David A. Barker

CONSULTING GEOLOGIST

Geologist's Report
Drilling Time and Sample Log

OPERATOR Chieftan Oil Co., Inc
LEASE Millie WELL NO. "A"-1
FIELD Wildcat API No. 15-007-23829
LOCATION NW SE SE NW 2300' FNL & 2300' FWL
SEC. 15 TWP. 35S RGE. 11W
COUNTY Barber STATE Kansas

CONTRACTOR Fossil Rig #2
COMM. 01/07/2012 COMP. 01/19/2012
RTD 5568' LOG TD 5573'
SAMPLES SAVED FROM 3000' TO TD
DRILLING TIME KEPT FROM 3000' TO TD
SAMPLES EXAMINED FROM 3000' TO TD
GEOLOGICAL SUPERVISION FROM 3400' TO TD
MUD UP 01/12/2012 TYPE MUD CHEMICAL

ELEVATION

KB 1321'
DF
GL 1313'
Measuremnts Are All From KB

CASING RECORD

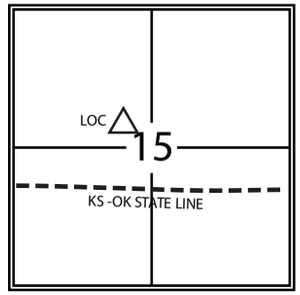
SURFACE 13 3/8" @ 318'
W/ 175 SX

PRODUCTION 5 1/2" to 5563'
Cement W/ 225 SX

ELECTRICAL SURVEYS

CNL, CDL, DIL

FORMATION	LOG TOP	LOG DATUM	SAMPLE TOP	SAMPLE DATUM	STRUCT. COMP.
Heebner	3718	-2397	3717	-2396	
Toronto	3728	-2407	3727	-3406	
Kansas City	4306	-2985	4300	-2979	
Hush Sh.	4493	-3172	4490	-3169	
Cherokee Sh.	4696	-3375	4695	-3374	
Mississippian	4799	-3478	4794	-3473	
Kinderhook	5087	-3766	5088	-3767	
Chat. Sh.	5150	-3829	5146	-3825	
Woodford Sh.	5168	-3847	5198	-3877	
Viola	5224	-3903	5228	-3907	
Base of Viola	5325	-4004	5324	-4003	
Simpson Sd.	5334	-4013	5334	-4013	
Lower Simpson Sd.	5492	-4171	5486	-4165	
Arbuckle	5525	-4204	5525	-4204	



REFERENCE WELL FOR STRUCTURAL POSITION

GEOLOGIST

Name: David A. Barker
Company:
Address: 212 N. Market, Suite# 320
Wichita, Kansas 67202
(316) 259-4294, 2 Barker@sbcglobal.net

OPERATOR

Company: Chieftain Oil Co., Inc.
Address: 605 S. 6th, P.O. Box 124
Kiowa, Kansas 67070

Daily Status

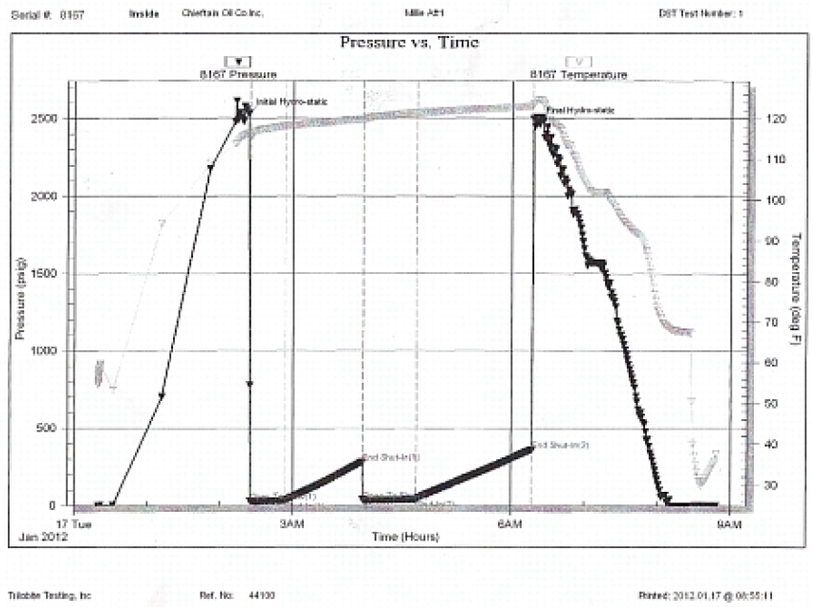
1/07/2012: spud 3:30 P.M.
1/08/2012, Morning depth 318', ran 8 jts, 13 3/8", plug down at 2:45 A.M., 2:45 to 10:45 A.M. W.O.C.
1/09/2012, Morning depth: 729', ran 17 jts, new 24# 8 5/8" 175 SX, plug down, 11:45 P.M. W.O.C.
1/10/2012: cement did not circulate, 1" cement plug down 7:45 A.M.
1/11/2012, Morning depth: 2137'
1/12/2012, Morning depth: 2990' mud up 3102'
1/13/2012, Morning depth: 3665' straight hole @ 3951' 3/4 deg
1/14/2012, Morning depth: 4275'
1/15/2012, Morning depth: 4685'
1/16/2012, Morning depth: 5060'
1/17/2012, Morning depth: 5159', DST #1, 5056 to 5191', 135' of ancor, survey 1/4 deg.
1/18/2012: Morning depth: 5350', DST #2; 5322' to 5350'
1/19/2012: Morning depth:

Remarks

Set 5 1/2" casing to 5315' to further test the Mississippian formation through pipe.

