



**Woolsey Operating Company, LLC**

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

Measured Depth Log

Well Name: Harbaugh GU #2  
Location: W/2 SE SE SE  
License Number: API: 15-007-23660-00-00  
Spud Date: February 23, 2011  
Surface Coordinates: 330' FSL, 430' FEL Section 13-Twp 34 South - Rge 12 West  
Rhodes South Pool  
Bottom Hole Vertical Hole  
Coordinates:  
Ground Elevation (ft): 1432 K.B. Elevation (ft): 1441  
Logged Interval (ft): 4000 To: 5240 Total Depth (ft): 5240  
Formation: McLish Shale  
Type of Drilling Fluid: Chemical Mud, Displace at 3410'

Region: Barber County, Kansas

Drilling Completed: March 4, 2011

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
HUSHPUCKNEY SHALE	4461(-3020)	4464(-3023)
B/KC	4511(-3070)	4511(-3070)
PAWNEE	4603(-3162)	4615(-3174)
CHEROKEE GROUP	4647(-3206)	4654(-3213)
CHEROKEE SAND	4662(-3221)	4668(-3227)
MISSISSIPPIAN	4675(-3234)	4683(-3242)
KINDERHOOK SHALE	4915(-3474)	4915(-3474)
WOODFORD SHALE	4989(-3548)	4993(-3552)
MISNER SAND	5022(-3581)	5028(-3587)
VIOLA	5042(-3601)	5048(-3607)
SIMPSON GROUP	5147(-3706)	5145(-3704)
SIMPSON WILCOX	5160(-3719)	5166(-3725)
MCLISH SHALE	5196(-3755)	5202(-3761)
MCLISH SAND	NDE	NDE
RTD	5240(-3799)	
LTD		5245(-3804)

## COMMENTS

Surface Casing: Set 5 joints 10 3/4" at 215' with 230 sxs Class A, 2% gel, 3% cc, plug down at 3:00 am on February 24, 2011. Cement did Circulate.  
Production Casing: Ran 4 1/2" Casing  
Deviation Surveys: 215' 3/4, 1535' 1, 2011 1, 2518' 1, 3026' 1, 3501' 1 1/4, 3819' 1, 4073' 2, 4168' 3/4, 4328' 1 1/2, 4487' 3/4, 4710' 3/4, 5240' 1 1/4  
Contractor Bit Record: 1- 14 3/4" out at 215'.  
  2- 7 7/8" out at 4710'  
  3 -7 7/8" out at 5240'

Gas Detector: Woolsey Operating Company, Trailer #2  
Mud System: Mud Co, Brad Bortz, Engineer  
DSTs: Superior Testing Company  
Logged by Superior Well Services  
LTD 5245'

## DSTs





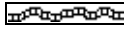

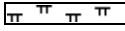

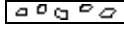





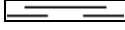

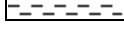





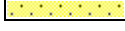
DST #1 4617 to 4710', Times 30-60-60-120  
IF Fair Blow built to 11 inches, no blow back  
FF BOB in 3 minutes, no blow back  
IHP 2341# FHP 2304#  
IFP 90-190# FFP 163# -190#  
ISIP 665# FSIP 912#

