



Woolsey Operating Company, LLC

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

Measured Depth Log

Well Name: HARDTNER HOMES 1
Location: E/2 NW NW SE
License Number: API: 15-007-24046-00-00
Spud Date: August 11, 2013
Surface Coordinates: Section 25-T34S-R13W, 2310' FSL, 2150' FEL
Hardtner
Bottom Hole Vertical Hole
Coordinates:
Ground Elevation (ft): 1485
Logged Interval (ft): 3800 To: RTD
Formation: McLish Shale
Type of Drilling Fluid: Chemical Mud, Displace at 3376'.
K.B. Elevation (ft): 1497
Total Depth (ft): 5485
Region: Barber County, Kansas
Drilling Completed: August 23, 2013

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Woolsey Operating Company, LLC
Address: 125 N. Market, Suite 1000
Wichita, KS 67202

GEOLOGIST

Name: W. Scott Alberg
Company: Alberg Petroleum, LLC
Address: 609 Meadowlark Lane
Pratt, Kansas 67124

FORMATION TOPS

	SAMPLE TOPS	LOG TOPS
LECOMPTON	3624(-2127)	3622(-2125)
KANWAKA	3637(-2140)	3634(-2137)
HEEBNER	3877(-2380)	3872(-2375)
HASKELL	4079(-2582)	4077(-2580)
STARK SHALE	4558(-3061)	4555(-3058)
HUSHPUCKNEY SHALE	4585(-3088)	4580(-3083)
B/KC	4636(-3139)	4632(-3135)
PAWNEE	4726(-3229)	4725(-3228)
CHEROKEE GROUP	4774(-3277)	4774(-3277)
MISSISSIPPIAN	4810(-3313)	4800(-3303)
KINDERHOOK SHALE	5162(-3665)	5160(-3663)
WOODFORD SHALE	5231(-3734)	5229(-3732)
VIOLA	5279(-3782)	5282(-3785)
SIMPSON SHALE	5390(-3893)	5390(-3893)
SIMPSON SAND	5406(-3909)	5406(-3909)
MCLISH SHALE	5448(-3951)	5447(-3950)
RTD	5485(-3988)	
LTD		5485(-3988)

COMMENTS

Surface Casing: Set 5 joints 13 3/8" at 223' with 235 sxs Class A, 2% gel, 3% cc, plug down at 2:30 am on August 12, 2013. Cement did Circulate.

Production Casing: Ran 5 1/2" Casing

Deviation Surveys: 1 - 225', 1/4 - 2046', 3/4 - 2522', 3/4 - 3027', Missrun - 3563', 3/4 - 3627', 1 - 4293', 1 - 4850', 1 1/2 - 5485'.

Contractor Bit Record:

1- 17 12" out at 225'.

2- 7 7/8" out at 4850'.

3- 7 7/8" out at 5485'.

Pipe Strap at

Board 4862.45'
Strap 4863.36'
Strap Long .91'

Gas Detector: Woolsey Operating Company, Trailer #1

Mud System: Mud Co, Brad Bortz, Terry Ison, Engineers

DSTs: Trilobite Testing

Logged by Nabors Completion and Production Services

LTD - 5485'.

DSTs

DST #1 4737 to 4850' Cherokee-Mississippian

Missrun - Could not get to bottom, tool slide 10', packer failed. Had 25' fill when reconditioning the hole.

Recovery: 1500' Drilling Mud.

IHP 2432# FHP 2302#

FP invalid, No SIP

DST #2 4737 to 4850' Cherokee-Mississippian

Times 30-60-60-120

1st Opening - fair blow, BOB 26 minutes, no blow back.

2nd Opening - weak to fair blow, BOB 34 minutes, no blow back.

Recovery: 123' Drilling Mud.

IFP 44-62# FFP 57-79#

ISIP 484# FSIP 462#

IHP 2312# FHP 2286#

Temp 119 degrees.

CREWS

Fossil Drilling, Inc Rig #3

Tool Pusher - Jim Wenrich


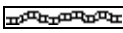
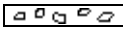
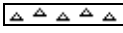
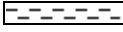

Drillers - Days - Daniel Orranta







Evening - Ron Burns


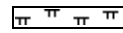

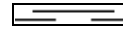


Morning - Andres Maestas






Relief - Allen Collins

ROCK TYPES

 Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal

 Congl
 Sdy dolo
 Shy dolo
 Dol
 Gyp
 Sdy lmst

 Lmst
 Mrlst
 Salt
 Shale
 Slstst
 Ss

 Black sh
 Gry sh
 Shale
 Shyslstst
 Sltysh

ACCESSORIES

MINERAL

- Anhy
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Ferrpel
- Ferr
- Glau
- Gyp
- Marl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt

