LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name: Harley #4
Location: SE SW Section 5 T14S-R44W, 6th PM
License Number: API: 050170774600
Region: Cheyenne Co, CO
Spud Date: June 31,2013
Drilling Completed: July 6, 2013
Surface Coordinates:

Bottom Hole Coordinates:
Ground Elevation (ft): 4293
K.B. Elevation (ft): 4310
Logged Interval (ft): NTD **To:** TD
Total Depth (ft): 4000
Formation: Shawnee ------> Mississippi
Type of Drilling Fluid: Chemical Displaced at 4000'

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Pronghorn Operating, LLC
Address: 8400 East Prentice Avenue
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Greenwood Village, CO 80111

GEOLOGIST

Name: Roger L. Fisher
Company: Consulting Geologist
Address: 1928 N. Garlalnd
Wichita, Kansas, 67203

COMMENTS

Wildcat Ddrilling Rig #1
Surface Casing:
Production Casing: 5570' of 5 1/2

ROCK TYPES

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

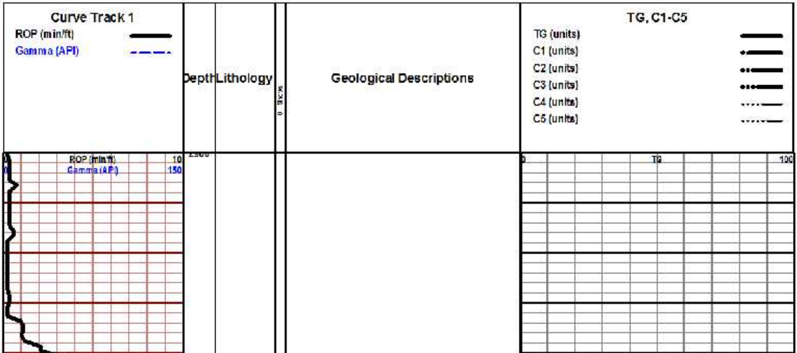
ACCESSORIES

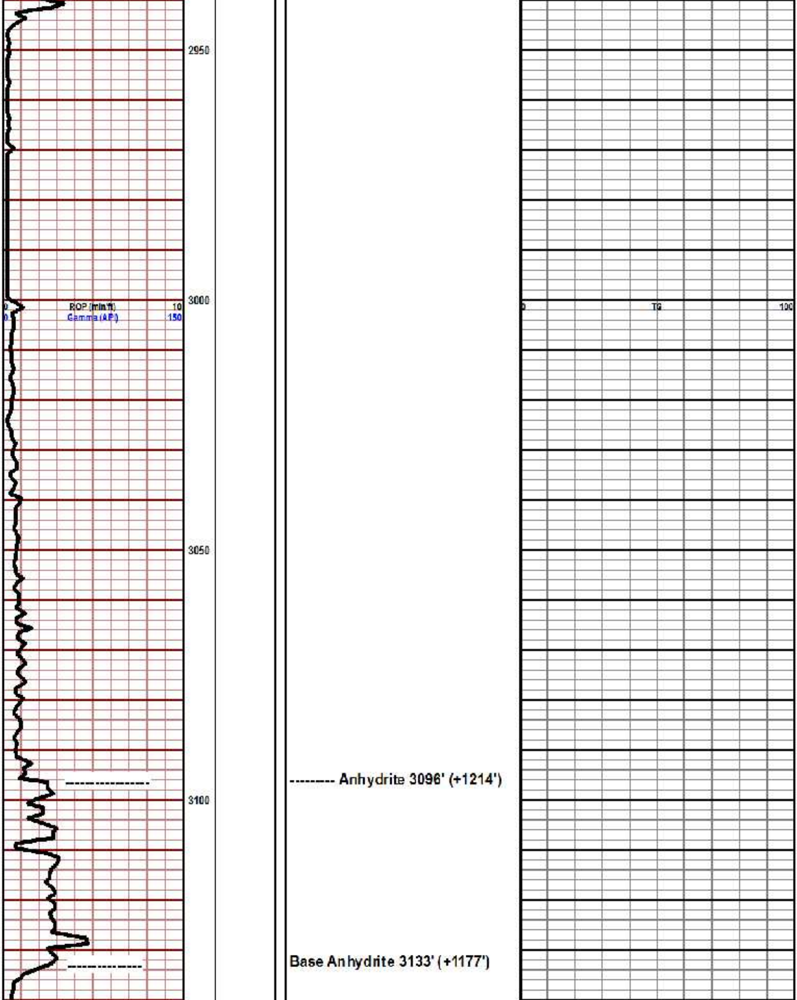
MINERAL
Anhy
Arg
Bent
Bit
Brecfrag
Calc
Carb
Chtdk
Chtlt
Dol
Ferrpel
Ferr
Glau
Gyp
Marl
Nodule
Phos
Pyr
Salt
Sandy
Silt
Chlorite
Dol
Sand
Slty