Recovery:  
295' Drilling Mud















































































## CREWS

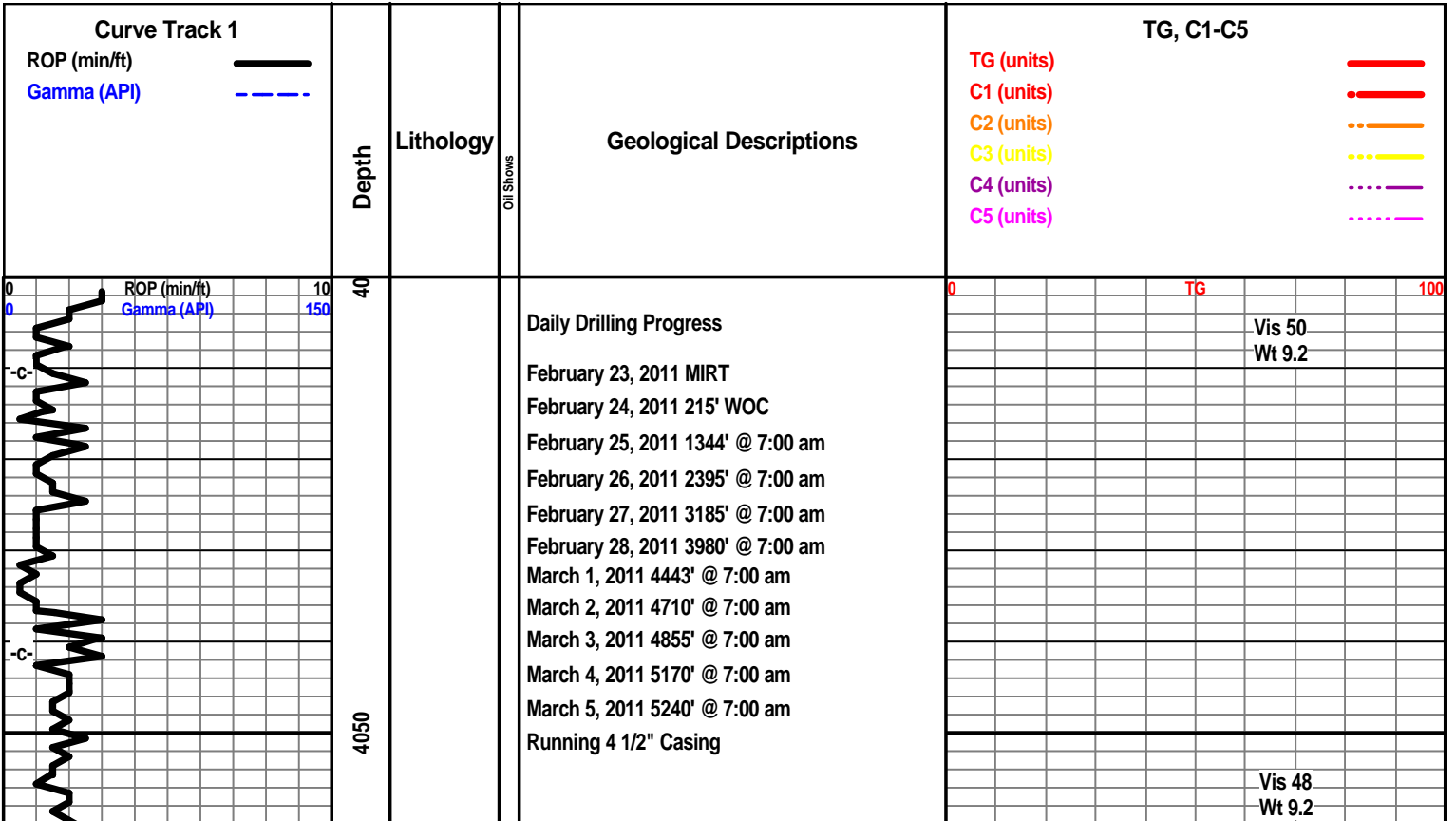
H2 Drilling Rig #3  
Tool Pusher - Randy Smith  
Drillers - Gary Axtell  
          Luis Marquez  
          Cain Charles

