

# Covey

## The Well Watchers

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

Well Name: GRAHAM #1- 30 X  
Location: Section 30 - Township 29 South - Range 41 West  
Licence Number: 15-187-21,298 -00-00 Region: Stanton County, KS.  
Spud Date: 15 September 2014 Drilling Completed: 27 September 2014  
Surface Coordinates: 1,520' FNL & 2,300' FEL  
(Approximately NE NW SW NE)

Bottom Hole  
Coordinates:  
Ground Elevation (ft): 3,414' K.B. Elevation (ft): 3,425'  
Logged Interval (ft): 3,800' To: 5,640' Total Depth (ft): 5,640'  
Formation: Morrow Shale -----> Mississippi  
Type of Drilling Fluid: Chemical Low Solids Non-dispersed (Vertical)

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### OPERATOR

Company: STELBAR OIL CORPORATION, INC.  
Address: 1625 North Waterford Parkway, #200 POC:  
Wichita, Kansas 67206-6602 Kent Scribner  
(316) 264-8378

### GEOLOGIST

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

KB: 3,425'

### FORMATION TOPS

GL: 3,414'

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Heebner Shale .....	3,596' (-171') .....	3,596' (-171')
Lansing Group .....	3,707' (-282') .....	3,708' (-283')
Marmaton .....	4,253' (-828') .....	4,251' (-826')
Cherokee Shale .....	4,437' (-1,012') .....	4,437' (-1,012')
Atoka .....	4,873' (-1,448') .....	4,874' (-1,449')
Morrow Shale .....	4,970' (-1,545') .....	4,970' (-1,545')
Lower Morrow Marker .....	5,277' (-1,852') .....	5,278' (-1,853')
Keyes Sandstone .....	5,400' (-1,975') .....	5,403' (-1,978')
Mississippi - Chester .....	5,416' (-1,991') .....	5,416' (-1,991')
Mississippi - Ste. Genevieve .....	5,456' (-2,031') .....	5,442' (-2,017')
Mississippi - St. Louis .....	5,550' (-2,125') .....	5,552' (-2,127')

RTD: 5,640'

LTD: 5,641'

ATD: 5,642'

Float:

E-log is 0' - 2' low - 0' - 1' high to rotary sample depth.

E-Loggers:

Weatherford -- Liberal, Kansas

## Graham #1 - 30

12-1/4" Hole (Vertical)

8 Sept --- Spud @ 1:30am.  
9 --- 7am @ 591'. Drilled to 1,285'.  
Lost Circ @ 1,285' (250 Bbls).

10 --- On bank mixing mud @ 1,285'.  
Mix up 400 Bbl (22# LCM).  
TIH to 1,200'. Pump 400 Bbls in  
hole/100 Bbls on backside.  
Mix up 400 Bbls (28 # LCM).  
Cement plug @ 1,210'.  
300 sks Thixotropic (+ misc).  
[Basic Energies]

11 --- Pump 400 Bbls (28# LCM)  
from top.  
TIH reportedly hit bridge  
@ 1,052'.  
Wait on cementers. TIH/OE. TO.  
TIH w/Bit.  
Refigured bit depth - 1,285'. TO.

12-1/4" Hole (Vertical)

12 Sept --- TIH/OE. P/U to 1,210'.  
Cement. WOC (24 hrs).  
TIH/OE. Cement done by 6pm.  
WOC. TIH & pumped 250 Bbls  
water. No returns. TO.

13 --- Set 100 sx plug @ 1,019'. WOC.  
Mix 400 Bbls (30#LCM/ Vis: 70).  
100 sk cement @ 670'.  
Add 330 Bbls pill @ 640'. Mud  
to cellar/No circ. TI to 670' and  
cemented 50 sk Class C. WOC.  
TIH / no hard cement to 700'.  
100 sk Class C @ 670'. WOC.  
TIH/ hard cement @ 708'.

PLUG HOLE --  
1st Plug @ 670' - 100 sk +  
2nd Plug @ 240' - 100 sk +  
top plug - 60 sk. Total 260 sk  
60/40 POZ (4% Gel). P/D @  
10:15am on 14 Sept 2014.  
Rathole (30 sk). Mouse hole  
(20 sk). [Basic Energy Services]

15 Sept --- Skidded off Graham #1-30 ... 50' North to ... Graham #1-30 X.

## Graham #1 - 30 X

15 Sept --- Skidded off Graham #1-30 ... 50' North to ... Graham #1-30 X.

17-1/2" Hole (Vertical)

15 Sept --- Spud @ 7pm  
16 --- 7am @ 664'.  
Surveys (1-1/4 to 7 degrees).  
Cement 664' --> 334' with Class  
H (630 sx) with 15% excess.

17 --- WOC.

18 --- Redrill surface hole with 12-1/4".  
Cement @ 172'. Open hole 190'  
- 270'.  
7am @ 353'. Drill to 664'.  
Surveys (1/2 --> 1-1/4 degrees).

19 --- Start reaming 12-1/4" pilot  
hole to 17-1/2" at 5:30am.  
Drilled to 682'.  
Ran 13-3/8" @ 647' (Bottom 3  
jts strapped). 155 sx A-Con  
Blend (etc) + 200 sx Prem Plus.

20 --- Plug down @ 5:15am.  
[Basic Energy Servies]

12-1/4" Hole (Pilot Hole) to  
17-1/2" Hole (Ream)

21 --- Under surface casing @ 5am.  
7am @ 997'.  
Lost full returns @ 1,155', 50%  
returns at 1,330, drilled to  
1,672' wtih 95% returns.  
(Severe lost circ 1,289'-1,450'.)

22 --- Run 8-5/8" (24#) casing. Set @  
1,667' with 200 sx Prem Plus.  
[Basic Energy Services]  
Plug down @ 6am. WOC.  
7am @ 1,672'. WOC.

7-7/8" Hole (Vertical)

23 Sept --- Under surface casing @ 4am.  
7am @ 2,026'.  
24 --- 7am @ 3,492'.  
25 --- 7am @ 4,540'.  
Resurveyed: GL - 3,414',  
DF - 3,421', KB - 3,425'.

26 --- 7am @ 5,398'.  
Lost Circ after CFS @ 5,410'.  
Pulled up 10 stands.  
Mixed Mud (16# LCM).  
Regained Circ.  
300 Bbls Total Lost.  
Resumed Drilling @ 8:32pm.

27 --- 7am @ 5,627'.  
RTD (5,640') @ 8am.  
E-LOG. [Weatherford]

**HOLE DEVIATION (309' - 5,640' MD)**

**GRAHAM # 1 - 30X**

**17-1/2" Initial Surface Hole**

DEPTH / TVD	INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
309' /	1.25						
370' /	1.50						
424' /	3.00						
549' /	5.00						
664' /	7.00						
664' /	7.00						

Initial Surface Hole cemented.

