David A. Barker

CONSULTING GEOLOGIST

Geologist's Report
Drilling Time and Sample Log

OPERATOR Chieftain Oil Co., Inc
LEASE Douglas -Kent WELL NO. #5-18
FIELD Rhodes South API No. 15-007-24224
LOCATION NW SE SE SE 340' FSL & 340' FEL
SEC. 18 TWP. 34S RGE. 11W
COUNTY Barber STATE Kansas

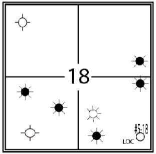
ELEVATION
KB 1404'
DF 1403'
GL 1396'
Measuremnts Are All From KB

CONTRACTOR Fossil Rig #2
COMM. 09/22/2014 COMP. 09/29/2014
RTD 5229' LOG TD 5234'
SAMPLES SAVED FROM 3400' TO TD
DRILLING TIME KEPT FROM 3400' TO TD
SAMPLES EXAMINED FROM 3400' TO TD
GEOLOGICAL SUPERVISION FROM 3400' TO TD
MUD UP TYPE MUD GEL/CHEMICAL

CASING RECORD
SURFACE Ran 13 3/8" @305'
w/350 SX, 60/40 POS, 8 5/8 @ 5210'
PRODUCTION

ELECTRICAL SURVEYS
NDM/DI

FORMATION	LOG		SAMPLE		STRUCT. COMP.
	TOP	DATUM	TOP	DATUM	
Kansas City	4213	-2809	4210	-2806	
Stark SH	4388	-2984	4388	-2984	
Swope	4397	-2993	4394	-2990	
Cherokee SH	4602	-3198	4596	-3192	
Mississippian	4642	-3238	4645	-3241	
Kinderhook SH	4872	-3468	4878	-3474	
Chattanooga	4953	-3549	4950	-3546	
Maquoketa SH	4985	-3581	4980	-3576	
Viola	5008	-3604	5005	-3601	
Base Viola	5112	-3708	5112	-3708	
Simpson SD	5125	-3721	5120	-3716	
TD	5234				



REFERENCE WELL FOR STRUCTURAL POSITION

GEOLOGIST

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

OPERATOR

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

Contractor

Fossil Drilling Rig #2
P.O. Box 464
Pratt, KS 67124-0464

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
- Gryslt
- 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

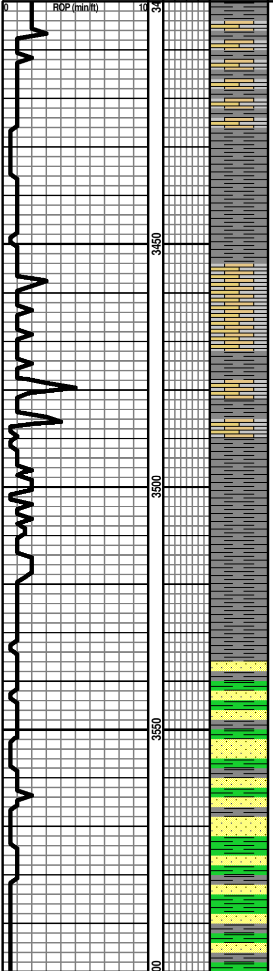
SORTING
- Well
- Moderate
- Poor

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 lm
- Gray cream lms
- Green dol
- Gray dol

Curve Track 1 ROP (min/ft)	Depth	Porosity 24% 18% 12% 6%	Lithology	Oil Shows	Geological Descriptions	TG, C1-C5 TG (units) C1 (units) C2 (units) C3 (units) C4 (units) C5 (units)



LS: Dirty gray, Shale: gray

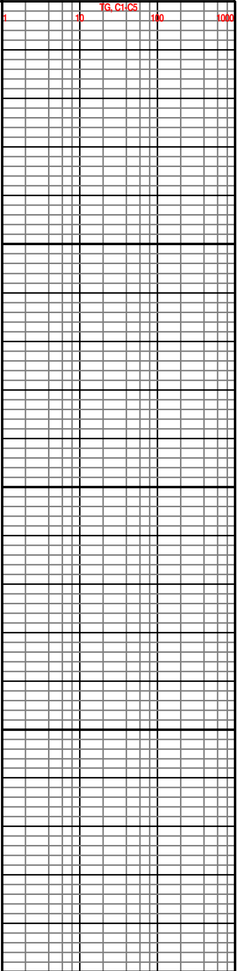
Shale: Gray to dark gray, LS: gray/brown, microxyln, dense, silty

