

Covey

The Well Watchers

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

Well Name: **SUMMERS #4**
Location: **Section 17 - Township 34 South - Range 11 West**
Licence Number: **15-007-23,751. 0000** Region: **Barber County, KS.**
Spud Date: **23 August 2011** Drilling Completed: **30 August 2011**
Surface Coordinates: **1,160' FSL & 330' FWL**
(NW SW SW)

Bottom Hole
Coordinates:
Ground Elevation (ft): **1,409'** K.B. Elevation (ft): **1,418'**
Logged Interval (ft): **4,400'** To: **5,220'** Total Depth (ft): **5,220'**
Formation: **Kansas City Group -----> Wilcox Sandstone**
Type of Drilling Fluid: **Chemical; Low Solids (non-dispersed)**

Printed by MUD.LOG 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

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	4,395' (-2,977')	4,394' (-2,976')
Hushpuckney SH	4,422' (-3,004')	4,422' (-3,004')
B / KC	4,469' (-3,051')	4,468' (-3,050')
Pawnee LS	4,560' (-3,142')	4,560' (-3,142')
Cherokee Gp	4,613' (-3,195')	4,614' (-3,196')
Mississippian Chert	4,638' (-3,220')	4,638' (-3,220')
Kinderhook Sh	4,870' (-3,452')	4,869' (-3,451')
Woodford Sh	4,950' (-3,532')	4,950' (-3,532')
Viola	5,002' (-3,584')	5,006' (-3,588')
Wilcox SS	5,186' (-3,768')	5,186' (-3,768')

RTD: 5,220' LTD: 5,222' ATD: 5,222'

E-log is 0' - 2' low to rotary sample depth.

Loggers:
Superior Well Services
Hays, Kansas

14-3/4" Hole

7-7/8" Hole

7-7/8" Hole

23 August --- Spud @ 3pm.
 Drill to 225'.
 Run 10-3/4" casing.
 Set casing @ 223'.
 Cemented w/ 240 sx Class A
 (2% Gel + 3% CC). [Allied]
 Cement did circulate.
 Plug down @ 7pm.
 WOC.

24 Aug --- Under surface casing @ 4am.
 7am @ 445'.
 25 --- 7am @ 2,041'.
 26 --- 7am @ 2,860'.
 27 --- Displaced Mud @ 3,400'.
 7am @ 3,650'.
 28 --- 7am @ 4,180'.

29 Aug --- 7am @ 4,630'.
 30 --- 7am @ 4,991'.
 RTD (5,220') @ 9:20pm.
 31 --- Logging truck broke
 down (fan belt) enroute.
 Replacement truck arrived.
 E-Log.
 [Superior Well Services]

HOLE DEVIATION (225' - 5,220')

DEPTH / TVD	--- INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
225' /	--- 1.25						(Surface Casing)
1,227' /	--- 0.75						
1,761' /	--- 0.50						
2,262' /	--- 1.00						
2,763' /	--- 0.50						
3,264' /	--- 0.50						
3,640' /	--- 1.00						
3,798' /	--- 0.50						
4,049' /	--- 0.50						
4,143' /	--- 0.50						
4,707' /	--- 0.50						
5,220' /	--- 1.50						(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

Toolpusher: James Schultz - (620) 290-5912

Pump: EMSCO D-375
 6" x 14" @ 60 SPM.
 1,200 PSI @ Standpipe.

WOB 35M (39.9M corrected) @ 80 RPM
 while drilling main hole.

Drill Collars: 6.25" x 2.25" --- 559'. (91#/ft)
 Dry Collar Weight: 50,864#
 (@ 9.2 ppg / Buoyancy Factor 0.860)
 Buoyancy Collar Weight: 43,747#
 Design Factor: 15%, therefore:
 available WOB is 37,185#
 Drill Pipe: 4-1/2"XH. (16.6#/ft - new)

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
23 Aug 2011	14-3/4"	VAREL L-117	14 - 15 - 14	0' / 225'	225'	3.00	59.5
24 Aug 2011	7-7/8"	VAREL Hp-21	14 - 15 - 14	225' / 5,220'	4,995'	144.00	34.7