**12-1/4" Surface Hole (Pilot Hole after initial surface hole.)**

192' /	0.50
282' /	1.00
343' /	0.75
402' /	1.00
462' /	1.25
524' /	0.75
586' /	1.25
682' /	1.25

12-1/4" Pilot Hole ream with 17-1/2" Bit.  
No Surveys taken.

**7-7/8" Vertical Hole**

5,640' /	1.25	(RTD)
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**BIT RECORD**

**GRAHAM # 1 - 30 X**

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP (ft/hr)
<b>INITIAL SURFACE ---</b>							
16 Sept 2014	17-1/2"	MD-1PGL	16 - 16 - 16 - 14	0' / 664'	664'	8.00	83.0
<b>PILOT HOLE on SURFACE (Redrill) ---</b>							
18 Sept 2014	12-1/4"	HAPC	15 - 15 - 15 - 15	0' / 682'	682'	26.00	26.2
<b>REAM PILOT HOLE ---</b>							
19 Sept 2014	17-1/2"	RR	15 - 15 - 15 - 15	0' / 683'	683'	9.75	70.1
<b>SURFACE ---</b>							
21 Sept 2014	12-1/4"	HA00TC	18 - 18 - 18	663' / 1,672'	1,009'	15.00	67.3
<b>VERTICAL ---</b>							
23 Sept 2014	7-7/8"	HAIP	15 - 15 - 15	1,672' / 1,733'	61'	1.00	61.0
23 Sept 2014	7-7/8"	Ultrerra U616M (PDC)	18 - 18 - 18	1,733' / 5,640'	3,907'	66.00	59.2

## 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
- Breccfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl

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- Kaol
- Marl

- 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

- Mica
- Anhy
- Arggrn
- Arg
- Bent
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- Calc
- Carb
- Chtdk
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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

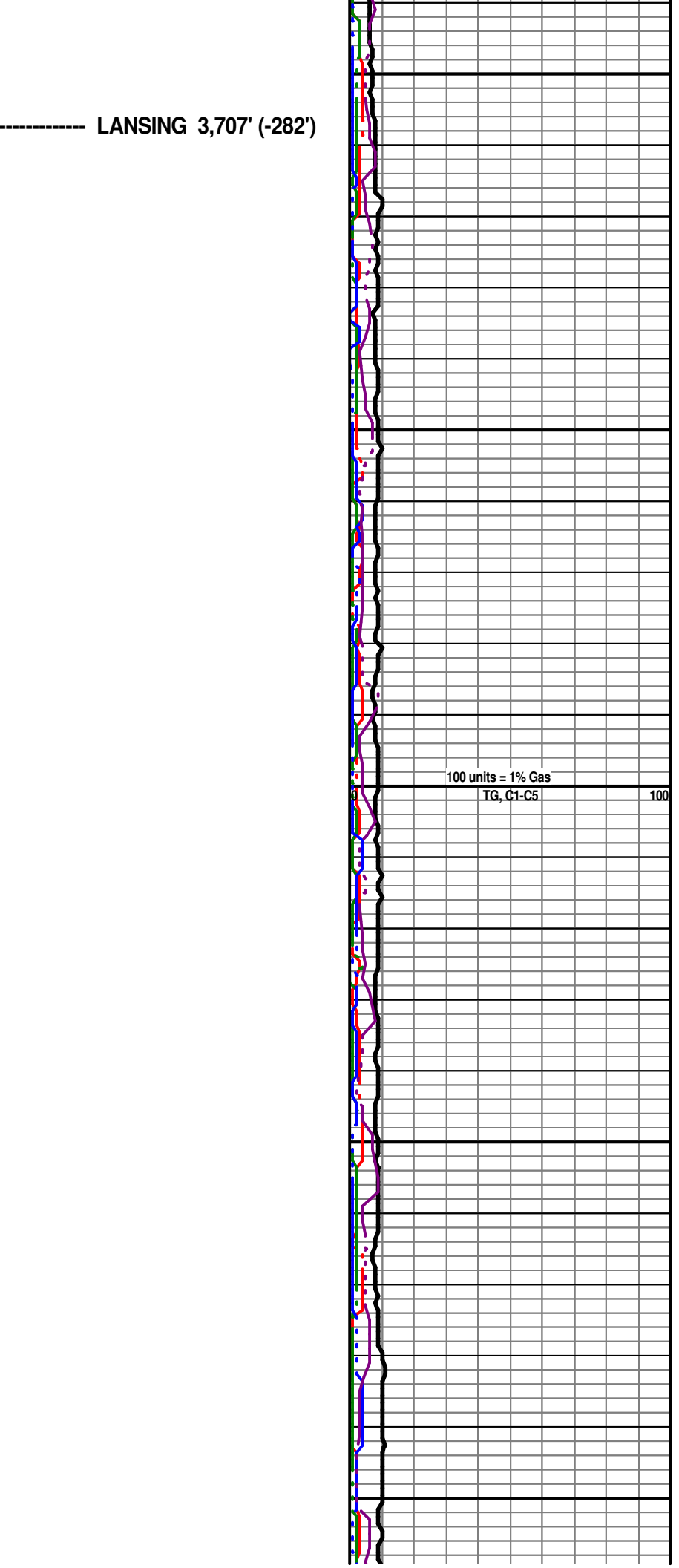
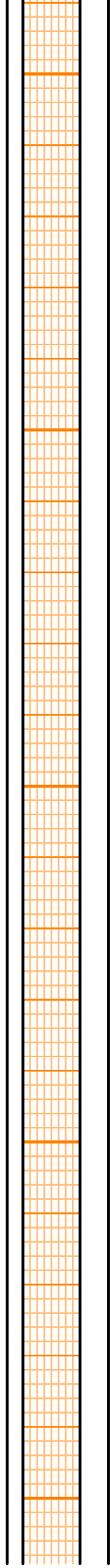
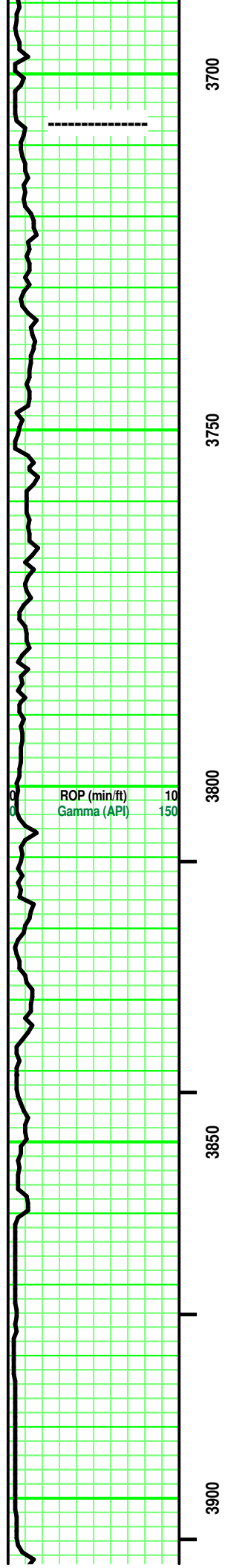
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- Circulate for same