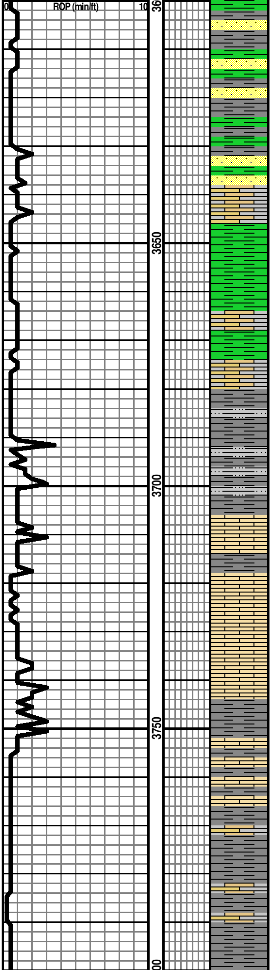
Shale: Gray, LS: gray/brown, microxyln, dense, silty

Shale: Gray, LS: dirty gray, poor interxyln porosity, fnxyln

Shale: Gray

Shale: Gray to green, SS: fine grained, friable, off white to gray





Shale: grn, SS: gray, fine grained, friable, one piece LS, excellent porosity

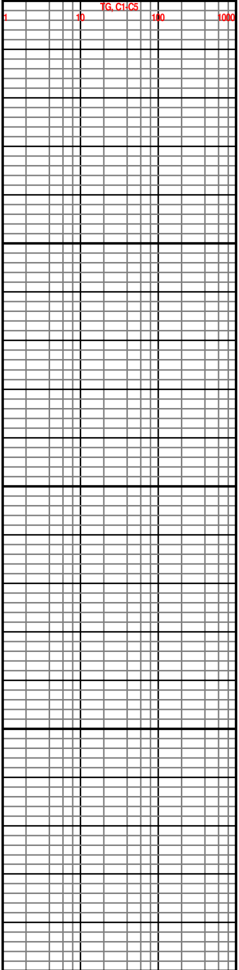
SS: Gray, fine grained, poor interxyln porosity, limey LS: gray-dirty, silty, fossiliferous in part, fnxyln

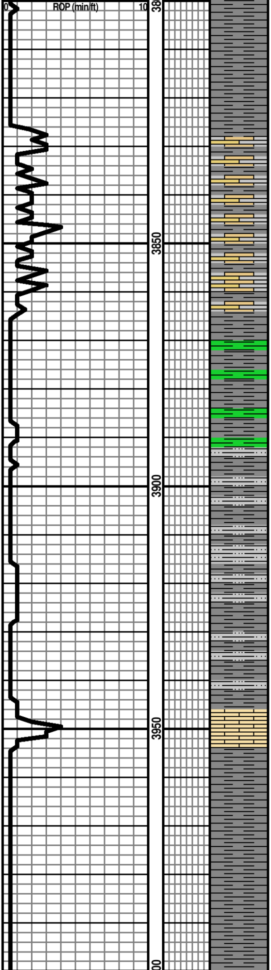
Shale: gray to dark green, set dirty gray siltstone

LS: Crm, fnxyln, Shale: gray to dark gray

Shale: Gray to dark gray, LS: crm, fnxyln, firm

Shale: Gray-green, silty, LS: buff to gry, fnxyln, very dense





Shale: Gray, LS: gray, silty, microxyln, dense

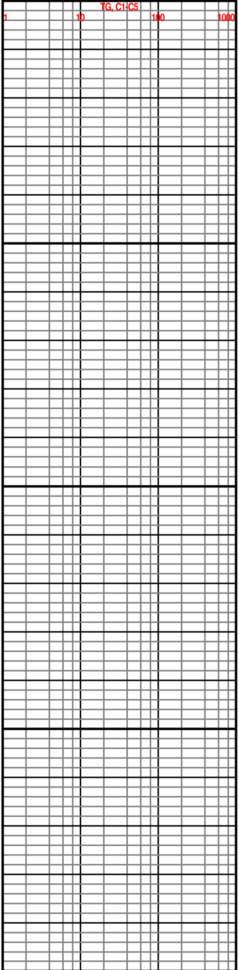
Shale: Black, LS: buff, fnxyln, dense, LS: dark brown/grn, microxyln, dense, mudstone