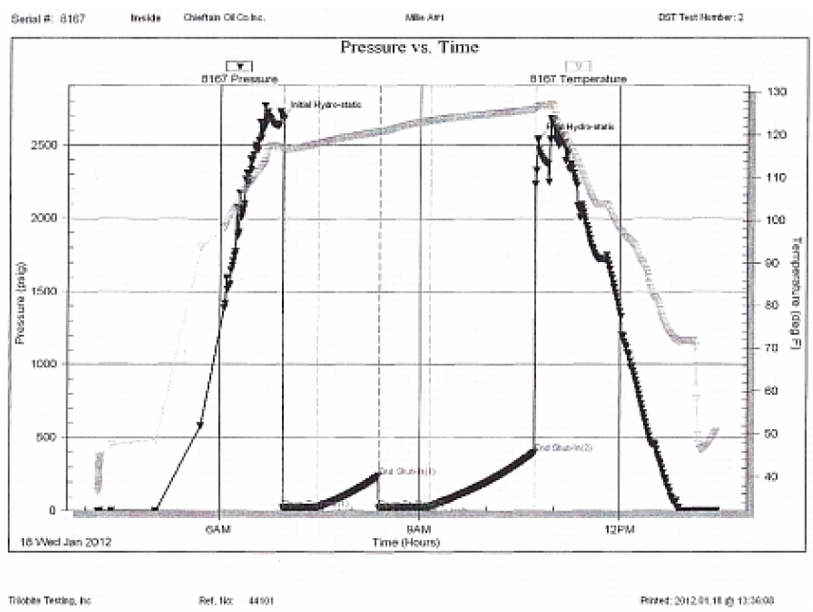
DST #1

5056'-5191' 30-60-45-90 IF: Fair Blow Increase to 10", FFP fair blow, 4" to 13", REC: 390' GIP, 50' M, IHP 2530#-2475#, IHP 31#-30#, FFP 36#-40#, BHP 282#-361#, BHT 123 deg F, Chlorides 5,000 ppm



DST #2

5322'-5350' 30-60-45-90 IF: Weak Blow 3/4"-1/2" Blow, FF: Weak Blow 2"-5" Blow, REC: 185' GIP, 35' SOCM (2% Oil and 98% M), HP 2695#-2541#, IFP 21#-23#, FFP 20#-27#, BHP 238#-400#, BHT 126 deg F, Chlorides 5,000 ppm



ACCESSORIES

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

MINERAL
- 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
- Chlorite
- Dol
- Sand
- Slty

STRINGER
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Grysltt
- Lms
- Sandylms
- Sh
- Sltstn

TEXTURE
- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

INTERVALS
- Core
- Dst
- Dst

EVENTS
- Rft
- Sidewall
- Cfs
- Conn

POROSITY TYPE
- Earthy
- Fenest

- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

LITHOLOGY
- Anhy
- Cht
- Congl
- Shale
- Shgy
- Ss

- Carb shale
- Gray shale
- Sandy lmst
- Shale
- Slt stn
- Shaly slst
- Slty shale
- Blank
- Gray lmst
- Cream lmst
- Red shale
- Blue-green siltstn
- D. green shale
- Green shale

- Brown lmst
- Brown shale
- Brown dol
- Brown cream
- D. green lmst
- Light cream lmst
- Gray cream lmst
- Green dol
- Gray dol

SORTING
- Well
- Moderate
- Poor

ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

OIL SHOWS
- Even
- Spotted
- Ques
- Dead
- Gas show

ROCK TYPES

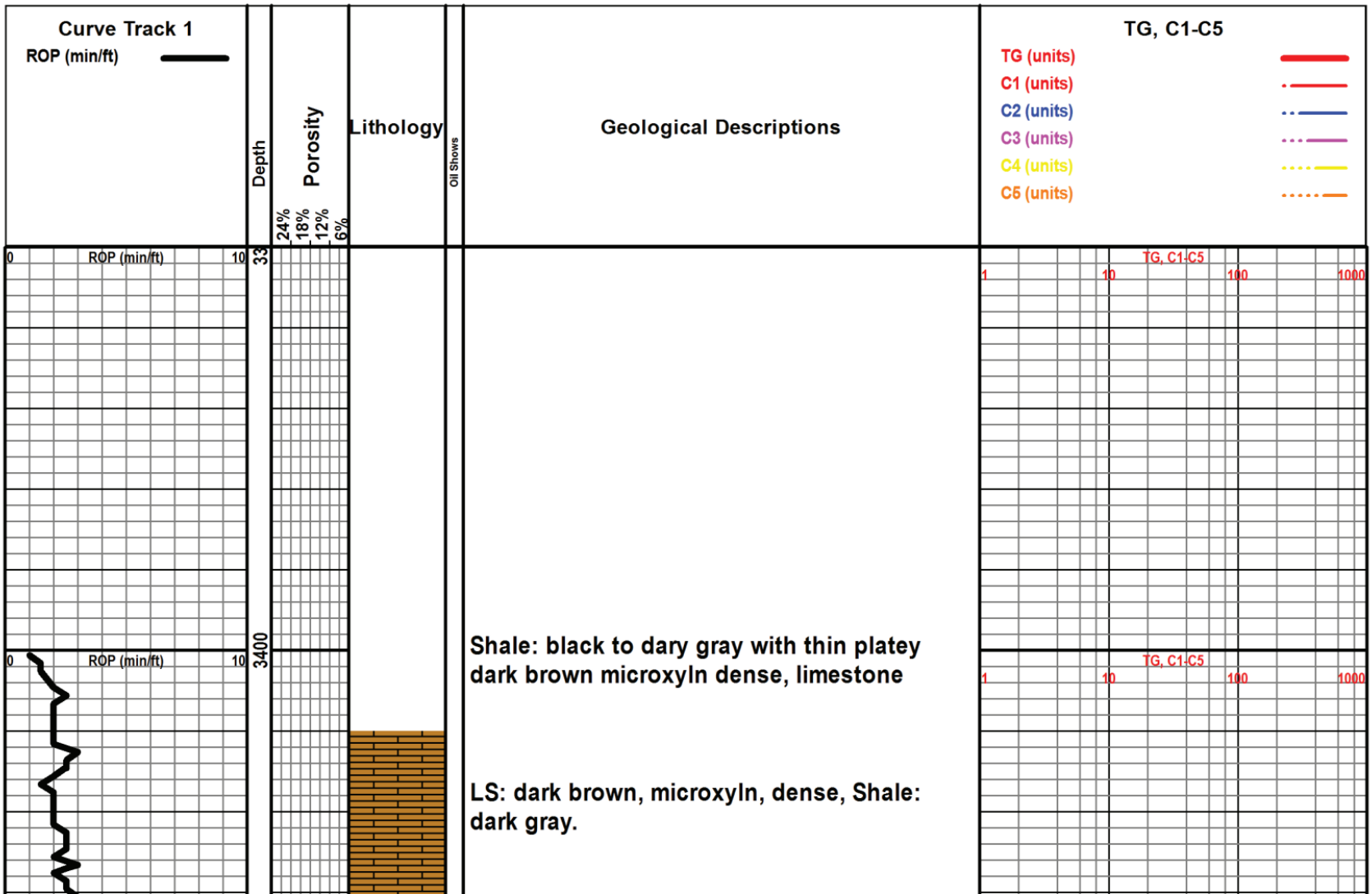
- Anhy
- Cht
- Congl
- Shale
- Shgy
- Ss