- Chlorite
- Dol
- Sand
- Slty

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra

- Pelec
- Pellet
- Pisolite
- Plant
- Strom
- Fuss
- Oomoldic

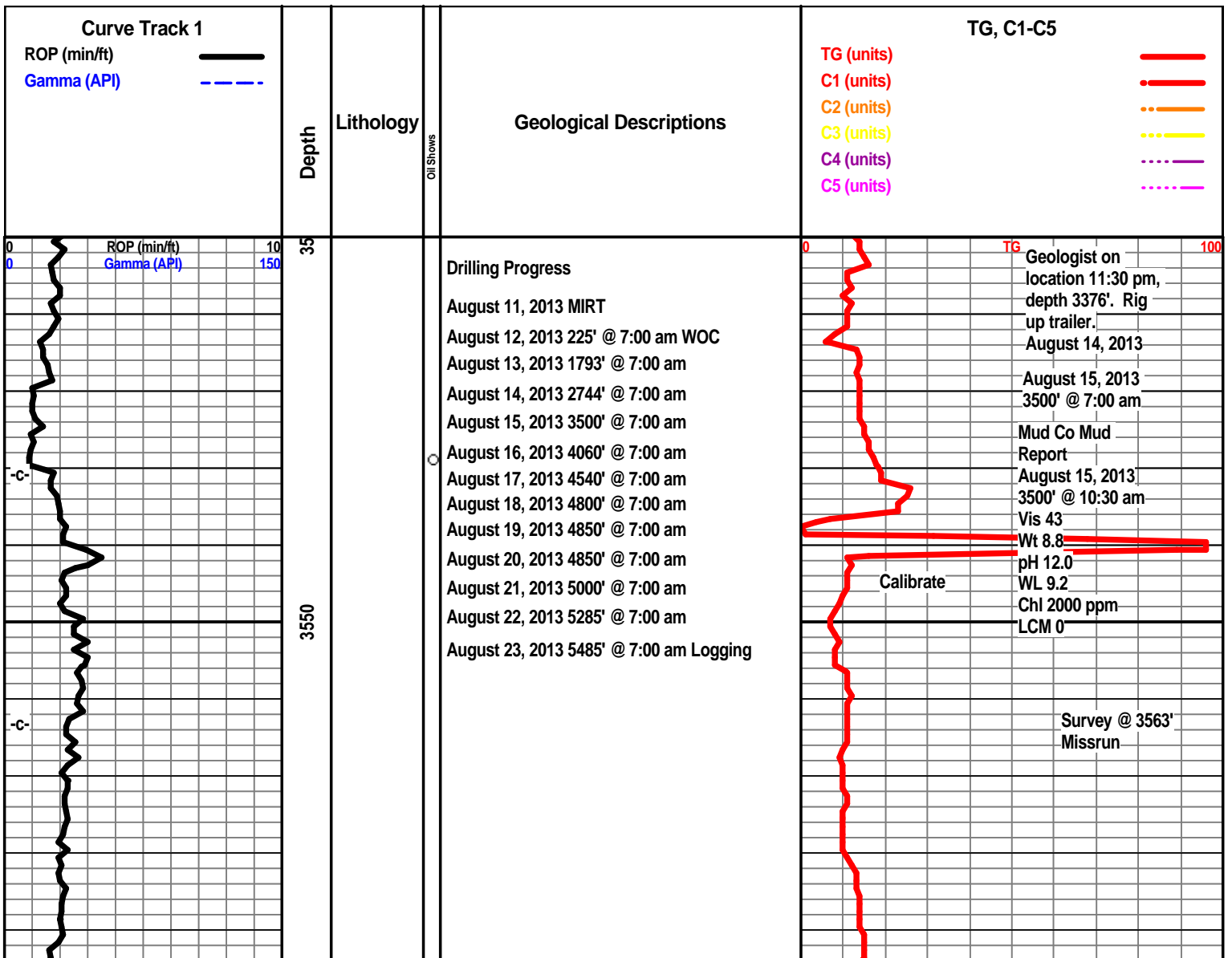
STRINGER

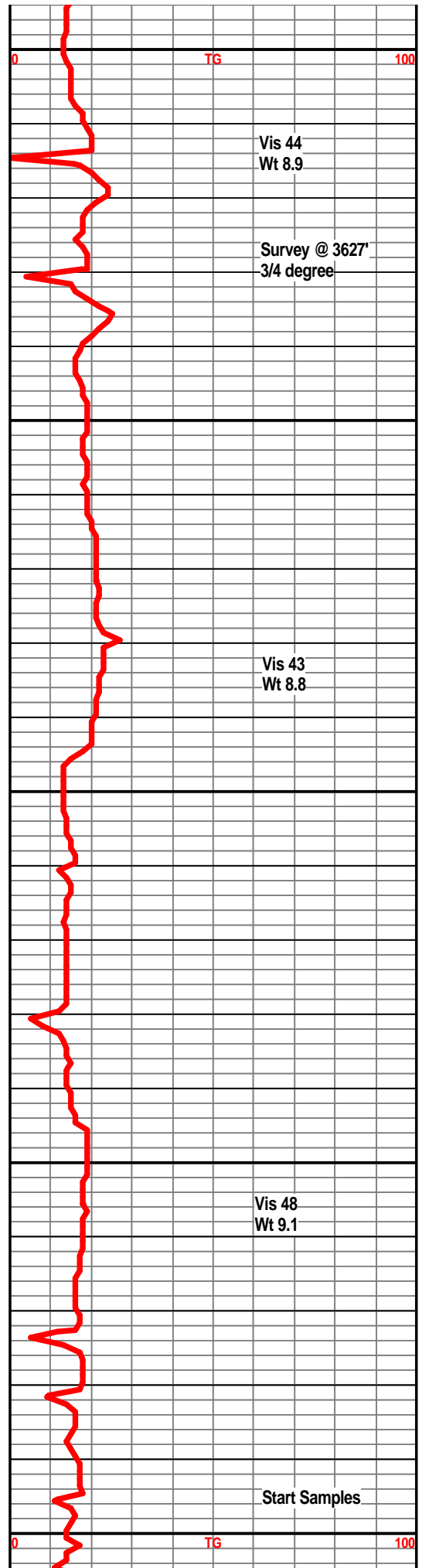
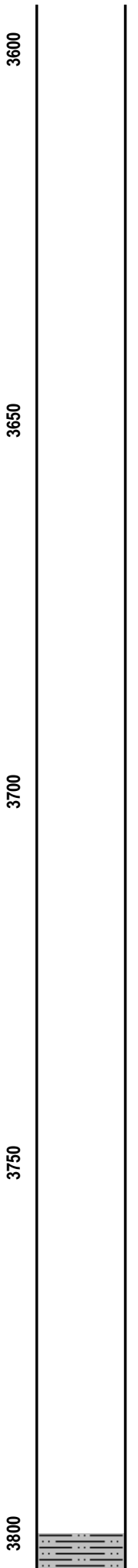
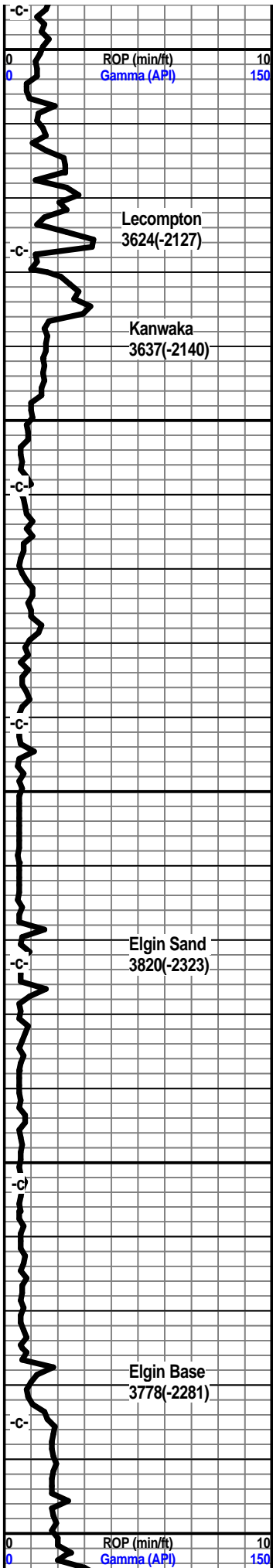
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Slststrg
- Ssststrg
- Carbsh
- Clystn
- Dol

