolites & Ooloids. Clear Matrix. Opaque to Transparent. some soft, mostly Firm. No/ tr vis por. Faint odor. Spotted yellow fluorescence. A/C, no free oil or gas. No stain. Weak Pos cut/ residual. Weak Pos acid/ residual.

SH - Black. Sing. Carb. Soft.

LS - Tan/ some Lt & Med Gray. Sing/ some Mot. XF-/ Micro-xln. xln por. Re-xln. some argil/ shaly in part. mostly Firm. few pcs: subchalky. No/ tr vis por.

SH - Black. Sing. Carb. Soft.

**CHEROKEE GP 4,541' (-3,198')**

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

LS - Tans/ Lt & Med 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.

Add: SS - Clear/ some Off White & Black. Mot. Silt sized qtz grains. SR. Hi sort. Mod sph. Frosted Luster. sutured grain contact. Si/ tr calc →

Rubble

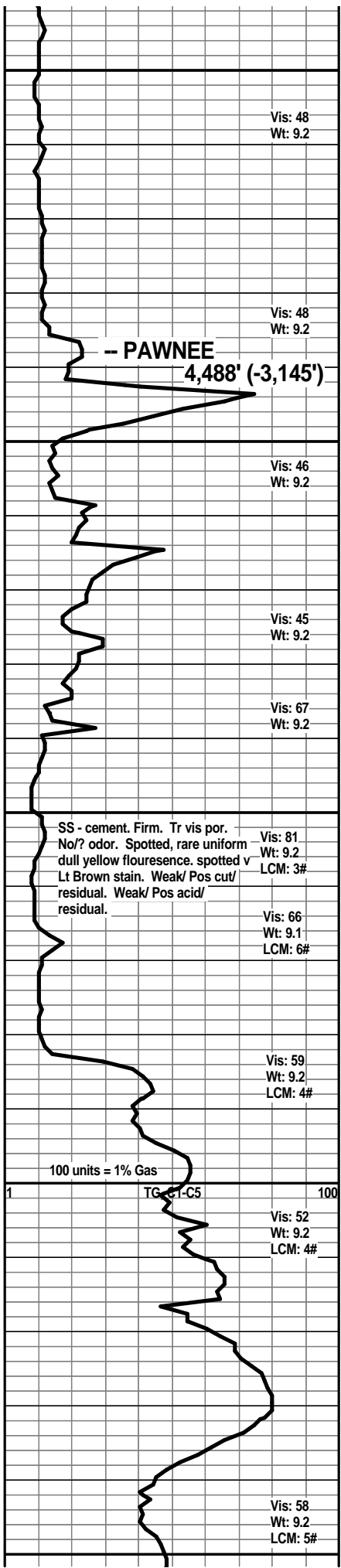
**MISS 4,575' (-3,232')**

CHERT - Off White/ Silvery Gray/ some Clear. Mot. Opaque to semitransparent. some misc fossil frags/hash inclusions. Spotted/ some Uniform Tripolitic with some Spotted/ uniform Lt/ Med Brown stain. Highly limy dol or dol / frags in part. Tr/ fair vis por. Faint/Fair odor. Spotted/ some Uniform Yellow fluorescence. No free oil/ rare minute gas bubble. Stain as above (30% - 80%) . Weak Pos/ Pos cut/ residual. Weak Pos/ Pos acid/ residual. few/ some Oil spots on wash water.

CHERT - some Clear/ Off White/ Silvery Gray. tr/ some Pale Green at depth. Mot. Opaque to semitransparent. some misc fossil frags/hash inclusions. Spotted/ some Uniform Tripolitic with some Spotted/ uniform Lt/ Med Brown stain. Highly limy dol or dol / frags in part. Tr/ fair vis por.

Faint/Fair odor. Spotted/ some Uniform Yellow fluorescence. No free oil/ rare minute gas bubble. Stain as above (25% - 60%) . Weak Pos/ Pos cut/ residual. Weak Pos/ Pos acid/ residual. few/ some Oil spots on wash water.