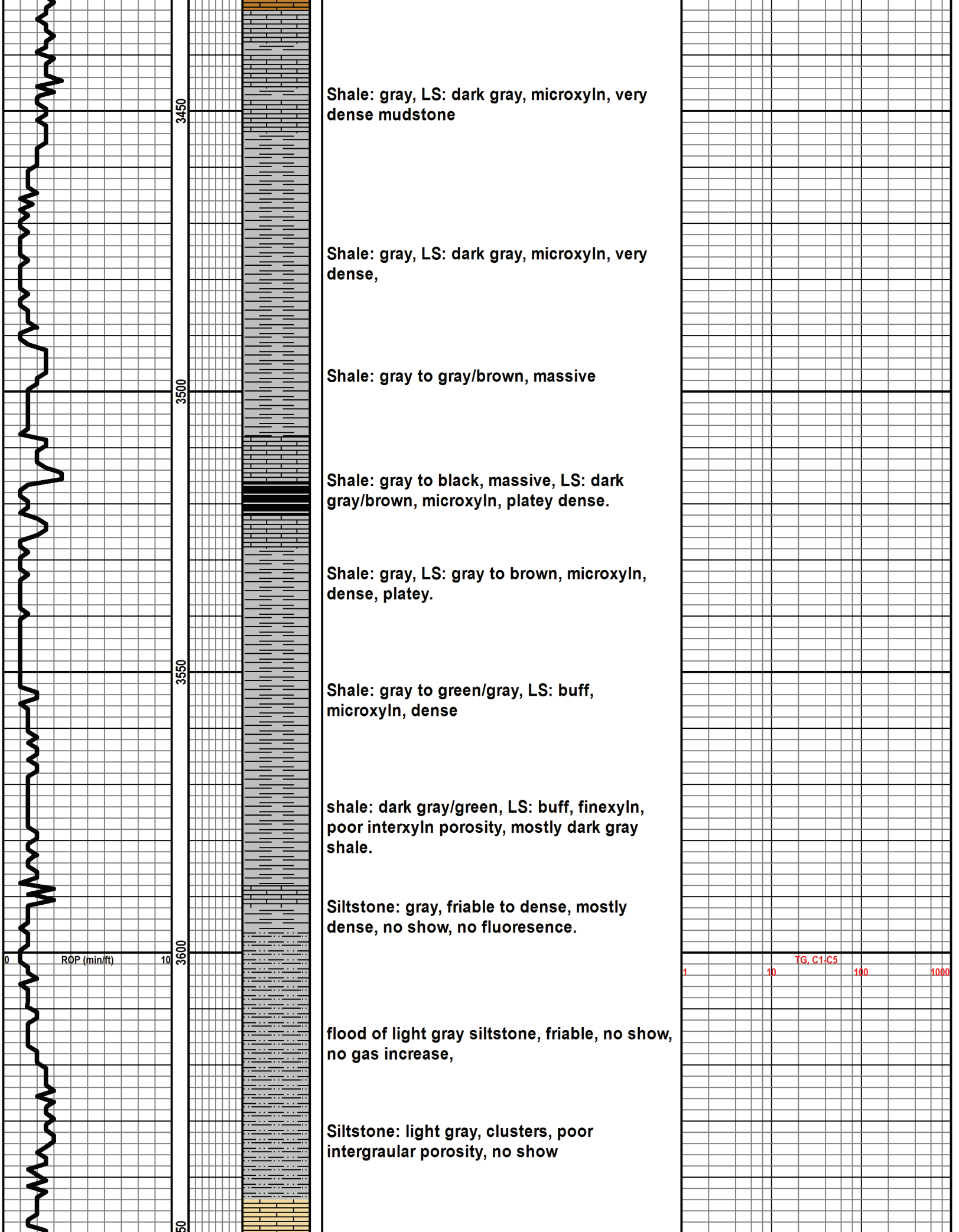
- Carb shale
- Gray shale
- Sandy lmst
- Shale
- Slt stn
- Shaly slst

- Slty shale
- Blank
- Gray lmst
- Cream lmst
- Red shale
- Blue-green siltstn

- D. green shale
- Green shale
- Brown lmst
- Brown shale
- Brown dol
- Brown cream

- D. green lmst
- Light cream lms
- Gray cream lms
- Green dol
- Gray dol





Shale: gray, LS: dark gray, microxyln, very dense mudstone

Shale: gray, LS: dark gray, microxyln, very dense,

Shale: gray to gray/brown, massive

Shale: gray to black, massive, LS: dark gray/brown, microxyln, platey dense.

Shale: gray, LS: gray to brown, microxyln, dense, platey.