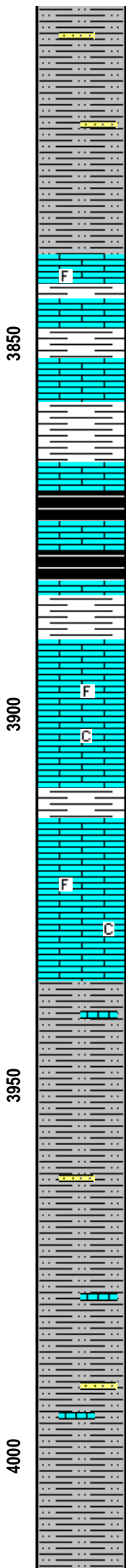
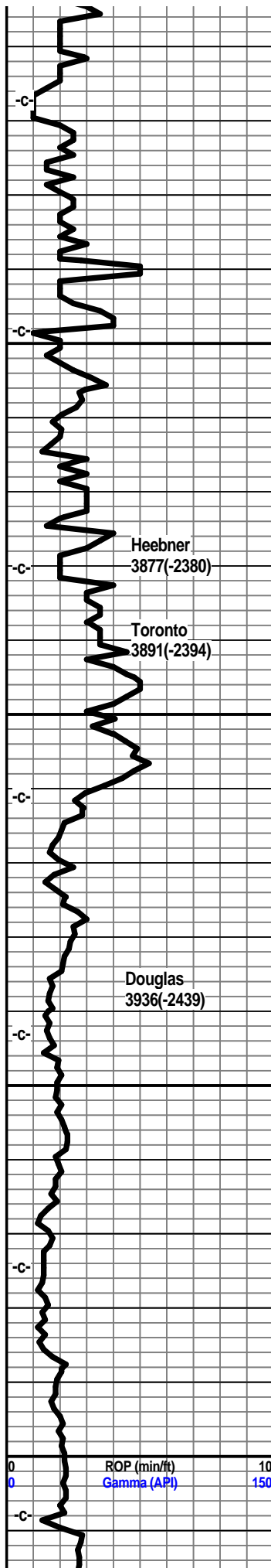
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Slststn

TEXTURE

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







Shale, light grey, very silty to sandy, abundant sand clusters from above.

Shale, light grey, very silty to sandy.

Limestone, tan, tan-brown, dense, trace fossils.

Limestone, tan, tan-grey, xln, dense.

Shale, grey.

Limestone, grey-tan, xln, dense.

Shale, dark-grey, black, slightly carb.

Limestone, grey-tan, xln, dense, trace fossils.

Shale, grey, dark-grey, black, carb. in part.

Shale, light grey, light green.

Limestone, tan, cream, xln, dense, trace of fossils, slightly chalky.

Limestone, tan, cream-white, xln, dense, trace fossils, chalky in part.

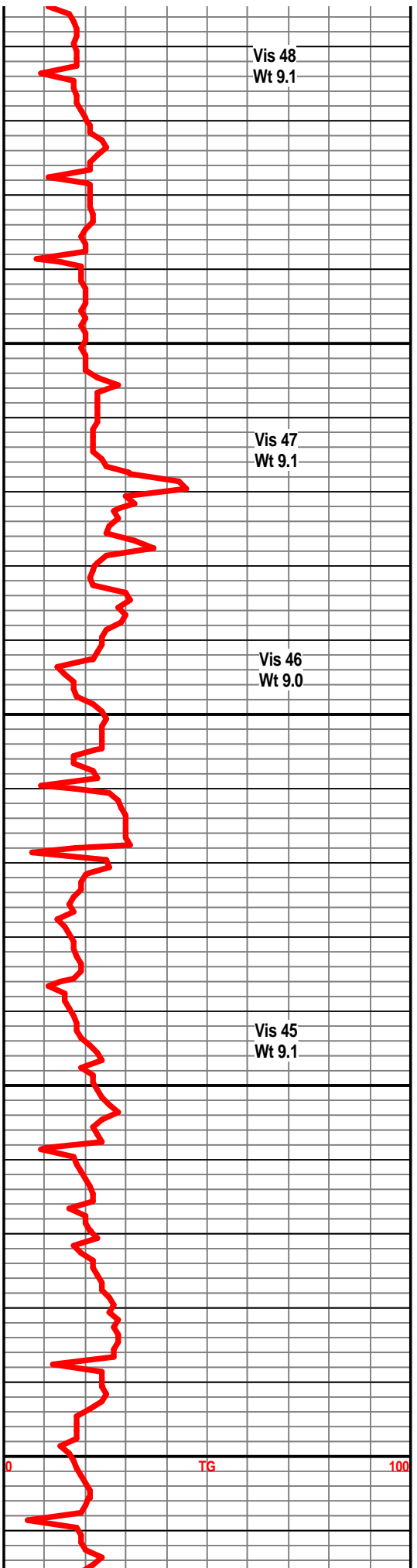
Shale, light grey.

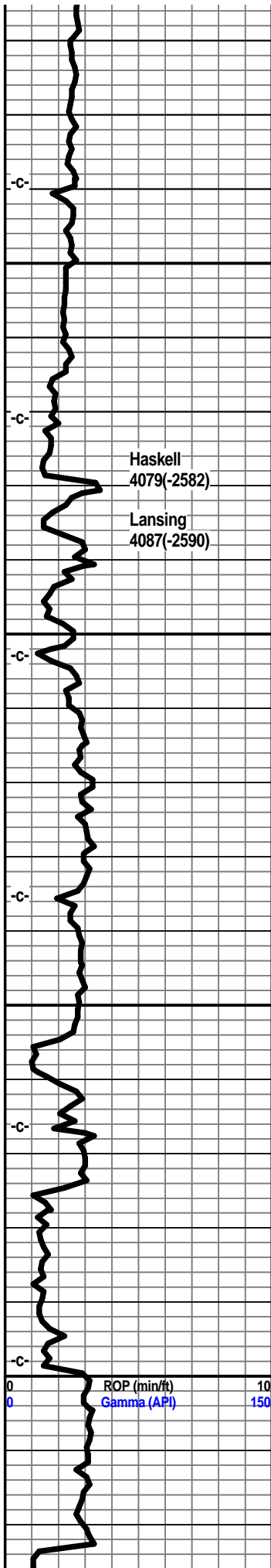
Limestone, tan, cream, xln, dense, trace fossils, some tan-brown.

Shale, light grey, very silty, ls frags.

