David A. Barker

CONSULTING GEOLOGIST

Geologist's Report
Drilling Time and Sample Log

OPERATOR Grand Mesa Operating Company
LEASE Dick Trust 1-7 WELL NO. #1
FIELD Wildcat API No. 15-007-24357
LOCATION 1665' FSL & 2360' FEL
SEC. 07 TWP. 30S RGE. 11W
COUNTY Barber STATE Kansas

CONTRACTOR Maverick #106
COMM. 8/29/2019 COMP. 09/03/2019
RTD 5020' LOG TD 5015.70'
SAMPLES SAVED FROM 2500' TO TD
DRILLING TIME KEPT FROM 2200' TO TD
SAMPLES EXAMINED FROM 2500' TO TD
GEOLOGICAL SUPERVISION FROM 2400' TO TD
MUD UP TYPE MUD WBM

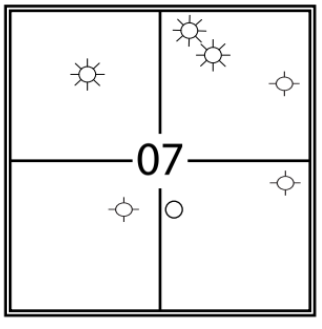
FORMATION	LOG TOP	LOG DATUM	SAMPLE TOP	SAMPLE DATUM	STRUCT. COMP.
Onega Shale	2761	-913	-2764	-916	
Wabaunsee	2818	-970	-2821	-973	
Zndale	2958	-1110	-2955	-1111	
Topeka	3346	-1498	-3354	-1506	
Heebner Shale	3730	-1882	-3734	-1886	
Haskel	3909	-2061	-3913	-2065	
Stark Shale	4240	-2392	-4246	-2398	
Mississippian	4460	-2612	-4460	-2612	
Mississippian Lime	4558	-2710	-4562	-2714	
Kinderhook Shale	4588	-2740	-4593	-2745	
Viola	4761	-2913	-4758	-2910	
Base Viola	4857	-3009	-4845	-2997	
Simpson Sand	4858	-3010	-4880	-3032	
Arbuckle	4951	-3103	-4949	-3101	

REFERENCE WELL FOR STRUCTURAL POSITION

ELEVATION
KB 1848'
DF 1847'
GL 1837'
Measuremnts Are All From KB

CASING RECORD
SURFACE Ran 6 jts of new J-55 24#
8 5/8" scsg @236, cmtd w/ 251 sxs common
PRODUCTION Ran 5 1/2",120 jts
15.5# casing, 210 sxs

ELECTRICAL SURVEYS
-Array Induction Shallow Focused Electric Log
-Compact Photo Density Compensated Neutron
Micro-Resistivety Log



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

OPERATOR
Company: Grand Mesa Operating Co
Address: 1700 N. Waterfront Parkway
Wichita, Kansas 67206-5514

Contractor
Murfin Drilling Rig #1-14, 250 N. Water, Ste 300
Wichita, Kansas 67202

Daily Status

08/29/19 MIRU of Murfin Rig #114. Spud @ 10:30 p.m.; Ran 6 jts of new J-55 24# 8 5/8" surface csg., Tally 222.06', Set @ 236' KB, strapped and welded. Cemented w/251sx Common, 3% CC, 2% Gel.

08/30/19, Plug down @ 4:15 a.m. Cemented by Quality Cementing, cement did circulate. Survey .75° deg. @ 236'. Current depth at 7:00 a.m. 236'; Footage last 24 hr. 236'; Current operation is WOC.

08/31/19, Current depth at 7:00 a.m. 1740'; Footage last 24 hrs. 1504'; Current operation is drilling ahead. Survey .75° @ 1264'.

09/01/19, Current depth at 7:00 a.m. 3020'; Footage last 24 hrs. 1280'; Current operation is CFS. Survey .75° @ 2787'. Lost circulation @ 2280' (50bbls). Displaced @ 2882'-2913' (650bbls).

09/02/19, Current depth at 7:00 a.m. 4121'; Footage last 24 hrs. 1101'; Current operation is drilling ahead. Survey .25° @ 3263'.

09/03/19, Current depth at 7:00 a.m. 4501'; Footage last 24 hrs. 380'; Current operation is TIH for DST #1. Short trip @ 4501' pulled 33 stds (tight in a few spots).

MISSISSIPPIAN FORMATION -- DST #1 (4423'-4501') 45-90-60-120:

1st open: 1/4" blow. Bottom of bucket in 13 3/4 mins. No blow back.
2nd open: 1/4" blow. Bottom of bucket in 55 mins. No blow back.

REC: Total Fluid 179':
325' GIP
116' SLOCM (1%O, 99%M)
63' SLOCSLGCM (15%G, 4%O, 81%M)
IFP: 22-66#; FFP: 75-91#, SIP: 1235-1188#, Temp. 125 deg.

09/04/19, Current depth at 7:00 a.m. 4786'; Footage last 24 hrs. 285'; Current operation is drilling ahead.

09/05/19, Current depth at 7:00 a.m. 5020'; Footage last 24 hrs. 234'; Current operation is CTCH. Survey 1° @ 5020'. Short trip @ 5020, pulled 20stds.

09/05/19, RTD 5020', LTD 5015'
(con't) Ran 120 jts 5 1/2", 15.5# casing, Tally 5111', Set @ 5008'. PBTD @ 4986'. Plug down @ 6:45 p.m. Cemented with 210sxs total (160sxs Pre AA2 & 50sxs 60/40 Pozmix).
Cemented the Rat hole and Mouse hole w/50sxs 60/40 Pozmix (Rat hole with 30sxs and 20sxs in Mouse hole).
Cementing done by Basic Services.

EQUIPMENT RAN:

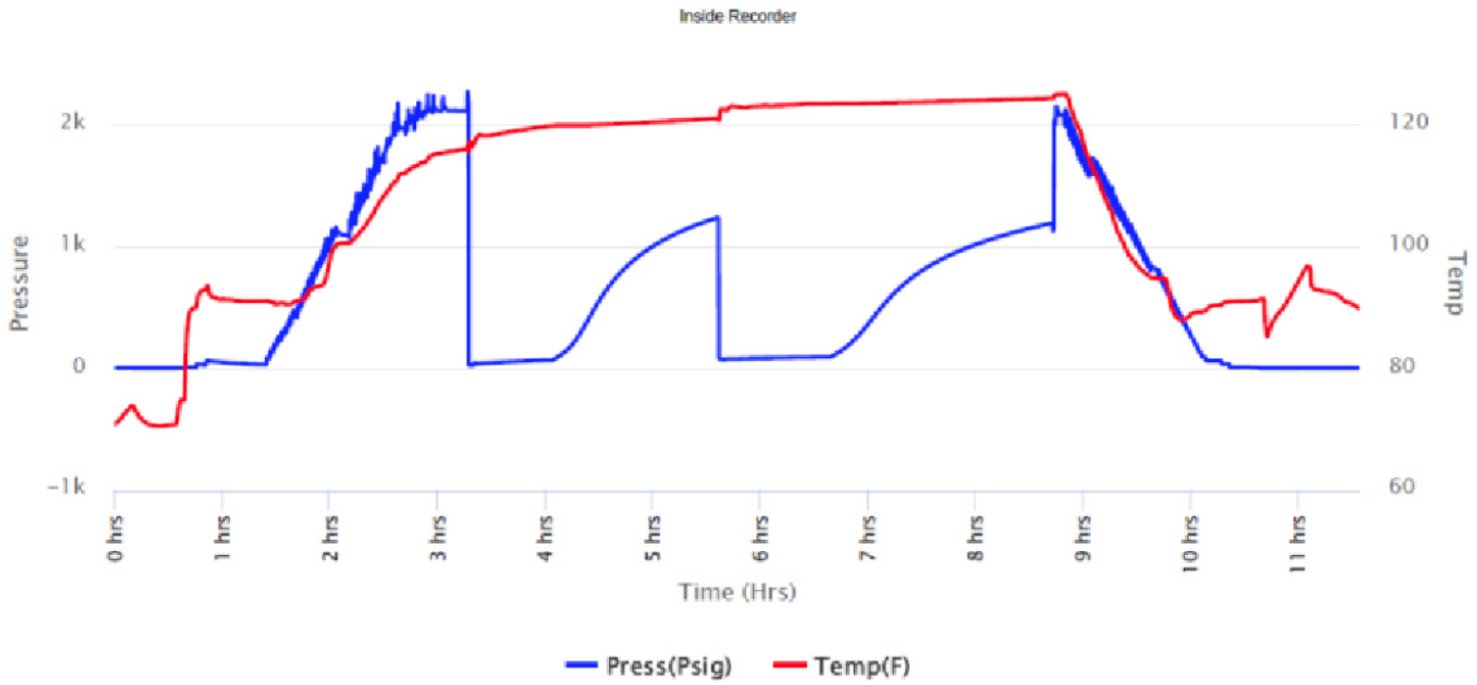
8 Centralizers
1 Basket
Guide Shoe
Float baffle w/latch down plug

Rig released @ 10:45 p.m.