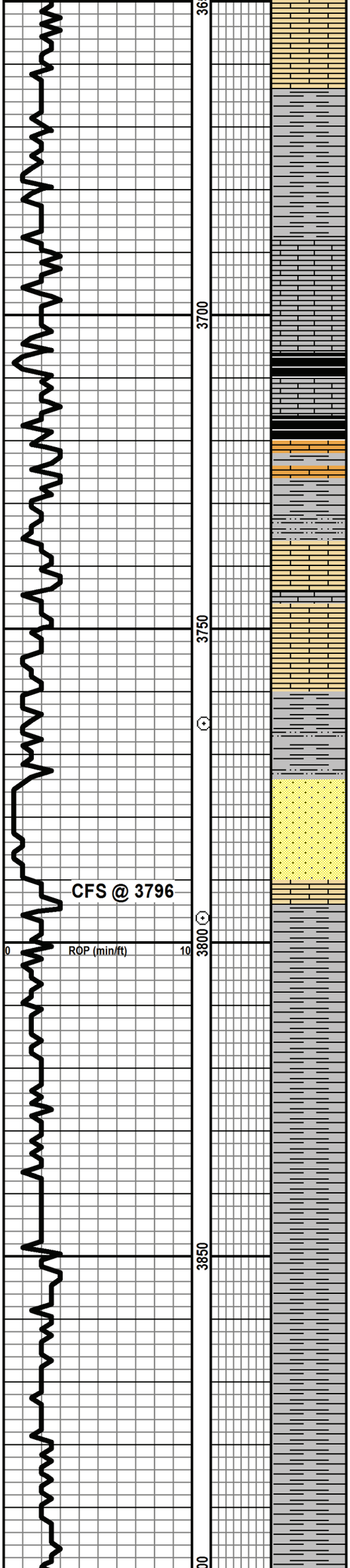
Shale: gray to green/gray, LS: buff, microxyln, dense

shale: dark gray/green, LS: buff, finexyln, poor interxyln porosity, mostly dark gray shale.

Siltstone: gray, friable to dense, mostly dense, no show, no fluoresence.

flood of light gray siltstone, friable, no show, no gas increase,

Siltstone: light gray, clusters, poor intergraular porosity, no show



LS: brown, microxyln, dense, mott, Siltstone: clusters, light gray,

Shale: gray soft in part, LS: dark gray/brown, microxyln, dense, Siltstone: dirty gray, dense,

shale: black, LS: dark gray, microxyln, very dense, no visable porosity

flood of black shale, LS: dark gray, microxyln, very dense, no visable porosity.

LS: brown, microxyln, very dense, Shale: gray/green, light gray, no show

LS: very dark brown/gray, microxln, dense, microfossil, LS: dark gray, dense, LS: dark buff, finexyln, poor interxyln porosity, LS: cream, finexyln, poor interxyln porosity, firm, dull mineral fluoresence, scat. slight visable porosity,

LS: cream, microxyln, dense, chalky white in part, no show, no fluoresence,

SD.STN: light gray, very fine grain, mott, poor intergranular porosity, one piece broke slight rainbow oil show, no fluoresence,
SD STN: light gray, with buff specks, mott, fine grain, poor intergranular porosity, very fine grain, streaks of friable, only one piece with slight rainbow, show, no fluoresence, no show of gas bubbles

LS: buff, poor interxyln porosity, firm

Shale: gray

Shale: gray, green in part

Shale: gray to light gray laminar

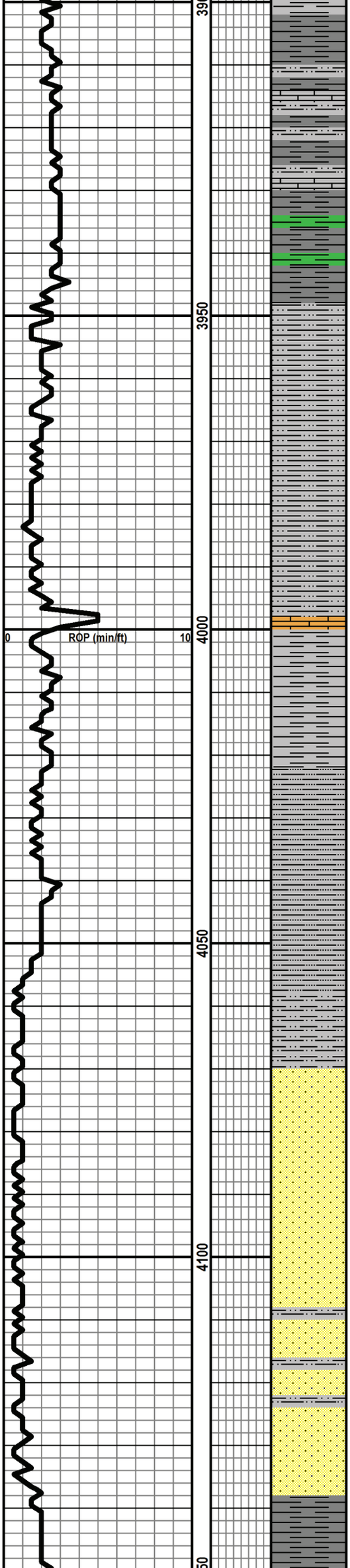
25 unit gas increase

Heebner @ 3717 -2396

Toronto @ 3727 -2407

10 unit hot wire gas increase

TG, C1-C5
1 10 100 1000



Shale: gray, Siltstone: light gray, thin platey

Shale: gray to green

Shale: gray, dense, light gray siltstone or sand stone, very fine grain, no show

Shale: gray, soft, LS: buff, finexlyn, poor interxyln porosity

LS: brown, microxyln, dense, Siltstone: gray friable, random gas bubble when chrushed, no fluoresence,

shale: gray, siltstone: light gray with black shale partings, poor intergranular porosity, no show, LS: gray/brown, microxyln, very dense

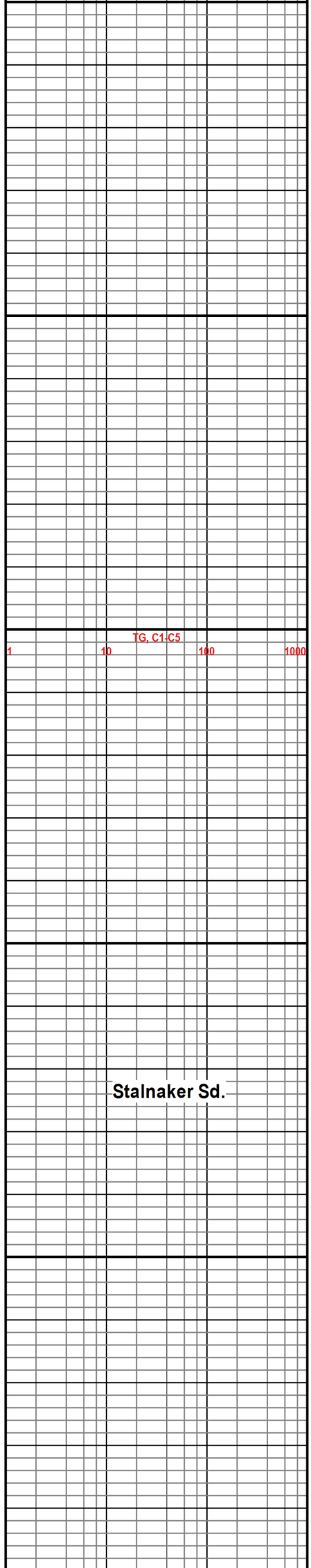
Siltstone: light gray, very dense, poor intergranular porosity, no show, no fluoresence, shale: soft, gray