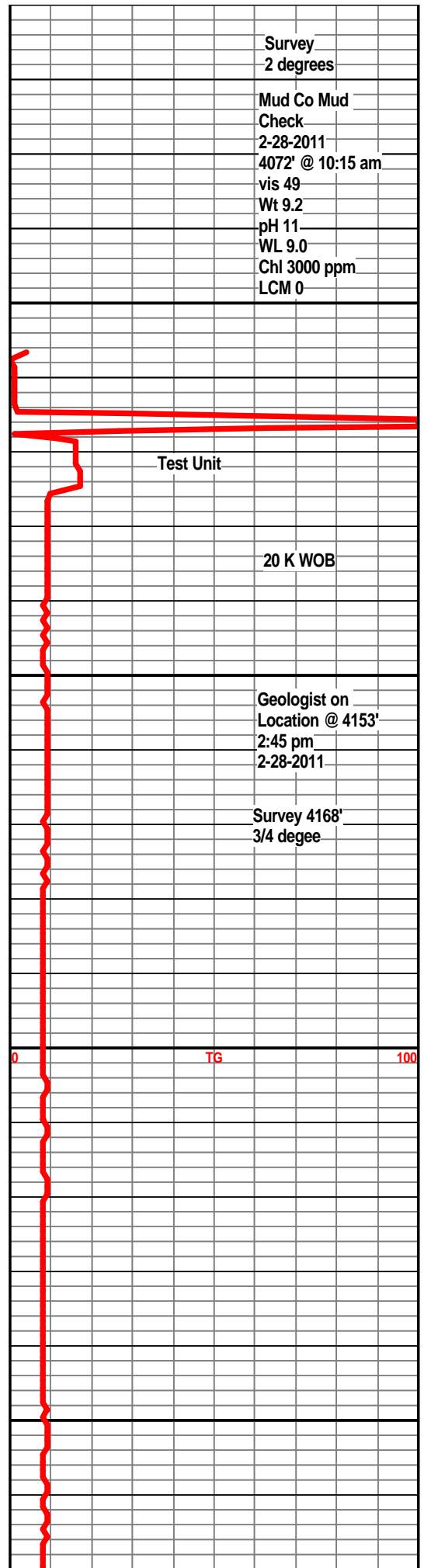
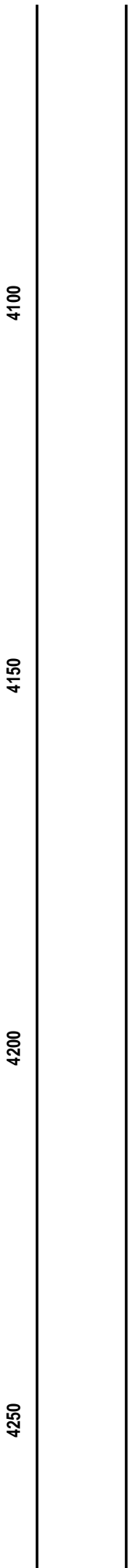
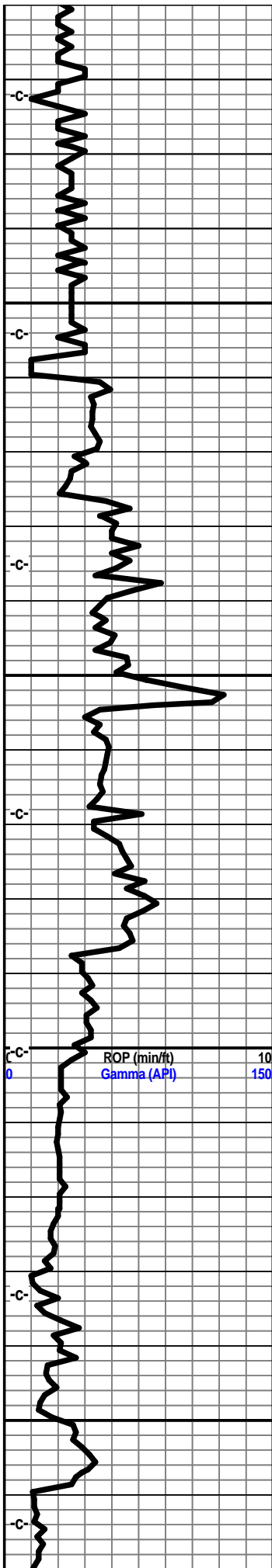
ROCK TYPES

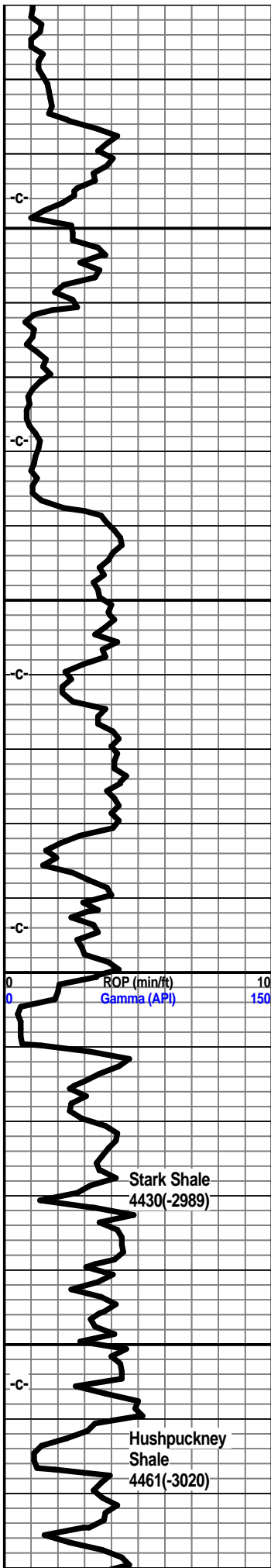
 Anhy	 Congl	 Lmst	 Black sh
 Bent	 Sdy dolo	 Mrlst	 Gry sh
 Brec	 Shy dolo	 Salt	 Shale
 Cht	 Dol	 Shale	 Shyslts
 Clyst	 Gyp	 Sltst	 Slytsh
 Coal	 Sdy lmst	 Ss	

ACCESSORIES

<b>MINERAL</b>	 Chlorite	 Pelec	 Grysh
 Anhy	 Dol	 Pellet	 Gryslt
 Arg	 Sand	 Pisolite	 Lms
 Bent	 Silty	 Plant	 Sandylms
 Bit	<b>FOSSIL</b>	 Strom	 Sh
 Brecfrag	 Algae	 Fuss	 Sltstn
 Calc	 Amph	 Oomoldic	<b>TEXTURE</b>
 Carb	 Belm	<b>STRINGER</b>	 Boundst
 Chtdk	 Bioclst	 Anhy	 Chalky
 Chtlt	 Brach	 Arg	 Cryxln
 Dol	 Bryozoa	 Bent	 Earthy
 Ferrpel	 Cephal	 Coal	 Finexln
 Ferr	 Coral	 Dol	 Grainst
 Glau	 Crin	 Gyp	 Lithogr
 Gyp	 Echin	 Ls	 Microxln
 Marl	 Fish	 Mrst	 Mudst
 Nodule	 Foram	 Sltstrg	 Packst
 Phos	 Fossil	 Ssstrg	 Wackst
 Pyr	 Gastro	 Carbsh	
 Salt	 Oolite	 Clystn	
 Sandy	 Ostra	 Dol	
 Silt			