Dalmanite (Calc) - Tan/ mostly Lt Gray & Med Gray



Vis: 48  
Wt: 9.2

**PAWNEE 4,488' (-3,145')**

Vis: 48  
Wt: 9.2

Vis: 46  
Wt: 9.2

Vis: 45  
Wt: 9.2

Vis: 67  
Wt: 9.2

Vis: 81  
Wt: 9.2  
LCM: 3#

Vis: 66  
Wt: 9.1  
LCM: 6#

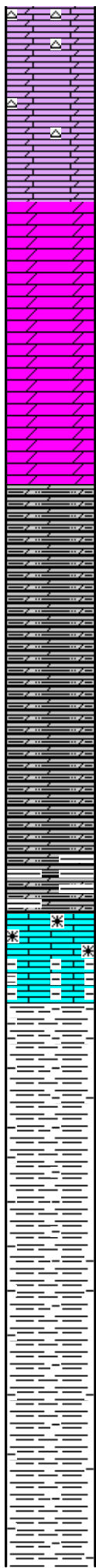
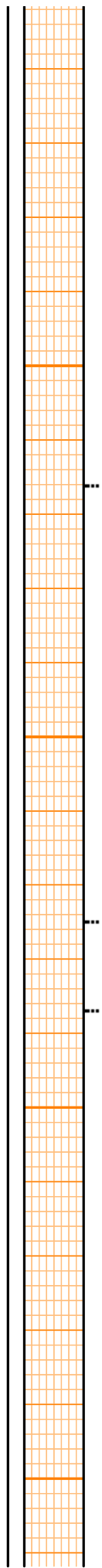
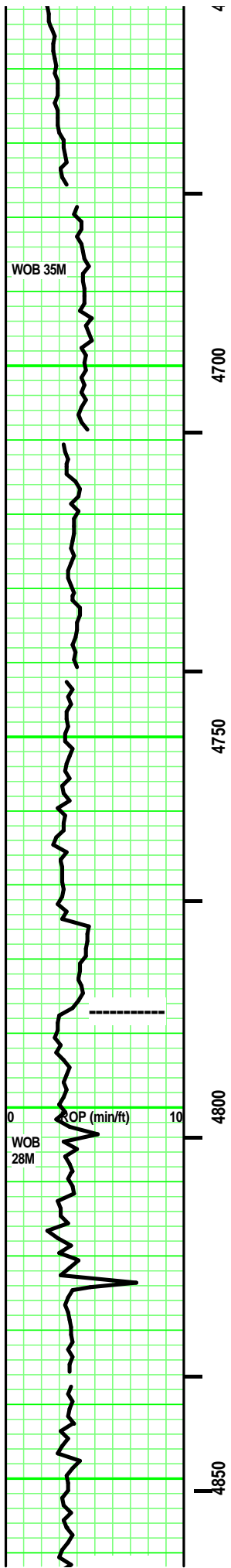
Vis: 59  
Wt: 9.2  
LCM: 4#

100 units = 1% Gas

TG C1-C5

Vis: 52  
Wt: 9.2  
LCM: 4#

Vis: 58  
Wt: 9.2  
LCM: 5#



Dolomite (Calc) - Fair mostly Lt Gray, tr med Gray. Sing. Re-xln. xln & tr sucrosic por. tr Silty in part. [tr CHERT - similar to immediately above.] Massive. some No/ mostly tr vis por.

Dolomite (tr calc) - Tans/ some Lt Gray. Sing. XF-/ Micro-xln. xln & tr sucrosic por. some Re-xln. tr silty in part. Massive. tr/ some Fair vis por.

Dolomite (tr calc) - Tans/ some Lt & Med Gray. Sing. XF-/ Micro-xln. xln & rare sucrosic por. some Re-xln. silty in part. Massive. tr vis por.

Dolomite - Med/ some Dark Gray. tr Lt Gray. - Sing. Micro-Re-xln. xln por. highly Silty. rare misc, minute inclusion. Massive. No/ tr vis por.