Remarks

Due to the good oil and gas sample shows of the Upper Mississippian interval from 4460 to 4501, DST results and the Electric log calculations for this interval, 5 1/2" production casing was cemented to a depth of 5008' to further test this interval.

DST #1. Test interval: 4423 to 4501', Mississippian
60"-90"-90"120"1st Open: 1/4 Blow, BOB in 13 3/4 min, 2nd Open: 1/4" blow, BOB 55 minutes, REC: 325 GIP, 116' SLOCM, 63' SLOCSLGCM, BHP 1235# to 1188#, IFP: 22# to 66#, FFP: 75# to 91#, IHP 2095# to 2093# BHT 125 F



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

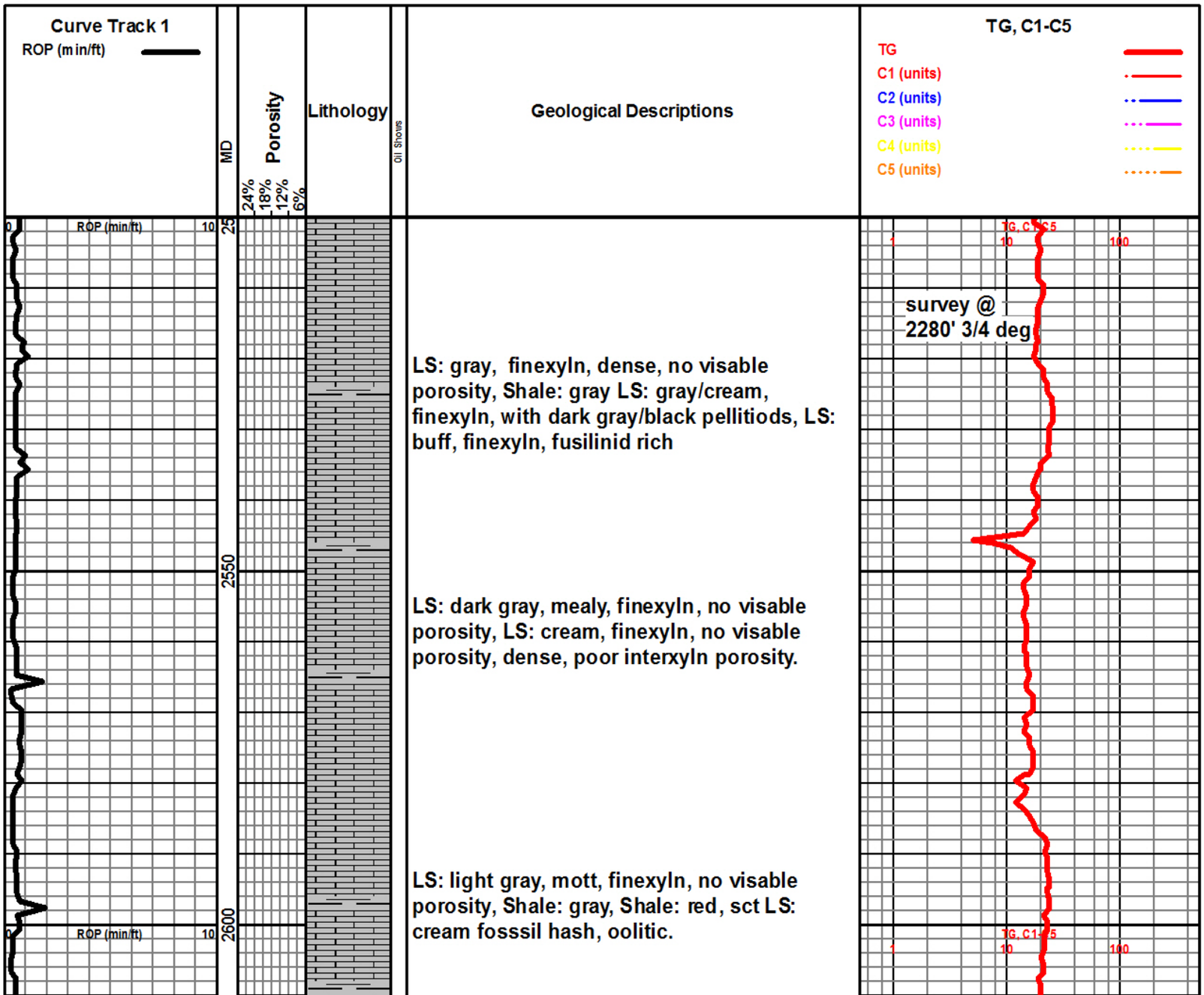
- Anhy
- Cht
- Congl
- Shale
- Shgy
- Ss

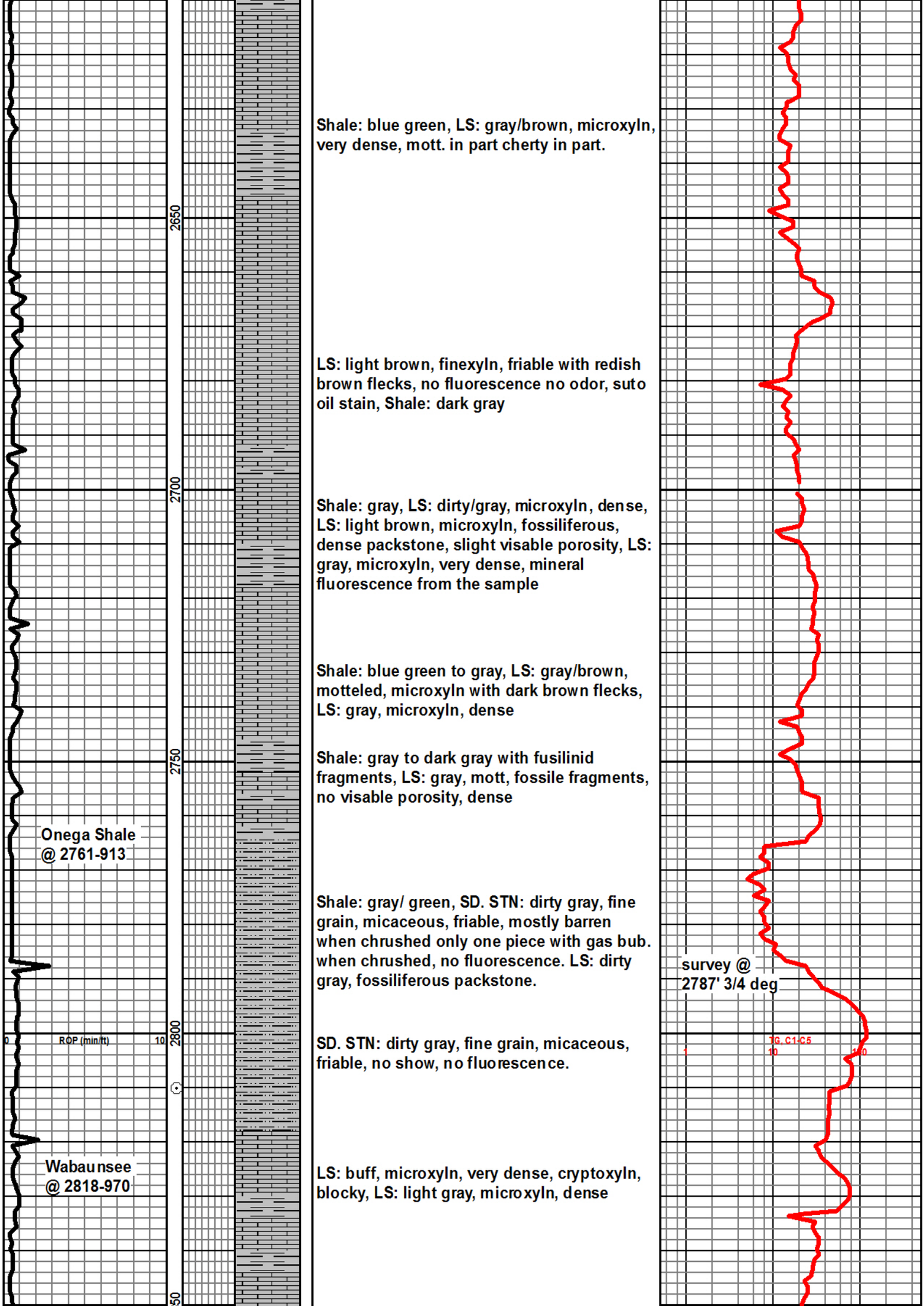
- Carb shale
- Gray shale
- Sandy lmst
- Shale
- Slt stn
- Shaly slst

- 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 lms
- Gray cream lms
- Green dol
- Gray dol





Shale: blue green, LS: gray/brown, microxyln, very dense, mott. in part cherty in part.