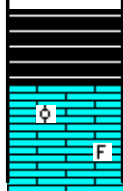


4300

4350

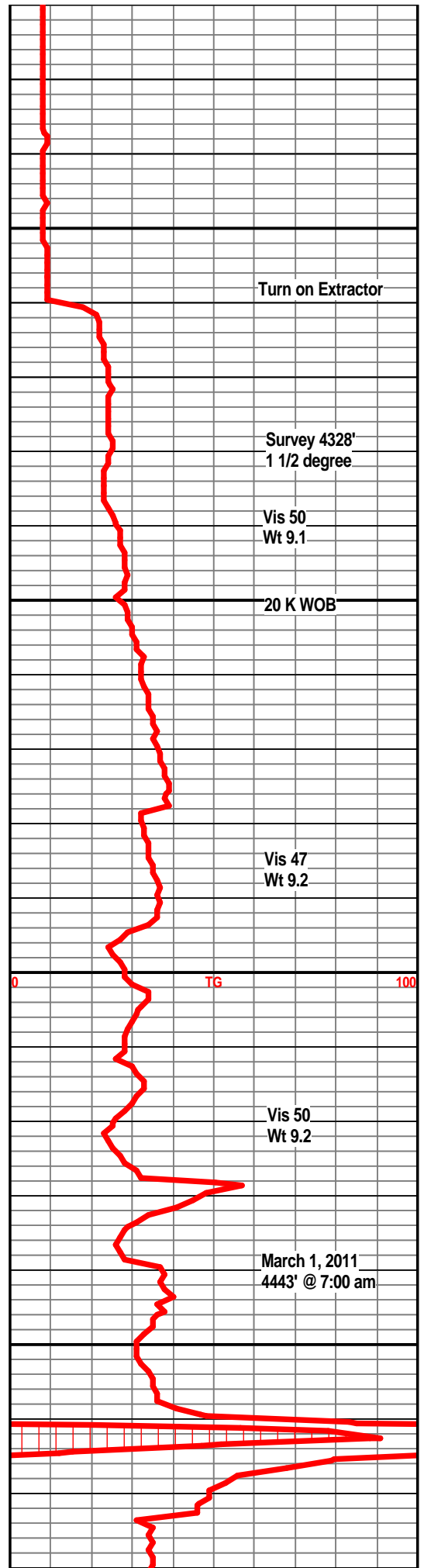
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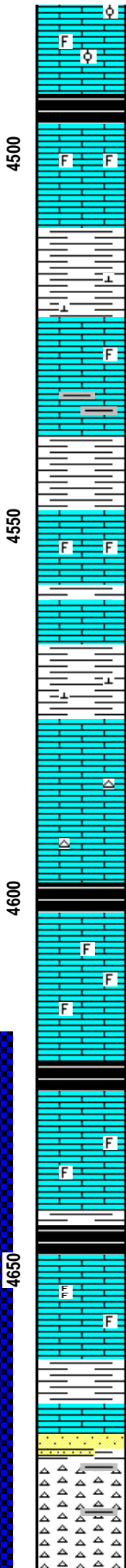
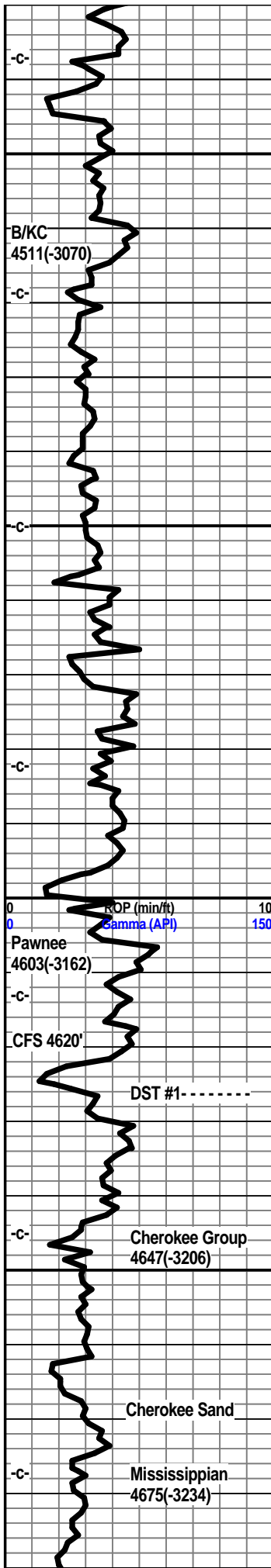
4450



Shale, grey, black, carb, slight show gas.