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
- Breccfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
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- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

- Arg
 - Bent
 - Coal
 - Dol
 - Gyp
 - Ls
 - Mrst
 - Calc dol
 - Sltstrg
 - Ssstrg
 - Chalk
 - New symbol
- SHOW**
- Oil
 - Spotted
 - Ques
 - Dead
 - Gas
 - Oil/gas
 - Bed contact

STRINGER

- Calc dol
- Silty dol
- Anhy

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

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OTHER SYMBOLS

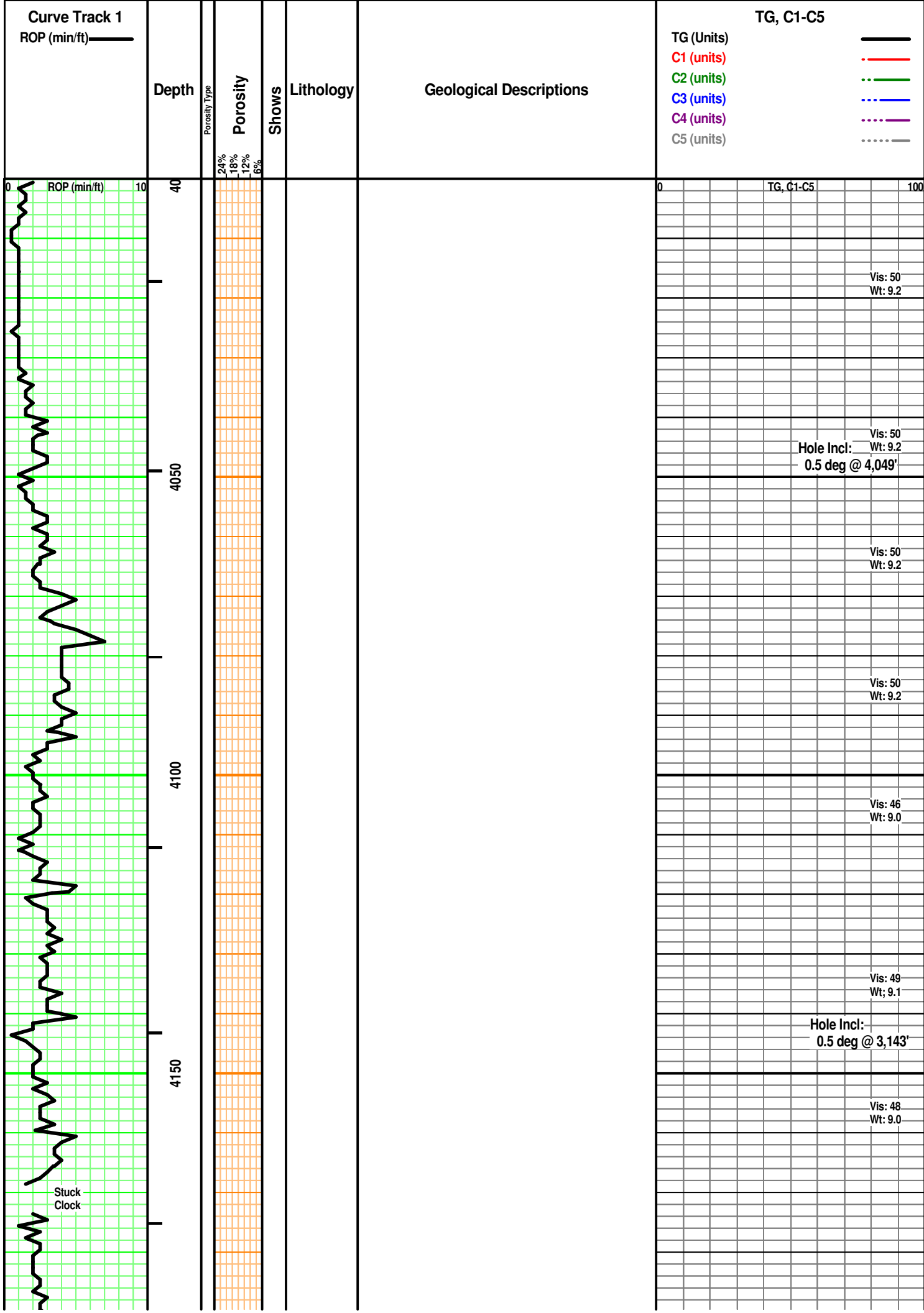
ACTIVITY

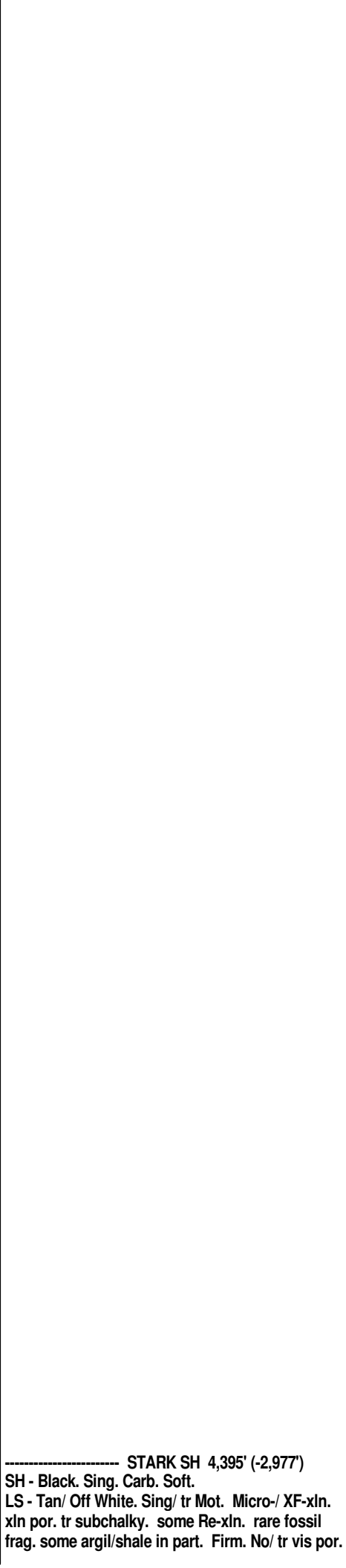
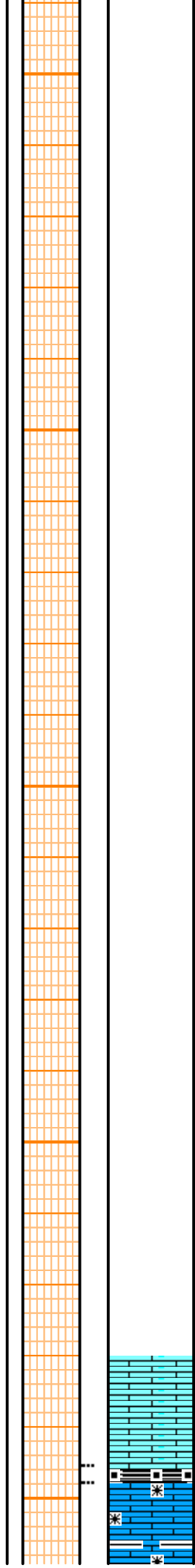
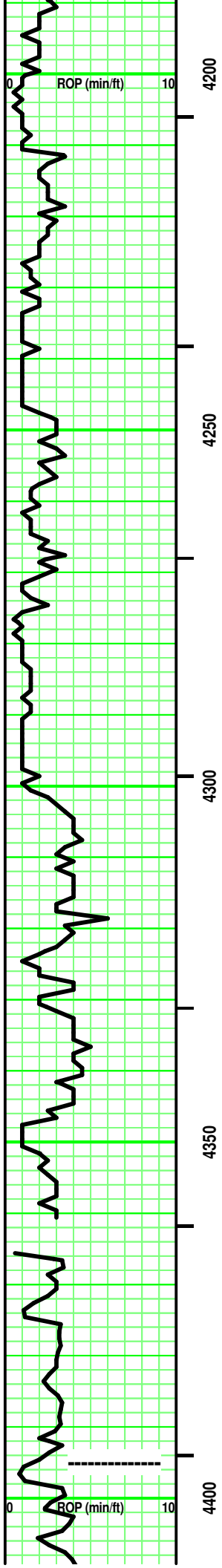
- Lost circluation
- Circulate for same