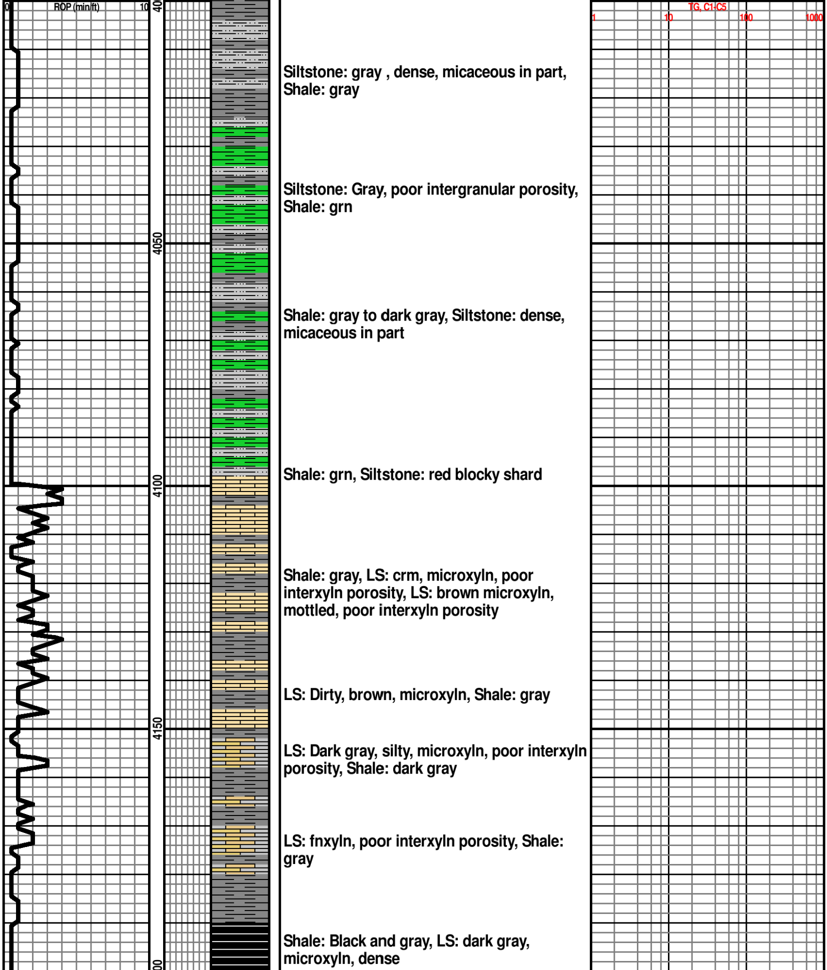
Shale: Gray to grn, LS: dense

Shale: Gray, silty

Shale: Gray, silty

Shale: Gray





Siltstone: gray , dense, micaceous in part, Shale: gray

Siltstone: Gray, poor intergranular porosity, Shale: grn

Shale: gray to dark gray, Siltstone: dense, micaceous in part

Shale: grn, Siltstone: red blocky shard

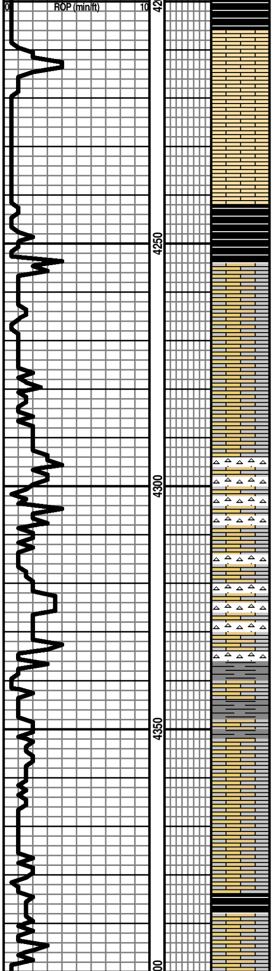
Shale: gray, LS: crm, microxyln, poor interxyln porosity, LS: brown microxyln, mottled, poor interxyln porosity