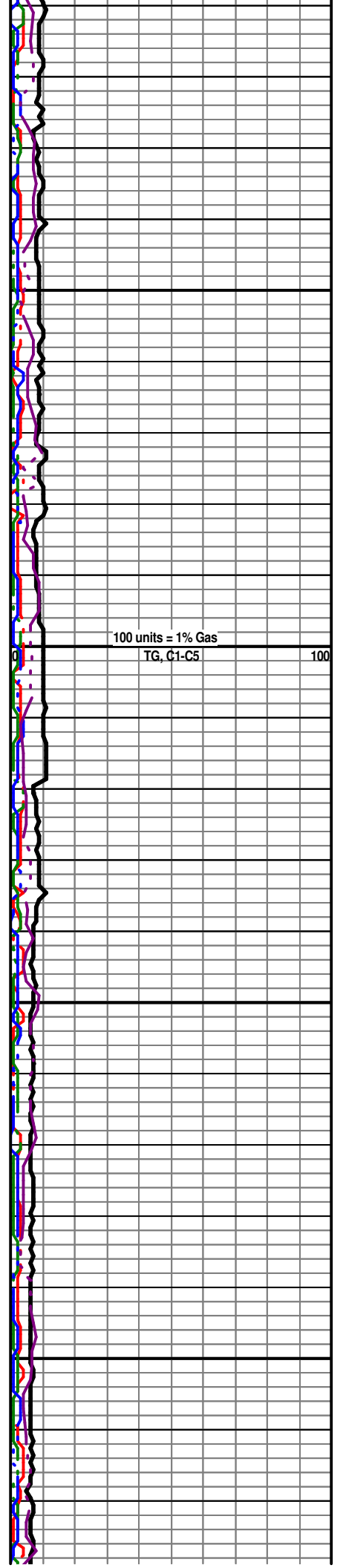
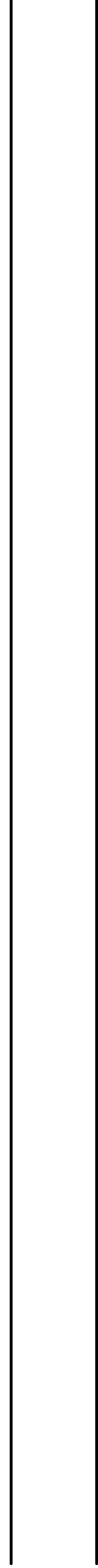
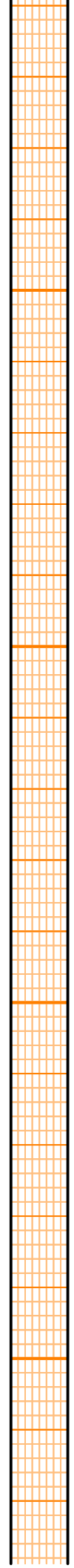
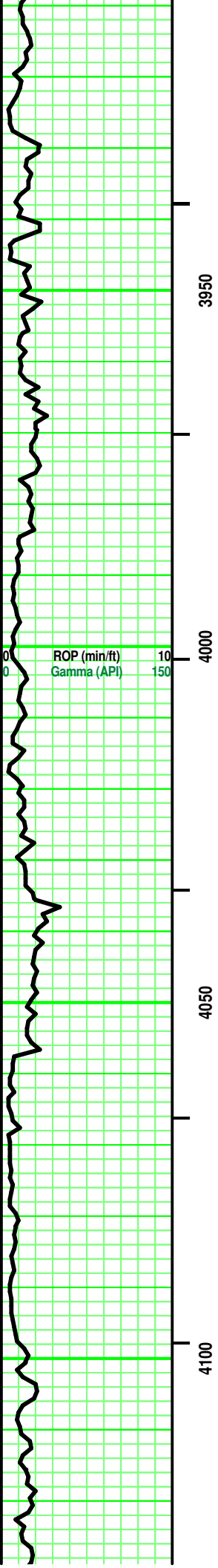
- Circulate for same
- Rtd
- Trip

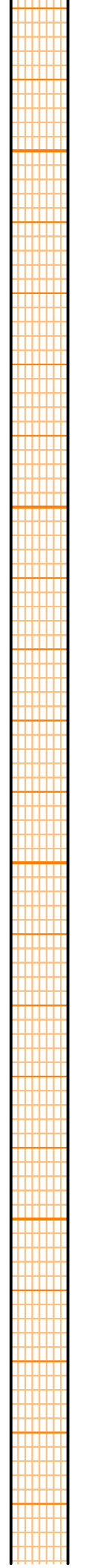
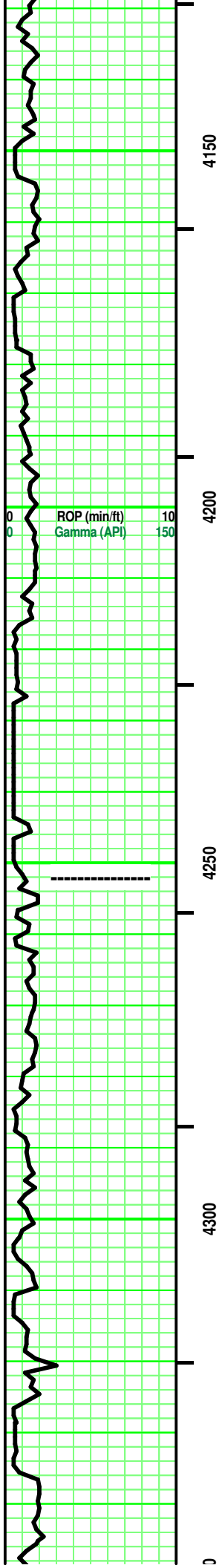
- Connection
- Rft