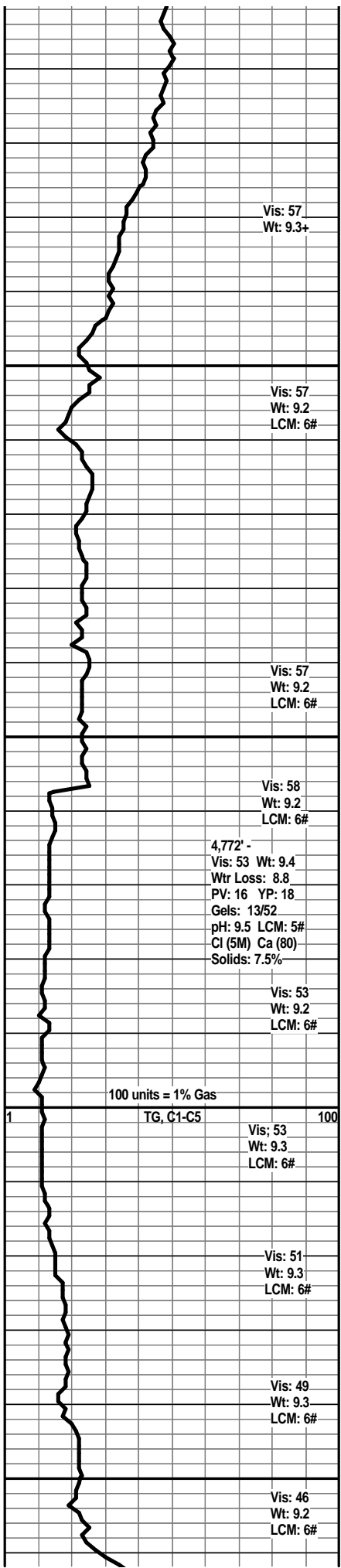
Dolomite - Dark Gray. tr Lt Gray. - Sing. Micro-Re-xln. xln por. highly Silty. Massive. No/ tr vis por.

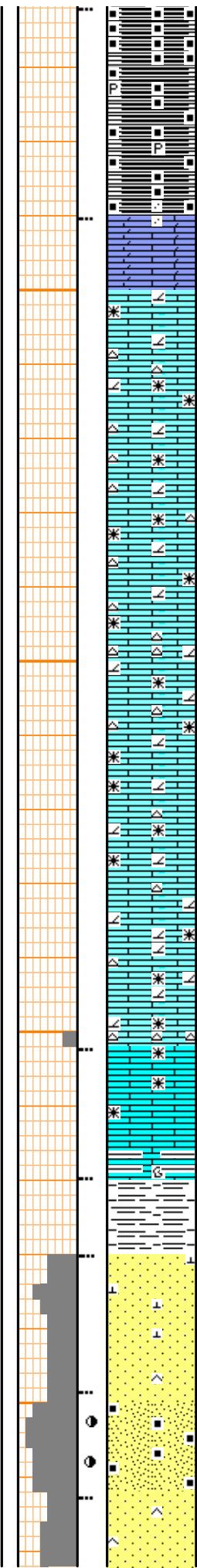
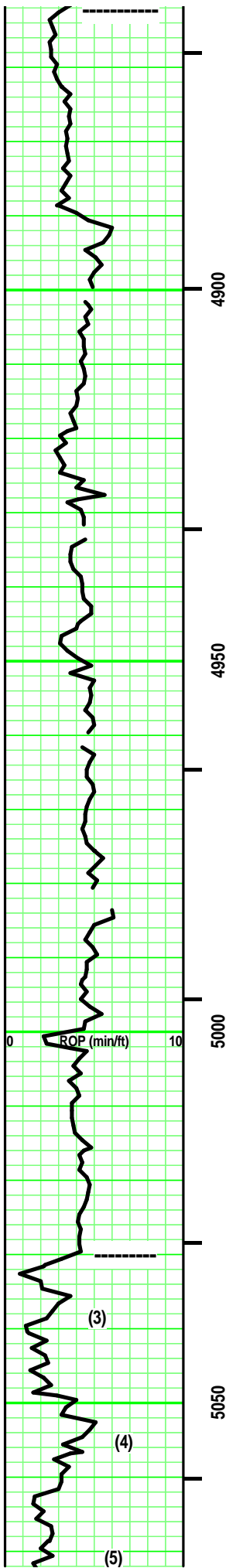
LS - Tan/ Off White. Sing. Micro-/XF-xln. xln por. argil/shaly with depth. partly Firm. No/ tr vis por.