Shale, light grey, silty, ls frags, few sand clusters.

Shale, light grey, very silty to sandy, sand clusters, ls frags.





Shale, light grey, silty, abundant sand clusters, some ls frags.

Shale, grey to light grey, very silty to sandy, sand clusters, ls frags.

Shale, light grey, silty to sandy.

Limestone, tan, tan-brown, mxln, dense, fossils.
Shale, grey.

Limestone, cream-tan, xln, oolitic, trace oolimoldic porosity, some inter oolitic porosity, no visible shows, no odor, no kick

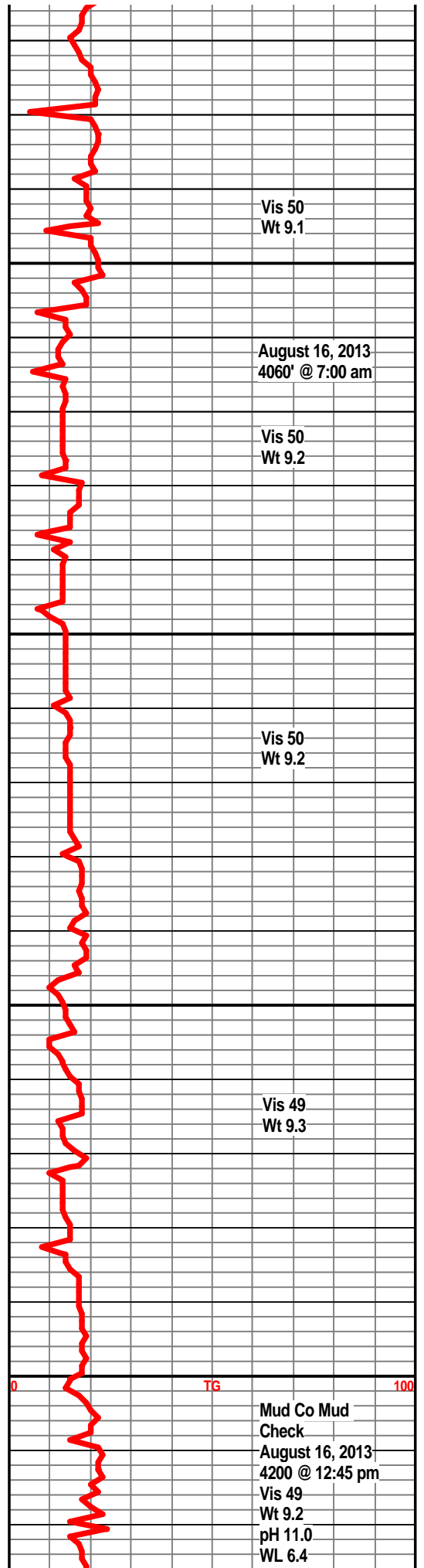
Limestone, cream, tan-white, xln, dense, traces of fossil frags, no visible shows, no odor.

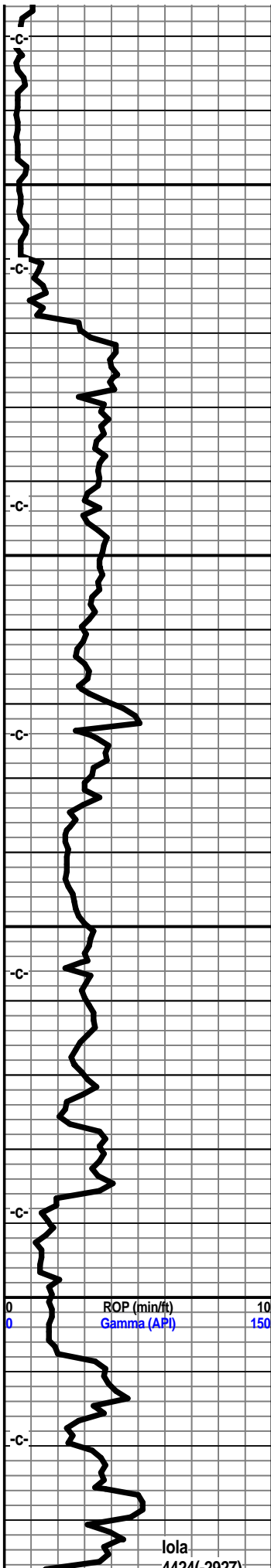
Limestone, tan, buff, xln, dense, fossils, no visible shows, no odor, some grey shales.

Limestone, tan, cream-white, xln, partly dense, oolites, trace oolimoldic porosity, no visible shows, no odor.

Limestone, cream to tan, xln, traces of xln porosity, foss frags, good porosity, no odor, no visible shows, grey splintery shales abundant.

Limestone, tan, grey-white, xln dense, trace foss.





Limestone, tan, buff, xln, oolmoldic, trace micro oolites, barron porosity, some fossil frags.

Limestone, a/a, splintery grey shales.

Limestone, grey-white, xln, dense, splintery silty to limey shales.

Limestone, grey-white, xln, dense, very shaley.

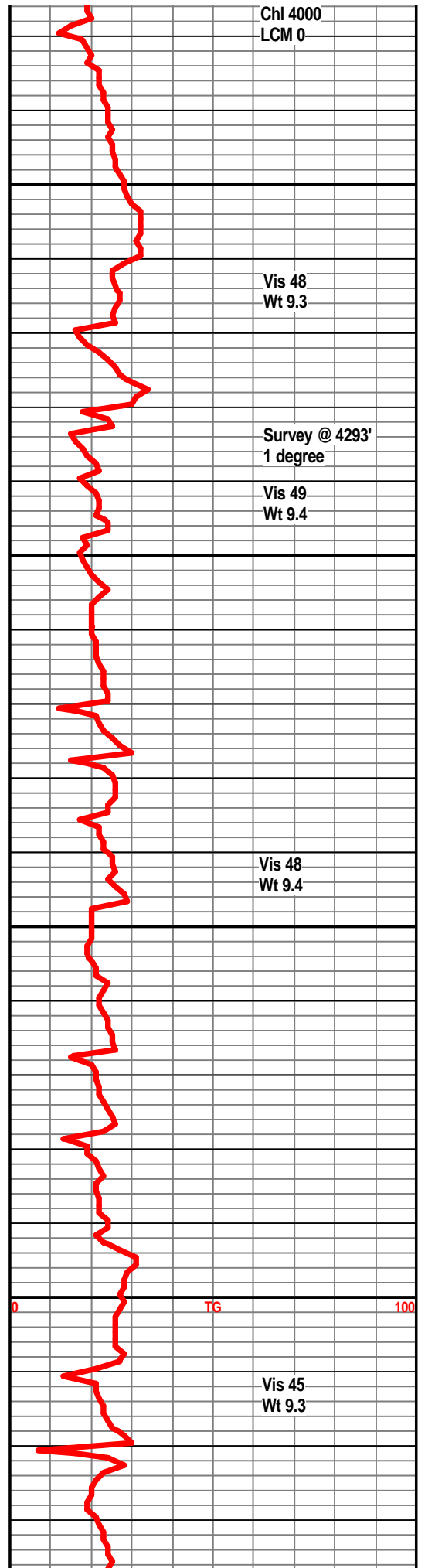
Shale, dark grey, silty, abundant dark grey to brown limestone frags.