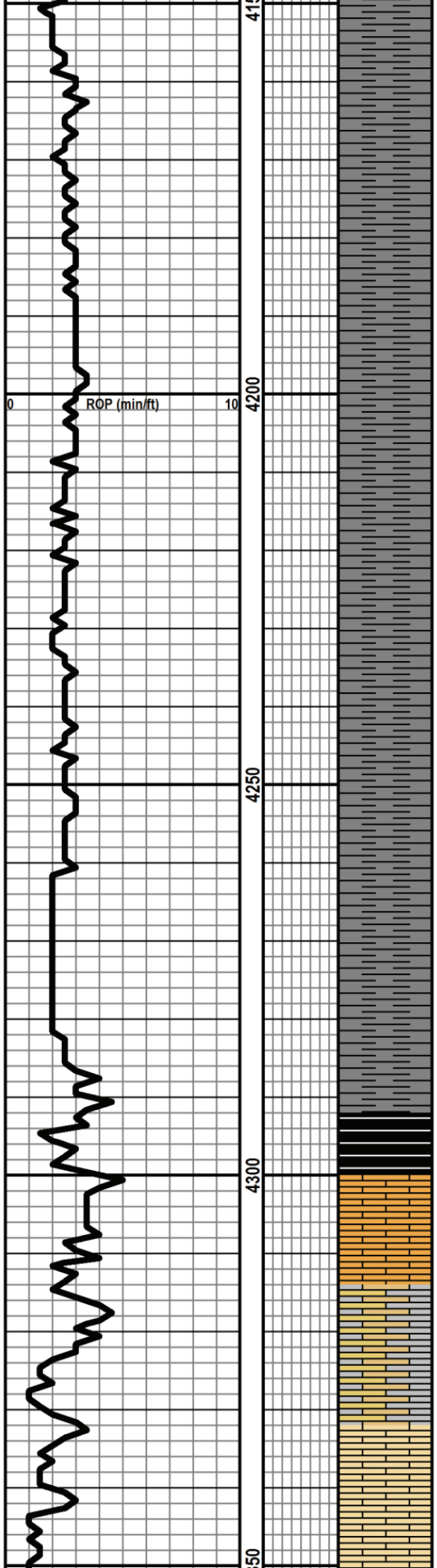
Siltstone: light gray, dense, poor intergranular porosity,

SD.STN: light gray/buff, fine grain, poor to fair intergranular porosity, random gas bubbles when chrushed.

SD.STN: gray/buff, fine grain, friable, fair intergranular porosity, no show

SD.STN: gray/buff, fine grain, friable, fair intergranular porosity, no show





Shale: gray, micaceous, slilty in part

Shale: gray to green, massive

Shale: gray

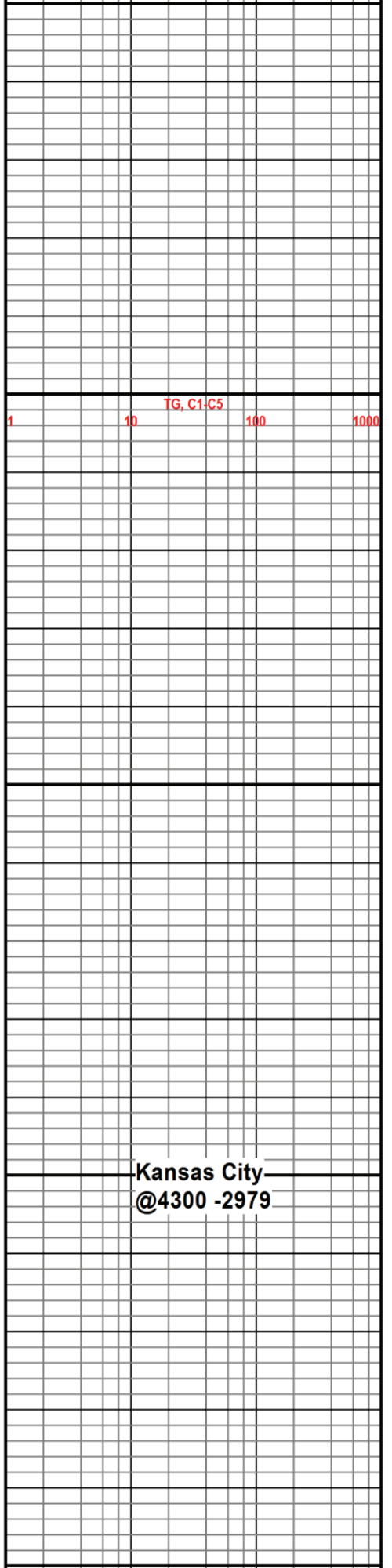
Shale: gray, massive

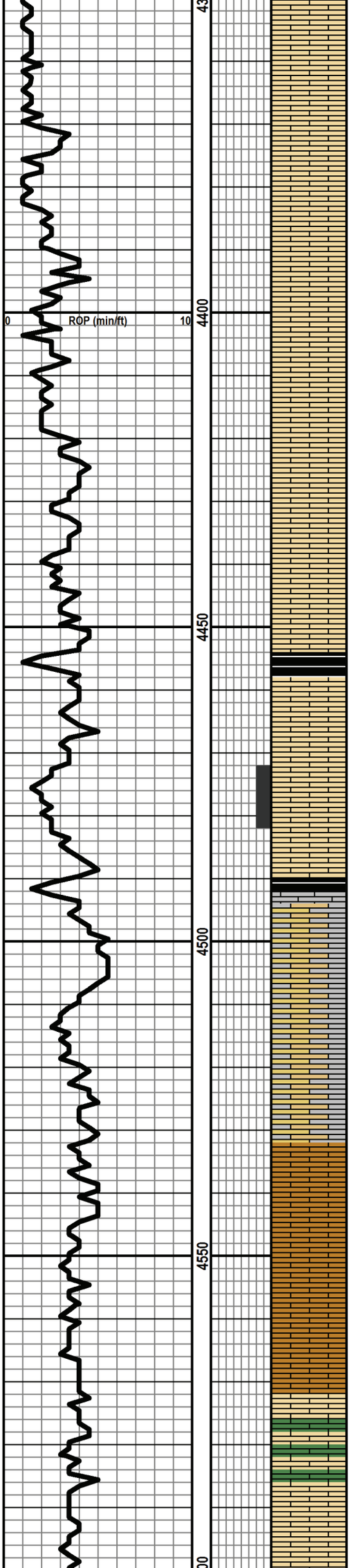
sampel mostly gray Shale, LS: cream, microxyln, dense, no visable porosity

