

2550

2600

2650

2700

0 ROP (ft) 5
 1 Gamma (API) 150
 6 Caliper (inches) 16

TG, C1-C5 100

Note: All samples have been lagged to depth by calculated time.

Begin 20' Sample Examination @ 2680'.

Anhy wh fxl, Gyp wh, Red, Black & Gray Shales, Cherts gray dns, Dol lt gray, frag., No vis por

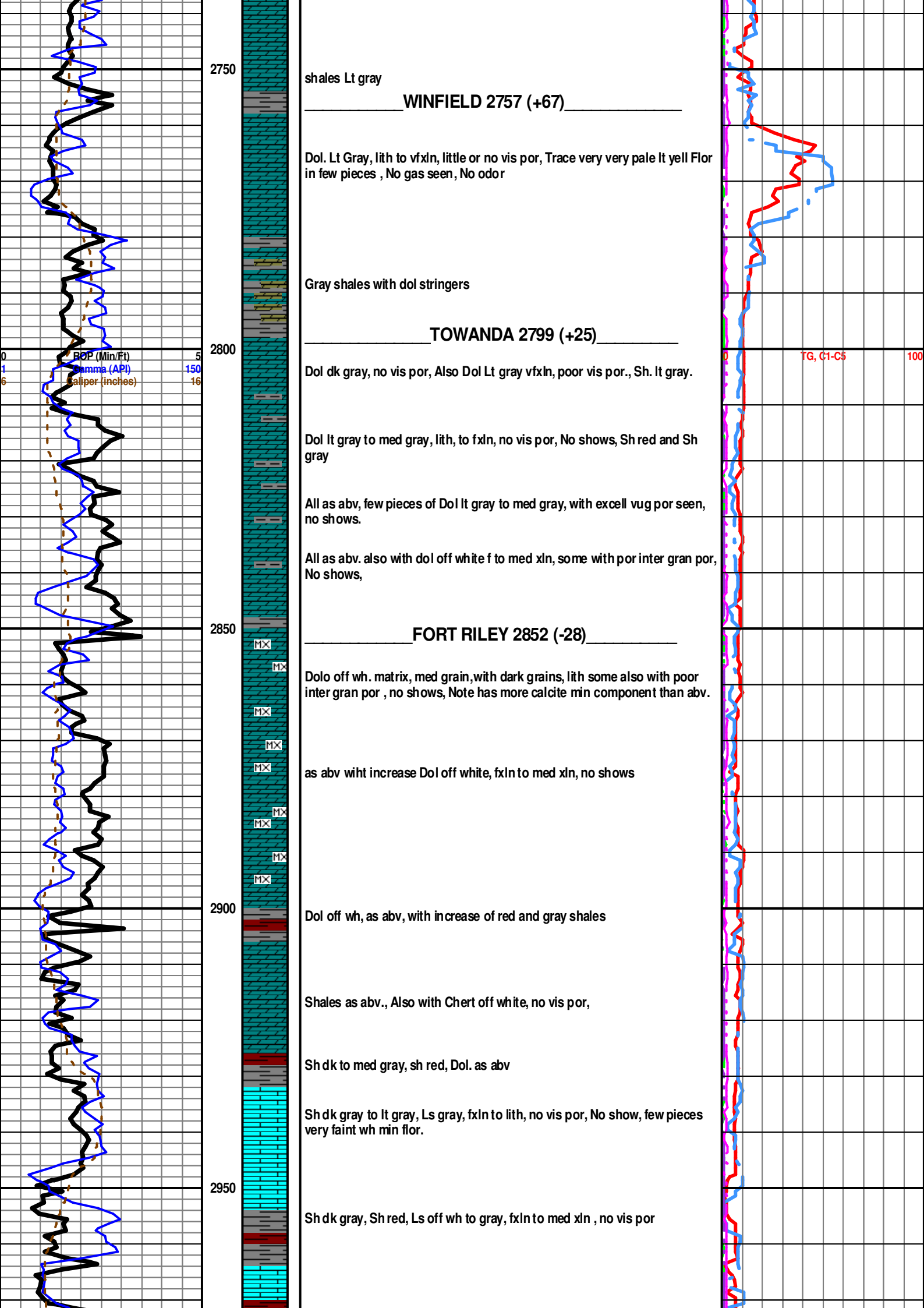
CHASE GROUP 2689 (+135)

Gray and red shales, Lots of Anhy and Gyp cavings above, Dol dark gray dnse off, vfxln, poor inter gran por, No shows

Dol lt to dk gray, frag, trace inter gran por, w/ dark grains, No shows

As abv.

As abv with increase in Shales Lt Gray



2750

shales Lt gray

WINFIELD 2757 (+67)

Dol. Lt Gray, lith to vfxln, little or no vis por, Trace very very pale lt yell Flor in few pieces , No gas seen, No odor

Gray shales with dol stringers

TOWANDA 2799 (+25)

Dol dk gray, no vis por, Also Dol Lt gray vfxln, poor vis por., Sh. lt gray.

Dol lt gray to med gray, lith, to fxl, no vis por, No shows, Sh red and Sh gray

All as abv, few pieces of Dol lt gray to med gray, with excell vug por seen, no shows.

All as abv. also with dol off white f to med xln, some with por inter gran por, No shows,

2850

FORT RILEY 2852 (-28)

Dolo off wh. matrix, med grain, with dark grains, lith some also with poor inter gran por , no shows, Note has more calcite min component than abv.

as abv wiht increase Dol off white, fxln to med xln, no shows

2900

Dol off wh, as abv, with increase of red and gray shales

Shales as abv., Also with Chert off white, no vis por,

Sh dk to med gray, sh red, Dol. as abv

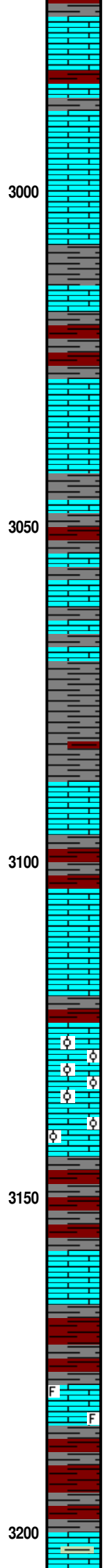
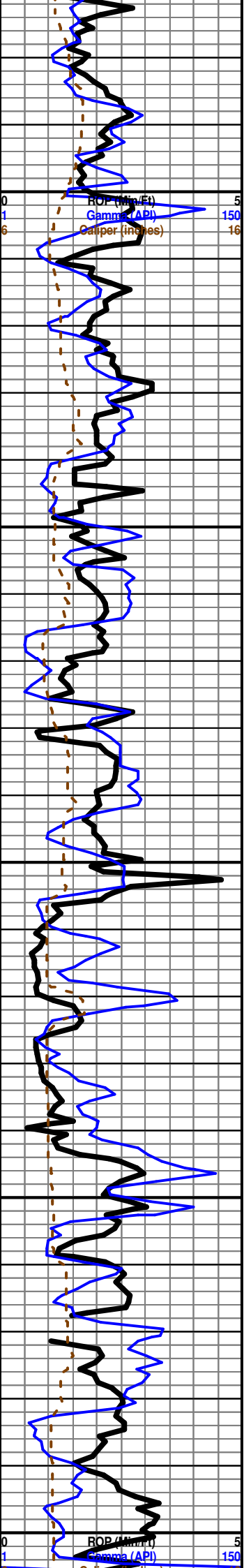
Sh dk gray to lt gray, Ls gray, fxln to lith, no vis por, No show, few pieces very faint wh min flor.

2950

Sh dk gray, Sh red, Ls off wh to gray, fxln to med xln , no vis por

BOP (Min/Ft) 5
Gamma (API) 150
Caliper (inches) 16

TG, C1-C5 100



Ls dk gray, lith, No vis por, Sh dk gray, Sh red

Sh red and Sh dk gray

Ls med gray, lith no vis por, Sh dk gray, Sh red sndy

Ls off wh, lith, no vis por also Sh gray

Ls off wh lith, no vis por.

Sh dk gray, blocky, Sh red sndy

Ls off wh, med to flxn no vis por.

Sh dk gray, Sh gray, Sh red, Ls off wh, med to flxn No vis por.

Ls dk gray, lith, no vis por, Sh dk gray

Begin 10' Sample Examination @ 3100'.

Sh dark gray with some Sh red, trace Ls. off wh med xln, no vis por, No shows

Ls dk gray lith to flxn no vis por, Sh red and gray

Sh red with Sh dk gray

Sh. red and Sh. dk gray, Ls off wh f to med xln, trace inter rgan por, No shows

Sh red and gray

COTTONWOOD 3125(-301)

Ls wh, flxn to mxln, trace inter gran por., many pieces appear to be re xln fine to med size ooids, No shows, Ls also has br wh min flor, Ls gray, some med xln, some with sl inter gran por,

Ls wh med xln, sl vis po, wh br cal min. flor, No shows

Mainly Sh red and sh dk gray, Also Ls off wh, med to fine xln, no vis por.

Shales red and gray, Ls off wh to wh, fine to med xln, poor to good por, this Ls has wh min flor, no shows. Ls lt gray, lith, dense, few pieces with trace of vug por. No shows.