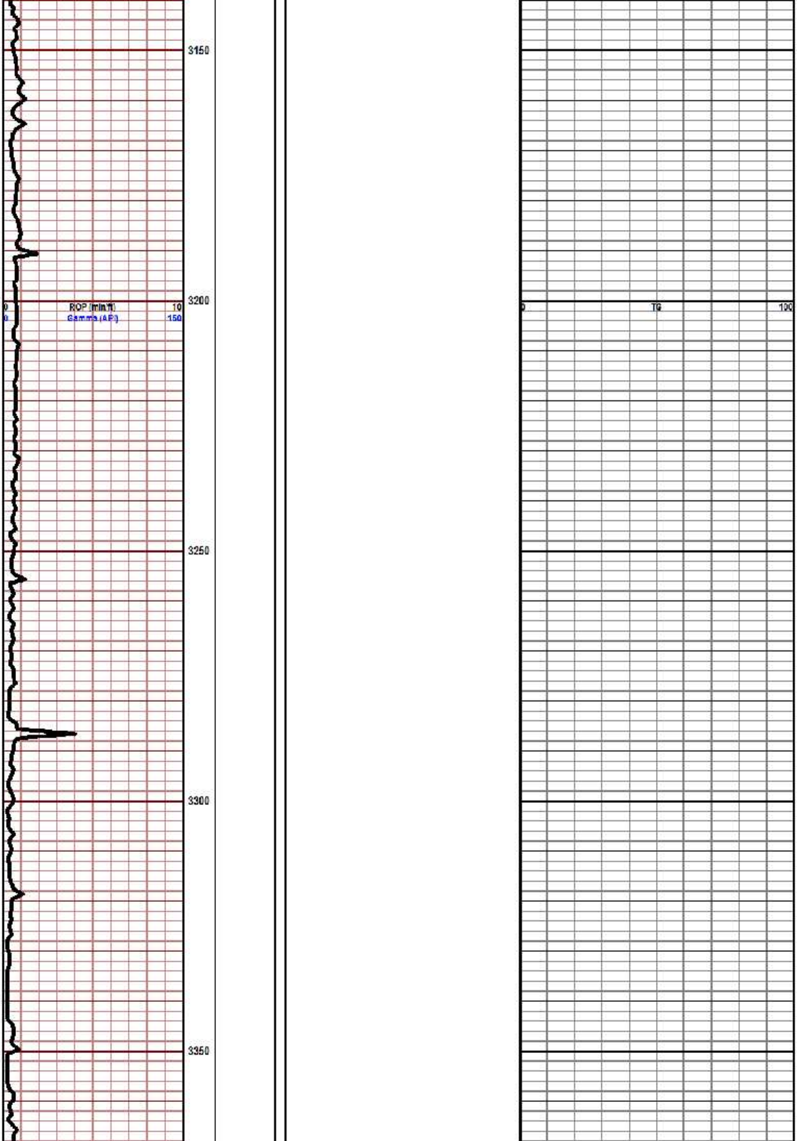
FOSSIL
Algae
Amph
Belm
Bioclst
Brach
Bryozoa
Cephal
Coral
Crin
Echin
Fish
Foram
Fossil
Gastro
Oolite
Ostra
Pelec
Pellet
Pisolite
Plant
Strom
Fuss
Oomoldic