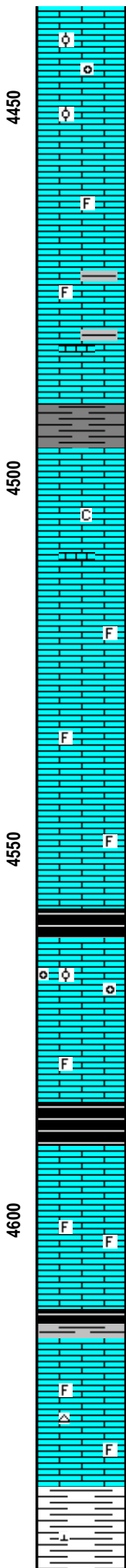
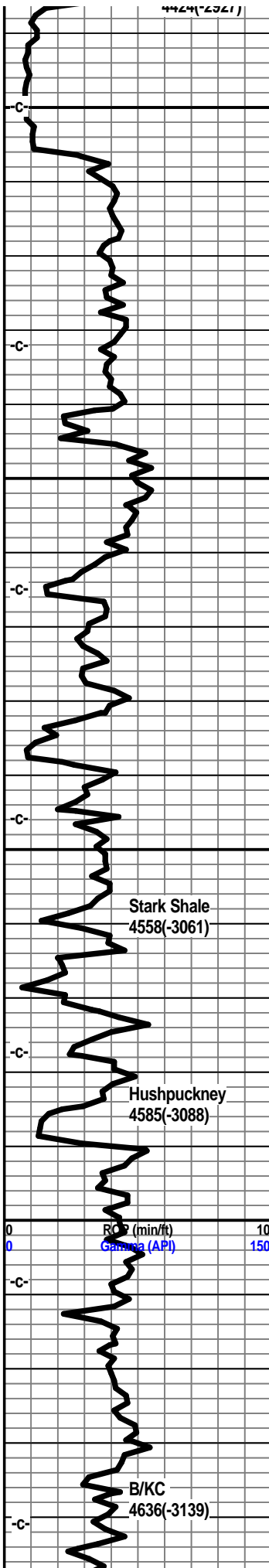
Shale, dark grey, silty, ls frags.

Shale, dark grey, silty, abundant ls fragments.

Limestone, cream, buff, fn xln, traces of xln porosity, few fossils, no visible shows, no odor.

Shale, grey, traces of ls stringers.





Limestone, cream, buff-white, xln, traces of oolites, fossils, traces of xln porosity, some inter oolitic porosity, no visible shows, no odor.

Limestone, tan, buff-white, xln, dense, fossils.

Shales, dark grey, ls fragments.

Limestone, tan, buff, xln, dense, slightly chalky.

Limestone, buff, cream-white, xln, partly dense, trace xln porosity, trace fossils.

Limestone, buff, tan, xln, traces oolites trace oolitic porosity, barron, no visible shows.

Limestone, grey-white, xln, dense, trace tan chert.

Shale, grey-black, trace gas

Limestone, cream, tan-white, xln, trace oolites, trace oolitic porosity, some xln porosity, no visible shows, no odor.

Limestone, grey-white, xln, dense, trace fossils.

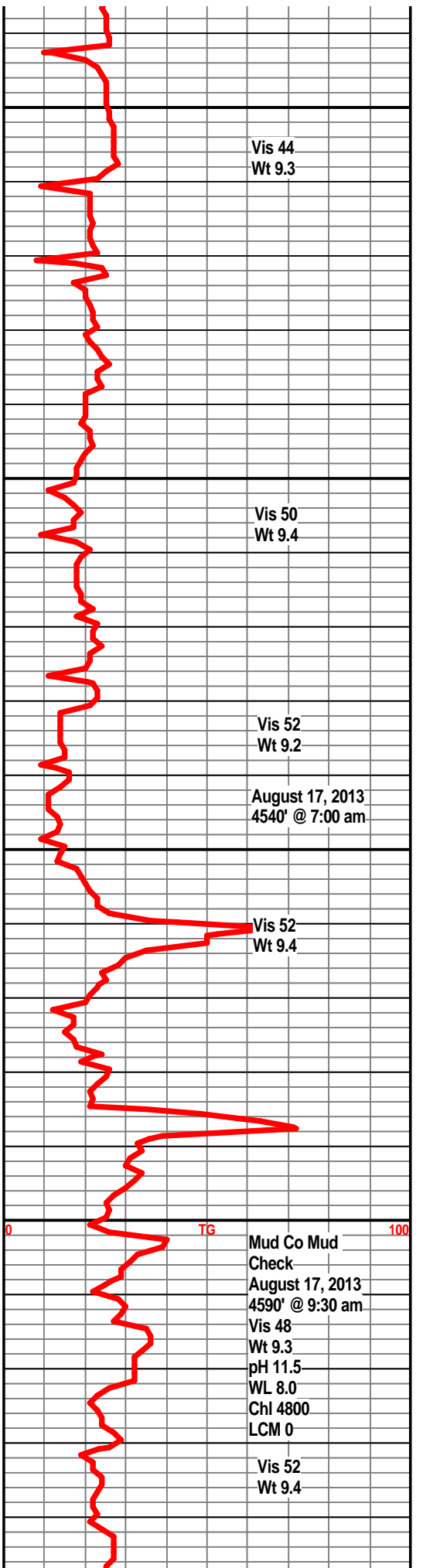
Shale, grey-black, slightly carb.