- Circulate for same
- Rtd
- Trip

- Connection
- Rft

- Sidewall

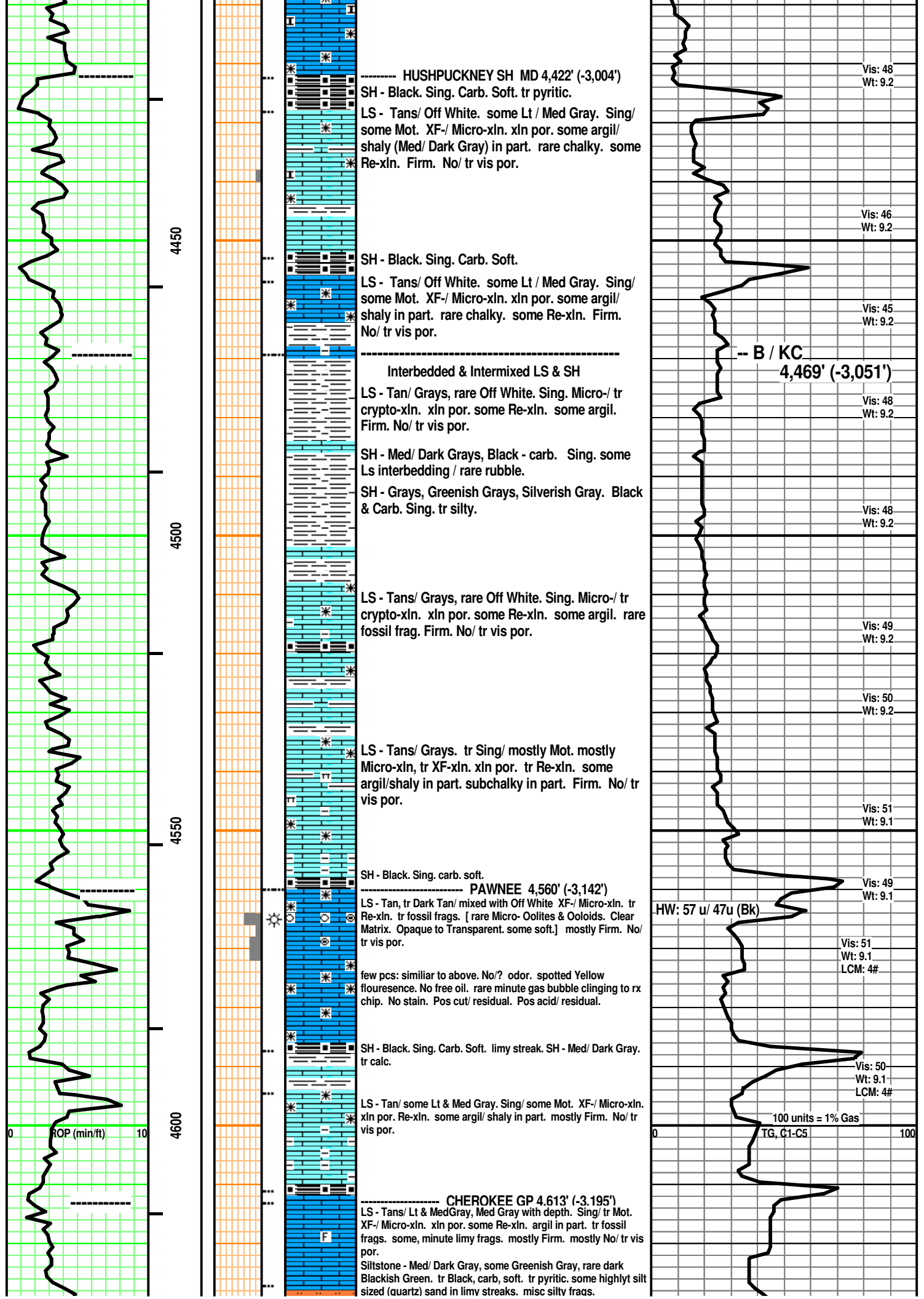


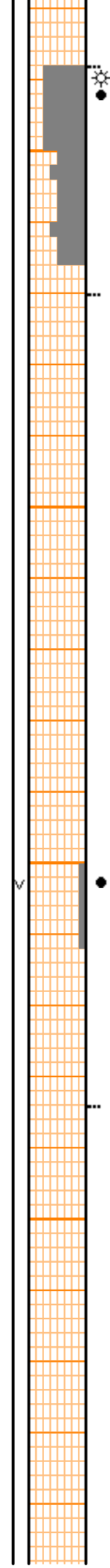
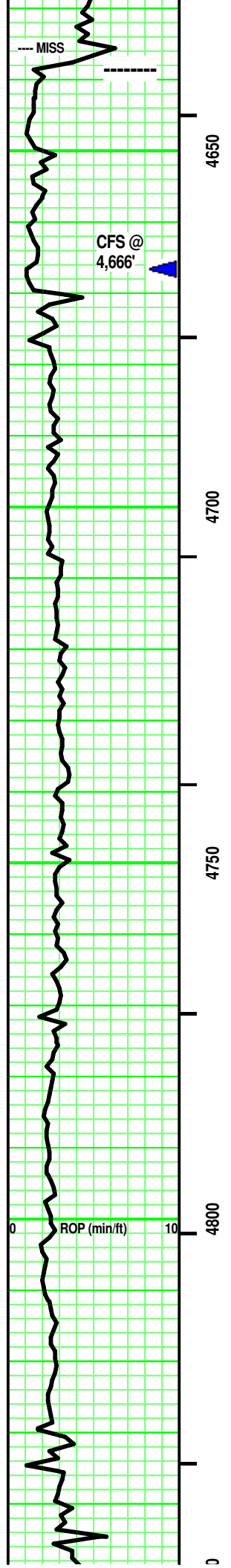


STARK SH 4,395' (-2,977')

SH - Black. Sing. Carb. Soft.
 LS - Tan/ Off White. Sing/ tr Mot. Micro-/ XF-xln.
 xln por. tr subchalky. some Re-xln. rare fossil
 frag. some argil/shale in part. Firm. No/ tr vis por.

0	TG, C1-C5	100
		Vis: 46 Wt: 9.0
		Vis: 48 Wt: 9.1
DISPLACED MUD @ 3,400'		
		Vis: 46 Wt: 9.1
<p>Dry Wt of Collars: 50,864# [559' x 91#/ft = 50,864#] Drill Collars: 6-1/4" x 2-1/4" Buoyancy Wt of Collars: 43,747# [50,864# x .860 (9.2ppg) = 43,747#] Available WOB: 37,185# [43,747# x .85 = 37,185#]</p>		
		Vis: 46 Wt: 9.2
<p>Weight Indicator Check @ 4,458'</p>		
<p>DC - (See Above) = 50,864# DP - 4,416' x 16.6#/ft = 50,869# Total Dry Wt = 124,175#</p>		
		Vis: 47 Wt: 9.1
<p>Buoyancy Wt = 106,791# [124,175# x .860 (8.6ppg) = 106,791#]</p>		
<p>Buoyancy Wt + Surface Equipment = String Weight [106,791# + 10,000# = 116,791#] String Weight = 116,791#</p>		
		Vis: 47 Wt: 9.2
<p>Weight Indicator shows 90M; therefore, weight indicator is 13% light.</p>		
		Vis: 48 Wt: 9.1
<p>Contractor reports running 35M# on bit on WI is actually 39,600# WOB.</p>		
-vs-		
<p>Calculated available 37,185# WOB</p>		
<p>4,380' - Vis: 48 Wt: 9.3 Wtr Loss: 10.0 PV: 10 YP: 15 Gels: 12/45 pH: 11.0 LCM: 0 Cl (4,000) Ca (80) Solids: 6.9%</p>		
		Vis: 46 Wt: 9.1
<p>100 units = 1% Gas</p>		
0	TG, C1-C5	100
		Vis: 48 Wt: 9.2