LS: brown, gray/brown, microxyln, dense, no vsiable porosity, LS: cream, finexyln, friable.

LS: gray/brown, microxyln, dense, poor interxyln porosity, friable in part, no show,

LS: white, chauky, LS: cream to buff, finexyln, LS: cream, slight visable porosity, no show, fair interxyln porosity





LS: cream to buff, finexyln, poor interxyln, porosity, chauky in part, Chert: bone white, semi trans, Shale: dark gray, blocky

no odor from sample, LS: buff, finexyln, poor interxyln porosity, slight visable porosity, LS: white, chky, Chert: cream, semi trans, sharp

LS: cream to buff, finexyln, cherty in part, sct slight visable porosity, poor interxyln porosity, LS: dark brown, microxyln, very dense, Chert: light gray, semi trans, sharp

LS: cream to buff, microxyln, dense in part, Chert: gray, semi trans Shale: gray

LS: gray, finexyln mott, oolitic in part, Chert: blond, LS: cream to buff, microxyln, very dense in part, Chert: gray to buff, semi clear, Shale: black,

Shale: black, LS: gray/brown, microxyln, dense, no show

LS: cream to buff, finexyln, poor interxyln porosity, friable chauky in part, no show, no fluoresence, Shale: black, LS: dirty gray, finexyln, peloid

Shale: black, LS: buff/gray, microxyln, dense, LS: dark brown, microxyln, dense, Chert: semi trans.

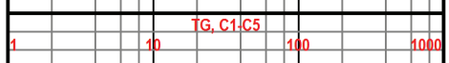
LS: gray/brown, microxyln, mudstone,dense, no visable porosity,

Shale: gray, LS: dark brown, microxyln, dense, LS: dirty gray/brown, dense, poor interxyln porosity,

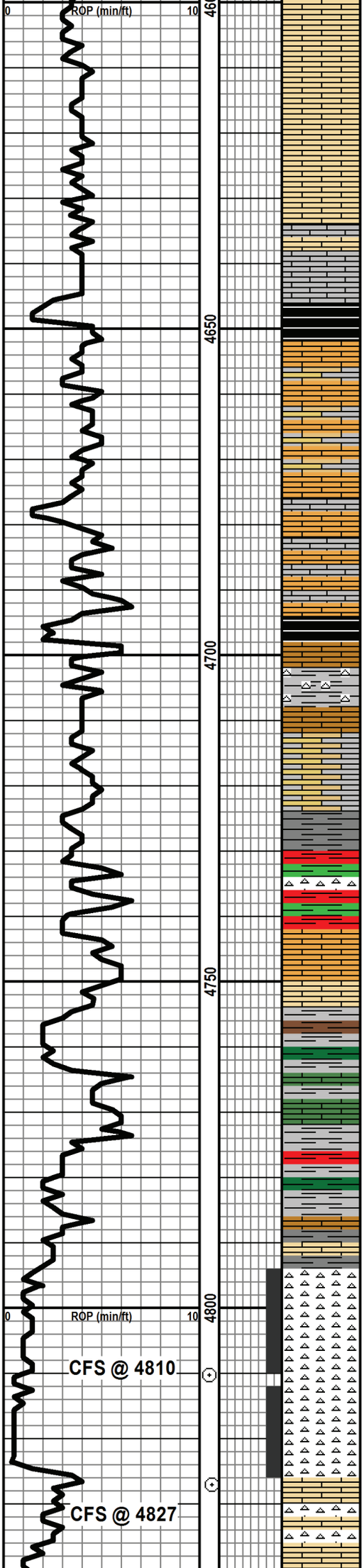
LS: blue green, microxyln, waxey, poor interxyln porosity, Shale: gray, LS: brown, microxyln, no visable porosity, poor interxyln porosity.

Shale: light blue green, LS: cream/blue green, finexyln, cherty in part.

Shale: black, LS: cream/buff, light green/cream, finexyln, friable in part, Shale:



Hush Sh. @ 4490 -3169



gray, LS: light green, microxyln, waxey, dense, no visable porosity, poor interxyln porosity, Silt Stone: light gray, blocky, dense, no show, sluff?

LS: cream, microxyln, no visable porosity, dull yellow, fluoresence, Shale: gray, Siltstone: light gray, blocky, firable in part, no show

Shale: black to dark gray, LS: dark gray, very dense, microxyln, LS: brown, microxyln, dense.

Shale: black, LS: brown to gray/brown, microxyln, dense, poor interxyln porosity.

LS: cream to brown, microxyln, very dense, LS: dirty gray, microxyln, dense

Shale: black, LS: brown, microxyln, very dense, no visable porosity, no visable porosity, Chert: white, semi trans, Shale: gray

LS: gray/brown, microxyln, dense, Shale: black, Shale: gray, pyritic, Shale: red, mott

Shale: varied colored, 1 piece of maroon, 1 piece of yellow.gray scat red, Shale: gray/green, LS: cream/brown, microxyln, dense.