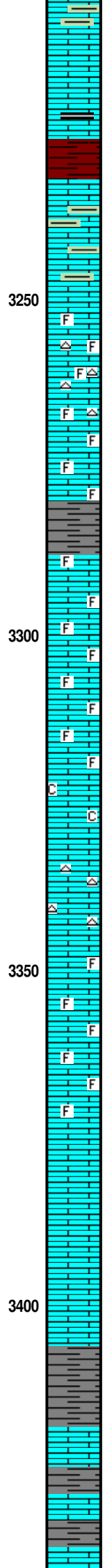
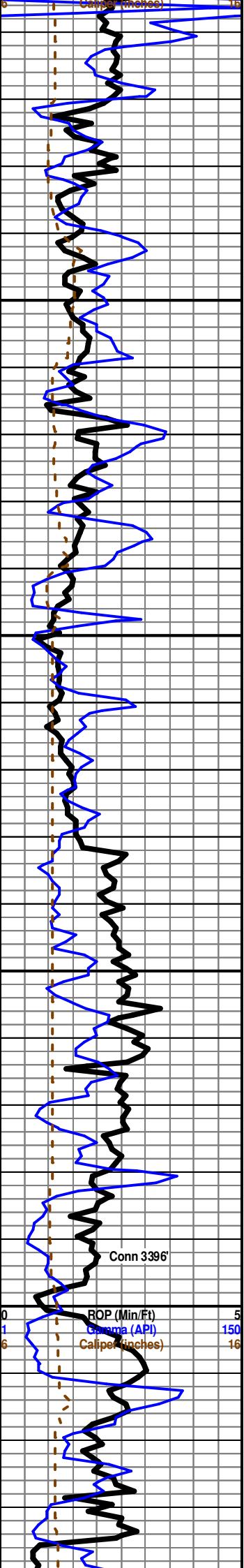
NEVA LS 3178 (-354)

Shale red and gray, Ls dk gray, vey foss and with clear cal grains, poor inter gran por, Also Ls lt gray, lith also foss, with forams, Ls off wh fine to med xln, trace poor inter gran por, also has br wh min flor, All no shows.

Ls off wh to lt gray, lith, dense, no vis por, Ls off wh, f to med xln, poor to mainly no vis por, No Shows, Sh red with round pale green inclusions, trace Sh pale green. Sh arav. Note Ls wh - have wh min flor.

Mudco Ck @
3095' @ 1:50
PM. 2/04/12
Vis 35;
WT= 9.65#;
PV= 3;
YP= 5;
WL= NC;
Cake= NC;
Chl= 35500;
Cal = Hvy;
Sol= 7.2%;
LCM= 1 #;
DMC=\$
4273.25;
CMC=\$
11,185.75

Displaced at 3204', Wt 9.65, Vis 35, LCM 1#, Ch 35,000



Begin 20' Sample Examination @ 3220'.
 As abv. Samples much better, Also with Sh bl carb Note at 3221' reset back ground gas to 10 units.

Ls off wh, f to med xln, trace inter gran por, No shows. Sh red, with rnd green sh inclusions. Sh bl carb

Red shales drop out, Ls off wh, med xln to fxln, fraf and foss in part, trace poor to fair vug por, No Shows, Also trace of Lt gray chert, All no shows

As abv, increase in Ls gray frag, foss, med xln to fxln, No vis por, Trace Ls lt gray, lith, No vis por, All No shows.

Sh dk gray

Ls dk gray ss abv.

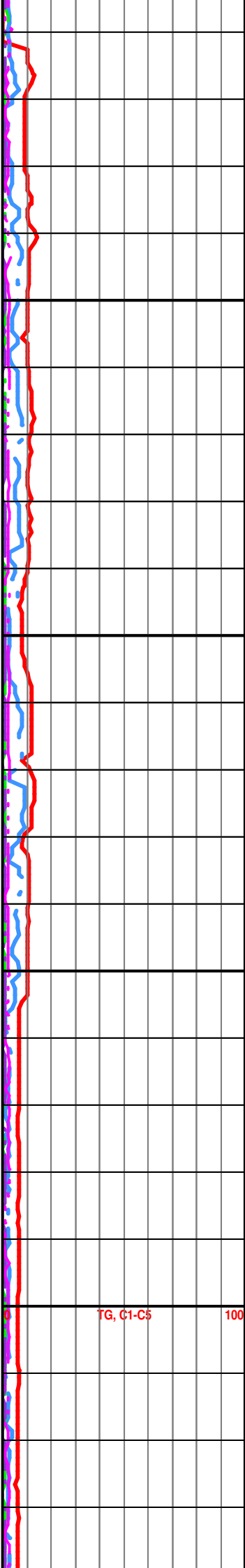
Ls off wh, frag, fxln med xln, poor por, No shows

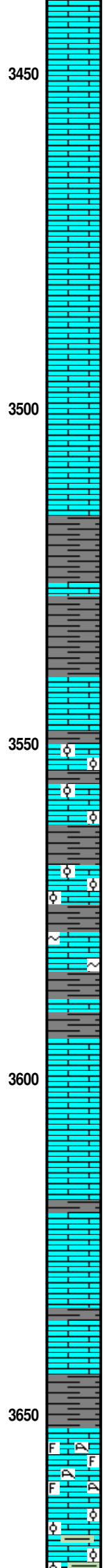
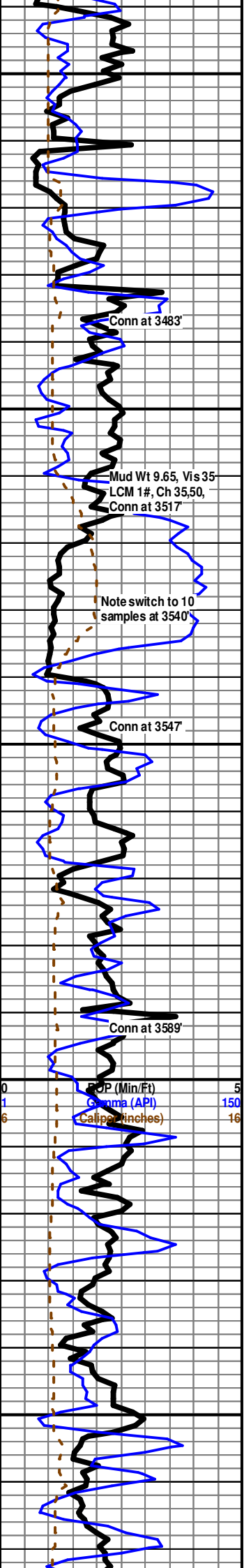
Ls med gray, fxln to lith, poor vis por, trace chert wh lith excell. concod/ fracture, chert has bright min flor, Trace Ls dk gray grading to med gray, Ls wh lith has br wh min flor. All no shows.

Increase in Ls med gray, fine med xln, frag, foss, poor to fair vis por. No shows

Ls med gray, fine med xln, frag, poor to fair vis por. No shows, Note some pieces grade to Ls wh to off wh, med xln, fair to inter gran por, trace br stain, - non oil type, (had no cut), also has dull wh min flor. All no shows.

Ls med grain, frag, poor por, Ls of wh md xln, fair por, No shows.





Ls tan lith no vis por, Ls lt Br, gran med gain, dns, note some calcite edges, poss excell. vug por, trace lt yell min Flor, No shows

Ls lt br as abv, Ls off wh wh fxln to medxlIn grain, poor inter gran por. No shows.

Ls all as abv, No shows

Begin 10' Sample Examination @ 3510'.

Ls tan, fxln to med xln, clastic, well cmted, ukn bl minerals, Ls tan lith, All no shows

Ls lt br clastic as abv, Sh gray, Sh bl carb, No shows

ROOT SH 3516 (-692)

Sh med brown, Ls tan lith

Sh med brown, Sh pale gray, Ls med gray clastic fxln, no vis por Trace of Sh bl, carb, All no shows

STOTLER LS 3540 (-716)

Ls off wh, dnse also with med to fxln, no vis por. Ls lt gray, oolitic well cemented, no vis po, All no shows

Ls lt br oolitic, well cmted to poor inter gran por, Ls lt gray frag, fxln, no vis por. No shows.

Ls tan lith to trace with poor vug por, Ls off wh, med xln, poor inter gran por, Ls off wh, recry oolitic well cmt, no vis por seen, Sh med gray, No shows.

Ls off wh fxln to mxln, recry oolitic, trace poor vis por, Ls lt gray lith no vis por, Sh greenish brown, No shows

Ls off wh, lith to med gain, poor to good por, some pieces have large xlns on edges, sl glauc, Ls med br clastic and foss well cmted, dk black grains. No shows.

TARKIO LS 3595 (-771)

as abv with increase of Ls med br. No Shows

Ls med br. as abv, also trace Chert Lt gray, Sh dk gray, No shows.

Ls Lt gray green, lith, oolitic in part, few pices have fine inter xln por. trace Sh lt gray, No shows.