- Sidewall

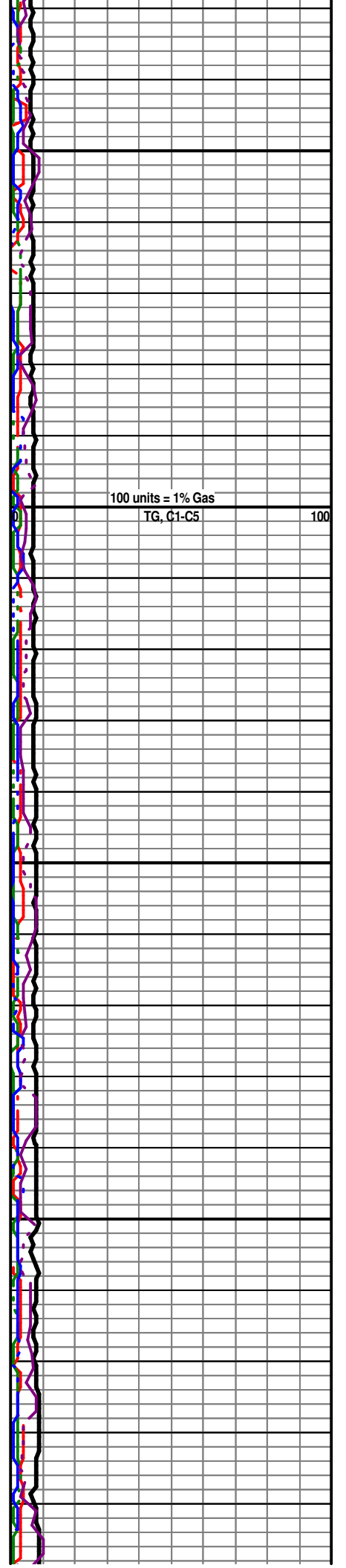




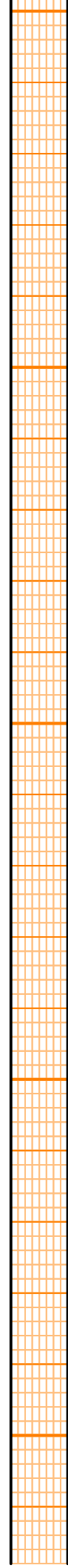
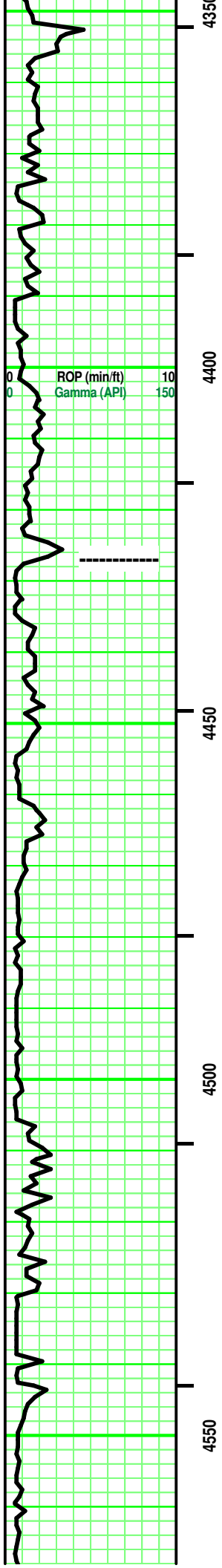




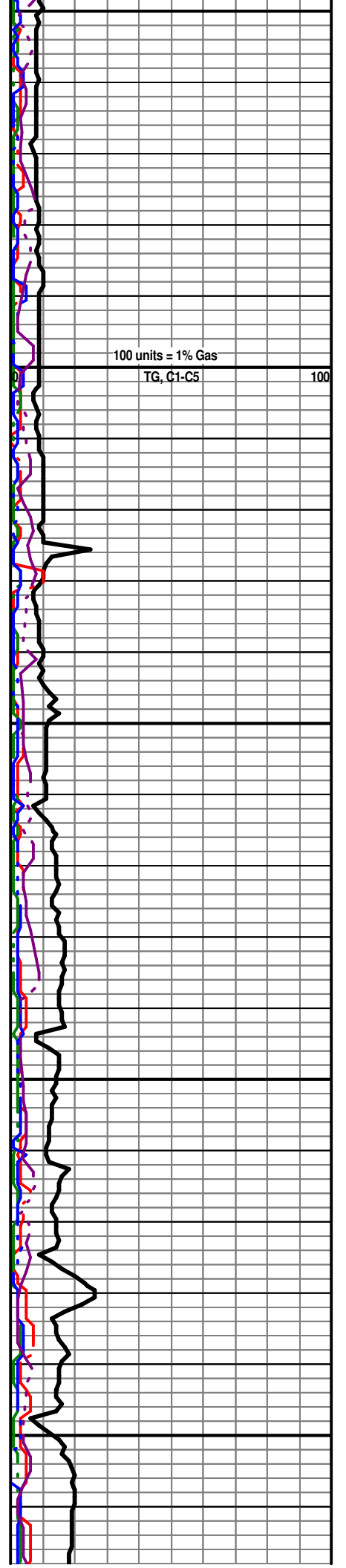
----- MARMATON 4,252' (- 827')

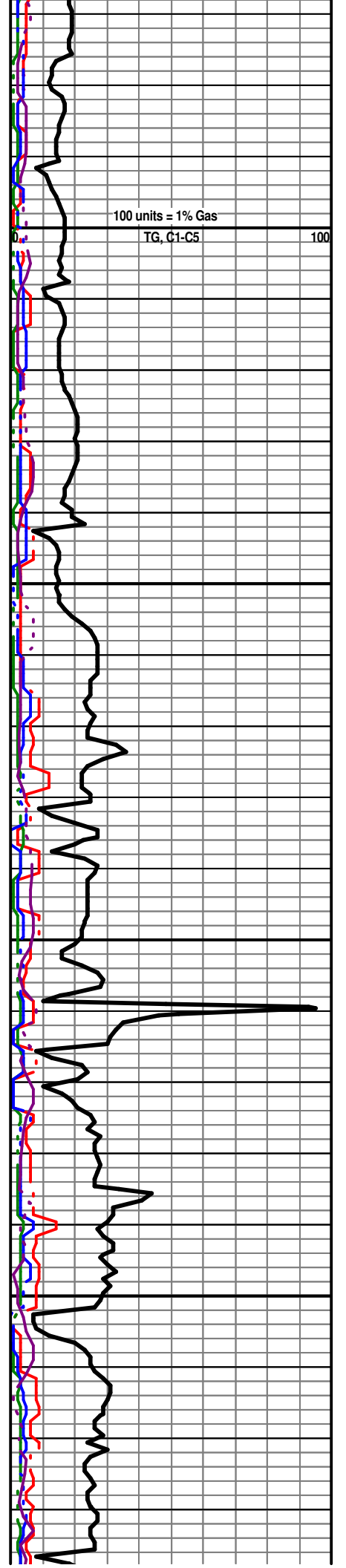
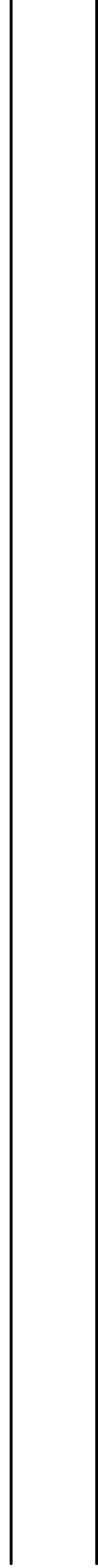
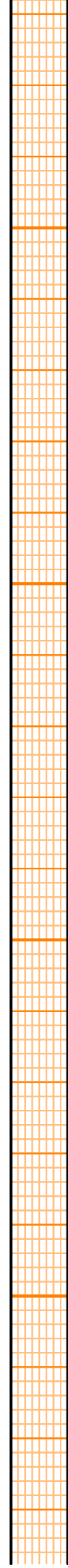
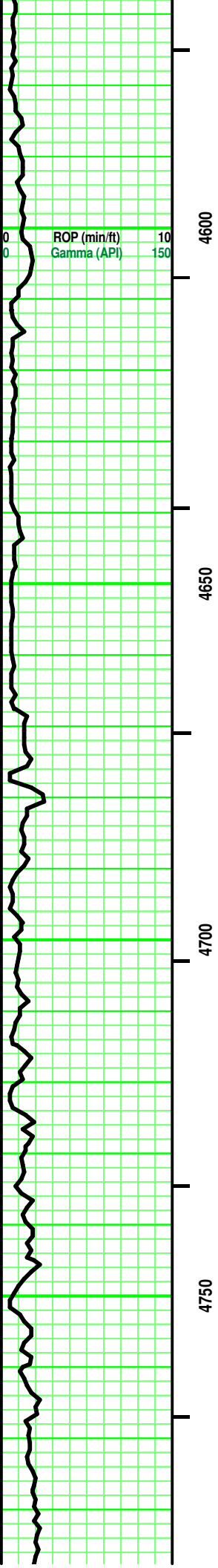