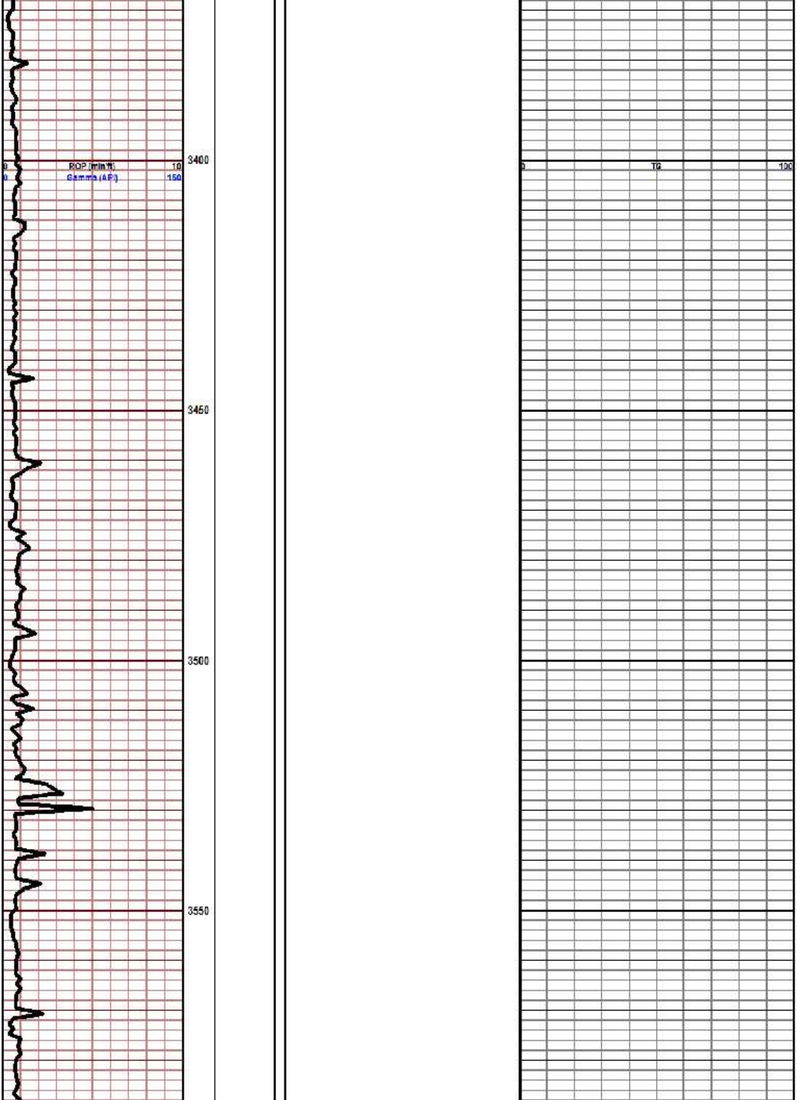
STRINGER
Anhy
Arg
Bent
Coal
Dol
Gyp
Ls
Mrst
Sltstrg
Ssstrg
Carbsh
Clystn
Dol
Grysh
Gryslt
Lms
Sandylms
Sh
Sltstn