----- KINDERHOOK SH 4,787' (-3,444')

SH - Dark Gray, Greenish Gray. Sing/ tr Mot. Firm. tr calc stringers in part.

SH - Dark Gray, Greenish Gray. Sing/ tr Mot. Firm. tr calc stringers in part.





WOODFORD SH 4,862' (-3,319')

SH - Black. Sing. carb. (Brown hue scratch.) Massive. some blocky. tr pyritic.

VIOLA 4,890' (-3,547')

LS (Dol) - Lt Gray/ Tan. Sing. Micro-xln. xln por. some Re-xln. Random, minute black specks. (interbedded near top: some VF, SR, vitreous, mod sph, dissem, qtz grains in pyritized sh/ls.) Massive. No/ tr vis por.

LS (dolo in part) - Grays/ Off White/ Tans. Sing/ Mot. mixture of Crypto-/ Micro-xln. xln por. some highly dol in partsome Re-xln. (tr/some CHERT - Clear/ White, Mottled -or- Tan, Grays, White, Clear - Mottled. Opaque to mixed semitrans- parent. rare Inclusions: fossil hash/ fragments. No/ some tripolitic.) Firm. No/ tr vis por.

LS - Tan. Sing. Micro-xln. xln por. tr Re-xln. Green shaly at depth. some rubble.

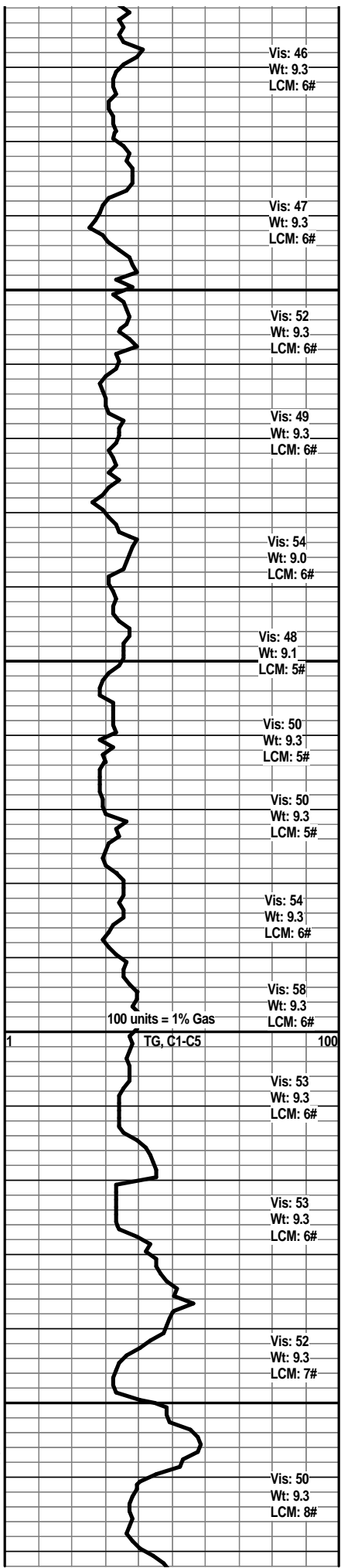
SH - Green/ Greenish Gray. Sing. Firm. Massive. tr ductile.