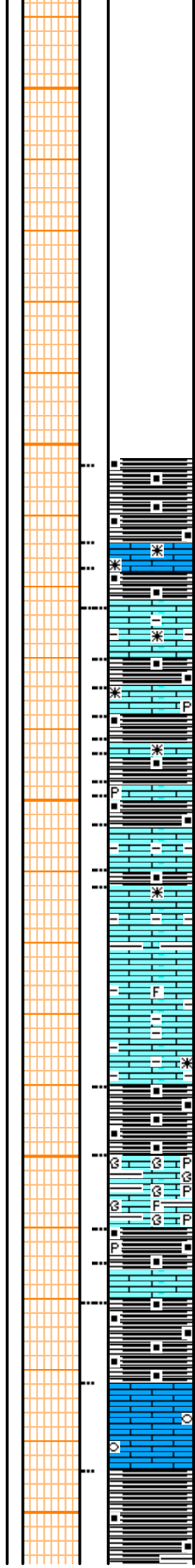
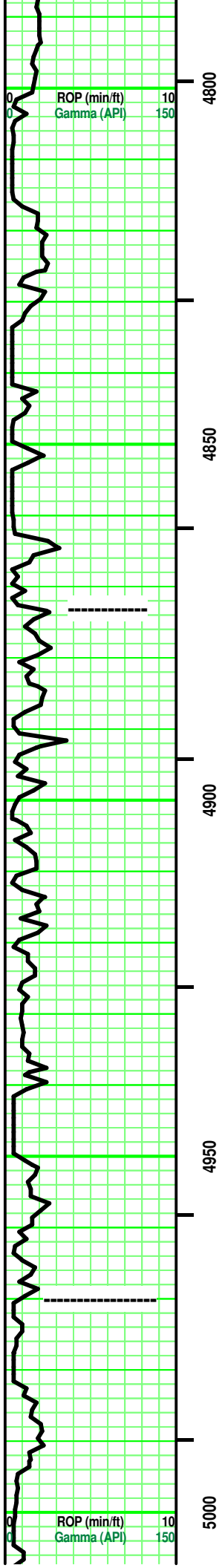




--- CHEROKEE SH 4,427' (-1,002')







SH (1) - Dark/ v Dark Gray. Sing. Black, carb, soft.

LS - Off White/ Lt Gray. Sing/ Mot. XF-/ Micro-xln. xln por. some argil/ shaly in part. partly Firm. No/ tr vis por.

SH - similar to (1) above.

----- **ATOKA 4,873' (-1,448')**  
Interbedded SH and LS

SH - Black. Sing. carb. soft. rare v Dark Grayish Black. rare minute pyritic flecks.

LS - Off Whitish Tan/ Off Whitish v Pale Lt Gray/ some Lt and Med Gray. some Sing/ some Mot or Mixed. XF- / Micro-xln. xln and part por. No/ tr Re-xln in part. No/ some Med/ Dark Gray argil and shaly SR, VF frags. mostly No/ v rare fossil frag. mostly No/ rare pyritic xtal.. No/ tr vis por.

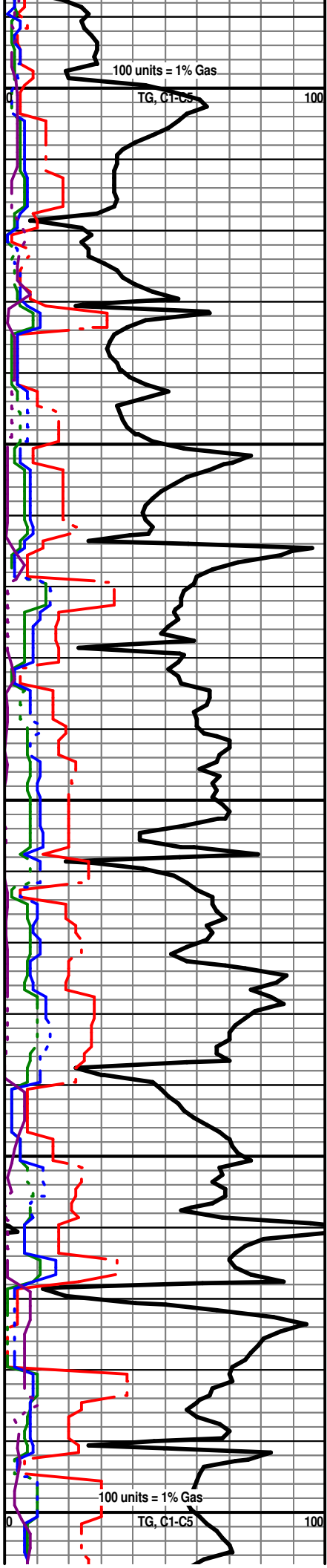
Add: SH (Brec) (2) - Grays/ Black shale mixed with SR, VF calc frags. Glauc grains (SR, VF). v minute pyritic flecks (some uniform/ some random). Firm.