LS: Dirty, brown, microxyln, Shale: gray

LS: Dark gray, silty, microxyln, poor interxyln porosity, Shale: dark gray

LS: fnxyln, poor interxyln porosity, Shale: gray

Shale: Black and gray, LS: dark gray, microxyln, dense



Shale: Black, dense, dark brown in part, LS: crm, fnxyln, friable

LS: white chlky, LS: crm/gray, microxyln, poor interxyln porosity, Shale: Black

LS: Gray/crm, cryptoxyln in part, poor interxyln porosity, LS: chlky white, Shale: Black

LS: crm to gray/crm, fnxyln, firm, cryptoxyln in part, LS: chlky, Shale: gray to dark grn

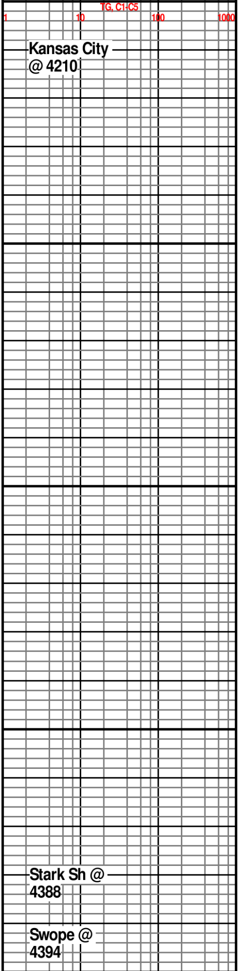
LS: Crm/gray, fnxyln, poor interxyln porosity, slight visible porosity, LS: white, chlky, Chert: light gray, cherty LS

LS: Crm to buff, fnxyln, poor interxyln porosity, chlky in part, gray and white chert

LS: Crm to buff, microxyln, dense, poor interxyln porosity, friable in part, Shale: gray

LS: Crm chlky, LS: Crm, fnxyln, poor interxyln porosity

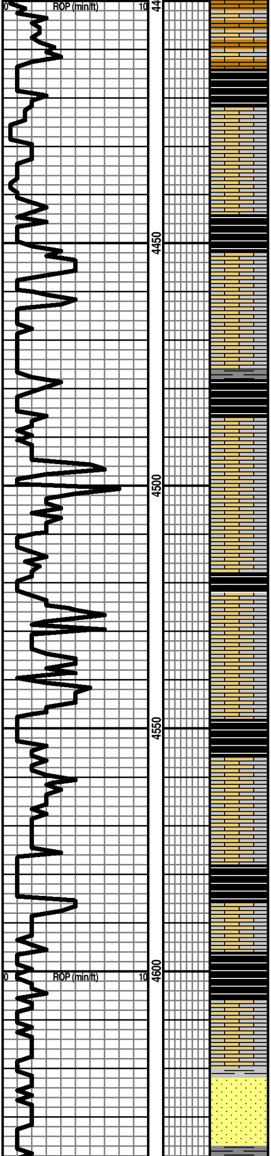
LS: Brown, fnxyln, fair oolcastic porosity, LS: crm to buff, fnxyln, firm, poor interxyln porosity



Kansas City @ 4210

Stark Sh @ 4388

Swope @ 4394



LS: Dark gray, brown, microxyln, dense, LS: crm to buff, friable in part

LS: Crm to buff, firm, to sub chlky, LS: buff, fnxyln, fine oolitic packstone, friable, no show, Shale: black

Shale: Black, LS: dark gray, microxyln, dense, LS: gray/buff, fnxyln, dense, poor interxyln porosity

Shale: Black, LS: crm/gray, buff, friable, LS: chlky

Shale: green,gray, black, LS: light gray, very fnxyln, LS: buff to gray, poor interxyln porosity