Rubble

----- **MISS CHERT 4,638' (-3,220')**
 CHERT - White/ Tan/ some Slivery Gray, Bluish Gray.
 Mot/Mixed. Opaque to semitransparent. some misc fossil frags/hash inclusions. rare, minute pyrite. Limy dol or dol frags & streaks in part with depth. [Carbonate frags are A/ some SA, M/F sized, mostly Tans/ rare Pale Lt Gray.] Tr/ fair/ Good vis por

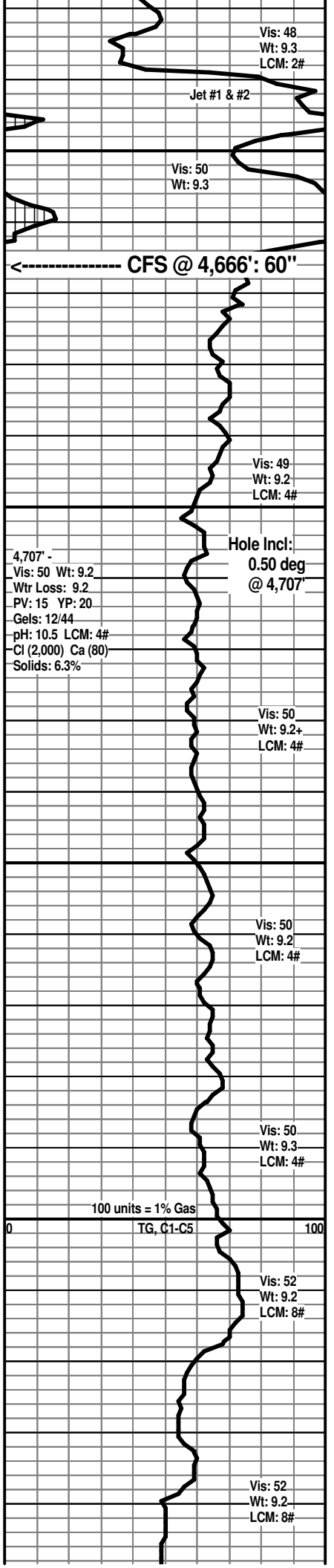
Faint to Good odor. some Spotted/ some Uniform Yellow fluorescence. rare free Med Brown oil/ few minute gas bubble. Spotted/ some Uniform Tripolitic with some Spotted/ uniform Lt/ Med Brown stain. Stain as above (30% - 80%) . Weak Pos/ Pos cut & residual. Weak Pos/ Pos acid & residual. Oil spots on wash water.