As abv Sh lt gray

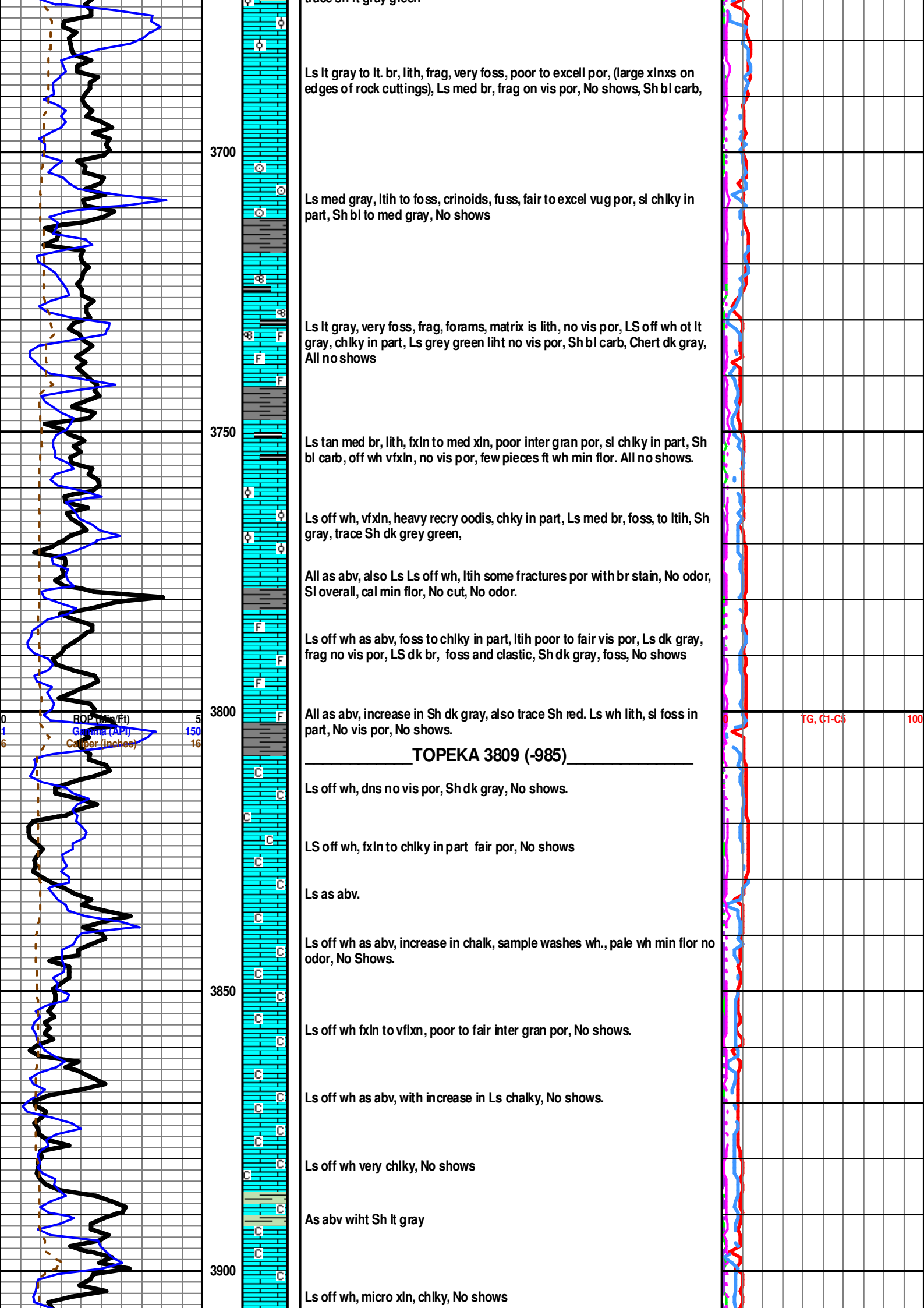
Ls med br as abv, less por, No shows

Ls gray green as abv,, Ls lt br lith few pieces with trace carbon foss, Ls off wh, foss, corals, trace cal min flor, Sh lt gray, No shows, trace sh gray green

Ls off wh lith, to sl chky, Ls lt br lith also oolitic well cmted, No shows, trace sh lt gray green

TG, C1-C5 100

Mudco Ck @
3603' @ 6:45
AM. 2/05/12
Vis 47;
WT= 8.75#;
PV= 14;
YF= 14;
WL= 8.0;
Cake= 1; Chl=
2350; Cal = 20;
Sol= 2.7%;
LCM= 2#;
DMC=\$
146.30;
CMC=\$
1132.95.



trace Sh lt gray green

Ls lt gray to lt. br, lith, frag, very foss, poor to excell por, (large xlnxs on edges of rock cuttings), Ls med br, frag on vis por, No shows, Sh bl carb,

3700

Ls med gray, lith to foss, crinoids, fuss, fair to excel vug por, sl chlky in part, Sh bl to med gray, No shows

Ls lt gray, very foss, frag, forams, matrix is lith, no vis por, LS off wh ot lt gray, chlky in part, Ls grey green liht no vis por, Sh bl carb, Chert dk gray, All no shows

3750

Ls tan med br, lith, fxln to med xln, poor inter gran por, sl chlky in part, Sh bl carb, off wh vfxln, no vis por, few pieces ft wh min flor. All no shows.

Ls off wh, vfxln, heavy recry oodis, chky in part, Ls med br, foss, to ltih, Sh gray, trace Sh dk grey green,

All as abv, also Ls Ls off wh, ltih some fractures por with br stain, No odor, SI overall, cal min flor, No cut, No odor.

Ls off wh as abv, foss to chlky in part, ltih poor to fair vis por, Ls dk gray, frag no vis por, LS dk br, foss and clastic, Sh dk gray, foss, No shows

3800

All as abv, increase in Sh dk gray, also trace Sh red. Ls wh lith, sl foss in part, No vis por, No shows.

TOPEKA 3809 (-985)

Ls off wh, dns no vis por, Sh dk gray, No shows.

LS off wh, fxln to chlky in part fair por, No shows

Ls as abv.

Ls off wh as abv, increase in chalk, sample washes wh., pale wh min flor no odor, No Shows.

3850

Ls off wh fxln to vfxln, poor to fair inter gran por, No shows.

Ls off wh as abv, with increase in Ls chalky, No shows.

Ls off wh very chlky, No shows

As abv wiht Sh lt gray

3900

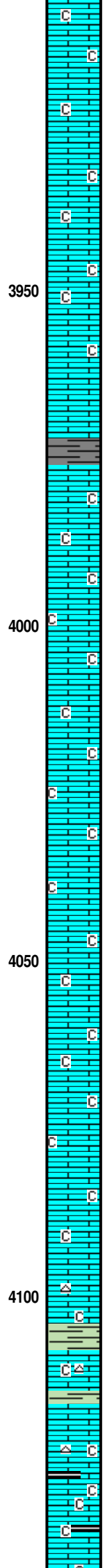
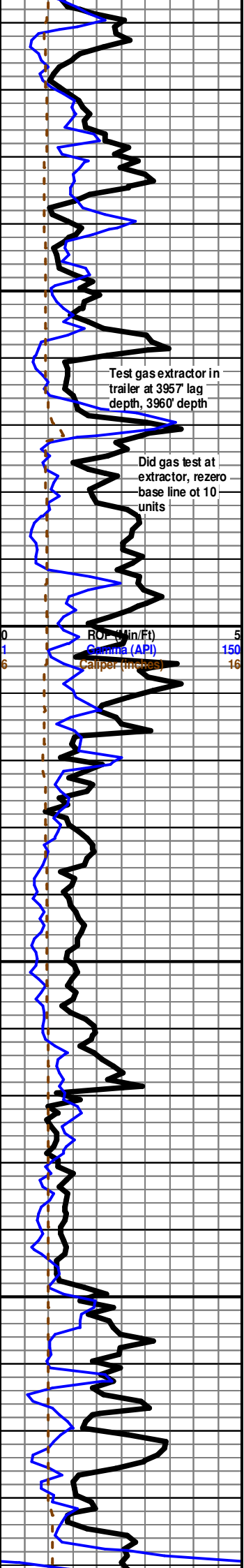
Ls off wh, micro xln, chlky, No shows

TG, C1-C5

100

ROP (inches/Ft)
Gamma (API)
Caliper (inches)

5
150
16



Ls off wh, micro xln, also chlky in part, Samples wash white No shows

As abv, Ls off wh

Ls off wh, micro xln to chlky, No shows

Ls off wh, micro xln, no vis por, Also Ls off wh chlky, No shows, sample washes white

Ls off wh, vfxln to chlky, No shows

Sh dk gray

-----LE COMPTON LS 3975 (-1151)-----

Ls off wh to crm, micro xln (micritic) to chlky, No show

Ls crm to off wh, fxln also dnse, Chert gray to wh, opg, sharp, Sh br, scat min flor, No shows

Ls wh- crm, fxln to dense, poor oomoldic por in part, abd chalk, chert gray to wh, opg, concoid. (sharp), trace sh red, scat min flor, No shows

Ls off wh to crm vfxln to lith, trace fin oomoldic por, few pieces with chalk, very pale wh min flor, All no shows

Ls wh- crm, fxln to dense, poor oomoldic por, abd chalk, chert gray to wh, opg, concoid. (sharp), trace sh red, scat min flor, No shows