LS: Crm to buff, fnxyln, poor interxyln porosity, Shale: dark gray

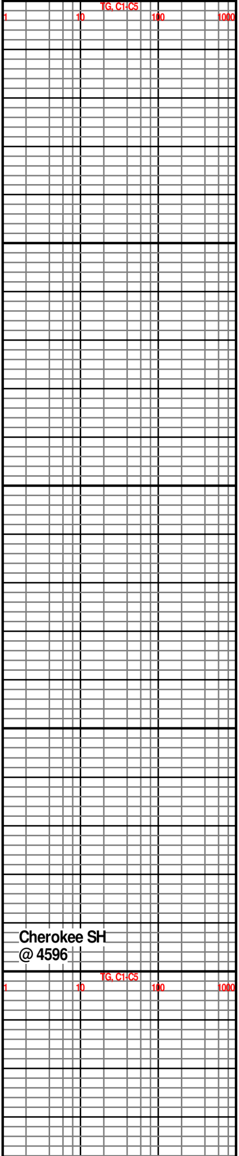
LS: Crm/gray, fnxyln, poor interxyln porosity, Shale: dark gray

LS: buff to gray, fnxyln, poor interxyln porosity

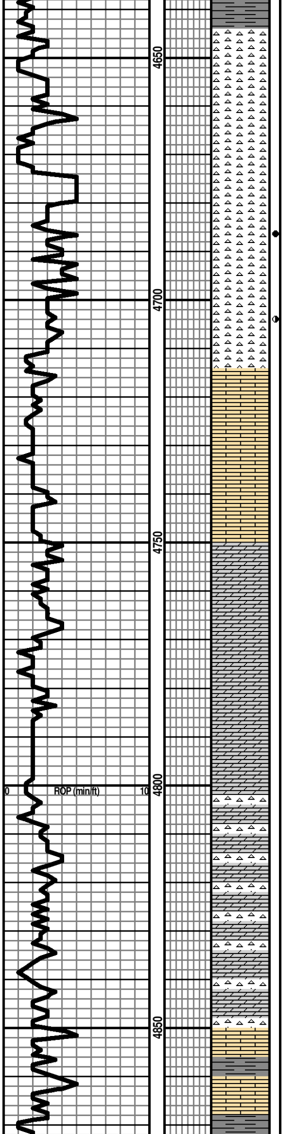
Shale: Black, LS: buff to gray, fnxyln, poor interxyln porosity

LS: Gray to brown, mircoxyln, very dense, no show

SS: Very fine grained, dark brown, fair odor, no fluor, Shale: black, dense



Cherokee SH
@ 4596



40 unit gas increase

Shale: Red, Chert, vitreous, slight tripolitic in part, set dark brown stain, no show of free oil, (15 unit gas increase)

Chert: Slight tripolitic, streaks of dark brown stain w increase vis porosity, slight show free oil when squeezed.

Fair odor, LS: off white, slight vis porosity, slight random stains, cherty, poor interxyln porosity, set fresh chert

LS: Off white, cherty, random stains, Shale: dark brown

Dolomite: Dirty gray, silty, cherty, poor interxyln porosity, no show

Dolomite: gray, silty, no show, poor interxyln porosity

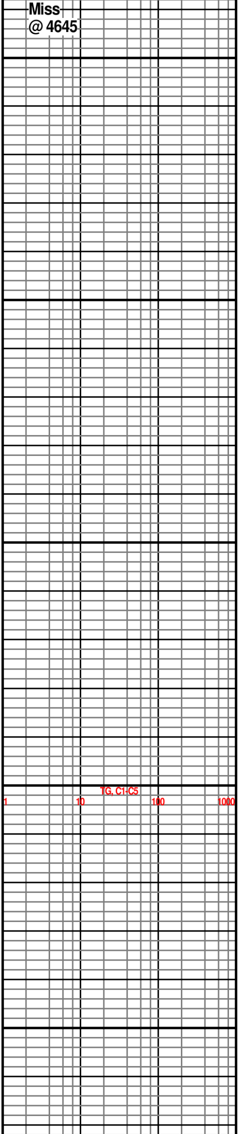
Dolomite: gray, silty, poor interxyln porosity, Shale: gray