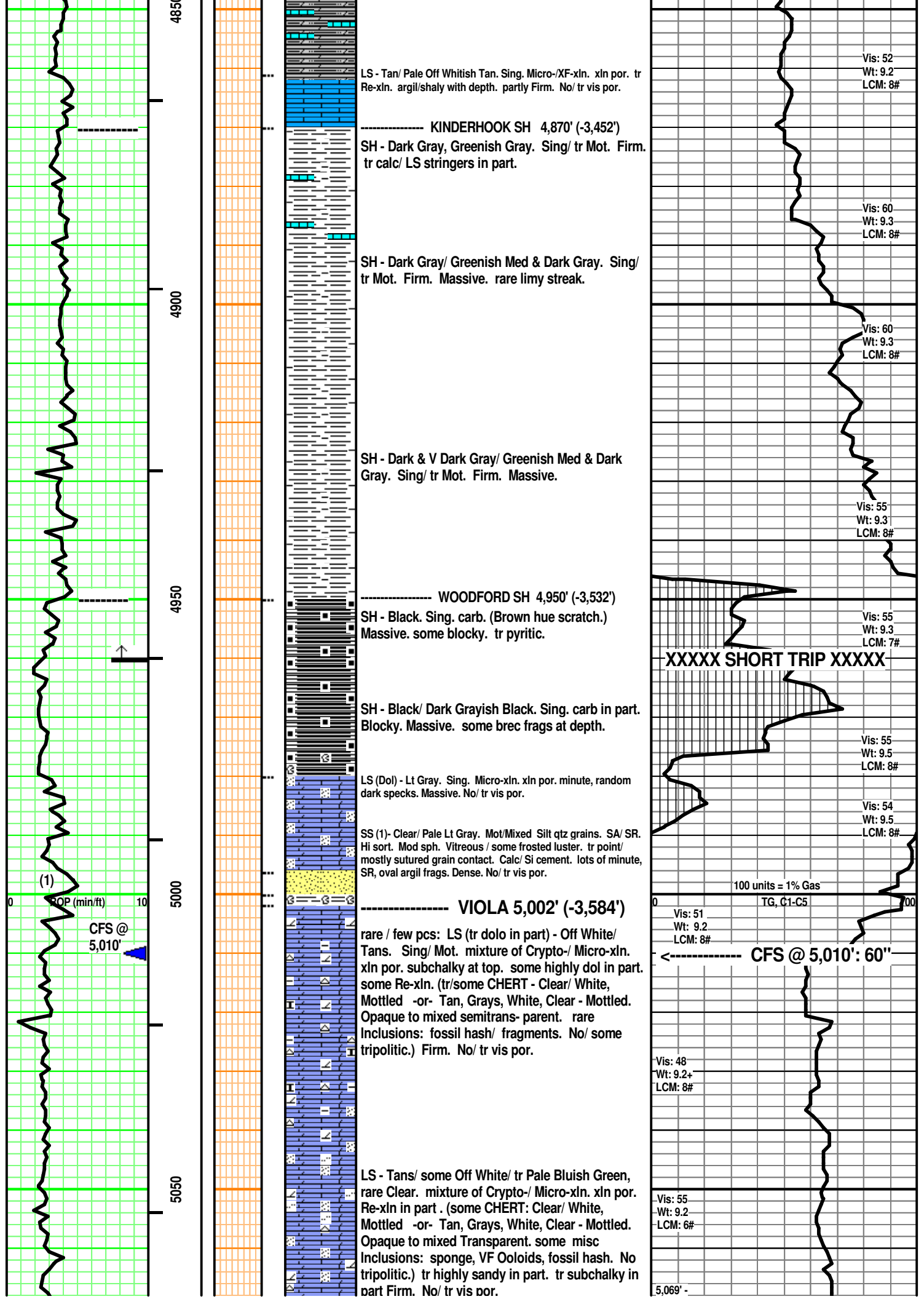
DOL (Calc) - Tans / tr Lt Gray. tr Tannish Gray.
 rare, minute Pale Green. Sing. Re-xln. xln & tr sucrosic por. tr Silty in part. [tr CHERT - similiar to immediately above. Add: tr glauc grains/ Green. similiar show in part.] Add: tr free, Dark Brown oil. Massive. some No/ mostly tr vis por.

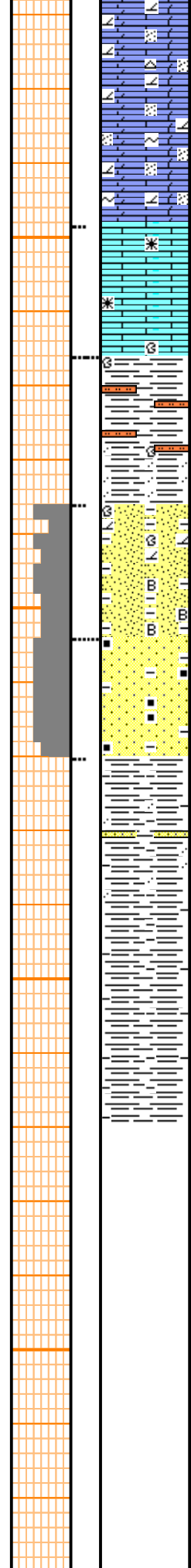
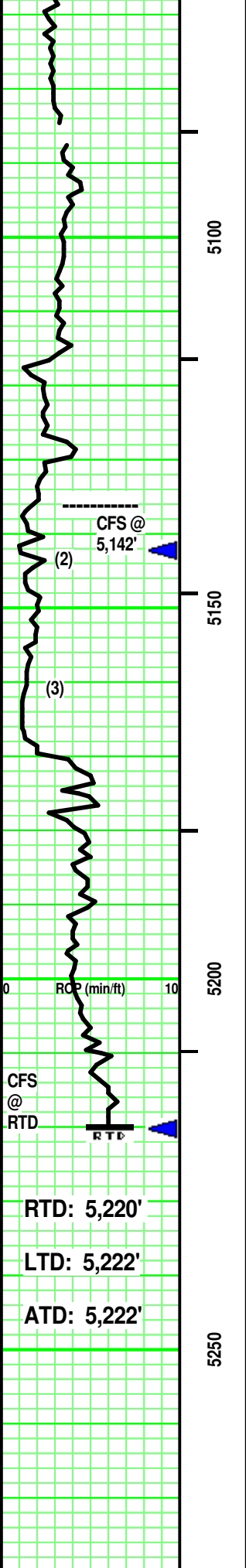
DOL (no/ tr calc) - Tans/ some Lt & Med Gray.
 Sing. XF-/ Micro-xln. xln & sucrosic por. some Re-xln. [tr CHERT - Clear/ Tan/ Grays. Mixed/ Mot. Opaque to semi-transparent - mixed. tripolitic in part. tr Inclusions.] silty in part. Massive. tr vis por.