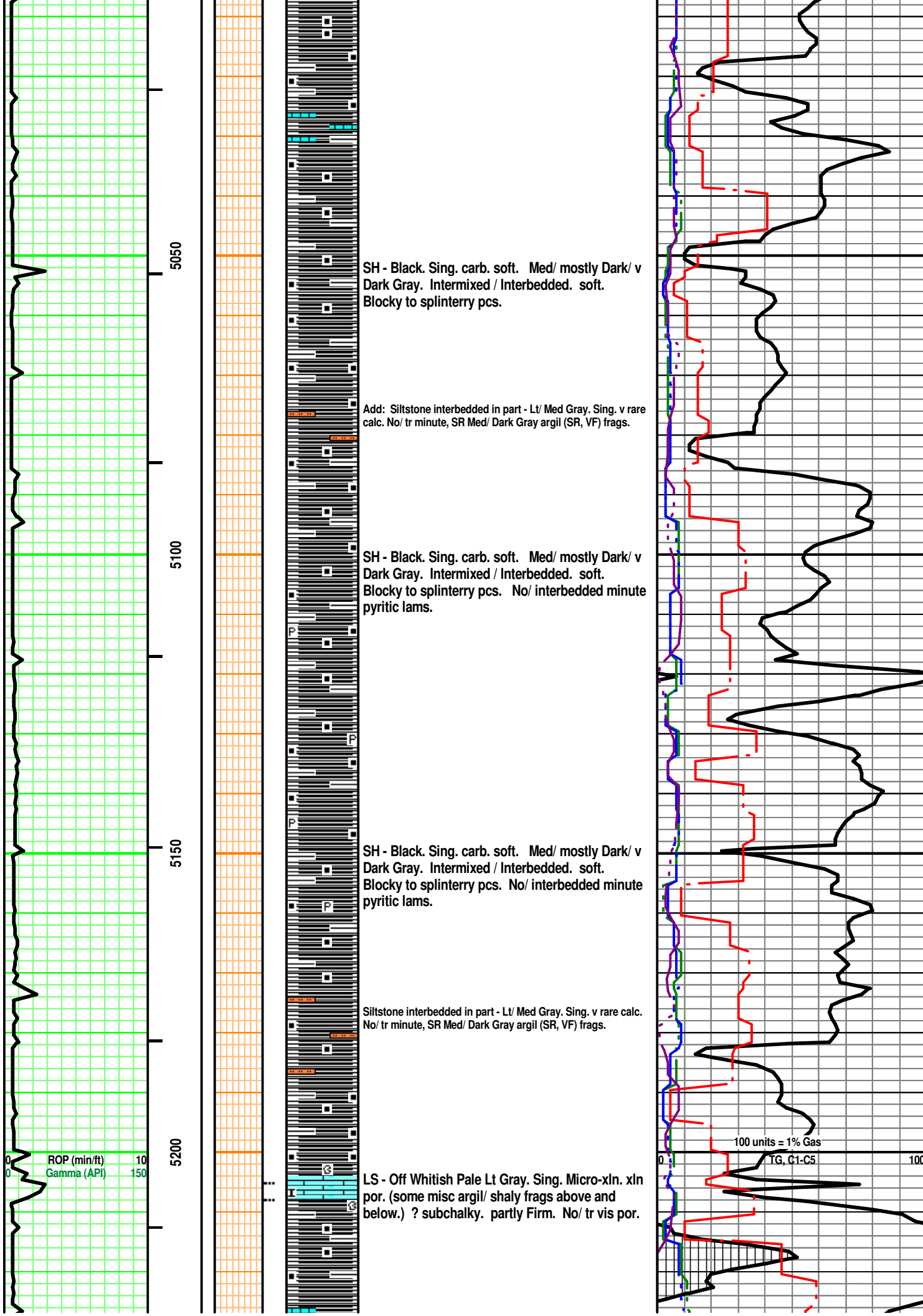
SH (Brec) - similar to (2) above.

----- **MORROW SH 4,970' (-1,545')**  
SH - Black. Sing. carb. soft.

LS - Off White / Grays with depth. Sing/ tr Mixed. mostly Micro-/ tr XF-xln. xln por. No/ tr Re-xln. argil/shaly with depth. [couple pcs: LS - Off Whitish Tan VF Oolitic frags with semi-transparent/ opaque Matrix. Fair/ Good vis por.] Overall Firm. No/ tr vis por.

SH - Black. Sing. carb. soft. rare Med/ mostly Dark/ v Dark Gray. Intermixed / Interbedded. soft.





5050

5100

5150

5200

SH - Black. Sing. carb. soft. Med/ mostly Dark/ v Dark Gray. Intermixed / Interbedded. soft. Blocky to splintery pcs.

Add: Siltstone interbedded in part - Lt/ Med Gray. Sing. v rare calc. No/ tr minute, SR Med/ Dark Gray argil (SR, VF) frags.

SH - Black. Sing. carb. soft. Med/ mostly Dark/ v Dark Gray. Intermixed / Interbedded. soft. Blocky to splintery pcs. No/ interbedded minute pyritic lams.

SH - Black. Sing. carb. soft. Med/ mostly Dark/ v Dark Gray. Intermixed / Interbedded. soft. Blocky to splintery pcs. No/ interbedded minute pyritic lams.

Siltstone interbedded in part - Lt/ Med Gray. Sing. v rare calc. No/ tr minute, SR Med/ Dark Gray argil (SR, VF) frags.

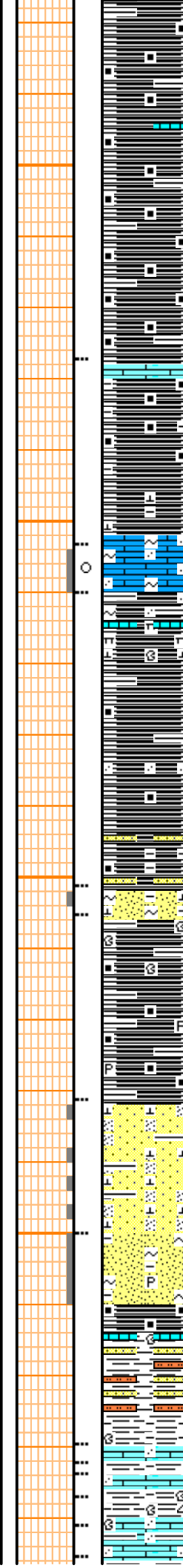
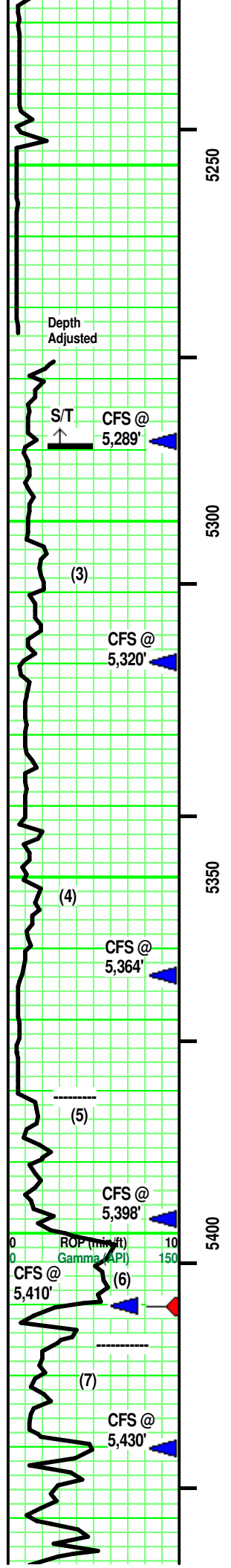
LS - Off Whitish Pale Lt Gray. Sing. Micro-xln. xln por. (some misc argil/ shaly frags above and below.) ? subchalky. partly Firm. No/ tr vis por.

100 units = 1% Gas

TG, C1-C5

100

ROP (min/ft) 10  
Gamma (API) 150



SH - Black. Sing. carb. soft. Med/ mostly Dark/ v Dark Gray. Intermixed. soft. Blocky to splintery pcs. No/ tr interbed- ded Gray LS (XF).