Limestone, cream-tan, fxln, foss frags, slightly





chalky, sl. ool.

Shale, grey-black, sl. carb.

Limestone, tan-white, fmxln, dense, trace of foss frags, trace of pyrite.

Shale, light grey, calcitic.

Limestone, cream-white, tan, fxln, slightly foss.

Limestone, tan-white, buff, fxln, dense, slightly chalky, trace foss., slightly shaley.

Shale, light grey

Limestone, cream-white, some tan-brown, xln, dense, slightly chalky, foss in part

Shale, grey, green.

Limestone, tan-white, xln, dense, slightly chalky.

Shale, grey, dark grey, grey-green, calcitic.

Limestone, cream-tan, fxln, partly dense, foss. in part, traces of tan cherts.

Limestone, tan, cream-white, fxln, foss. in part, trace chalky ls., trace tan chert.

Shale, grey-black, slightly carb.

Limestone, cream-white, xln, foss. trace of foss porosity, trace of pin point porosity, slightly chalky, very dull light fluor., no odor, no visible shows of oil or gas.

Shale, grey-black, carb.

Limestone, cream-white, buff, xln, trace foss, slightly chlaky.

Shale, dark grey, black

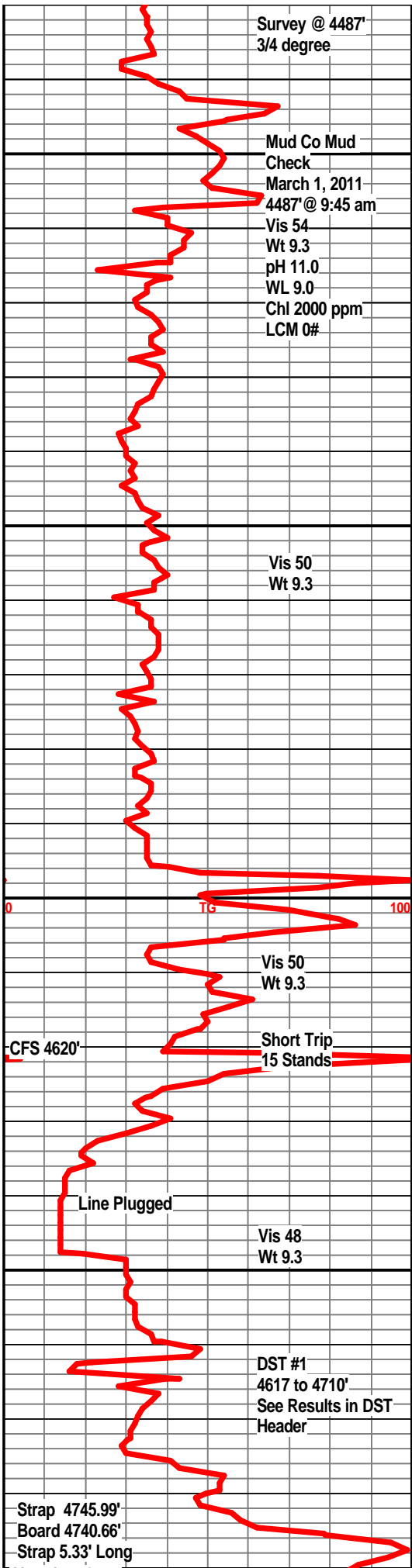
Limestone, tan-white, xln, slightly foss, shaley in part.