Add: tr Dolomite (tr calc) - Tan. Sing. Micro-Re-xln. sucrosic/ tr vuggy por. Firm. Good vis por. No odor. Uniform Yellow fluorescence in vuggy por. No free oil or gas. "Wet" oil face in vuggy por. Spotted Med Brown stain around vuggy por/ uniform Med Brown stain in vuggy por. Weak/ Pos cut & residual. Weak/ Pos acid & residual.

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







LS - Tans/ tr Lt Gray. Sing. Micro-xln. xln por. rare Re-xInt. Massive. some brec frags at depth. No/ tr vis por

Interbedded SH, Siltstone & SS
 SH - Green/ Greenish Gray/ Blue Green. Sing. Firm. Massive. tr ductile. tr sandy as below.
 Siltstone - Pale Green/ Pale Greenish Blue. Sing. sandy as below in part.

----- **WILCOX SD 5,186' (-3,768')**
 SS (2) - Clear/ Pale Greenish Gray/ Off White/ tr Tan, tr Lt Gray. rare Sing/ someMot/ mostly Mixed. VF-/ tr silt sized qtz grains, SR/SA. Mod sort. Mod sph. Vitreous/ some frosted grain contact. Dol/ tr sil cement. some Point/ mostly sutured grain contact. argi fragsl in part. partly Friable. Fair/ good vis por.

SS (3) - Clear/ Lt Brownish Tan/ rare Pale Lt Gray. 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 SR, VF obladed argil grains & carb flecks in part. partly Friable. Fair/ Good vis por.

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

Vis: 61 Wt: 9.1
 Wtr Loss: 8.8
 PV: 20 YP: 20
 Gels: 14/48
 pH: 11.5 LCM: 5#
 Cl (2,000) Ca (60)
 Solids: 5.6%

Vis: 60
 Wt: 9.2
 LCM: 6#

Vis: 50
 Wt: 9.2
 LCM: 6#

Vis: 51
 Wt: 9.3
 LCM: 7#

100 units = 1% Gas
 TG, C1-C5

Vis: 51
 Wt: 9.3
 LCM: 7#

----- **XXXXXXXX RTD XXXXXXXXX**
 ^--- CFS @ RTD: 60"
 ^--- S/T: 10 stands.
 ^--- CHC @ RTD: 90"
 Work Kelly (15") slowly.
 No shake.
 Check Sample Box (15")
 for Volume/Type of Fill.
 ^--- Hole Incl: 1.5 deg @ RTD.
 ^--- E-LOG
 [Superior Well Services

SUMMERS #4
 1,160' FSL & 330' FWL 17-T34S-R11W
 Barber County, Kansas

WOOLSEY OPERATING COMPANY
 Wichita, Kansas

Wellsite Geologist:
 Curtis Covey
 COVEY - The Well Watchers

Well Number: 1,122