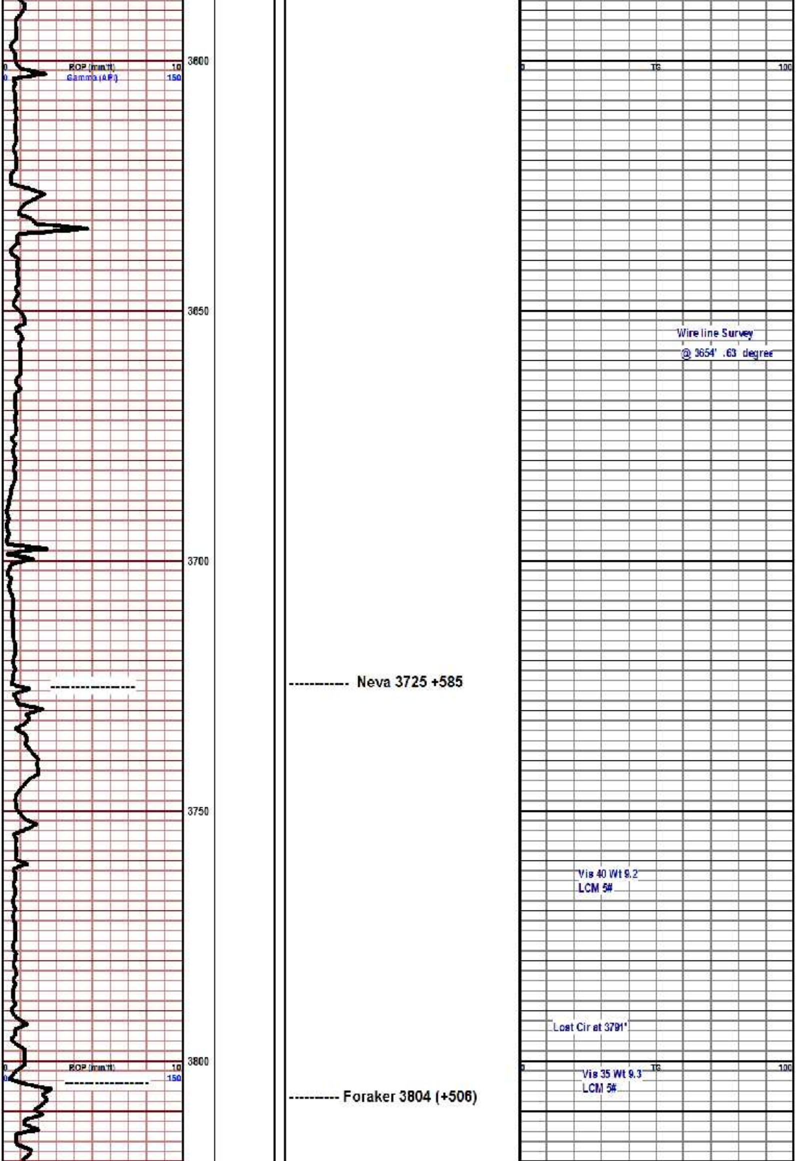
TEXTURE
Boundst
Chalky
Cryxln
Earthy
Finexln
Grainst
Lithogr
Microxln
Mudst
Packst
Wackest