LS: light brown, finexyln, friable with redish brown flecks, no fluorescence no odor, suto oil stain, Shale: dark gray

Shale: gray, LS: dirty/gray, microxyln, dense, LS: light brown, microxyln, fossiliferous, dense packstone, slight visable porosity, LS: gray, microxyln, very dense, mineral fluorescence from the sample

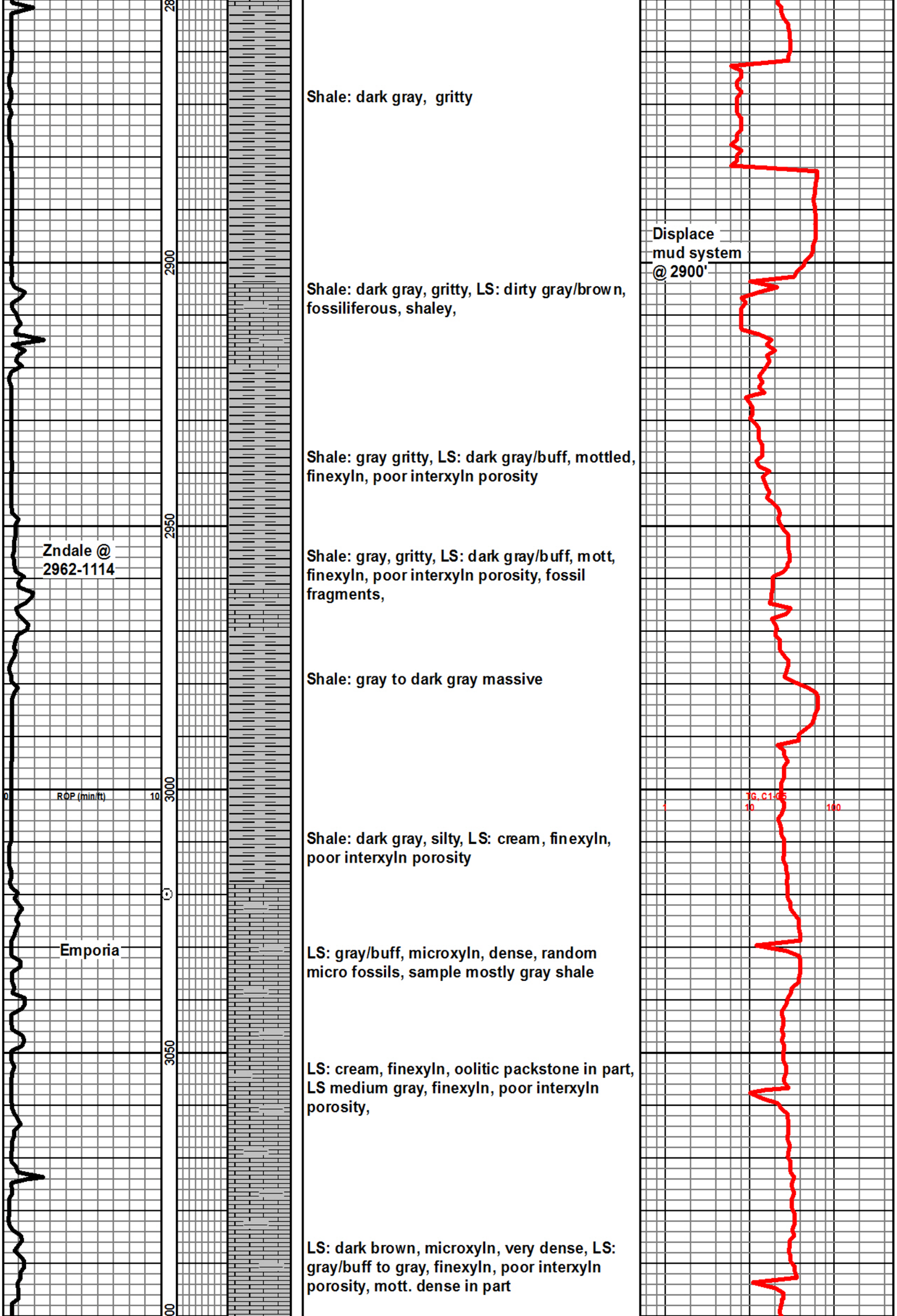
Shale: blue green to gray, LS: gray/brown, motteled, microxyln with dark brown flecks, LS: gray, microxyln, dense

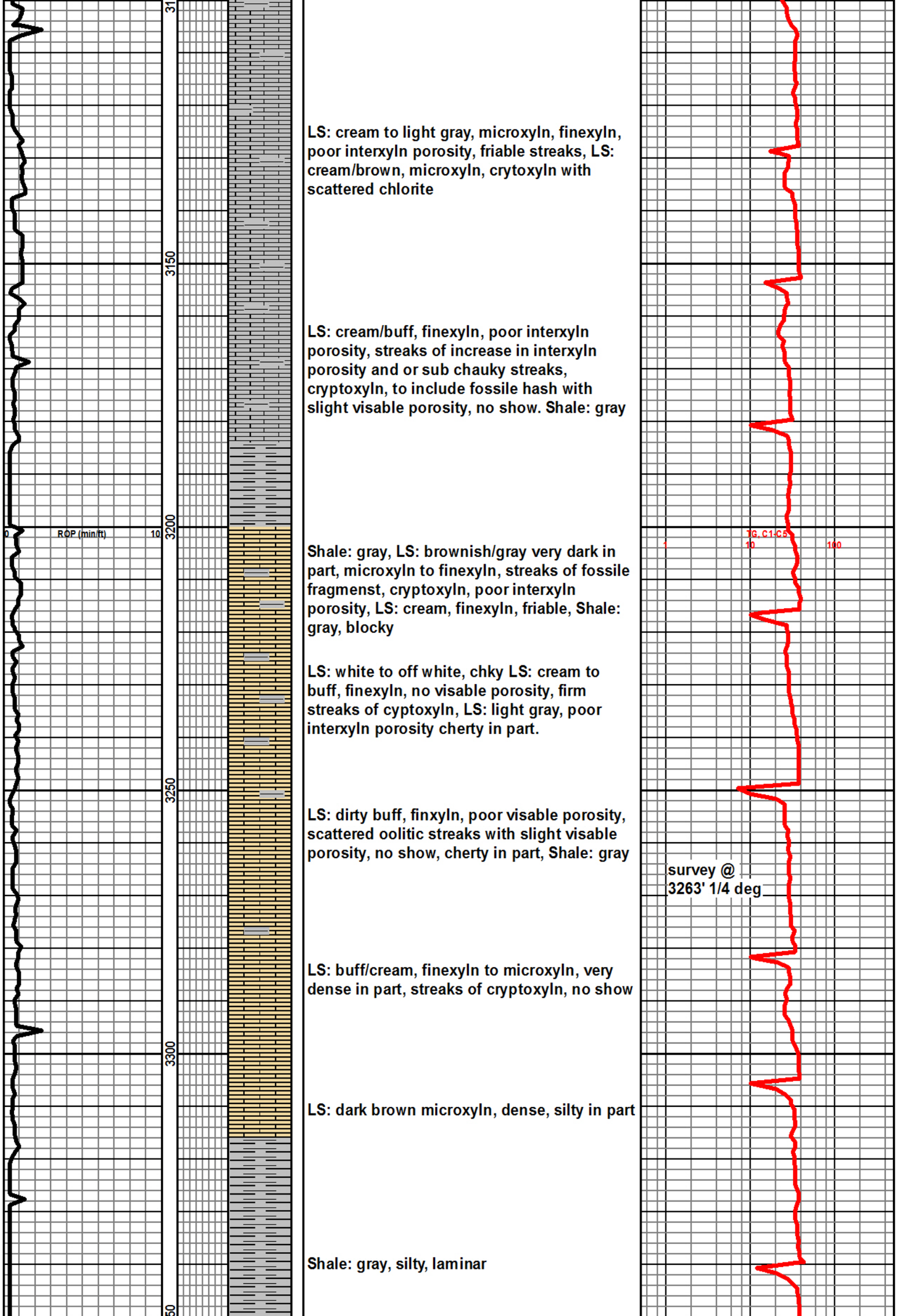
Shale: gray to dark gray with fusilinid fragments, LS: gray, mott, fossile fragments, no visable porosity, dense