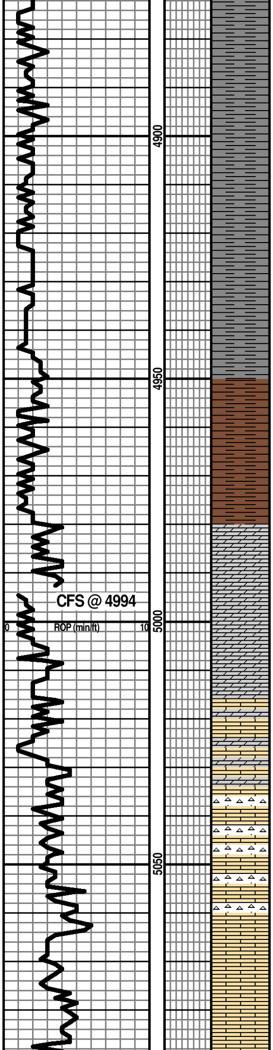
Dolomite: Dirty, gray, silty, fnxyln, cherty, poor interxyln porosity

Dolomite: Dirty, gray, silty, fnxyln, cherty, poor interxyln porosity

Dolomite: Dirty, gray, silty, fnxyln, cherty, poor interxyln porosity, increase in gray shale

Dolomite: light gray/ green, cherty, Shale: dark green shale, LS: dirty, rusty crm, fnxyln, friable





LS: Dirty, fnxyln, friable, mot shale

Shale: gray to light gray, mot massive

Shale: Dark gray

Shale: Gray to dark gray, black

Shale: Earthy brown, Shale: gray

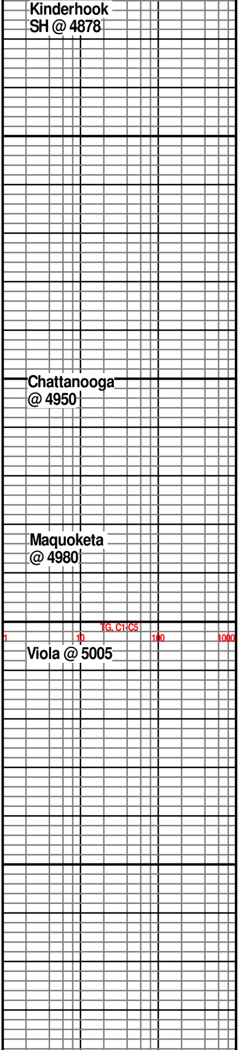
Dolomite: light gray, no show, silty, no sand, chert, some shale

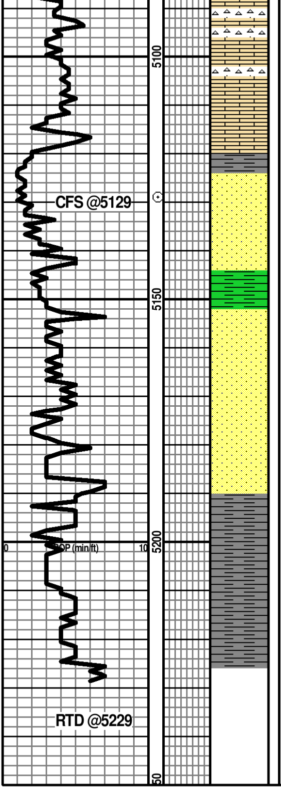
Dolomite: light gray, silty, no show

LS: white chlky, Dolomite: light gray, silty

LS: White chlky, mot chert

LS: Crm to gray, fnxyln, friable





Chert: Tan, semi clear, sharp, LS: brown, fnxyln, LS: brown, fnxyln, friable

SS: fine grained, poor intergranular porosity, poorly sorted, no show, no odor, set friable pcs shale, dark gray, green

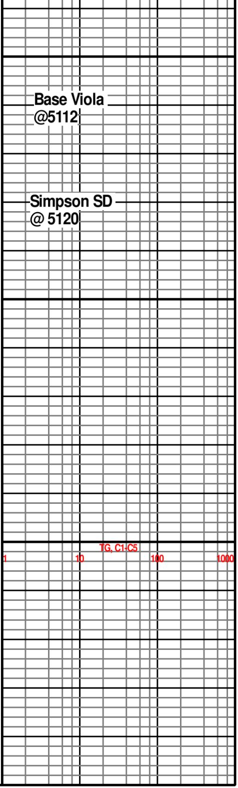
SS: fine grained, sub rounded, friable, no show, clean grained, Shale: green, waxey

Shale: green, waxey, layers of tight fine grained SS.

SS: White, very fine grained, friable

Shale: gray to green

Shale: green, waxey

Instead of making a bit trip at 5229 deciced to T. D. well at 5229