Shale: red, gray, yellow/gray, blue green LS: light green,waxey microyxln, dense

Shale: dark gray

Shale: dark gray, very dense, LS: blue green, dense, microxyln,

Chert: white to light brown, gray white semi trans to opaque, scat slight visable pin point porosity, slightly weahtered, with light brown stain, slight show of free light brown oil, fair odor from sample with weak cut, scat. gas bubbles from fresh cut surface, dull fluroesence

4827 30 min cir sample: Chert: white/black/brown, increase in tripolitic porosity, with scat black to brown staining, poor fluoresence, slight odor from sample, slight show dark brown free oil as sample heats up

TG, C1-C5

1 10 100 1000

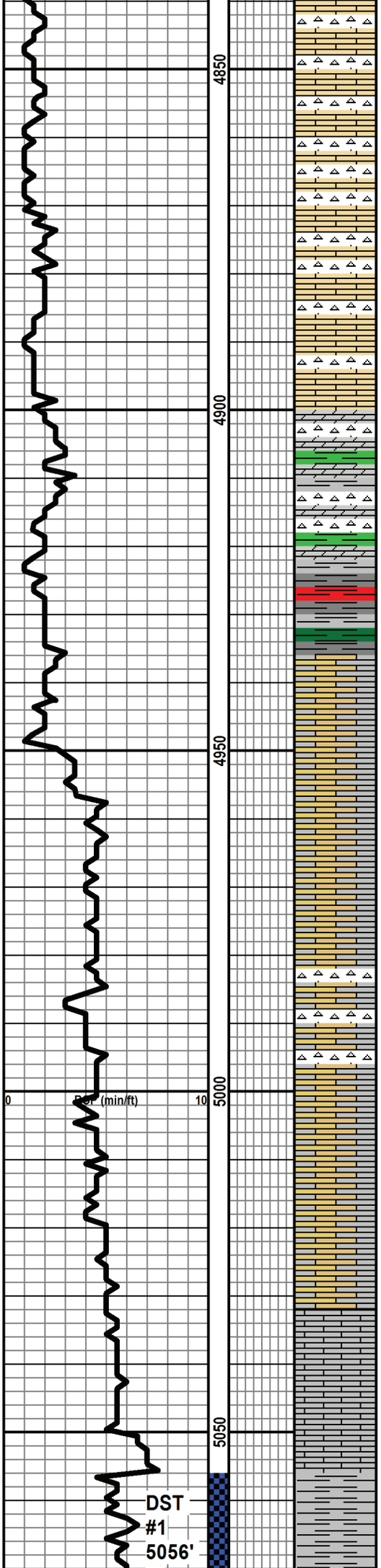
Cherokee Sh. @ 4695 -3374

Mississippian @ 4794-3473

200 unit gas increase

1 10 100 1000

300 unit gas increase.



4870: increase in odor from sample, Chert: white, semi clear blocky, sharp, poor fluoresence.

LS: cream, finexyln, poor interxyln porosity, cherty, dull fluoresence, slight odor. no acid cut, with streaks of white porcline white chert, slight visable porosity

LS: buff, finexyln, scat slight visable porosity, dull yellow fluoresence, with porcline white chert,

Chert: dove gray, mott, sharp, Shale: gray, cream/green in part, Shale: light green, Dolomite: gray/ brown, very fine granular, tight, poor intergranular porosity.

A.A. with varied colored shale

LS: dirty gray/brown, finexyln, poor interxyln porosity, gritty, no fluoresence, no acid cut

LS: dirty gray/brown, finexyln, poor interxyln porosity, dense, cherty Shale: gray/ brown, same color as limestone

LS: gray/brown, finexyln, dense, cherty, slightly dolomitic,Shale: redish/brown, with light/brown in part

LS: gray/brown, finexyln, poor interxyln porosity, cheryy, no acid cut, Shale: dark gray with fossil frag, LS: light cream/gray in part

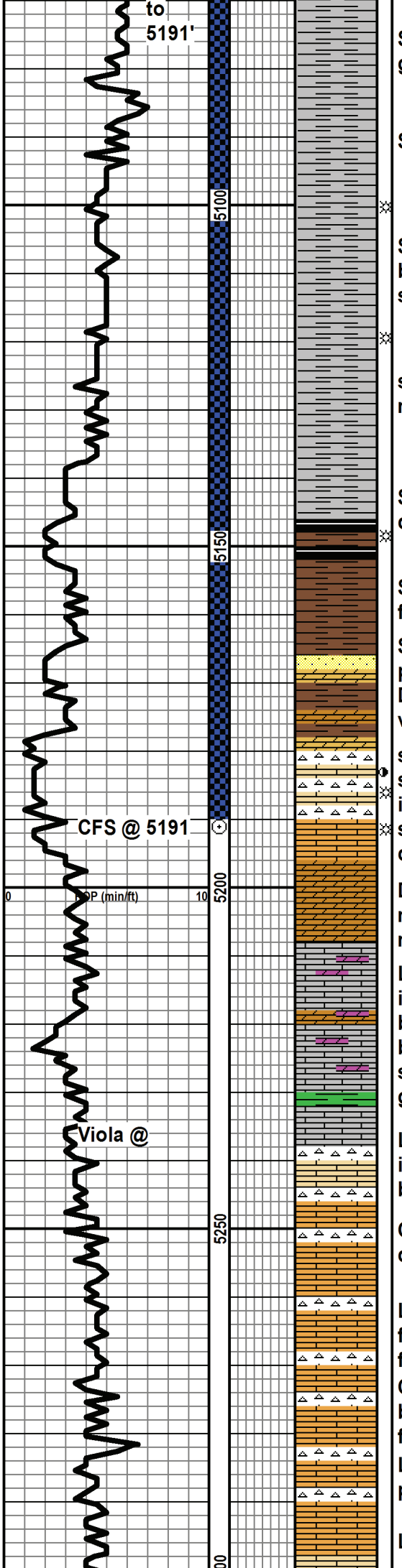
LS: dark gray/brown, microxyln, very dense, LS: A.A. slightly dolomitic, Shale: gray, black, yellow/green/gray, mott.

sample mostly shale: gray to green, LS: microxyln, black or very dark brown, very dense,

TG, C1-C5
1 10 100 1000

Kinderhook Shale @ 5087-3766

DST #1 5056 to 5191'
30"60"45"90" , IFP fair blow



Shale gray/brown Dolomite: gray/brown, fine granular, no fluoresence

Shale: gray red to brown

Shale: gray to brown, Dolomite: dark brown/gray, poor intergranular porosity, no show

sample mostly shale: brown, to gray, dense, massive, gassey, no fluoresence

Shale: dark brown, with fluoresence spores dense, gassey, massive

Shale: dark brown, very dense, with fluoresence spores, gassey,

Shale: brown SD.STN: black, fine grain, poorly sorted, very dense, no show, Dolomite: dark brown, blocky, dense, no visable porosity, pyritic, very dense,

slight odor from sample, LS: gray/brown, slight stain, slight visable porosity, poor interxyln porosity, poor cut, fair to good show of free oil in sample tray, slightly dolomitic and slightly cherty, chky in part.