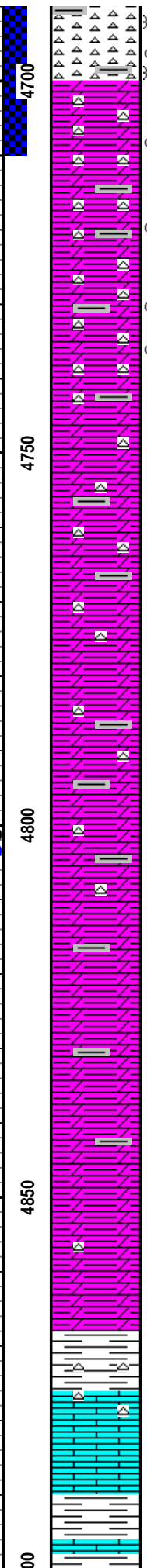
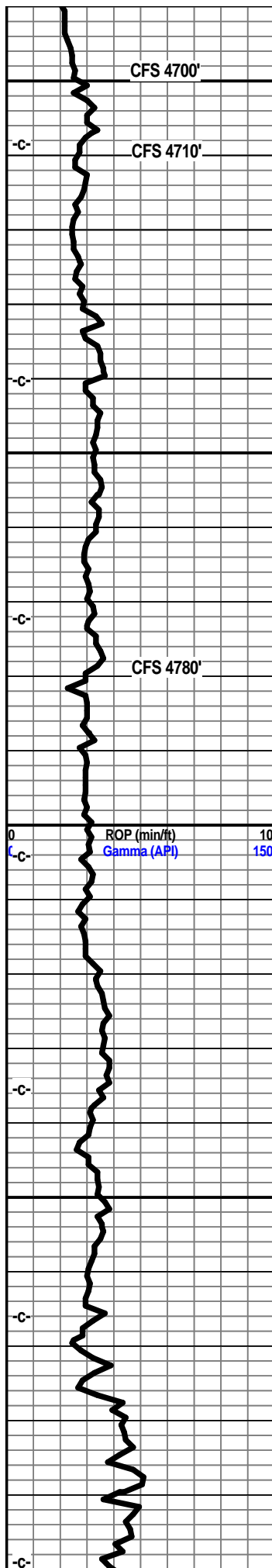
Shale, dark grey, trace black.

Limestone, cream-tan, xln, slightly foss.

Shale, grey-green, trace few sand clusters, with slight staining, ques., show gas bubbles, friable, fn grained.

Chert, off-white, tan-white, slightly weathered, trace pin point porosity, some scattered light brown staining. shaley in part. dull fluor. very





Chert, off-white to tan-white, increased weathering, light brown staining, very slight show oil.

Dolo. grey-brown, very cherty, some weathered with light brown staining, fresh, sharp, dark grey shales.

Dolo, grey-white, abundant weathered cherts, light brown staining on cherts, traces of pin point porosity, no odor, dull fluor, some grey splintery shales.

Dolo, grey-white, weathered cherts, some sharp cherts, light brown staining on weathered cherts, traces of pin point porosity, increasing amounts of grey-green splintery shales, no odor, very dull fluor.

Dolo, grey-white, xln, traces of weathered cherts, very slight light brown staining, no odor, grey splintery shales.

Dolo, grey, light grey, xln, trace of chert, increasing shales, no odor, no visible shows.

Dolo, grey, light grey, abundant grey and tan-grey shales, still a very slight trace of weathered chert, no visible shows.

Dolo, light grey, grey, xln, traces of fresh chert, traces of weathered chert, some very slight light brown staining, grey shales.

Dolo, light grey, xln, traces of fresh chert, grey splintery shales.

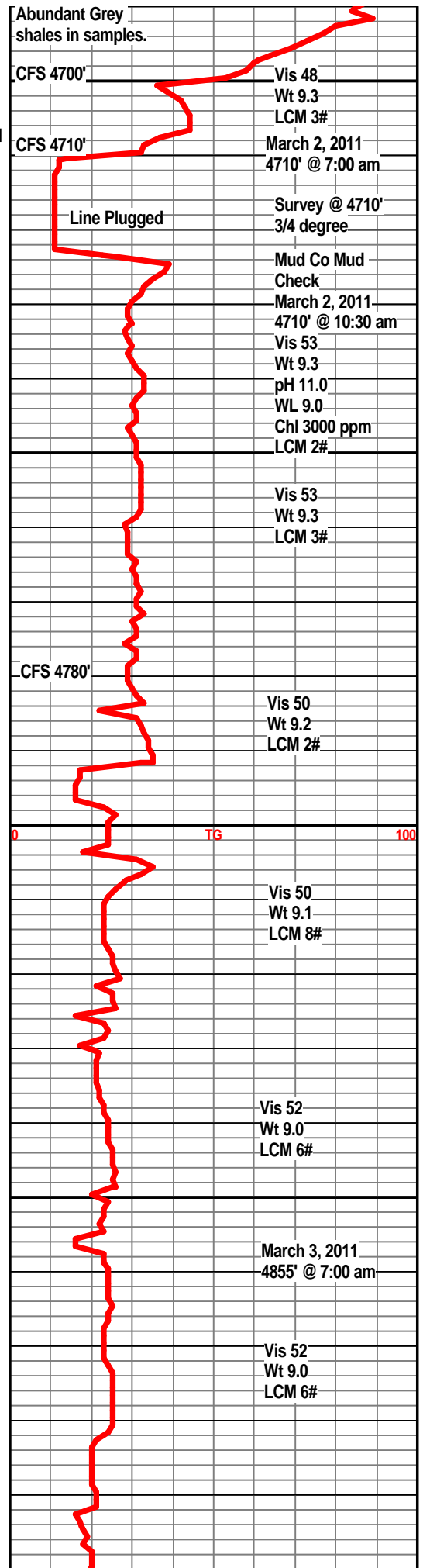
Dolo, grey to light grey, some tan-grey, xln, light grey shales.