Ls wh to crm to gray, fxln dnse, micitic, also with poor oomoldic po, very chlky, Ch gary to whto opague, Trace Sh red, scat min flor, No shows

Ls crm to off wh, fxln Micritic, abn chalk, Chert wh Op vit sharp, Sh br and red, min flor, No Shows

Ls crm to off wh, fxln Micritic, abn chalk, Chert wh Op vit sharp, Sh br and red, min flor, No Shows

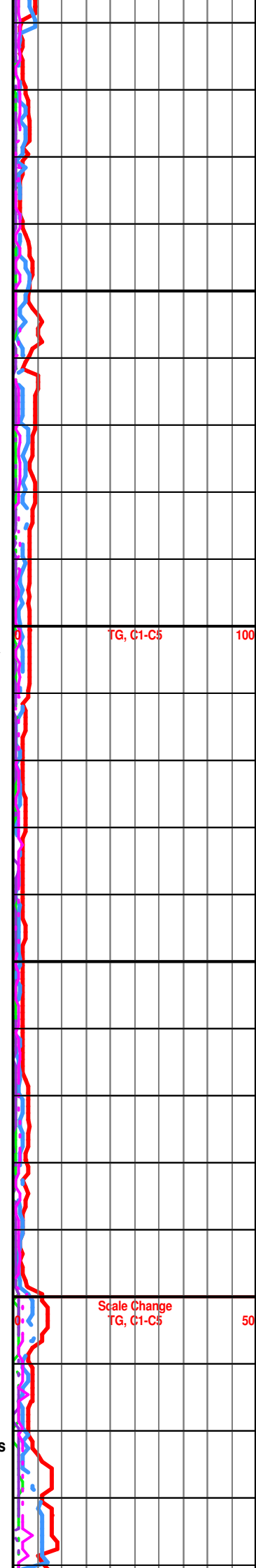
Ls Crm to off wh, fxln Micritic, abn chalk, Chert wh Op vit sharp, Sh br and red, min flor, No Shows

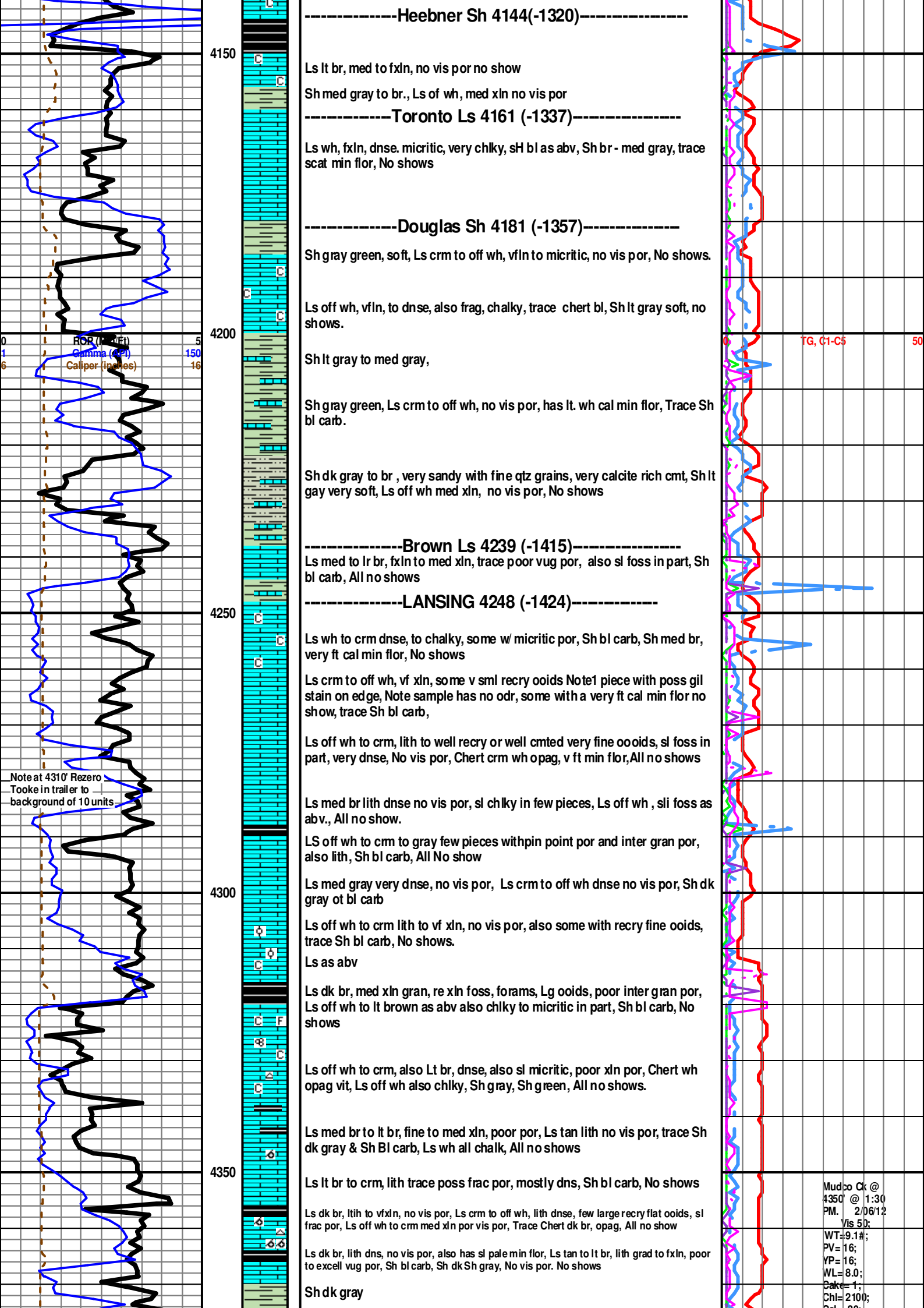
Ls as abv, chalky, also with sh gray

Ls lt gray to crm, lith no vis por, few sl clastic cal grains, some with chalk, Ls off wh, mostly fxln to med xln, trace poor inter gran por, Trace Sh bl carb all No show

Ls cream to gray, micro xln, foss, also chlky in part, poor vis por, No shows

Ls as abv, chalky, Also Sh black carbaceous





-----Heebner Sh 4144(-1320)-----

Ls lt br, med to fxln, no vis por no show
 Sh med gray to br., Ls of wh, med xln no vis por

-----Toronto Ls 4161 (-1337)-----

Ls wh, fxln, dnse, micritic, very chlky, sh bl as abv, Sh br - med gray, trace scat min flor, No shows

-----Douglas Sh 4181 (-1357)-----

Sh gray green, soft, Ls crm to off wh, vfln to micritic, no vis por, No shows.

Ls off wh, vfln, to dnse, also frag, chalky, trace chert bl, Sh lt gray soft, no shows.

Sh lt gray to med gray,

Sh gray green, Ls crm to off wh, no vis por, has lt. wh cal min flor, Trace Sh bl carb.

Sh dk gray to br, very sandy with fine qtz grains, very calcite rich cmt, Sh lt gray very soft, Ls off wh med xln, no vis por, No shows

-----Brown Ls 4239 (-1415)-----

Ls med to lr br, fxln to med xln, trace poor vug por, also sl foss in part, Sh bl carb, All no shows

-----LANSING 4248 (-1424)-----

Ls wh to crm dnse, to chalky, some w micritic por, Sh bl carb, Sh med br, very ft cal min flor, No shows

Ls crm to off wh, vf xln, some v sml recry ooids Note1 piece with poss gil stain on edge, Note sample has no odr, some with a very ft cal min flor no show, trace Sh bl carb,

Ls off wh to crm, lith to well recry or well cmted very fine ooids, sl foss in part, very dnse, No vis por, Chert crm wh opag, v ft min flor, All no shows

Ls med br lith dnse no vis por, sl chlky in few pieces, Ls off wh, sl foss as abv., All no show.

LS off wh to cm to gray few pieces with pin point por and inter gran por, also lith, Sh bl carb, All No show

Ls med gray very dnse, no vis por, Ls crm to off wh dnse no vis por, Sh dk gray ot bl carb

Ls off wh to crm lith to vf xln, no vis por, also some with recry fine ooids, trace Sh bl carb, No shows.

Ls as abv

Ls dk br, med xln gran, re xln foss, forams, Lg ooids, poor inter gran por, Ls off wh to lt brown as abv also chlky to micritic in part, Sh bl carb, No shows

Ls off wh to crm, also Lt br, dnse, also sl micritic, poor xln por, Chert wh opag vit, Ls off wh also chlky, Sh gray, Sh green, All no shows.