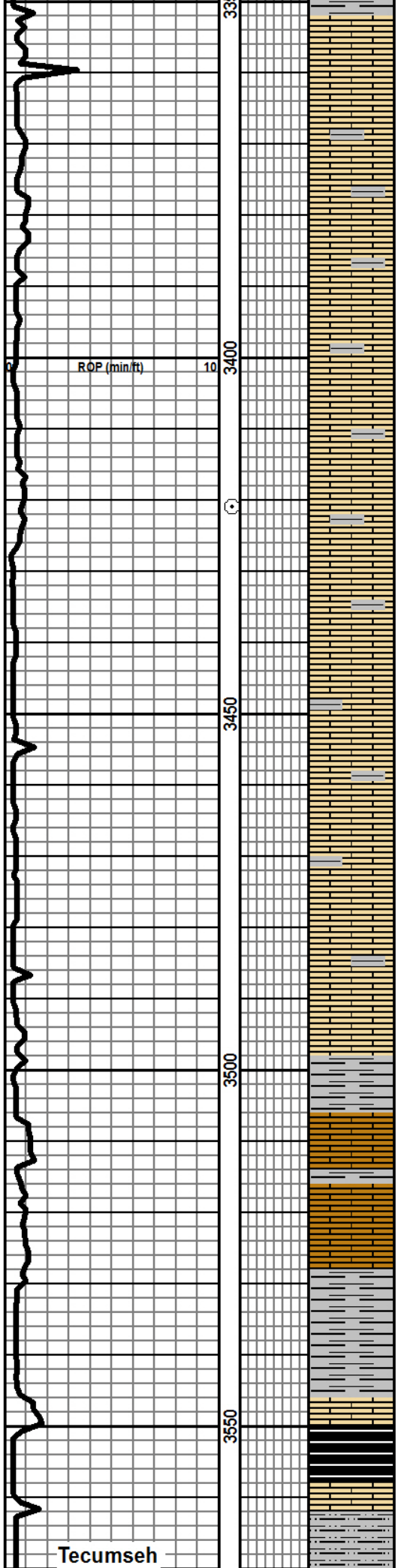
Shale: gray/ green, SD. STN: dirty gray, fine grain, micaceous, friable, mostly barren when chrushed only one piece with gas bub. when chrushed, no fluorescence. LS: dirty gray, fossiliferous packstone.

SD. STN: dirty gray, fine grain, micaceous, friable, no show, no fluorescence.

LS: buff, microxyln, very dense, cryptoxyln, blocky, LS: light gray, microxyln, dense


2900
2950
3000
3050
ROP (min/ft)
0
10
Zndale @
2962-1114
Emporia
Displace
mud system
@ 2900'
TG, C1-C5
1
10
100
Shale: dark gray, gritty
Shale: dark gray, gritty, LS: dirty gray/brown, fossiliferous, shaley,
Shale: gray gritty, LS: dark gray/buff, mottled, finexyln, poor interxyln porosity
Shale: gray, gritty, LS: dark gray/buff, mott, finexyln, poor interxyln porosity, fossil fragments,
Shale: gray to dark gray massive
Shale: dark gray, silty, LS: cream, finexyln, poor interxyln porosity
LS: gray/buff, microxyln, dense, random micro fossils, sample mostly gray shale
LS: cream, finexyln, oolitic packstone in part, LS medium gray, finexyln, poor interxyln porosity,
LS: dark brown, microxyln, very dense, LS: gray/buff to gray, finexyln, poor interxyln porosity, mott. dense in part


3150
3200
3250
3300
0
ROP (min/ft)
10
TG, C1-C5
1
10
100
LS: cream to light gray, microxyln, finexyln, poor interxyln porosity, friable streaks, LS: cream/brown, microxyln, crytoxyln with scattered chlorite
LS: cream/buff, finexyln, poor interxyln porosity, streaks of increase in interxyln porosity and or sub chauky streaks, cryptoxyln, to include fossile hash with slight visable porosity, no show. Shale: gray
Shale: gray, LS: brownish/gray very dark in part, microxyln to finexyln, streaks of fossile fragmenst, cryptoxyln, poor interxyln porosity, LS: cream, finexyln, friable, Shale: gray, blocky
LS: white to off white, chky LS: cream to buff, finexyln, no visable porosity, firm streaks of cyptoxyln, LS: light gray, poor interxyln porosity cherty in part.
LS: dirty buff, finxyln, poor visable porosity, scattered oolitic streaks with slight visable porosity, no show, cherty in part, Shale: gray
survey @
3263' 1/4 deg
LS: buff/cream, finexyln to microxyln, very dense in part, streaks of cryptoxyln, no show
LS: dark brown microxyln, dense, silty in part
Shale: gray, silty, laminar



LS: light brown, mediumxyln, fair visable porosity, fair interxyln porosity, slight visable oolmoldic porosity, cryptoxyln, LS: gray to brown, microxyln, very dense, Shale: gray, grity, fossiliferous

3422 30 min. cir sample: LS: cream, finexyln, chky in part, streaks of coarsexyln porosity, LS: light gray, microxyln, very dense, scattered random vuggy porosity.

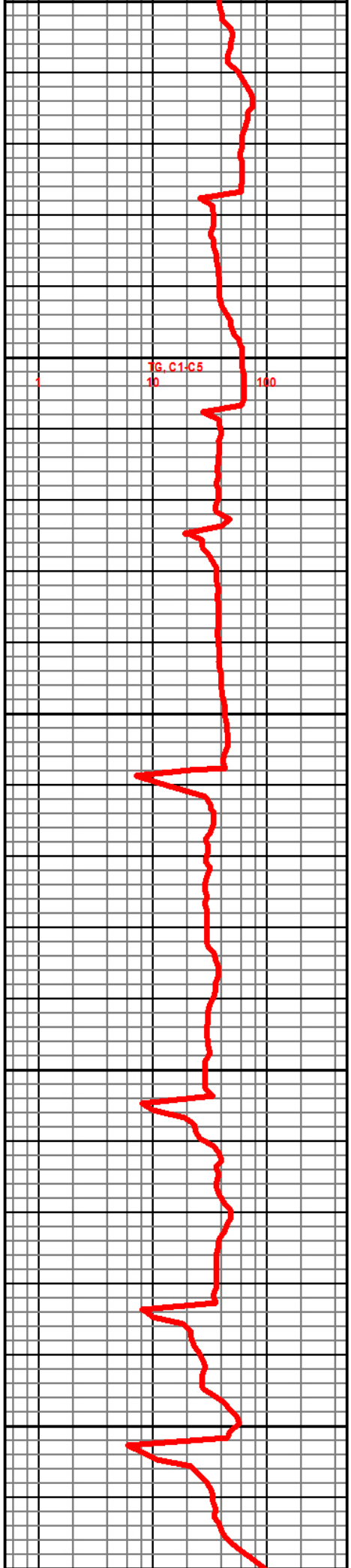
LS: brown, oolitic packstone, good visable oolitic porosity, friable, no show. LS: light gray, microxyln, poor interxyln porosity, random visable porosity,

flood of: LS: cream to cream/gray, finexyln, to microxyln, sct visable vugs random to fluorescence to no fluroescence, poor interexyln porosity to streaks of friable porosity