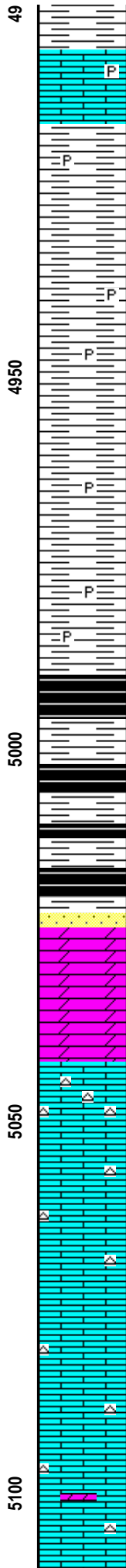
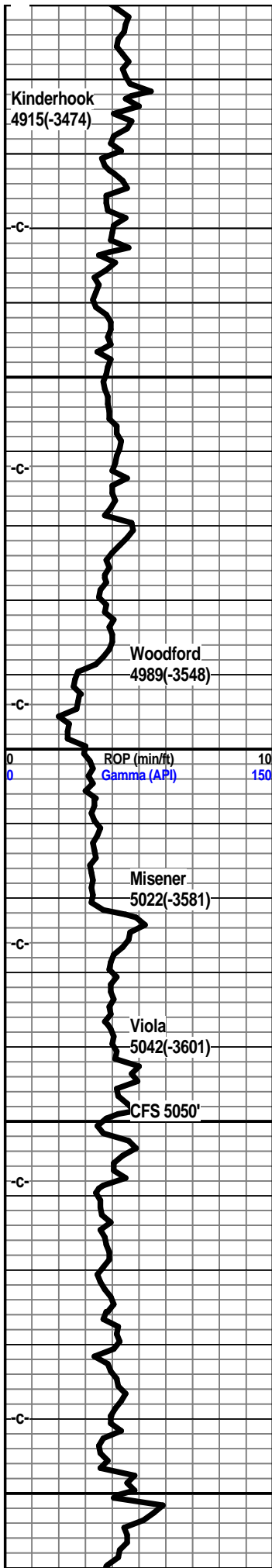
Dolo, tan-grey, xln, light grey shales.

Dolo, tan-grey, xln, grey silty shales.

Dolo, tan-white, light grey, xln, grey-green silty splintery shales.

Limestone, cream-white, xln, trace gil., off-white sharp cherts.





Shale, green-grey, firm.

Limestone, cream-white, xln, cherty in part, chalky, trace of foss.

Shale, dk grey, silty, trace of pyrite.

Shale, grey, dk grey, silty, traces of pyrite.

Shale, grey, dk grey, pyritic.

Shale, grey-black, carb, slight show gas bubbles.

Shale, dark grey, black, slightly carb.

Shale, dark grey, black.

Sandstone, grey to clear, dirty, sa to sr fair sorting, well cemented, no odor, dull scattered fluor. in part, slight show of gas bubbles, light show scummy oil.

Dolo, tan-grey, some lt brownish-red, xln, silty, few imbedded sand grains.

Dolo, light grey, xln, fine grained, some soft.

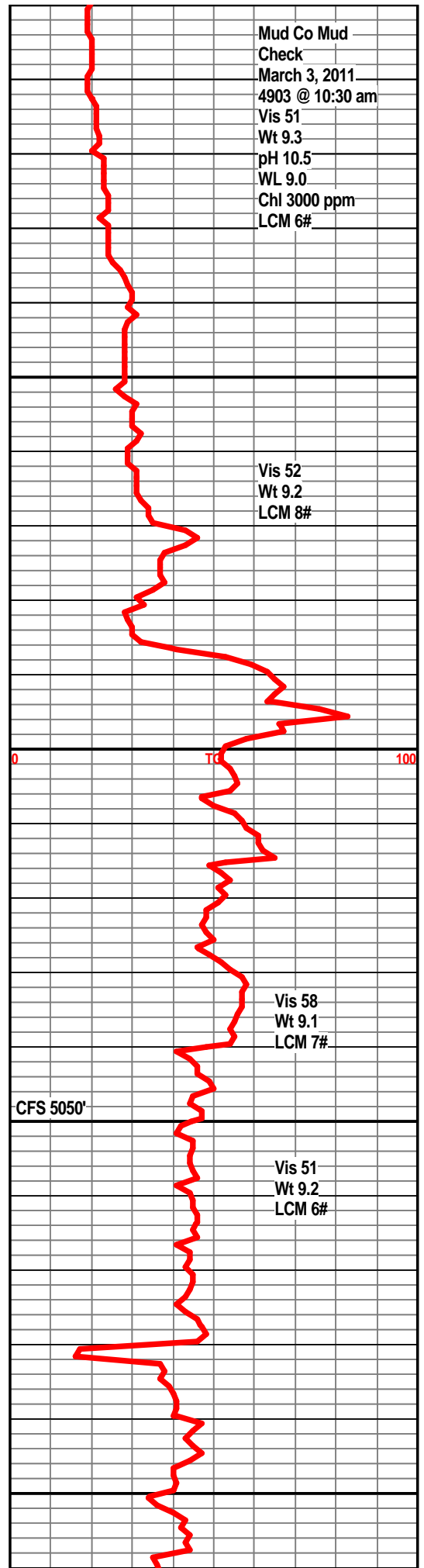
Limestone, cream-white, xln, slightly succ. texture in part, slightly dolo, off-white foss. cherts, very slight fluor., no odor, no shows.