Ls med br to lt br, fine to med xln, poor por, Ls tan lith no vis por, trace Sh dk gray & Sh Bl carb, Ls wh all chalk, All no shows

Ls lt br to crm, lith trace poss frac por, mostly dns, Sh bl carb, No shows

Ls dk br, lith to vfxln, no vis por, Ls crm to off wh, lith dnse, few large recry flat ooids, sl frac por, Ls off wh to crm med xln por vis por, Trace Chert dk br, opag, All no show

Ls dk br, lith dns, no vis por, also has sl pale min flor, Ls tan to lt br, lith grad to fxln, poor to excell vug por, Sh bl carb, Sh dk Sh gray, No vis por. No shows

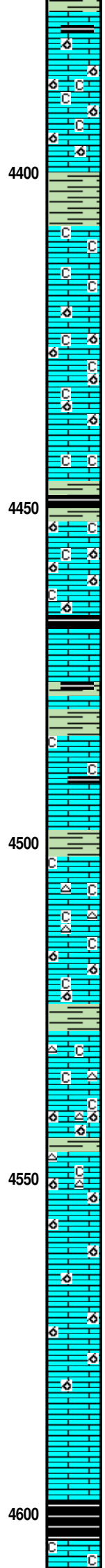
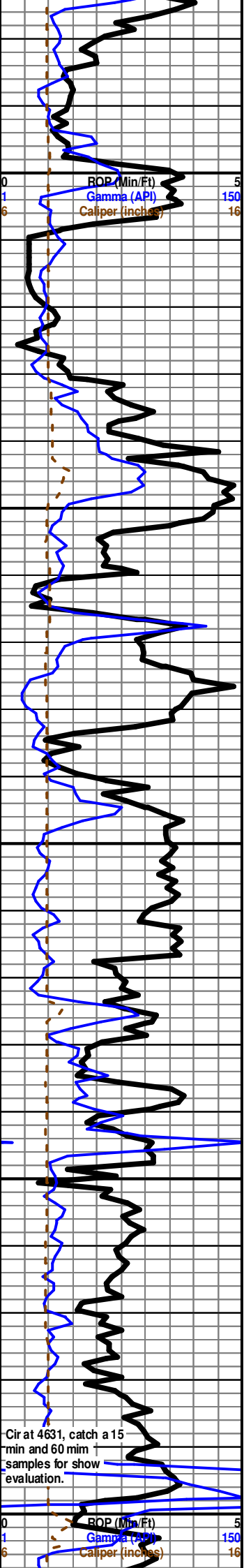
Sh dk gray

TG, C1-C5 50

GOR (lb/ft) 5
 Gamma (API) 150
 Caliper (inches) 16

Note at 4310' Rezero
 Tooke in trailer to
 background of 10 units

Mudco Ck @
 4350' @ 1:30
 PM. 2/06/12
 Vis 50:
 WT=9.1#;
 PV= 16;
 YP= 16;
 WL= 8.0;
 Cake= 1;
 ChI= 2100;
 Sol. 00



Ls dk br, f xln, no vis por, Ls med br, f xln ls sli foss no vis por, Sh bl carb. No shows
 Ls lt br, m xln to lith, poor inter gran por, trace chlky in part, Ls med br, f xln to med xln, has clear cal oolite grains, poor por, trace sh bl, All no shows
 Ls lt br vfxln, recry oolitic, soft, poor to fair inter gran por, sl chlky in part, No shows
 Ls all as abv
 Ls dk br, lith. dns, Sh gay sof
 Ls lt br vfxln, recry oolitic, soft, poor to fair inter gran por, sl chlky in part, No shows
 Ls med br to lt br, med to lg xln's, poor to fair inter gran por, poss trace br stain on a few pieces, (No Cut), also same dns Ls, also sl chlky in part, trace Sh dk gray, Faint pale yell min flor, All No shows
 Ls lt br to med br, med to large oomoldic por, cal matrix cmt, pale yell min flor, Ls off crm lith sl chlky, no vis por., All no shows.
 Ls off wh to crm lith dnse and Ls off wh well cmt re xln oolitic, no vis por, No show.
 Ls lt br, frag, well cmted frag., foss, fine to med xln, no vis por, Also Ls med br, frag, foss, crinoids, well cmted no vis por, Ls crm to off wh, soft, very chlky, no vis por, All No shows, Sh gray, Sh bl carb,
 Ls lt br, med to large oomoldic exel por, well cmt, pale yell min flor, Ls crm to wh chlky, Ls gray green Lith no vis por, No shows.
 Ls lt br excel oomoldic por as abv, Ls off chlky, Ls tan lith no vis por, All no shows.
 Sh bl carb, Ls br to tan, lith, no por poor vis por
 Sh gray, Ls crm to wh, med to f xln, poor vis por., Ls off wh chlky to poor ro excell vug por, Sh bl carb, All no shows
 Sh gray, sandy, Ls off wh chlky,
 Ls off wh chlky, Chert lt br, opag, Ls med br, fxlN, no vis por, Chert gray green foss, no por, No Show
 Ls off wh chlky, Ls dk gray, foss, also oolitic well cmted (has pale yell min flor) no vis por, trace Chert lt br, opag., Sh gray. All no shows.
 Ls off wh very chlky, frag, foss, micritic por, trace Chert med br, opag, Ls wh - all chalk, No Shows
 Ls med br, lith very foss, frag, also med size wel l cmt oolites, poor vug por, sl chlky in part, trace Chert lt br, foss, Ls wh all chalk, Saw 1 piece with a dead oil stain on part of large vug, (had no cut), sample has no odor, No flor, Trace sh med gray, No oil or gas shows..
 Ls med br to lt br, lith also very frag, foss, re xln sml to med oolitic rocks, poor vis por, No shows
 LS med br, fine to med xln, no vis por, re cry oolitic, sl foss, Ls off wh chalky, sh bl carb, All no shows
 LS med br, fine to med xln, no vis por, re cry oolitic, sl foss, Ls off wh chalky, increase in sh bl carb, All no show
 Ls med br lith, dnse, no vis por, also sl chlky on some pieces, Ls off wh, f to med xln, micritic, vfxln, no vis por, Ls med br, well cmted med size oolites, no vis por, trace Sh bl carb.
 Ls lt br to gray, lith dnse, no vis por, Sh bl carb, Ls off micritic, vfxln, no vis por, increase in Sh bl carb
STARK SH. 4596 (-1772)
 SWOPE LS 4605 (-1781) - Ls med br, lith dnse, no vis por, sl pyritic, trace vug por, Ls med br lith, no vis por, sl chlky in part. No shows

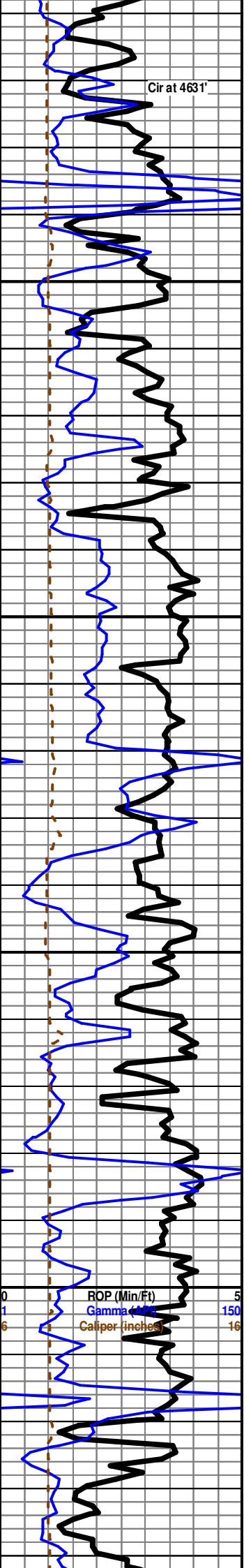
Cal = 20;
 Sol = 5.6%;
 LCM = 4#;
 DMC = \$
 3016.85;
 CMC = \$
 14,348.90.

TG, C1-C5 50

TG, C1-C5 50

Cir at 4631, catch a 15
 min and 60 min
 samples for show
 evaluation.





Ls lt br, vfxln, med to fine xln, soft, micritic, poor por, few pieces good inter gran por, also sl chlky in part, Notesaw 1 piece with poss dk bl stain, very faint dull yell min flor, No free oil seen, No oil cut, No odor.

Depth 4631 - 15 min sample- Saw 1 piece with poss dk bl stain on fracture as abv, No flor, no cut, no sample odor, No free oil, No sample cut, mainly Ls lt br to tan, med xln, well cmted cal grains, no vis por, 60 min sample, Mainly Ls lt br fxl, micritic, grading to lith, no vis por, no stain, no odor, no flor.

Ls lt gray, vf recr xln oolitic, Sh med gray No shows
HUSH SH. 4640(-1816)

Sh bl carb, Sh med gray

Ls lt gray, oolitic, well cmt recrln, No shows

Sh bl carb (looks like coal)

Ls med br lith to med xln, lots of loose pieces in the tray, poorly cmted, Also Ls tan to tt br, frag, foss, no vis por, Chert lt br, opag, Ls off wh vfg, poor to fair por, trace Chert lt br, very foss, opag, All No shows

Ls lt br oolitic, well cmt, no vis por, trace Chert lt br, very foss, opag. Ls off wh med to fxl, poor to good por, All no shows

All as abv, Increase in Ls off wh, micritic to chalky

Ls off wh, micritic to chlky, very fxl, soft to chalky, vfxln to poor por, LS gray lith no vis por, Sh bl, Sh dk gary, All Shows

increase in Sh bl carb, Sh dk gray

Shales as abv, Also large increase of Ls black to dk gray, lith, No vis por, Also Ls off, foss, fxl, poor por. All no shows

Shales as abv, Also large increase of Ls black to dk gray, lith, No vis por, Also Ls off, foss, fxl, poor por. All no shows

Shales as abv, Also large increase of Ls black to dk gray, lith, No vis por, Also Ls off, foss, fxl, poor por. All no shows

MARMATON LS. 4736 (-1904)

Sh gray soft, Ls med br, lith to vfxln, no vis por, Sh bl carb, L off to crm, med xln, poor inter gran por, Sh bl carb. No shows.