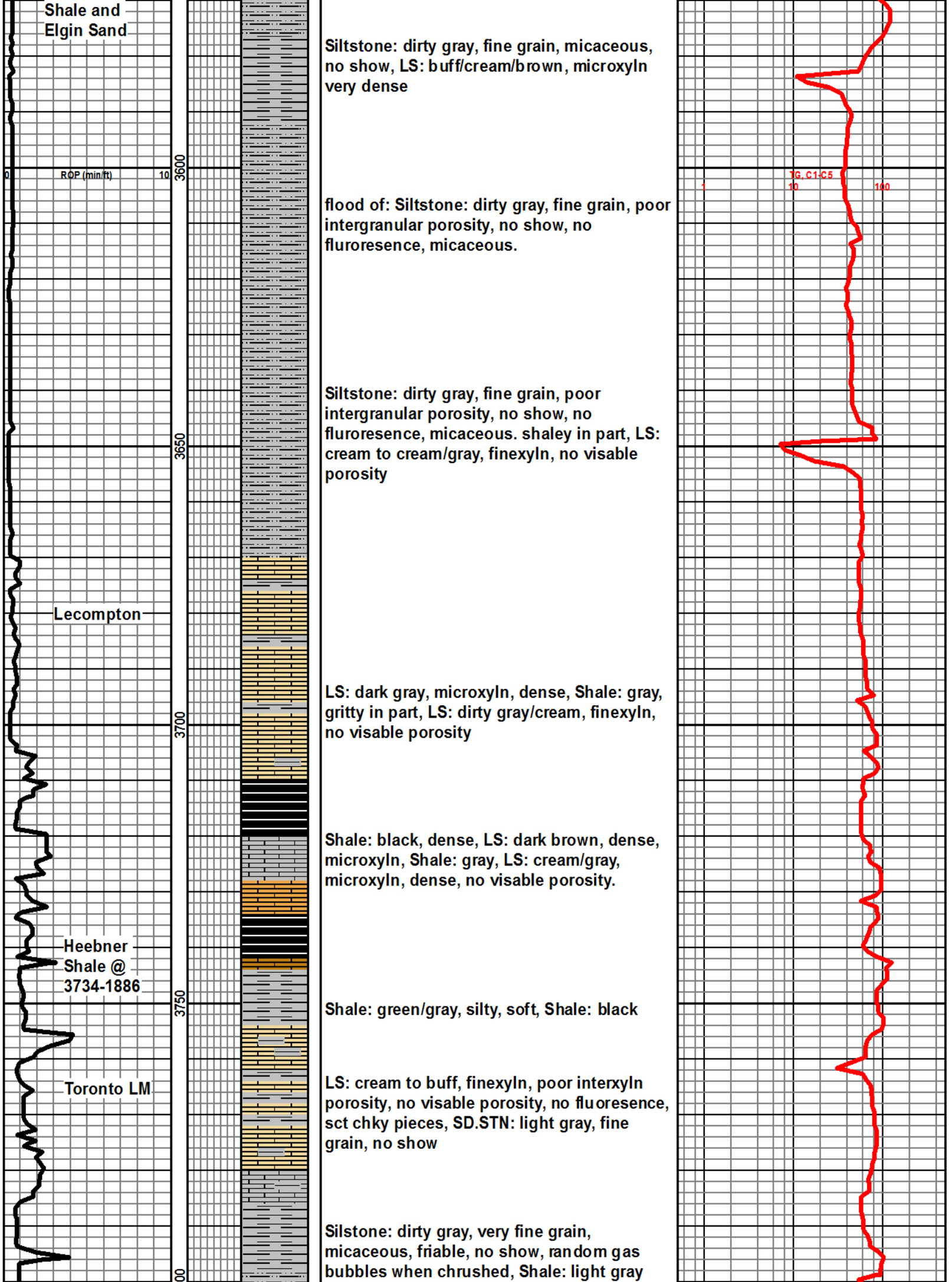
flood of: Shale: black, LS: dark brown, very dense, microxyln.

LS: dirty gray, microxyln, dense, silty, Shale: gray to black carboniferous, lmy in part

Shale: gray, LS: gray/buff, microxyln, dense, blocky, Shale: black



Tecumseh



Siltstone: dirty gray, fine grain, micaceous, no show, LS: buff/cream/brown, microxyln very dense

flood of: Siltstone: dirty gray, fine grain, poor intergranular porosity, no show, no fluroresence, micaceous.

Siltstone: dirty gray, fine grain, poor intergranular porosity, no show, no fluroresence, micaceous. shaley in part, LS: cream to cream/gray, finexyln, no visable porosity

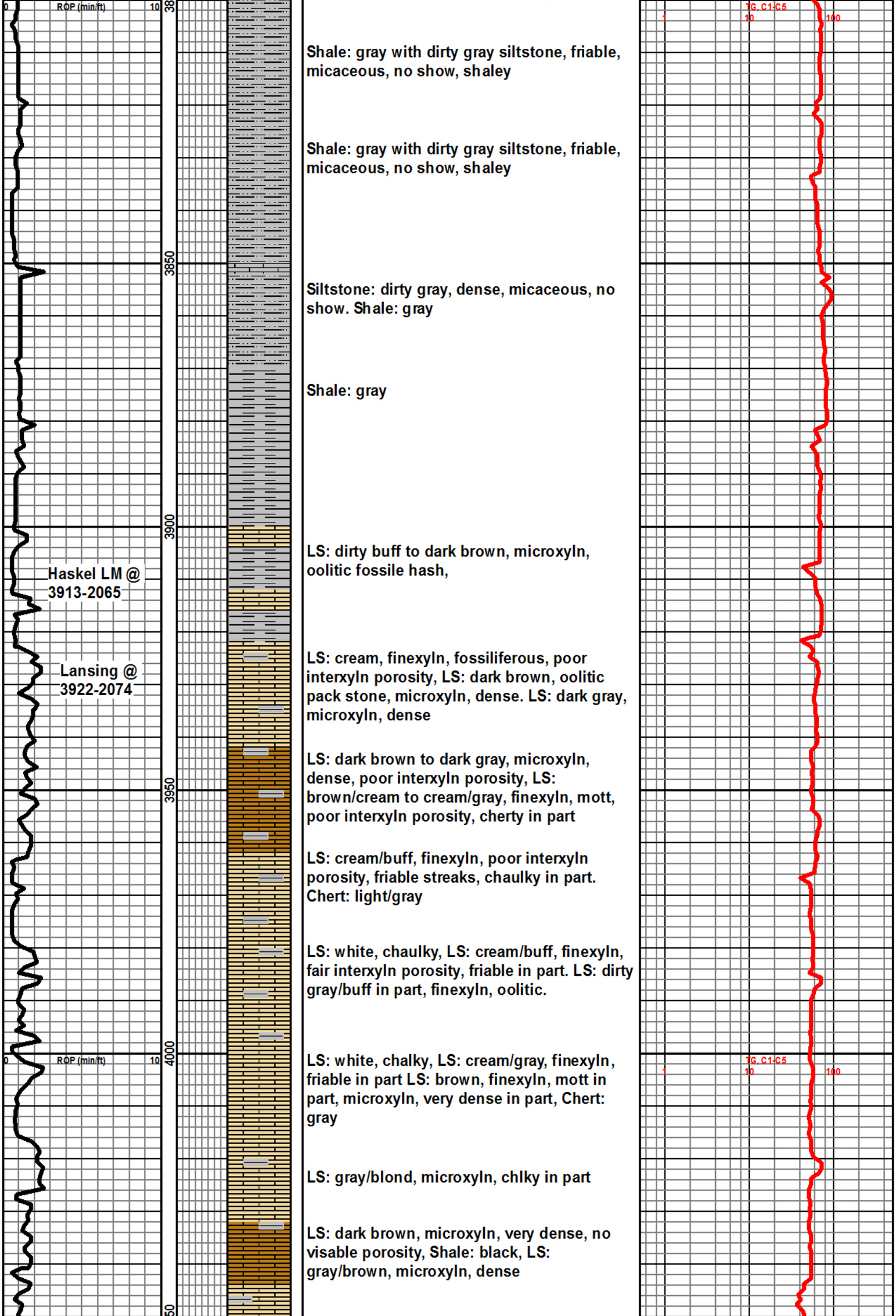
LS: dark gray, microxyln, dense, Shale: gray, gritty in part, LS: dirty gray/cream, finexyln, no visable porosity

Shale: black, dense, LS: dark brown, dense, microxyln, Shale: gray, LS: cream/gray, microxyln, dense, no visable porosity.