Limestone, cream, tan-white, xln, dense, slightly succ. in texture, traces of chalky ls, some tan cherts.

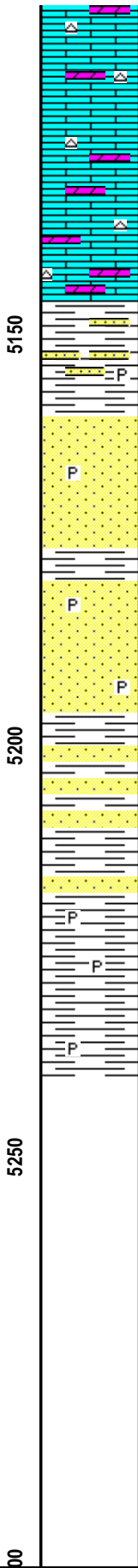
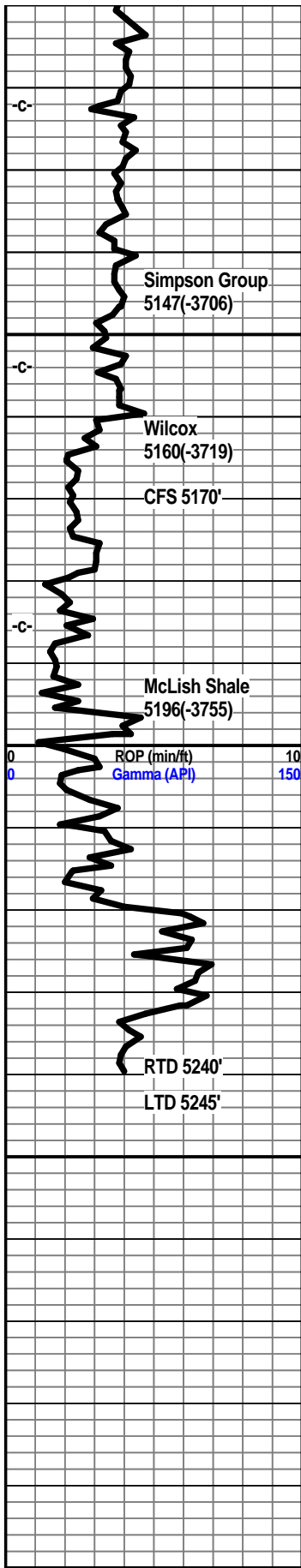
Limestone, tan-white, fxln, cherty in part, slightly chalky.

Limestone, tan-white, cream, xln, dense, slightly chalky, traces of dark green firm shales, slightly dolomitic in part, tan cherts, sharp.

Limestone, tan-white, xln, dolomitic, granular







Limestone, tan white, xln, dolomitic, granular texture, dark green firm shales, tan cherts.

Limestone, tan-white, xln, dolomitic, tan cherts, some pale green firm shale.

Shale, pale green, traces of pyrite, sand stringers.

Sandstone, grey, clear to frosted quartz grains, SA to SR, friable in part, some well cemented, well sorted, traces of pyrite, some interbedded soft pale green shales, questionable lt staining, no visible shows, loose grains in tray.

Shale, dark green, firm, traces of pyrite.

Sandstone, clear to white, trace of dirty grey, sa to sr qtz grains, fair sorting, well cemented, some friable, trace pyrite inclusions, glauc., no visible shows.

Shale, green, dark green, firm.

Sandstone, clear to white qtz grains, fair sorting, interbedded shale stringers, no visible shows.

Shale, green, dark green, firm.

Sandstone, clear to grey-white qtz grains, friable in part, some well cemented, fair sorting, gil, glauc., shaley in part, no visible shows.

Shale, green, dark green, firm, traces of pyrite.