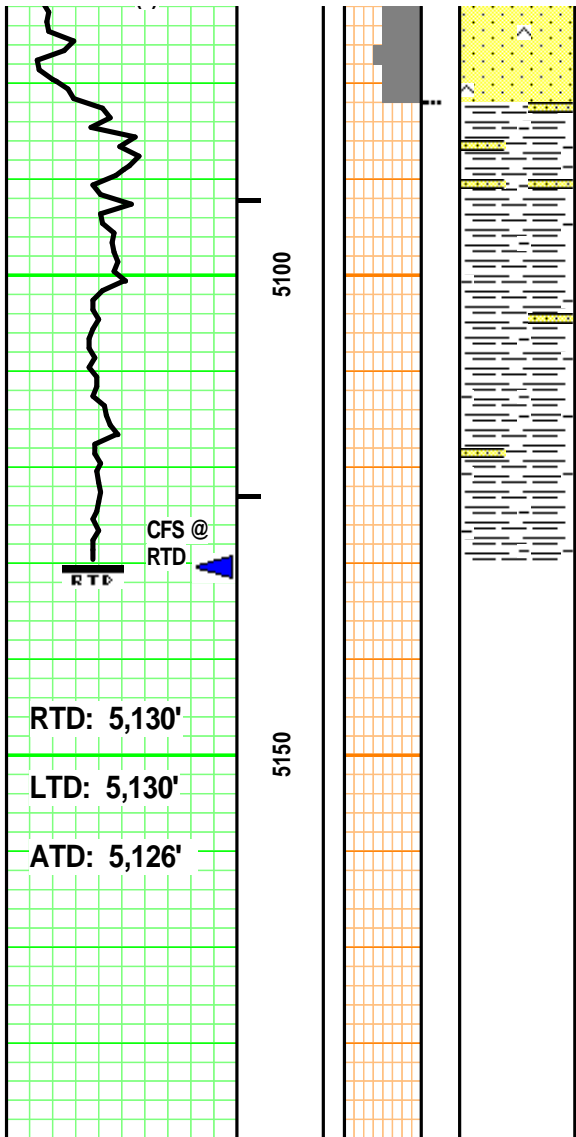
WILCOX SS 5,030' (-3,687')

SS (3) - Clear/ Pale Greenish Gray/ Lt Gray/ Off White. Mot. VF-/ tr silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ some frosted grain contact. Calc/ tr sil cement. some Point/ mostly sutured grain contact. some argil in part. partly Friable. Fair/ good vis por. l.

SS (4) - Clear/ Lt Brownish Tan/ Off White. Mot. VF-/ tr silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ some frosted grain contact. Calc/ tr sil cement. some/ highly sutured grain contact. some argil in part. some carb flecks. partly Friable. Fair/ Good vis por. No odor. mostly Barren/ rare spotted Yellow fluorescence. A/C, no free oil or gas. mostly Barren/ rare, spotted Lt Brown stain. No cut & residual. No acid/residual.

SS (5) - Clear/ White. Mot. silt sized qtz grains. SR. Hi sort. Mod sph. Vitreous/ some frosted grain contact. Calc/ tr sil





mod spn. vitreous/ some frosted grain contact. Calc tr sil cement. mixture of: Point/ sutured grain contact. Friable. tr/ Fair/ somegood vis por.

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

**DIEL D #5**  
 2,230' FNL & 1,865' FEL 16-T34S-R11W  
 Barber County, Kansas

**WOOLSEY OPERATING CO., LLC.**  
 Wichita, Kansas

	Vis: 54
	Wt: 9.2
	LCM: 8#
100 units = 1% Gas	Vis: 53
	Wt: 9.2
	LCM: 8#
5,111' -	Vis: 51
Vis: 48 Wt: 9.4	Wt: 9.2
Wtr Loss: 10.0	LCM: 8#
PV: 12 YP: 20	
Gels: 18/54	
pH: 9.5 LCM: 7#	
Cl (5M) Ca (80)	Vis: 51
Solids: 7.5%	Wt: 9.3
	LCM: 8#
<b>XXXXXXXX RTD XXXXXXXX</b>	
^ CFS @ RTD: 60"	
^ S/T: 25 stands.	
^ CHC: 90"	
Work Kelly slowly (15").	
No shake.	
Sample Box (15") for	
Volume/Type of fill.	
^ Hole Dev: 1 deg @ RTD.	
Wellsite Geologist:	
Curtis Covey	
COVEY - The Well Watchers	
Well Number: 1,108	