Shale: green/gray, silty, soft, Shale: black

LS: cream to buff, finexyln, poor interxyln porosity, no visable porosity, no fluoresence, sct chky pieces, SD.STN: light gray, fine grain, no show

Silstone: dirty gray, very fine grain, micaceous, friable, no show, random gas bubbles when chrushed, Shale: light gray



Shale: gray with dirty gray siltstone, friable, micaceous, no show, shaley

Shale: gray with dirty gray siltstone, friable, micaceous, no show, shaley

Siltstone: dirty gray, dense, micaceous, no show. Shale: gray

Shale: gray

LS: dirty buff to dark brown, microxyln, oolitic fossile hash,

LS: cream, finexyln, fossiliferous, poor interxyln porosity, LS: dark brown, oolitic pack stone, microxyln, dense. LS: dark gray, microxyln, dense

LS: dark brown to dark gray, microxyln, dense, poor interxyln porosity, LS: brown/cream to cream/gray, finexyln, mott, poor interxyln porosity, cherty in part

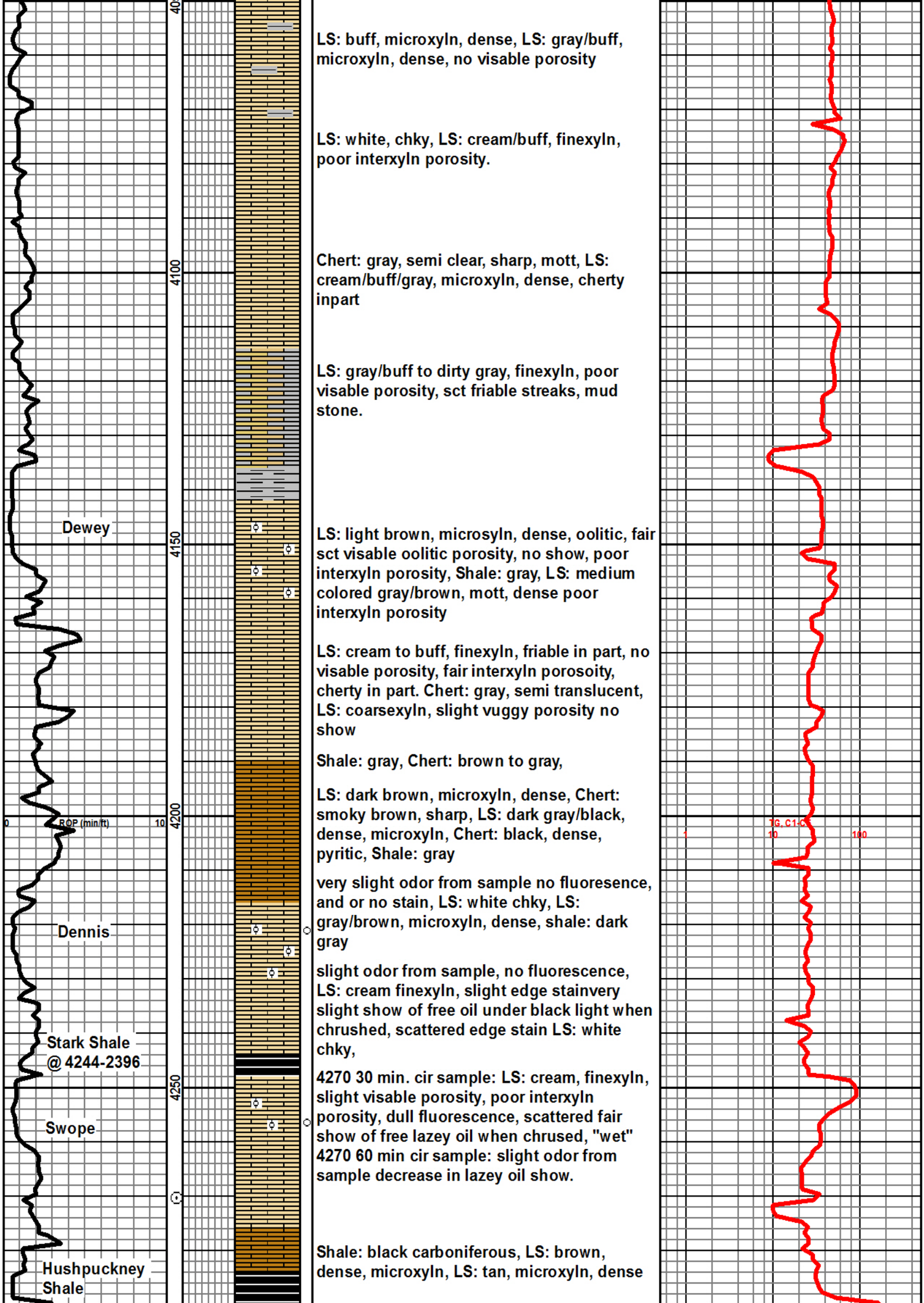
LS: cream/buff, finexyln, poor interxyln porosity, friable streaks, chaulky in part. Chert: light/gray

LS: white, chaulky, LS: cream/buff, finexyln, fair interxyln porosity, friable in part. LS: dirty gray/buff in part, finexyln, oolitic.

LS: white, chalky, LS: cream/gray, finexyln, friable in part LS: brown, finexyln, mott in part, microxyln, very dense in part, Chert: gray

LS: gray/blond, microxyln, chlky in part

LS: dark brown, microxyln, very dense, no visable porosity, Shale: black, LS: gray/brown, microxyln, dense



LS: buff, microxyln, dense, LS: gray/buff, microxyln, dense, no visable porosity

LS: white, chky, LS: cream/buff, finexyln, poor interxyln porosity.

Chert: gray, semi clear, sharp, mott, LS: cream/buff/gray, microxyln, dense, cherty inpart

LS: gray/buff to dirty gray, finexyln, poor visable porosity, sct friable streaks, mud stone.

LS: light brown, microsyln, dense, oolitic, fair sct visable oolitic porosity, no show, poor interxyln porosity, Shale: gray, LS: medium colored gray/brown, mott, dense poor interxyln porosity

LS: cream to buff, finexyln, friable in part, no visable porosity, fair interxyln porosoity, cherty in part. Chert: gray, semi translucent, LS: coarsexyln, slight vuggy porosity no show

Shale: gray, Chert: brown to gray,

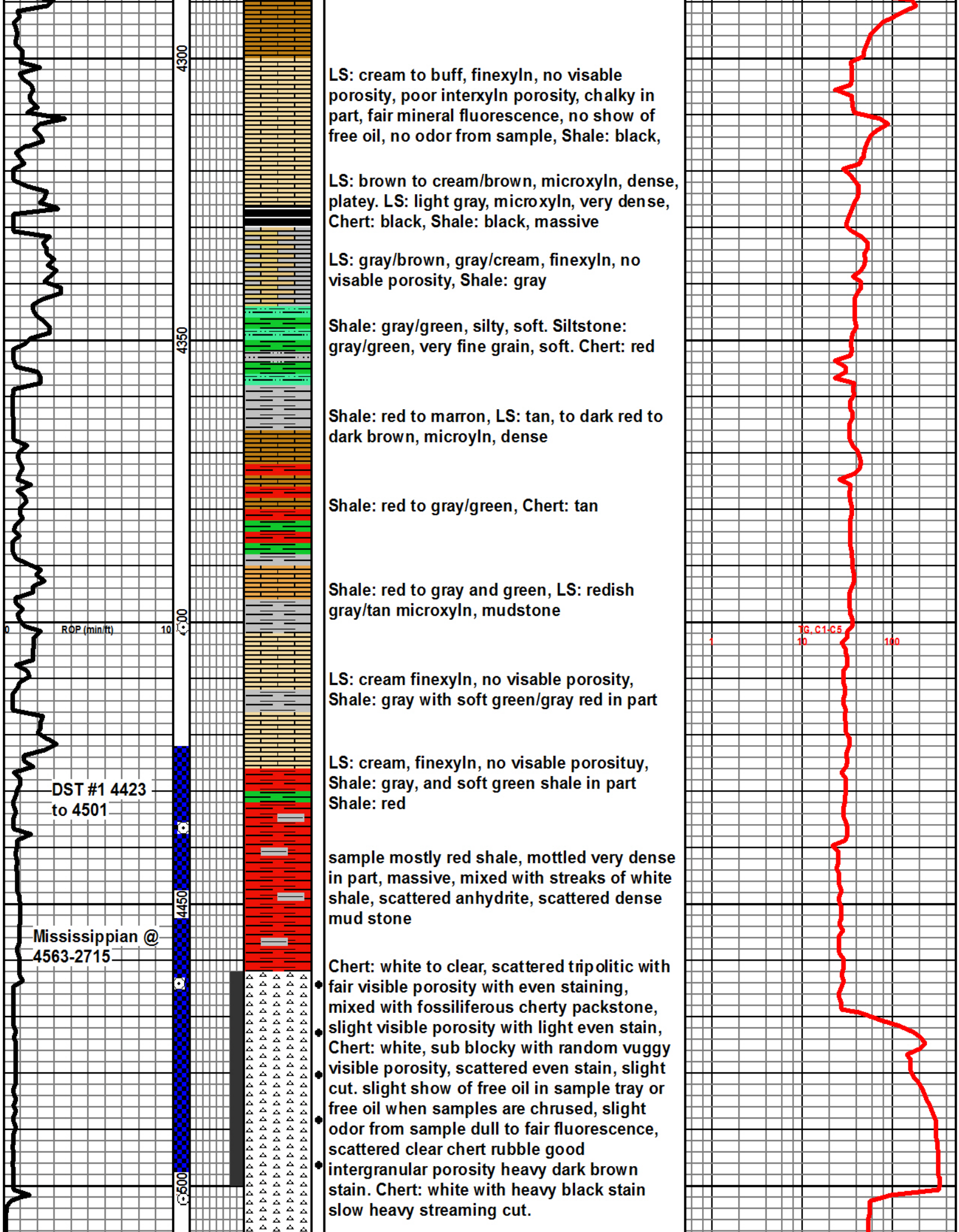
LS: dark brown, microxyln, dense, Chert: smoky brown, sharp, LS: dark gray/black, dense, microxyln, Chert: black, dense, pyritic, Shale: gray