Ls off wh to crm, lith to f xl, poor inter gran por, Ls med br, lith to vfxln, no vis por, Sh bl carb. No shows.

Ls off wh to crm, lith to recr med xlms, dnse, no vis por, Sh bl carb, trace pyrite xlms, trace sh gray. No shows

Ls off wh to lt br. lith also a few pieces frag to foss, Note lith has has a faint wh min flor, all no vis por.

All as abv, increase in Ls med br, No shows

Ls lt br, very oolitic med size med size, well cmted, no vis por, Ls med br, lith, dnse, sl pyritic, trace Chert med br, opage, Trace sh bl carb, No vis por, No shows.

Mainly Ls med br, lith no vis por, Ls off wh to lt br, very chalky, frag, micritic por, trace vug por, Chert lt br, opague, Sh dk gray.

Ls off wh to Lt br, lith to dnse, trace vug por, No shows

Ls lt br lith, dnse, recr oolitic ls, no vis por, Ls off wh, vfxln to lith, trace vug por, trace Sh lt gray, No shows

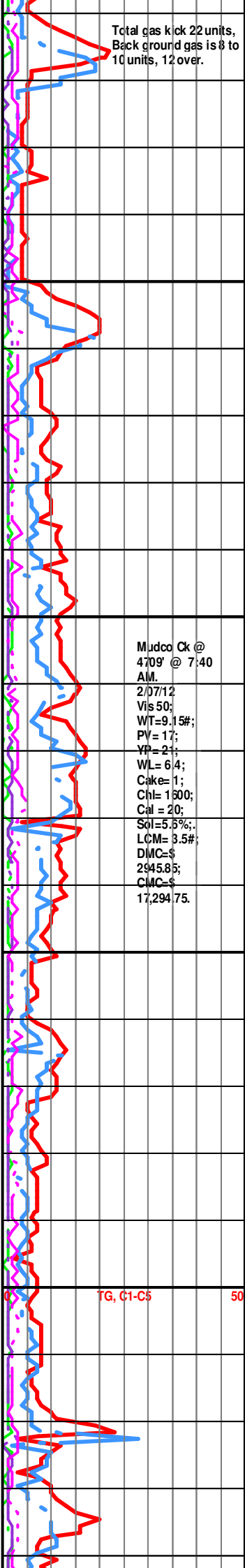
Ls med br, med to f xl, trace inter gran por, LS off wh med xln, no vis por, Sh bl Carb, No shows

PAWNEE LS. 4824 (-2000)

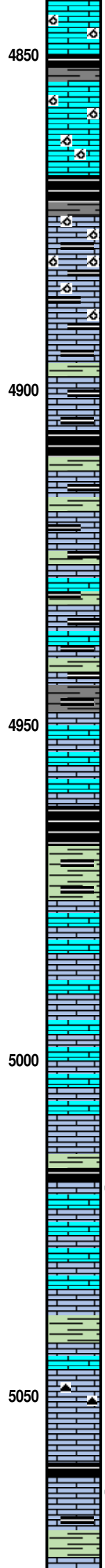
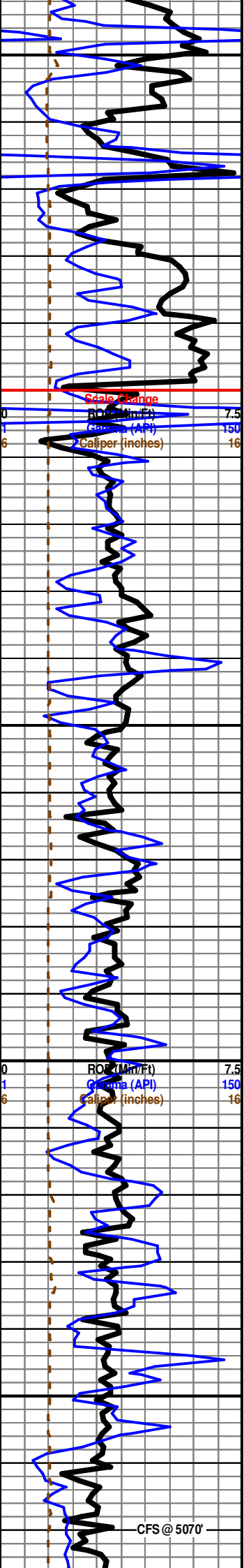
Ls lt br, lith, micritic to chlky in part, Ls med br, med xln, well cmted, no vis por, Sh bl carb (50%) & Sh Gry (50%). Ls off wh, fxl, poor intra gran por, Note Ls lt br, lith has a very faint lt white min flor, No shows.

Ls lt br, foss and oolitic in part, rexl, no vis por, Sh bl carb, Sh dk gray, Ls off wh, fxl, very chlky, trace vfxln por, All no shows.*** Good Spl ?

Ls lt br vfxln, poor vug and inter gran por, also oolitic in part, well cmted, foss. Note opids



TG, C1-C5 50



LS lt br, vfxln, poor vug and inter gran por, also some in part, re crinoids, foss; note some and foss are a calcareous med br in color and appear as rexln "ghost" outlines in the rocks, Ls same lt br, lith no vis por with trace of chlyk por, has very ft yell min flor, trace Sh bl carb and Sh dk br, Saw 1 piece of Ls off wh to cream, very soft med yell flor, chalky por, No stain, No free oil, No cut, Poss lt fleeting oder in sample, All rocks no other shows

Ls off wh very chlyk to micritic, frag, sl foss, chlyk type extra fine por, Aslo Ls off wh to med xln, re cry ooids and sml carb ooid grains, poss poor inter gran por, wiht dk min grains, dnse also gardes to Chert, lt br sl foss, All no show

CHEROKEE SH. 4868 (-2044)

Sh bl Carb, Sh dk gray

Ls lt br vfxln to med xln, poor to fair inter gran por, re cry oolites, Ls dk gray, f to med xln, well cmted no vis por, No shows.

As abv: Ls lt br vfxln to med xln, poor to fair inter gran por, re cry oolites, increase in Ls dk gray, f to med xln, well cmted no vis por, No shows

As abv

As abv

2nd Cherokee Shale 4907 (-2083)

Sh bl carb

Sh bl carb, Sh dk br, Ls dk gray, lith, dnse, no vis por., Ls lt gray, lith dnse, no vis por, All no shows.

Sh bl carb, Sh dk br, Ls dk gray, lith, dnse, no vis por., Ls lt gray, lith dnse, no vis por, All no shows.

Sh bl carb, Sh dk br, Ls dk gray, lith, dnse, no vis por., Ls lt gray, lith dnse, no vis por, All no shows.

As abv.

3rd Cherokee Shale 4944 (-2120)

Ls dk gray, lith no vis por, Sh dk br to bl, No shows

Ls med br fxlN to med xln no vis por, Ls lt br, med xln, no vis por, Sh dk gray, All no shows.

20 min cir, Ls med br, med xln, frag (unk bl min), sll foss (corals), no vis por, saw 1 piece Sh bl carb, Sh dk br., Ls med b, f to med xln, no vis por, No shows good inter gran por, trace sh bl carb, All no shows.

Sh bl carb, Sh dk gray, Ls med br, med xln, trace inter gran por, No shows.

Ls med br, med xln - fxlN, no vis por, No shows, trace Ls off, med xln, trace vis inter gran por, No shows.

Ls med br to light br, lith, poor to good vug por, Ls off wh to crm, lith, trace poor vug por, No shows

Ls med br, med to fxlN, trace inter gran por, Ls off wh, fine to med xln, trace inter gran por, No shows.

Ls med br, med xln, no vis por, trace Ls off wh, very chlyk, has dk tarry stain, Note total Sample has No flor, 1 piece No solvent cut, 2nd piece Ls med br, med grain, has vsli solvent cut, Sh bl carb, sh dk gray No other shows

Ls med br to lt br, f to med xln, poor inter gran por, also graddng to lith, chlyk in part, trace Chert med br, opaque with wh contrast wh fossils and inclusions, Saw 1 piece of Ls med br, med xln, rexln ooids and ukn cal gains that have a bl tarry outline around same grain, also sml tar filled fracture in Ls off wh med xln, no vis por, No cut, Sample had No flor, Rest no shows.