Dolomite: dark brown, very fine granular, mott, dense, gassey cut, LS: brown, microxyln, dense, Shale: gray

LS; dirty gray, dolomitic, fine grain, poor intergranular porosity, no show., LS: dark brown, microxyln, dense, Dolomite: dark brown, fine granular, poor intergranular, no show, dirty gray in part. Dolomite: gray, fine granular, Cherty: Dove gray, mott,

LS: light gray/cream, coarse xyln, poor interxyln porosity, mott, white chky in part, bright fluoresence, no odor,

Chert: brown, sharp, LS: brown, microxyln, dense, no visable porosity, Shale: blue green

LS: cream/ brown to brown, slight gray, finexyln to microyxln, very dense to sct fraible pcs, mott in part streaks of chert,

Chert: brown semi clear, sharp, LS: oatmeal brown, finexyln, poor interxyln porosity, no fluoresence, scat friable streaks

LS: gray/brown, finexyln, poor interxyln porosity, Chert: dove gray to gray, sharp

LS: a.a with gray/green shale

increase to 10", FFP fair blow, 4" to 13", , REC: 390' gas in pipe, and 50' drilling mud, IHP 2530# to 2476#, IHP 31 to 30#, FFP 36 to 40#, BHP 282 to 361#, BHT 123 deg,

100 units

100 units

Chat Shale@ 5146-3825

300+ units

650 units

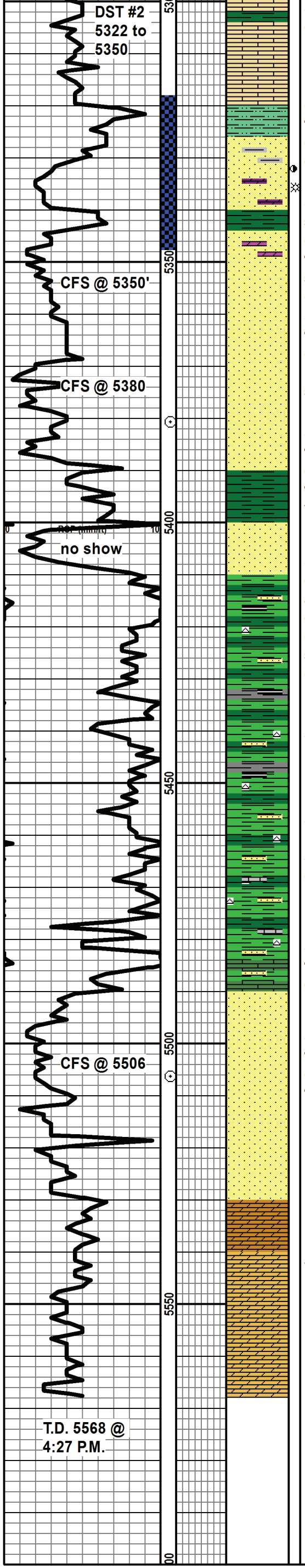
Woodford Sh. @ 5198 3877

TG, C1-C5

1 10 100 1000

Viola @ 5228 -3907

500+ gas kick



Shale: increase in green, waxey, LS: cream/gray, coarse xyln, mott, poor interxyln porosity, LS & Chert A.A.

LS: light gray, coarsexyln, poor interxyln porosity, Shale: blue green, SD.STN: light gray, medium grain, poor interxyln porosity, tight only one piece.Siltstone: SD.STN: clear grained, fine grain, rounded, friable with cream dolomitic sandstone cluster, poor intergranular porosity, no show

5350: possible odor, SD.STN: fine grain, poor sort, sub rounded, light brown, stain with gas bub. on fresh cut surface, fair fluoresence, fair cut, fair show of free oil in sample tray, poor sorting in part with dolomitic cementing,

5350, 30 minute cir sample: SD. STN: A.A., sct friable pieces, fair fluoresence, no sample odor, decrease in show, Dolomite: gray/white, medium grained, slight fluoresence, no stain, scat slight show of free oil, shaley in part.

5350, 60 minute: Dolomite: brown, fine grain, fine granular, friable, with fine grain quartz grains, no show, SD. STN: off white.cream, fair sorting, fine grain, rounded, no show, very dense in part, blocky, Shale: blue green

5380 30 to 90 cir sample: sample mostly green to dark green shale, massive small amount of SD. STN clusters fine grain, very clean, poor intergranular porosity, free fine grain quartz grains in tray sub angular, no show, no odor. scat dolomite brown Sd. STN. grains no show.

Shale: green, waxey,

Shale: green to varied colored,mott in part, mostly dark green, Chert: green/yellow, SD. STN: light green, fine grain, shaley, glauconitic, scat coarse quartz grains, Shale: blue green, waxey.

Sample predomitily shale: green to scat red to dark green, scat light green scat emerald chert

SD.STN: light gray, fine grain, sub rounded, fair sorting, poor intergranular porosity, very dense in part streaks of friable, no show no fluoresence, pyritic in part

Dolomite: buff, fine granular, poor intergranular porosity, scat random poor vuggular porosity, no fluoresence, no ordor no show, slight gas increase 20 units

Base Viola @
5324 -4003

Simpson Sd @
5334 -4013

DST #2 5322 to 5350', 30"-60"-45"-90", IF: weak blow,, 3/4 to 1/2" blow, FF: weak blow 2 to 5" blow, REC: 185' gas in pipe, 35' SOCM (2% oil and 98% mud), BHT 126 deg, chlorides 5,00 ppm, IHP 2695 to 2541#, IFP 21 to 23#, FFP 20-27#, BHP 238-400#,

TG, C1-C5
1 10 100 1000

Lower
Simpson SD.
@ 5490-4169

Arbuckle @
5530-4209