--- LOWER MORROW MARKER 5,277' (-1,852')  
 LS - Off Whitish Pale Lt Gray/ Lt Gray. Sing. Micro-xln. xln por. No/ tr subchalky in part. argil in part. partly Firm. No/ tr vis por.

SH - some Black. Sing. carb. soft - mixed with - Med/ mostly Dark/ v Dark Gray. Intermixed. No/ v rare calc with depth. Blocky pcs.

LS (3) - Off Whitish Lt Gray / Off Whitish v Pale Lt Brown/ Off White Mot. XF-/ tr Micro-xln. xln & part por. tr to some (XF, SA/SR to R) Green Glauc grains. tr (SA/SR, VF, vitrious) Qtz grains 'floating' in LS matrix. tr to some Re-xln and White Calc infill. partly Firm. argil to marly in part with depth. No/ tr vis por.

No odor. No/ rare ?, v dull yellow flourescence on chip. No free oil or gas. mostly No/ rare v Lt Brown stain. No cut/ residual. No acid/ residual

SH - Black. Sing. carb. soft. Med/ mostly Dark/ v Dark Gray. Intermixed. soft. Blocky. No/ tr interbedded SS similar to below (4). misc 'rubble' (SA, LS frags/

SS (4) - Off White/ Off Whitish Lt Gray Mot. XF/ tr silt Qtz grains. SA/SR. Mod sort. Mod sphericity. Point/ tr to some sutured/ rare 'floating' grain contact. tr vitreous/ tr frosted luster. Cacl infill. Glauc grains (XF, SR). No/ tr pyritic in part. tr/ some argil in part. Hi limy in part. partly Firm. No/ tr vis por.

5,380' Sample -- Mixture of (4) above with misc LS frags. LS - Pale Tan. Sing. Micro-xln. xln por. partly Friable. No vis por. LS - Off White/ Pale Lt. Gray. Sing/ Mot/ Mixed. XF-/ Micro-xln. xln & part por. tr/ lots Qtz grains (F/VF, SA, vitreous luster, sutured clusters/ some dissem grains). No/ tr heavily pyritic. Firm. No/ tr vis por.

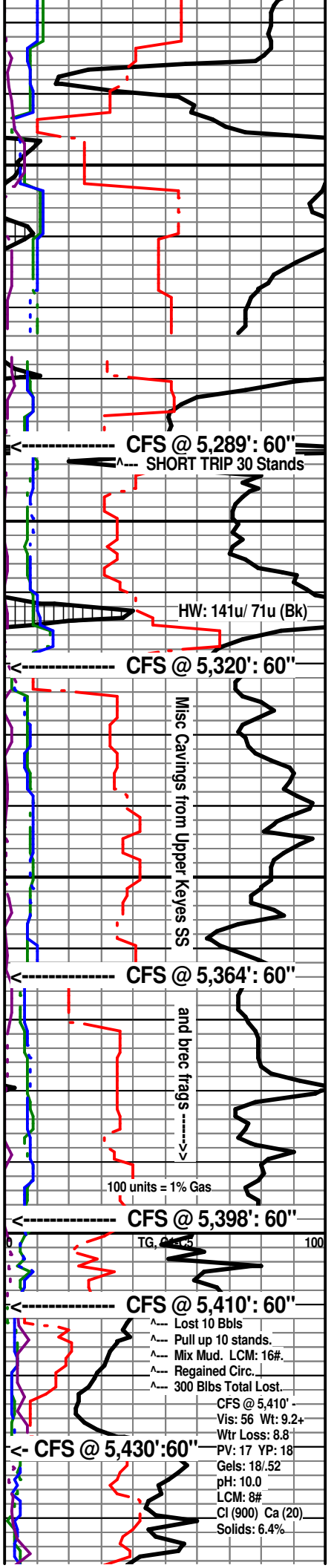
SS (5) - Clear/ Lt Blue to Blue Green. Mot/Mixed. Silt/ tr VF Quartz grains. SA/SR. highly sorted. Med sphericity, mostly vitreous luster/ some frosted. sutured / rare point/ some 'floating' grain contact. tr/ some v minute dark specks. Calc infill/ tr matrix. partly Firm. No/ tr vis por.

----- LOWER KEYS SS 5,400' (-1,975')  
 SS (6) - Off White/ Off Whitish Lt Gray Mot/ v rare Pale Lt Brown. Mot/Mixed. tr F/ XF/ tr silt Qtz grains. mostly SA/SR. Mod sort. Mod sphericity. sutured grain contact. tr vitreous/ tr frosted luster. Cacl infill. Glauc grains (XF, SR). No/ tr pyritic in part. tr/ some argil in part. Hi limy in part. partly Firm. No/ tr vis por.

Interbedded / Intermixed SS, SH & LS  
 SS (7) - Reddish Orange/ tr Tan, Off Whitish Gray. Sing/ some Mixed. Silt sized Quartz grains. SR/ SA. Hi sort. Mod sphericity, Vitreous Luster. Point/ some 'floating' grains contact. Highly Silty to highly calcareous (Tan). some interbedded SH - Black/ some Med and Dark Gray. misc inclusions.

LS pcs - Tans. Sing. tr XF-/ mostly Micro-xln. xln & part por. lots dissem mostly Silt/ rare VF sized quartz grains (SA/ some SR, vitreous luster) 'floating'/ tr to some point grain contact. No/ tr subchalky in part. partly Friable. No/ tr vis por.

SH - tr Black. Sing. carb. soft. Med/ mostly Dark Gray.



CFS @ 5,289': 60"  
 SHORT TRIP 30 Stands

HW: 141u/ 71u (Bk)

CFS @ 5,320': 60"

Misc Cavings from Upper Keyes SS

CFS @ 5,364': 60"