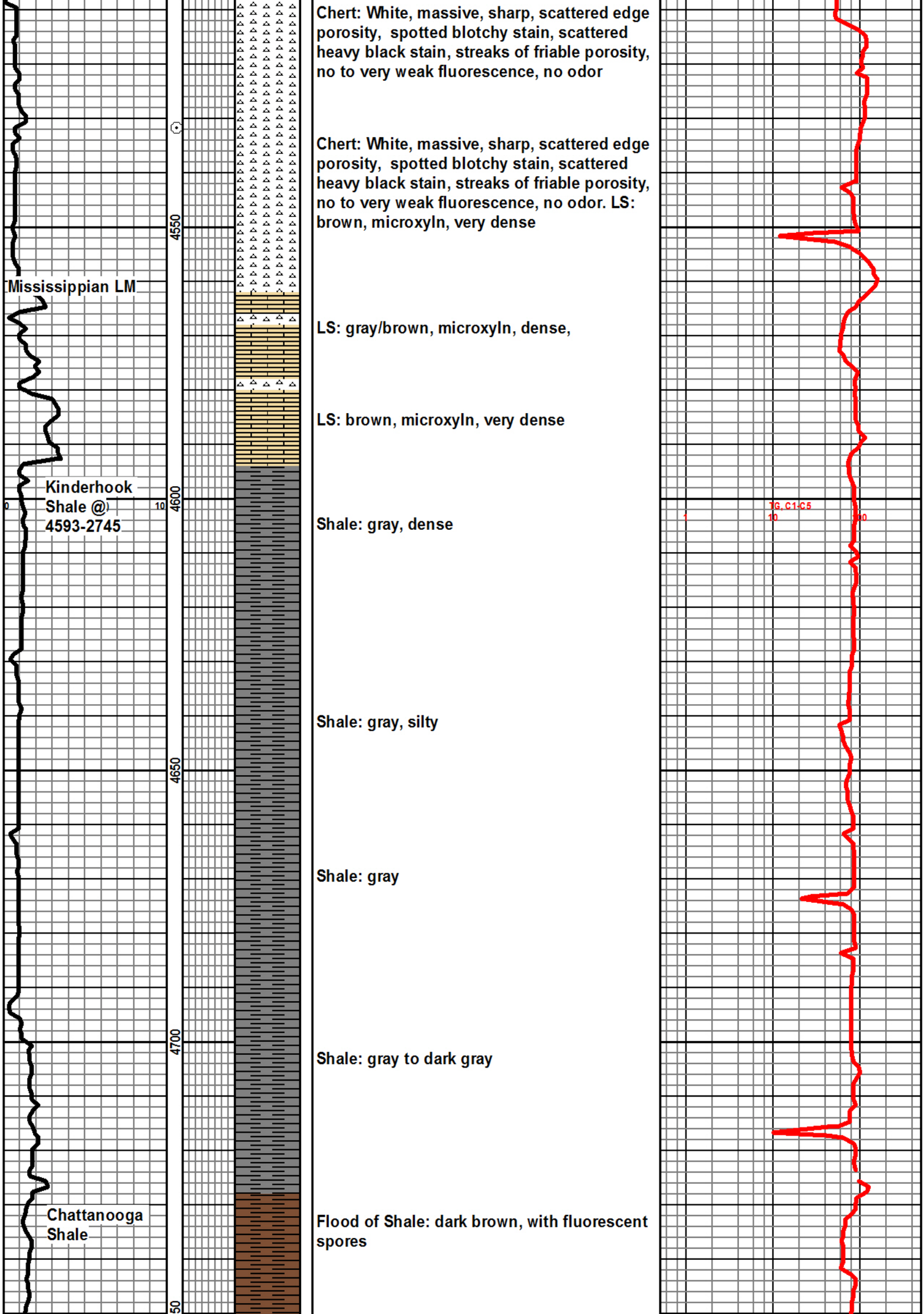
very slight odor from sample no fluoresence, and or no stain, LS: white chky, LS: gray/brown, microxyln, dense, shale: dark gray

slight odor from sample, no fluorescence, LS: cream finexyln, slight edge stainvery slight show of free oil under black light when chrushed, scattered edge stain LS: white chky,

4270 30 min. cir sample: LS: cream, finexyln, slight visable porosity, poor interxyln porosity, dull fluorescence, scattered fair show of free lazey oil when chrused, "wet" 4270 60 min cir sample: slight odor from sample decrease in lazey oil show.

Shale: black carboniferous, LS: brown, dense, microxyln, LS: tan, microxyln, dense


4300
4350
4400
4450
4500
ROP (min/ft)
0
10
TG, C1-C5
1
10
100
DST #1 4423 to 4501
Mississippian @ 4563-2715
LS: cream to buff, finexyln, no visable porosity, poor interxyln porosity, chalky in part, fair mineral fluorescence, no show of free oil, no odor from sample, Shale: black,
LS: brown to cream/brown, microxyln, dense, platey. LS: light gray, microxyln, very dense, Chert: black, Shale: black, massive
LS: gray/brown, gray/cream, finexyln, no visable porosity, Shale: gray
Shale: gray/green, silty, soft. Siltstone: gray/green, very fine grain, soft. Chert: red
Shale: red to marron, LS: tan, to dark red to dark brown, microyln, dense
Shale: red to gray/green, Chert: tan
Shale: red to gray and green, LS: redish gray/tan microxyln, mudstone
LS: cream finexyln, no visable porosity, Shale: gray with soft green/gray red in part
LS: cream, finexyln, no visable porosituy, Shale: gray, and soft green shale in part Shale: red
sample mostly red shale, mottled very dense in part, massive, mixed with streaks of white shale, scattered anhydrite, scattered dense mud stone
Chert: white to clear, scattered tripolitic with fair visible porosity with even staining, mixed with fossiliferous cherty packstone, slight visible porosity with light even stain, Chert: white, sub blocky with random vuggy visible porosity, scattered even stain, slight cut. slight show of free oil in sample tray or free oil when samples are chrused, slight odor from sample dull to fair fluorescence, scattered clear chert rubble good intergranular porosity heavy dark brown stain. Chert: white with heavy black stain slow heavy streaming cut.