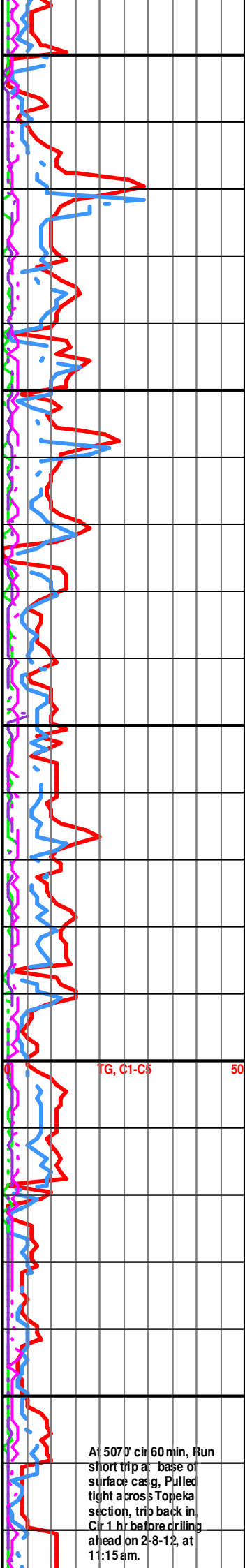
Ls dk br, lith, med xln, no vis por, sh greenish gray, Ls ed br, lith no vis por, Ls off wh to crm, lith, dnse, fair to med xln, poor inter gran por, All no shows

Top of INOLA LS at 5041 (-2217)

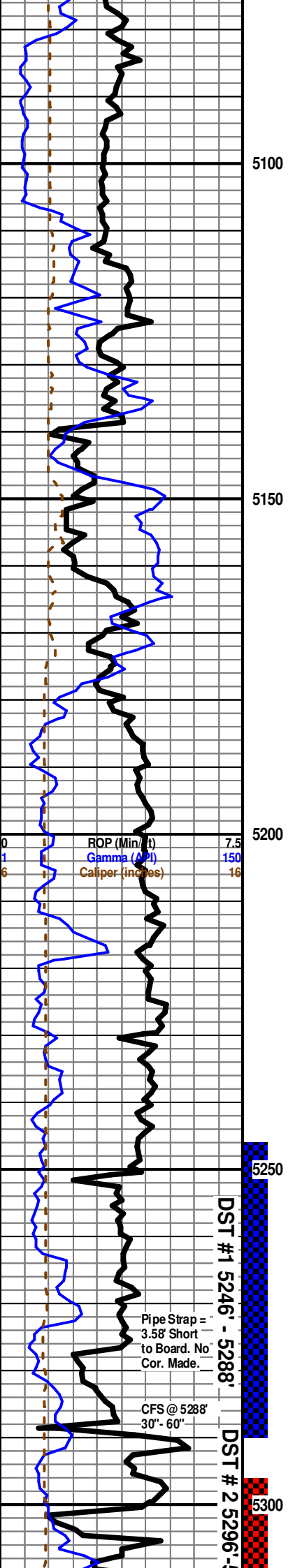
Ls med br, med xln, no vis por, few large cal xln's, trace vis por, few pieces fxlN, excell por, Ls wh, f to med por, no vis por, Ls dk br to bl, lith, no vis por, Chert bl, also Ls bl very foss, foss are wh calcite or wh chert inclusions, opaQ, no vis por., All no shows.

40 min, Ls med br, med xln, good to exel por, also lith, also oolitic in part, well cmted no vis por, saw 1 piece -Ls off wh. to very chlyk, med xln, good inter gran por, has bl tarry stain, Excellent br wh solvent cut,

60 min Top of MORROW SH at 5069 (-2245) Ls dk br, has dk cal grains, med xln, few glau. grains, trace inter gran por, Ls off wh, med xln, pyr xlns, fair to good inter gran por, gradding to chlyk, trace Sh bl carb, also sh pale green, also Sh lt gray. No shows in 60 min sample. Top Chester 5074 (-2250)



At 5070' cir 60 min, Run short trip at base of surface casing, Pulled tight across Topeka section, trip back in Cir 1 hr before drilling ahead on 2-8-12, at 11:15 am.



Ls lt dull br, med xln, no vis por, Sh bl carb, Sh bl gray, trace Sh pale green, Ls med xln, also with Ls med br with excell vuggy por - with med size cal xlns, No shows

Ls med br, med to fxl n, no vis pos, re xln sli oolitic in part, few pieces with med vug por, increase in Sh bl carb, trace Sh lt gray, Sh lt green, trace Chert opaque to clear, Also ls offwh, fxl n to chiky, No shows.

Ls med br, med xln, gran, poor vis por, also with matrix alter.to chalk, some with wh lith ls, sl foss grains, No Shows

Ls med br, med xln clear to bl grains, part foss, some gradding to fxl n, has xlns vuggy por, Also Ls med xln with med grains floating in altered chiky matrix, fair inter gran micritic por, Note some of the grains were well rounded, looks like Qtz grains, ALL DISSOLVED AWAY IN ACID, No shows

Chester Marker 5115 (-2291)

-80% of Sample is: Sh med gray dnse hard, Ls Lt gray, lith with chiky por, Ls gray, frag with med size gray and wh cal grains, trace inter gran por, No Shows

Sh dk gray as abv,, Ls med fray lith, no vis por, Ls med br fxl n no vis por,, Ls off wh very chiky, micritic, trace bk tarry stain, has (no cu), trace Ls off wh, matrix, with dk br foss, frag, No vis por, No Shows

Dramatic decrease in gray sh as abv (less than 5%) Ls lt gray to tan, lith, dnse, with a poss few microfractures, sli foss, Saw 1 one 1 piece with dk min stain (had no cut), saw several pieces with med to lrg wh calcite on edges - excell vug por,, also Ls gray green lith no vis por, No shows

75% of sample Ls off wh, vfx, poss micro oolitic, with trace micro glau grains, vf xln, poss fair inter gran por-?, Ls off wh lith to med grain, no vis por, trace sh bl, trace Ls med xln, sli pyritic, no vis por, trace lt gray soft clay with limonite stain,, trace green ply Sh with frag grains, trace clear Chert very foss, frag, vit All no shows

Ls off wh as abv.

Ls off wh, vfxn, grains well cmted, little or no visible porosity, dnse, few pieces have a sli greenish tint to the rocks, Ls pale green micro oolitic, well cmted no vis por to poor vis por. Trace Sh pale green, med br, All No Shows.

Sh dull red, Sh dk gray, decrease in Ls wh abv, Ls med gray, lith no vis por No Shows, Saw 1 piece Ls wh, ext large cal xlns, indicating excel. vug por, lt stain on surfaces (had a very pale solvent cut), Sample washes pale red, No other shows.

ST GEN. 5174 (-2315)

increase in Sh dull red, Ls off wh, micro oolitic, well cmted, no vis por, Sh med olive gray, Sample washes red, No shows.

Marked decrease in Red shale, (sample does not wash red), Ls off wh, micro oolitic, well cmted, dns, no vis por, (as abv), Ls off wh and lt br (looks like salt and pepper) reddish to br tint, fair to good inter gran por, Sh olive green, very sandy,

Ls off wh, micro xln, micro oolitic, well cmted, dns, Same Ls but with a greenish tint, fair to good por, Trace sh dk gray massive. All no shows

Ls off wh, micro xln oolitic, well cemented, few piece, dns, salt and pepper texture no vis por, with traces of glauconite, trace green Sh, No shows.

Ls off wh, micro xln oolitic, well cemented, dns, range from no vis por to a some with poor vis por, No shows, few darker pieces were tested and had no solvent cut, few pieces of Ls lt, br, lith, dnse, no vis por, very faint wh min flr No shows

Mainly ls off, micro xln, micro oolitic, dnse, little or no por, Few pieces of Ls micro oolitic, dnse well cemented, have poss fractures that follow a lt br streak in the rock chip (no solvent cut), Ls off wh micro xln, micr oolitic, as before with excellent por, very weakly cmted, All no shows

St Louis Formation 5241 (-2417)

Ls off wh vfxn, micro oolitic to med to large oolitic, well cmted (Note this is the first time I have seen a med to large size oolite rock), trace sh grey green, few pices Ls micro xln, micro oolitic, weakly cmted, excel inter gran por, Ls lt brown in color, micro oolitic as before well cmted, Ls med br, med xln, dnse, large re xln ooids, well cmted, no por, all no shows.

Ls off wh, vfxln, micro oolitic, well cmted, dnse, very little inter gran por, a lot of this sample has a very ft yell min flr, (first time) No cut, Ls off wh, mixed micro to med oolitic grains, some poor inter gran por, Not as well cmted, few pieces Ls, lt br, micro oolitic, lt br, well cmted, no por, few pieces red shale, trace green shale, trace glauconite min grains, no odor all rock types No solvent cuts, No shows, Note there was a yell dish stain after sol cut- poss low grav crude oil?

5270 sample - Ls off wh, micro xln, micro oolitic, weakly cmted, has very dull lt yell flr, when crushed, no free oil seen, No odor, No cut but there was a more distinct yell dish stain after using solvent- poss low grav crude oil ?

St Louis B Porosity Zone 5277 (-2453)

Sample at 5288, before gas kick arrived at detector, Ls lt greenish gray, lith, no vis por, Ls Few pices Chert, lt br, very oolitic as wh calcite rims, with lt br oil stained centers, observed leaking bl oil under lamp, Good oil show Also ls lt br, lith, no por, trace dk br shale

15 min sample at 5288', Very strong sample odor, Ls off wh med to fxl n, excel inter oolitic por, loosely cmted, several pieces bleeding bl oil, stong dull yell solvent cut, Also with wh barren med size oolitic rocks, ls wh chiky no show, sh dk gray. 30 min, increase in same show rocks, also Ls wh chiky, 45 min dec show in rocks, 60 min dec show no odor, well cmted rocks.