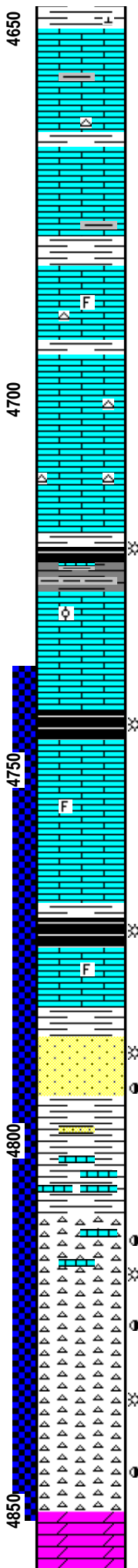
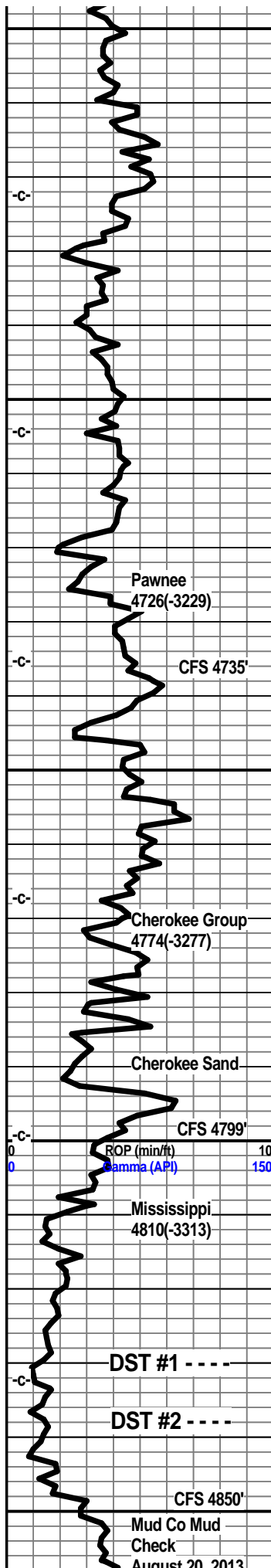
Limestone, tan, grey-white, xln, dense, fossils, trace fossil porosity, no visible shows, no odor.

Shale, grey, grey-black

Limestone, tan, tan-brown, xln, dense, traces tan chert, scattered fossils.

Shale, grey, light grey-green, calcitic.





Limestone, tan, cream, some pale green, dense, shaley in part, traces of tan chert.

Shale, light grey.

Limestone, tan, cream-white, xln, dense, trace fossils, trace tan-brown cherts.

Limestone, tan, buff-white, xln, dense, trace tan chert.

Shale, grey-black, slightly carb.

Limestone, tan, cream, xln, partly dense, traces fossil frags, trace micro oolites, no visible shows, no odor, no kick.

Shale, grey, grey-black, slightly carb.

Limestone, tan, buff-white, xln, dense, trace fossils.

Shale grey-black, carb

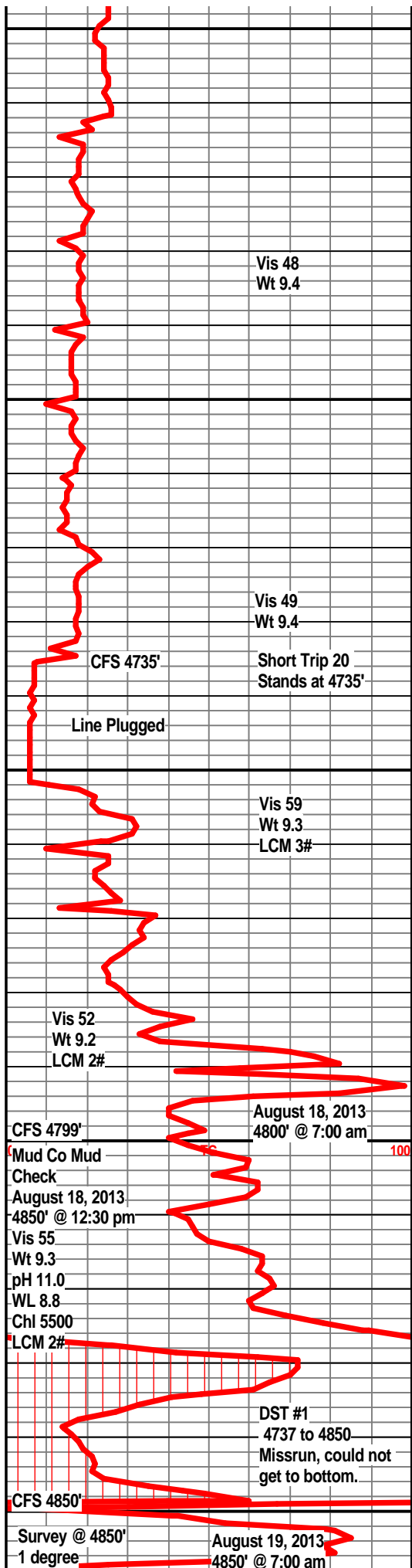
Limestone, tan, tan-brown, xln, dense, trace fossils.

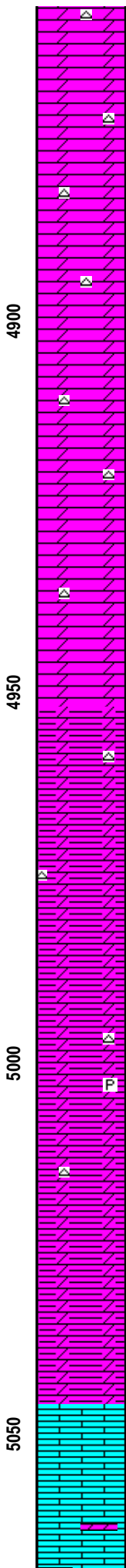
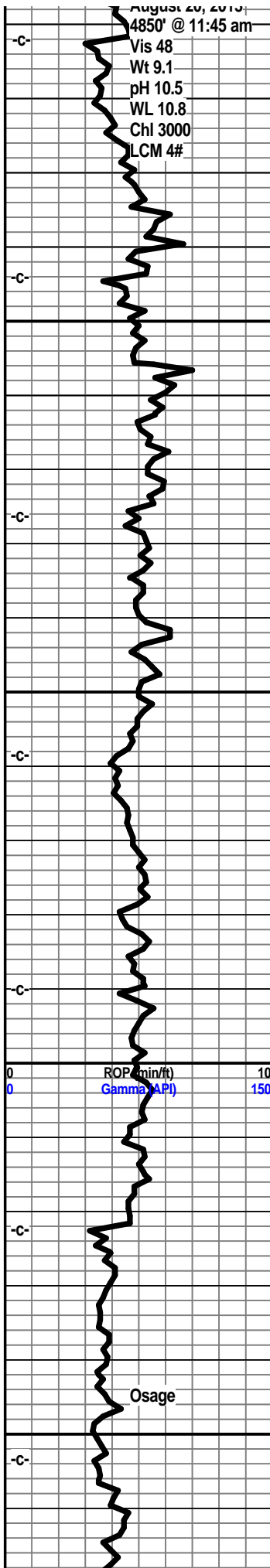
Sandstone, clear to tan, fine grained, sa to sr, fair cementing, some friable, good even golden brown staining, good odor, slight show bleeding gas, traces of free oil, very dull fluor.