and brecc frags ----->

100 units = 1% Gas

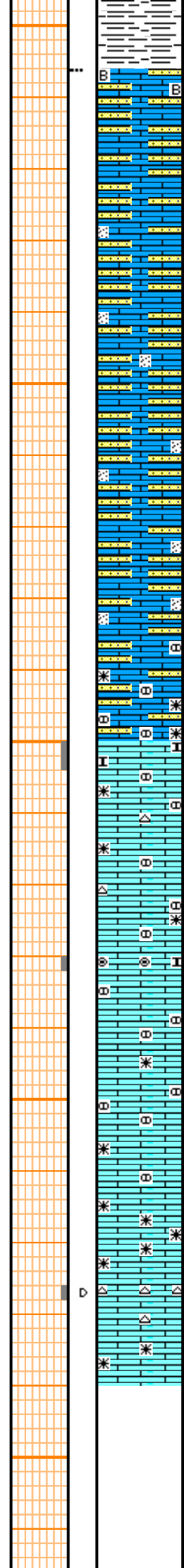
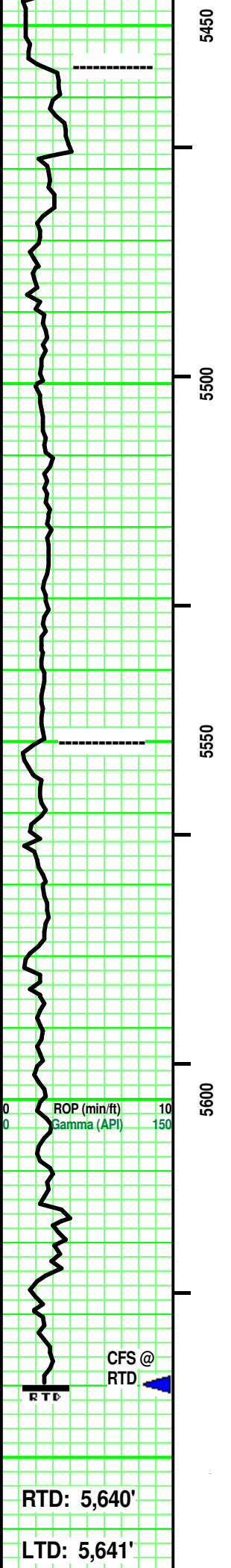
CFS @ 5,398': 60"

CFS @ 5,410': 60"

- ^ Lost 10 Bbls
- ^ Pull up 10 stands.
- ^ Mix Mud. LCM: 16#
- ^ Regained Circ.
- ^ 300 Bbls Total Lost.

CFS @ 5,410' -  
 Vis: 56 Wt: 9.2+  
 Wtr Loss: 8.8  
 PV: 17 YP: 18  
 Gels: 18/52  
 pH: 10.0  
 LCM: 8#  
 Cl (900) Ca (20)  
 Solids: 6.4%

CFS @ 5,430':60"



Intermixed. sandy, rare silty or limy in part.  
 couple pcs: CHERT - Clear/ Off White. SR. semi-transparent.  
 frosted luster. No trip.

**- STE. GENEVIEVE 5,456' (-2,031')**

LS - Off White/ Tans. Sing. rare XF-/ mostly  
 Micro-xln. xln & part por. lots dissem mostly Silt/  
 rare VF sized quartz grains (SA/ some SR,  
 vitreous luster) 'floating'/ tr to some point grain  
 contact. No/ tr subchalky in part. rare minute,  
 gluac grains (SR) near top. tr/ some minute dark  
 specks with intermittent. partly Friable. No/ tr vis  
 por.

LS - Off White/ Tans. Sing. rare XF-/ mostly  
 Micro-xln. xln & part por. lots dissem mostly Silt/  
 rare VF sized quartz grains (SA/ some SR,  
 vitreous luster) 'floating'/ tr to some point grain  
 contact. No/ tr subchalky in part. tr/ some minute  
 dark specks with intermittent. Intermixed Med/  
 Dark Tan nodules with depth. No/ tr Re-xln. partly  
 Friable. No/ tr vis por.

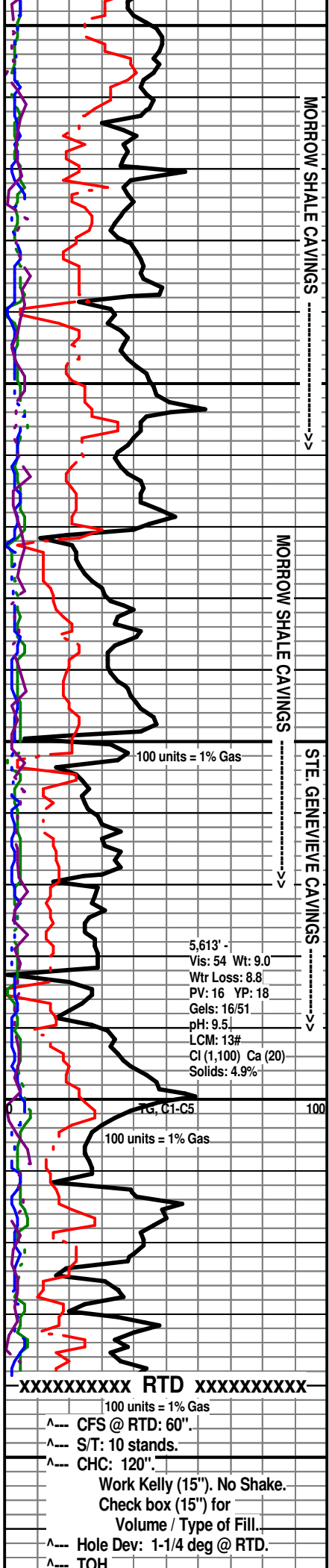
**----- ST. LOUIS 5,550' (-2,125')**

LS - Lt & Med Tan/ some Off White. Sing/ tr Mot.  
 tr VF/ mostly XF/ some Micro-xln. xln & part por.  
 No/ some Re-xln in part. Med Tan, calc nodules  
 (SR, mod sphericity to oblate, opaque). No/  
 subchalky in part. No/ [few pcs: CHERT - Clear/  
 Lt Tan. Sing. Transparent. No tripolitic. No  
 inclusions.] partly Firm. No/ tr vis por.

Add: LS - Off White Micro-Oolites ('ghost') in Off White Matrix.  
 subchalky. partly Friable. tr vis por.

LS - Lt & Med Tan/ some Off White. Sing/ tr Mot.  
 tr VF/ mostly XF/ some Micro-xln. xln & part por.  
 No/ some Re-xln in part. Med Tan, calc nodules  
 (SR, mod sphericity to oblate, opaque). No/  
 subchalky in part. No/ [few pcs: CHERT - Clear/  
 Lt Tan. Sing. Transparent. No tripolitic. No  
 inclusions.] partly Firm. No/ tr vis por.

Add: CHERT - Off White. Sing. Opaque. minute Dark Tan,  
 oblate inclusions. No/ tr Black, asphaltic / carb flecks (A, SA).  
 No tripolitic.



5,613' -  
 Vis: 54 Wt: 9.0  
 Wtr Loss: 8.8  
 PV: 16 YP: 18  
 Gels: 16/51  
 pH: 9.5  
 LCM: 13#  
 Cl (1,100) Ca (20)  
 Solids: 4.9%

RTD: 5,640'

LTD: 5,641'

XXXXXXXXXX RTD XXXXXXXXXXXX

100 units = 1% Gas

^--- CFS @ RTD: 60".  
 ^--- S/T: 10 stands.  
 ^--- CHC: 120".

Work Kelly (15"). No Shake.  
 Check box (15") for  
 Volume / Type of Fill.

^--- Hole Dev: 1-1/4 deg @ RTD.  
 ^--- TOH.

ATD: 5,642'

**GRAHAM # 1 - 30 X**

1,520' FNL & 2,300' FEL 30 - T29S - R41 W  
Stanton County, Kansas

**STELBAR OIL CORPORATION**  
Wichita, Kansas

E-LOG. [Weatherford]

Geologist:  
Curtis Covey  
COVEY - The Well Watchers

Well Number: 1,164