30' CFS @ 5309' Ls Wht Good OOL Por w/OOL in pl Med-Lg Ooids Friable Well Sorted Lt Cmt Good Hvy Stn Sat Around Ooids SG/SFO Strong Odor Tr/SI ? Stn Flor Cht Gry Op Shp Vit Good SG/SO

60' CFS @ 5309' Ls Wht Good OOL Por w/OOL in pl Med-Lg Ooids Friable Well Sorted Lt Cmt Good Hvy Stn Sat Around Ooids SG/SFO Strong Odor Tr/SI ? Stn Flor Cht Gry Op Shp

Re zero at 5070 background to 10 units

Mudco Ck @ 5081' @ 7:40 AM. 2/03/12 Vis 52; WT=9.2#; PV=20; YP=20; WL=7.6; Cake=1; Chl=2400; Cal=20; Sol=6.3%; LCM=3#; DMC=\$2380.05; CMC=\$19,674.80.

DST # 1 5246' - 5288'. Times: 5"-90"-120"-240". Blow: IF = Weak inc. BOB/4.4". FF= BOB/1.5". Recovery: 3345' GiP; 765' TF; 400' GO (97% O & 3% G); 65' GSMCO (90% O, 5% G & 5% M); 180' VHMCO (37% O, 27% G & 36% M); 120' GMCO (71% O, @% G & 27% M); 26 Grv. Pressures: IH=2462#; =2459#; IF=3577#; ISIP=1327#; 1289#; Temp=123 degrees F.

TG, C1-C5 100

DST # 2 5296' - 5315'. Times: 5"-90"-120"-240". Blow: IF = Weak/1.5". FF= Weak/BOB/89". Recovery: 370' SMCW (w/Tr. O); 5 Mud. Pressures: IH=2469#; =2466#; IF=1029#; =37-203#; ISIP=1396#; FSIP=1373#; Temp=126 degrees F.

Scale Change TG, C1-C5 100

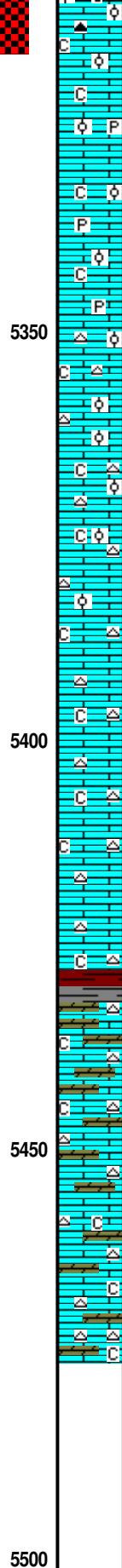
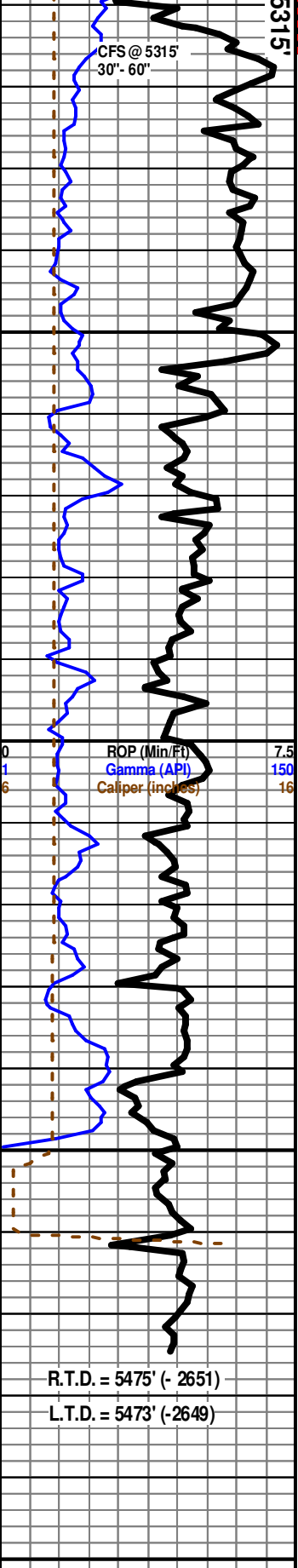
Mudco Ck @ 5288' @ 12:20 PM. 2/09/12 Vis 58; WT=9.2#; PV=20; YP=20; WL=7.2; Cake=1; Chl=1900; Cal=20; Sol=6.3%; LCM=3#; DMC=\$1209.45; CMC=\$20,884.25.

Gas Kick = 28 Units

Trip Gas = 59 Units

Gas Kick = 50 Units

Gas Kick = 62 Units



Vit Sh Aqua-Grn-Char Good SG/SO
30" CFS @ 5315' Ls Wht Good OOL Por w/OOL in pl Med-Lg Ooids Friable Well Sorted Lt Cmt Good Hvy Stn Sat Around Ooids SG/SFO Strong Odor Tr/SII ? Stn Flor Cht Gry Op Shp Vit Sh Aqua-Grn-Char Fissil Good SG/SO
60" CFS @ 5315' Ls Good OOL Por AA Strong Odor Good SG/SO AA

Ls Wht Microxln OOL "Sandy" Por Fgm w/Pyr Includ Grad Wht-Gry Micrite Dns Barren w/Pyr Includ Chalk Wht Soft Sh Gry-Red-Char-Gry-Grn Fissil No Odor No Stn No Flor NS

Ls Wht Gry Micrite Dns Barren w/Pyr Includ Grad Microxln OOL "Sandy" Por Fgm w/Pyr Includ AA Wht- Chalk Wht Soft Sh Char-Gry-Grn Fissil No Odor No Stn No Flor NS

Ls Wht Gry Micrite Dns Barren w/Pyr Includ Grad Microxln OOL "Sandy" Por Fgm w/Pyr Includ AA Wht- Chalk Wht Soft Sh Gry-Red- Tr/Blk Carb (? Sluff) Fissil No Odor No Stn No Flor NS

Ls Wht Gry Micrite "Blocky" Inc Tr/Microxln OOL "Sandy" Por Fgm AA Dec Cht Wht-Gry Translu-Op Shp Vit Chalk Wht Soft Sh Gry-Grn Fissil No Odor No Stn No Flor NS

Ls Wht-Crm-Gry Fxln Dns Micritie Grad F-Igran Small OOL Por Poor -Fair InterOOL Por Barren w/Pyr Includ Cht Tan Transl-Op Shp Vit Tr Chalk Sh Gry-Char-Aqua AA Fissil No Odor No Flor NS

Ls Wht-Crm-Gry Fxln Dns Micritie Grad F-Igran Small OOL Por Poor -Fair InterOOL Por Barren w/Pyr Includ Cht Tan Transl-Op Shp Vit Tr Chalk Sh Gry-Char-Aqua AA Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Grad F-Igran V Small OOL Por Poor -Fair InterOOL Por Barren Cht Tan Transl-Op Por Shp Vit Tr Chalk Sh Gry-Char-Aqua AA Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Cht Gry (Banded Wht) Transl-Op Por Shp Vit Tr Chalk Sh Gry-Char Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Cht Gry (Banded Wht) Transl-Op Por Shp Vit Tr Chalk Sh Gry-Char Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Cht Gry (Banded Wht) Transl-Op Por Shp Vit Tr Chalk Sh Gry-Char Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Cht Gry (Banded Wht) Transl-Op Por Shp Vit Tr Chalk Sh Gry-Char Fissil No Odor No Flor NS

SALEM ? 5431' (- 2607)

Ls Wht-Gry Fxln Dns Micritie Tr Dolo-Gry-Wht Fxln Dns Cht Gry Transl-Op Por Shp Vit Tr Chalk Sh Char- Red Fissil No Odor No Flor NS

SALEM POR 5441' (- 2617)

Ls Wht-Gry Fxln Dns Micritie Tr/Dolo Gry Fxln Micrite Dns Barren Cht Wht (Banded Blk)-Gry-Op Por Shp Vit Tr Chalk Sh Char-Aqua Fissil No Odor No Flor NS

Ls Wht-Gry Fxln Dns Micritie Tr/Dolo Gry Fxln Micrite Dns Barren Cht Wht (Banded Blk)-Gry-Amber Op Por Shp Vit Tr Chalk Sh Char-Aqua Fissil No Odor No Flor NS

30" CFS @ 5475' Ls Wht-Gry Fxln Dns Micrite Tr/Dolo Gry Fxln Micrite Dns Barren Cht Wht-Op Por Shp Vit Tr Chalk Sh Char-Aqua Fissil No Odor No Flor NS

60" CFS @ 5475' Ls Wht-Gry Fxln Dns Micritie Tr/Dolo Gry Fxln Micrite Dns Barren Cht Wht Op Por Shp Vit Tr Chalk Sh Char-Aqua Fissil No Odor No Flor NS

ELECTRIC LOGS BY LOGTECH, INC. : DUAL COMP. POROSITY;
DUAL INDUCTION; BOREHOLE COMPENSATED SONIC;
MICRORESISTIVITY; GAMMA RAY-NEUTRON (CASED HOLE).

Geologist Left Location @ 8:30 PM 2-12-12