Shale, light grey, some vari-colored, ls frags, some sand stringers.

Chert, tan, off-white, sharp to weathered, small scattered vugs, scattered golden stain, fair odor, trace free oil in tray, slightly limey on top, very dull spotty fluorescence.

Chert, tan to off-white, fresh to weathered, pin point porosity, few small vugs, fractured, fair odor, fair show of oil and bleeding gas, scattered staining, very dull spotty fluorescence.





Dolomite, grey-white, fxln, dense, trace of weathered cherts, slight spotty staining on cherts.

Dolo, light grey, xln, light grey green splintery shales, traces of chert. Samples ???

Dolo, grey, light grey, xln, dense, trace chert, some light grey shales.

Dolo, light grey to grey, tan, xln, fine grained, dense, trace of chert, grey shales.

Dolo, light grey, grey, dense, xln, light grey shale.

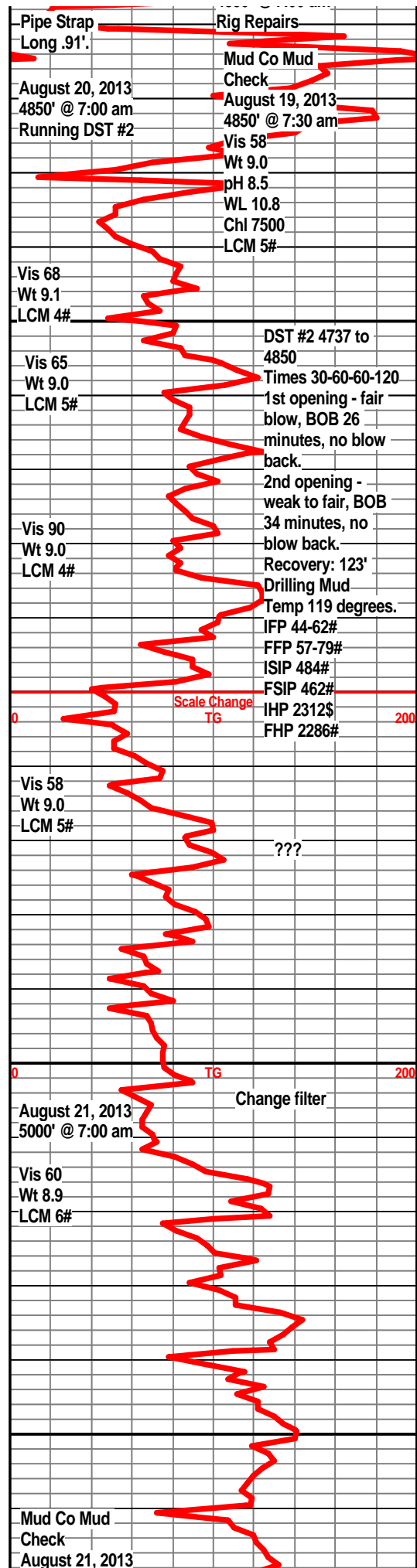
Dolo, grey, light grey, tan, xln, dense, trace light grey shale, trace chert.

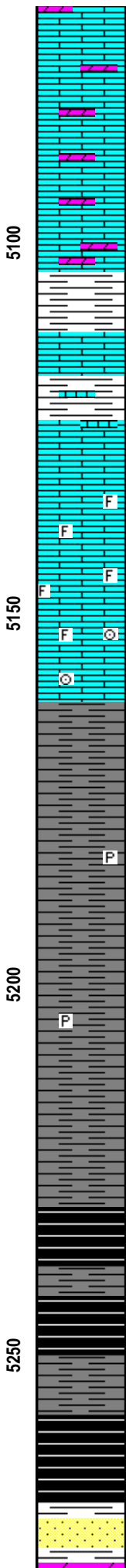
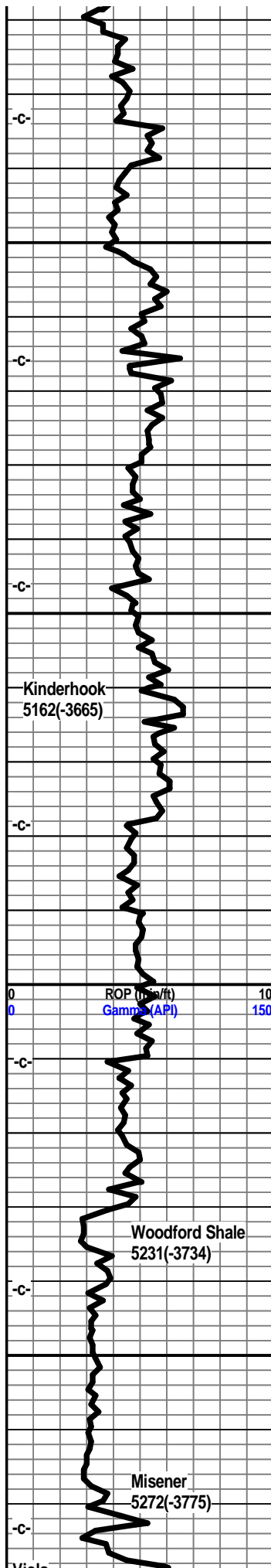
Dolo, light grey to grey, xln, fine grained, dense, traces of light grey shales, trace of pyrite inclusions, no visible shows, increasing gas background.

Dolo, light grey, grey, xln, fine grained, some shale, light grey to pale green. firm.

Limestone, cream, tan, grey-white, dolo, xln, dense, subchalky, trace glauc.

Limestone, cream, tan xln, grey dolo, xln, dense, trace translucent chert, trace glauc.





dense, traces translucent chert, trace glauc,
few pcs chalky, trace fossils.

Limestone, tan, cream, some reddish brown,
some grey dolo, xln, dense, trace grey shales.

Limestone, cream, reddish brown, xln, dense,
traces of green shales.

Shale, green, firm, ls frags.

Limestone, tan, reddish-brown, dense, green
shales.

Limestone, cream-white, xln, dense, subchalky,
traces reddish ls frags, grey-green shales.