Chert: White, massive, sharp, scattered edge porosity, spotted blotchy stain, scattered heavy black stain, streaks of friable porosity, no to very weak fluorescence, no odor

Chert: White, massive, sharp, scattered edge porosity, spotted blotchy stain, scattered heavy black stain, streaks of friable porosity, no to very weak fluorescence, no odor. LS: brown, microxyln, very dense

LS: gray/brown, microxyln, dense,

LS: brown, microxyln, very dense

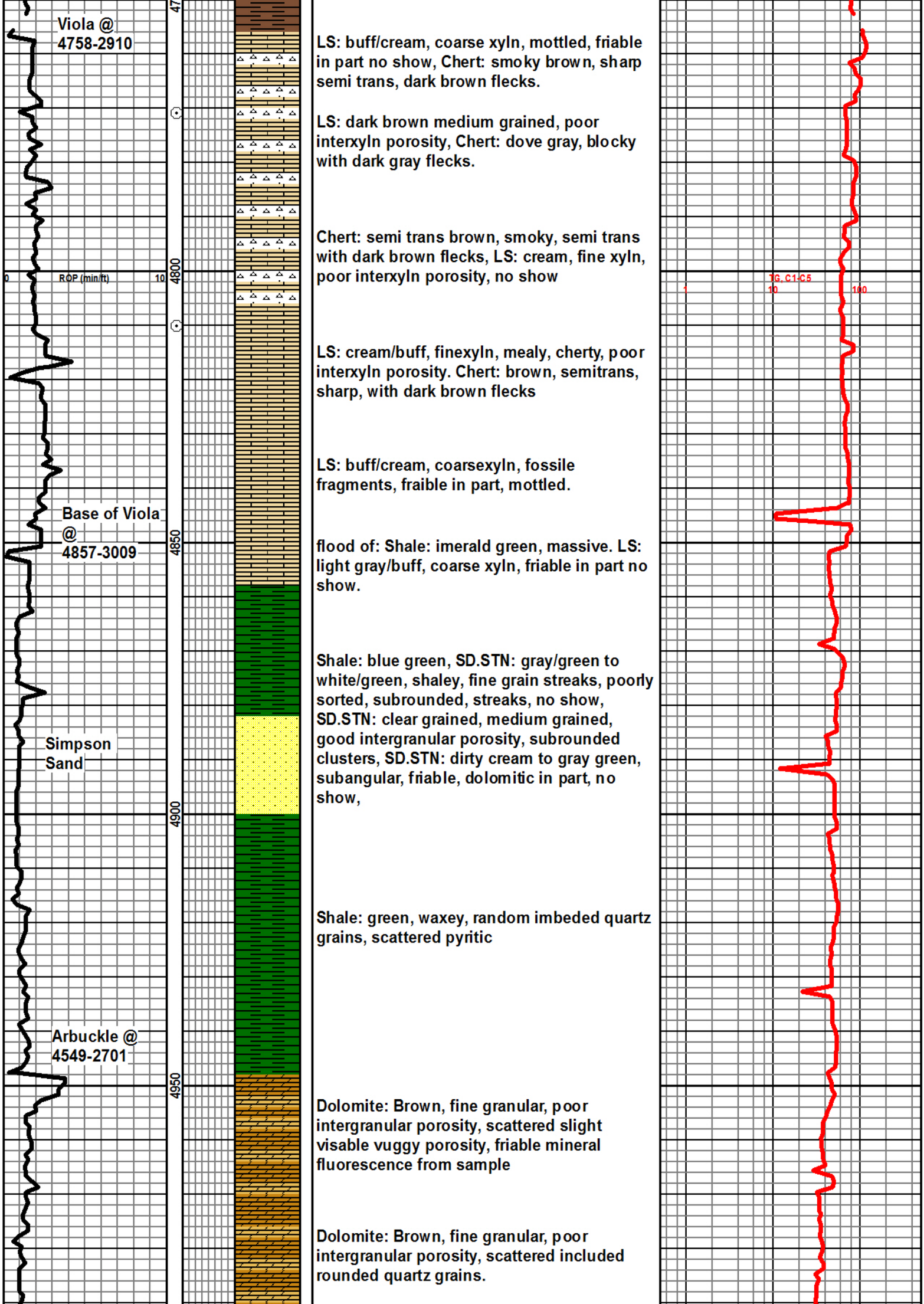
Shale: gray, dense

Shale: gray, silty

Shale: gray

Shale: gray to dark gray

Flood of Shale: dark brown, with fluorescent spores



LS: buff/cream, coarse xyln, mottled, friable in part no show, Chert: smoky brown, sharp semi trans, dark brown flecks.

LS: dark brown medium grained, poor interxyln porosity, Chert: dove gray, blocky with dark gray flecks.

Chert: semi trans brown, smoky, semi trans with dark brown flecks, LS: cream, fine xyln, poor interxyln porosity, no show

LS: cream/buff, finexyln, mealy, cherty, poor interxyln porosity. Chert: brown, semitrans, sharp, with dark brown flecks

LS: buff/cream, coarsexyln, fossile fragments, fraible in part, mottled.

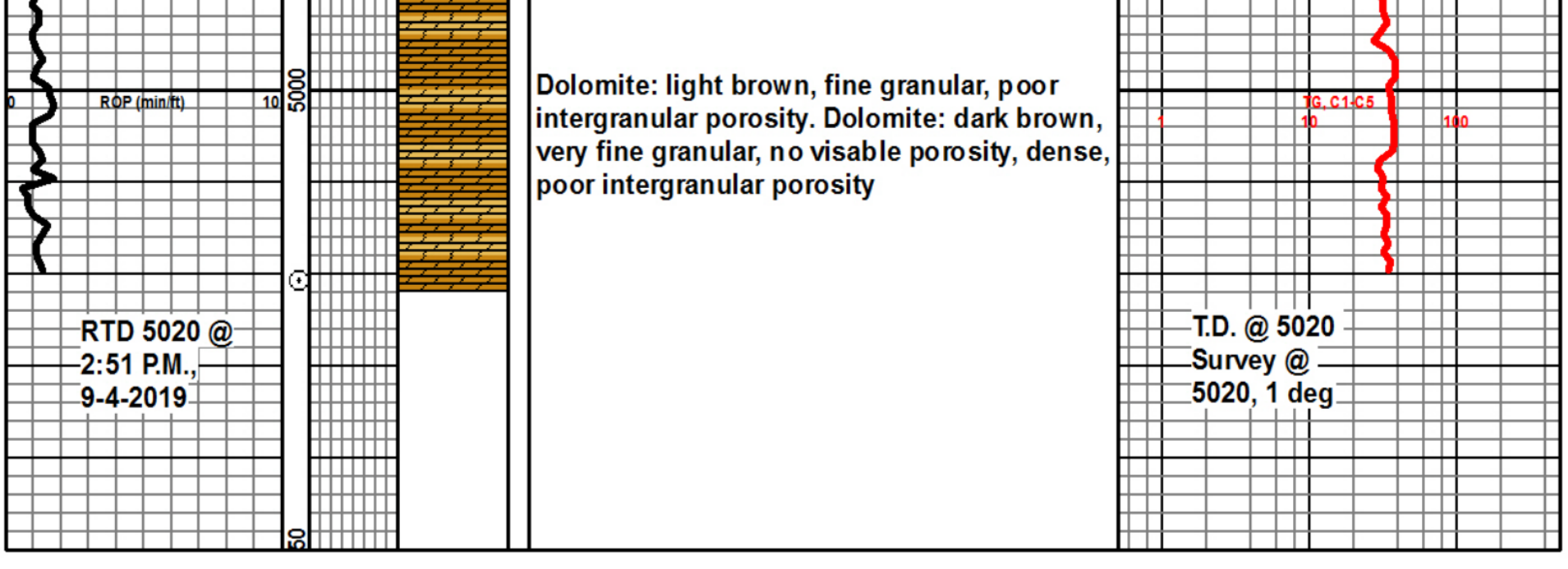
flood of: Shale: imerald green, massive. LS: light gray/buff, coarse xyln, friable in part no show.

Shale: blue green, SD.STN: gray/green to white/green, shaley, fine grain streaks, poorly sorted, subrounded, streaks, no show, SD.STN: clear grained, medium grained, good intergranular porosity, subrounded clusters, SD.STN: dirty cream to gray green, subangular, friable, dolomitic in part, no show,

Shale: green, waxey, random imbeded quartz grains, scattered pyritic

Dolomite: Brown, fine granular, poor intergranular porosity, scattered slight visable vuggy porosity, friable mineral fluorescence from sample

Dolomite: Brown, fine granular, poor intergranular porosity, scattered included rounded quartz grains.


0
ROP (min/ft)
10
5000
50
RTD 5020 @
2:51 P.M.,
9-4-2019
Dolomite: light brown, fine granular, poor intergranular porosity. Dolomite: dark brown, very fine granular, no visable porosity, dense, poor intergranular porosity
TG, C1-C5
1
10
100
T.D. @ 5020
Survey @
5020, 1 deg