Limestone, cream-white, tan, buff, xln, dense,
trace fossils, subchalky, trace glauc, some
green shales.

Shale, grey, light grey, firm, silty.

Shale, grey, dark grey, some grey brown, silty,
traces of pyrite, abundant cutting from above,
ls frags, green shales, ect.

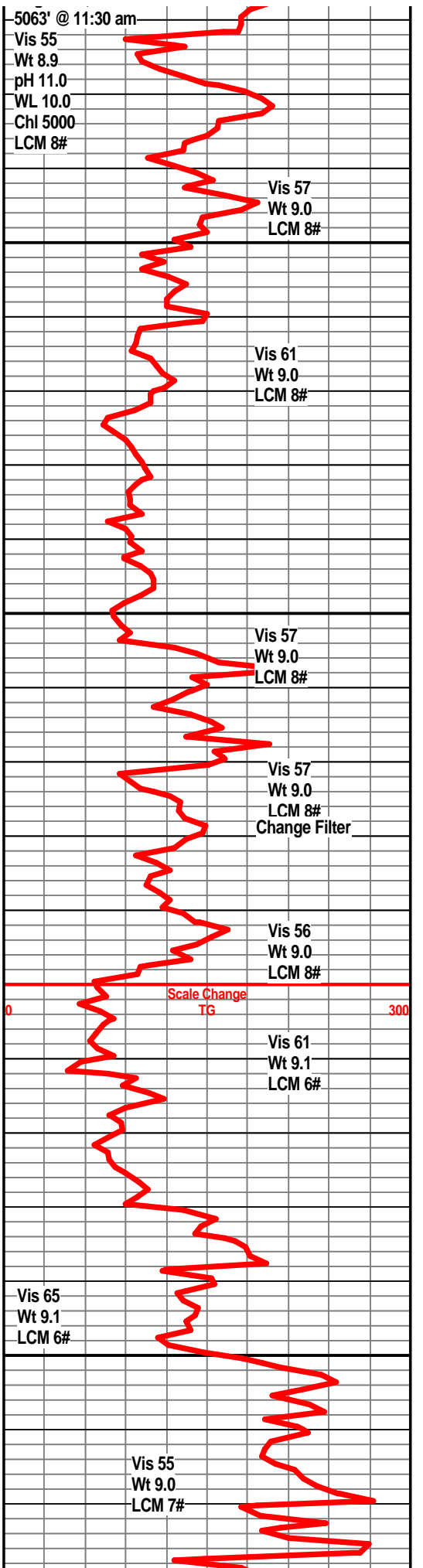
Shale, grey, dark grey, silty, pyritic in part,
abundant ls frags, from above??

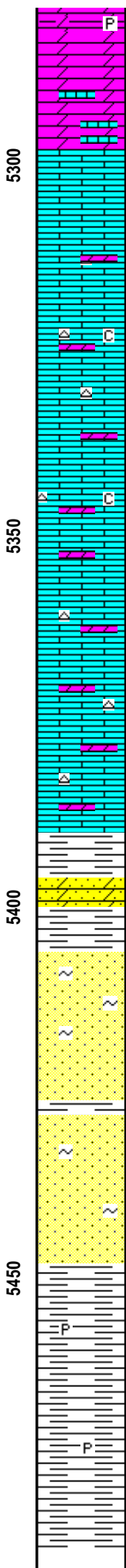
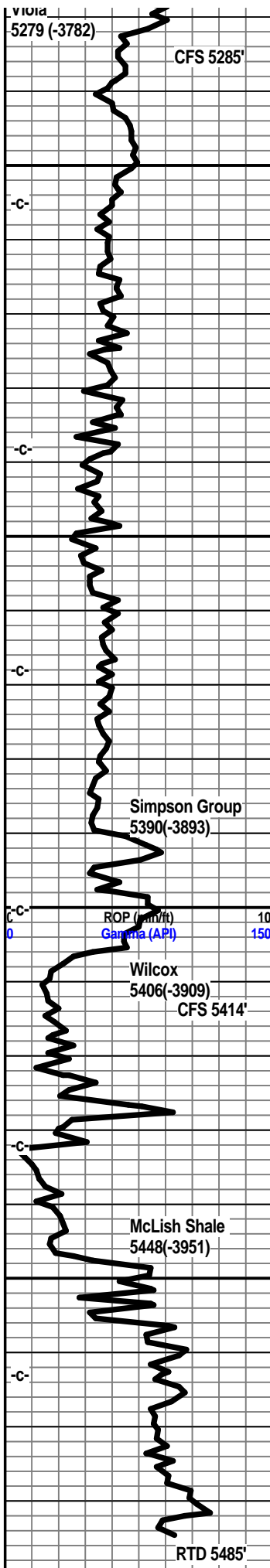
Shale, grey, black, firm pyrite, gas bubbles.

Shale, grey black, coffee brown, gas bubbles,
pyritic.

Shale, grey-black, gas bubbles.

Sandstone, clear to white, sa to sr, gil, friable in part, no
odor, one rx had very faint spotty fluor, very
tite, questionable spotty stain, no free oil.





Dolo, reddish-brown, silty to shaley, fine grained, few embedded sand grains, pyritic, no odor, no visible shows.
 Dolo, grey-white, xln, dense, traces of limestone. Some traces of sand clusters from above, some with spotty fluor, still no odor.
 Limestone, grey-white, xln, dense, angular, trace chert, no visible shows.
 Limestone, tan, cream-white, grey-white, xln, dense, subchalky in part, trace chert, slightly dolo in part.
 Limestone, tan, cream-white, xln, dense, traces tan sharp cherts, slightly dolo.
 Limestone, tan, buff, xln, dolo in part, trace chalky, tan sharp cherts.
 Limestone, tan, buff, xln, dense, traces of sharp tan cherts, slightly dolo in part.
 Limestone, tan, tan-brown, xln, dense, dolo in part, tan sharp cherts.
 Shale, dark green, teal green, firm.
 Sandstone, tan, to clear-white, dirty in appearance, dolomitic, med grained, well cemented, glauc, no vis shows.
 Sandstone, white to clear sr to sa qtz grains, medium sorting, friable in part, galuc, no odor, very slight show scummy oil in few samples, no fluor.
 Sandstone, clear to white, some tan, dolo in part, sa to sr, fair sorting, glauc, traces of pyrite, trace green shales,
 Shale, green, dark green, firm, trace pyrite, few sand stringers.
 Shale, grey-green, firm, few sand clusters, trace pyrite.