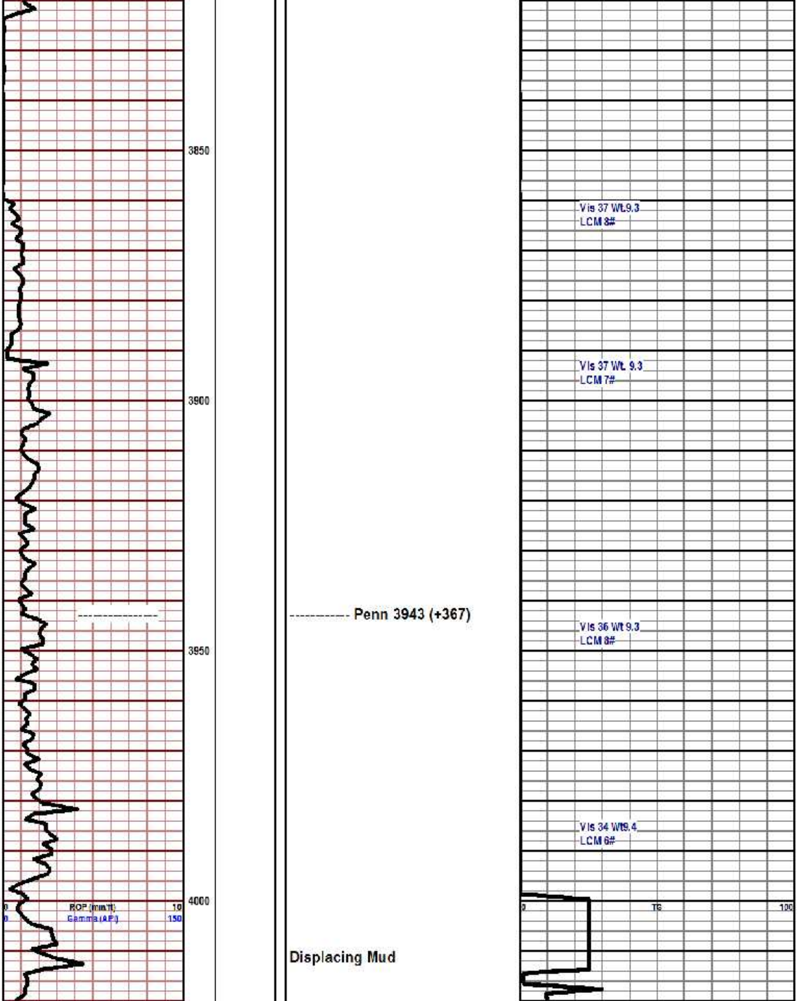


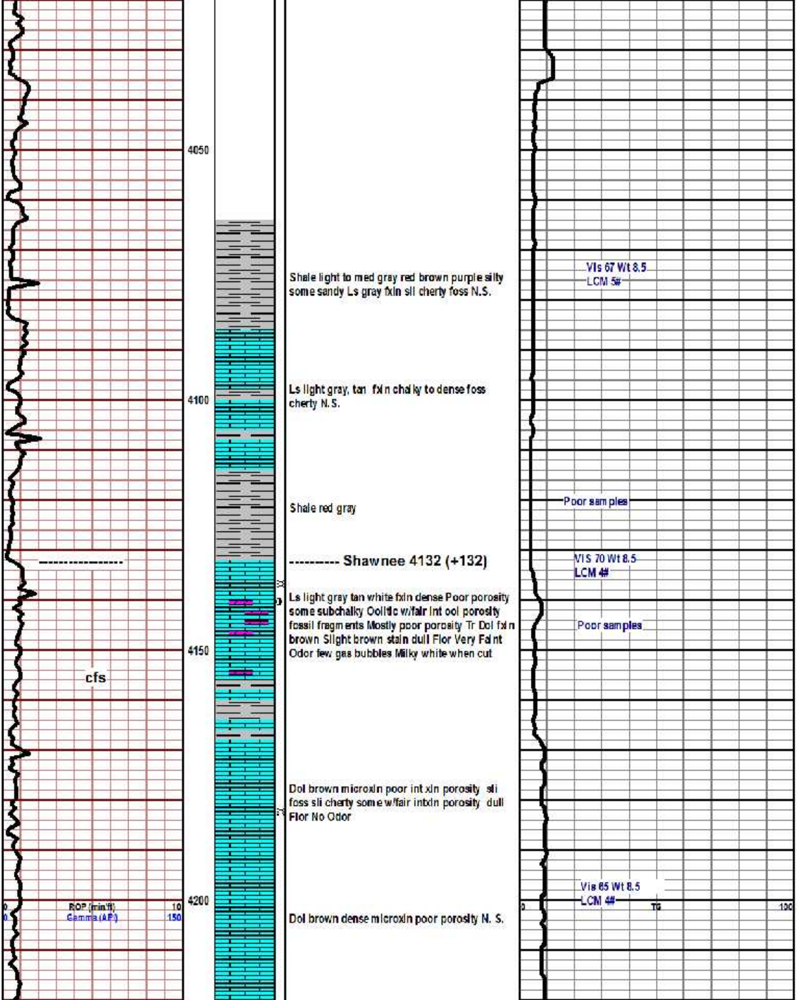












Shale light to med gray red brown purple silty some sandy Ls gray fxln sli cherty foss N.S.

Ls light gray, tan fxln chalky to dense foss cherty N.S.

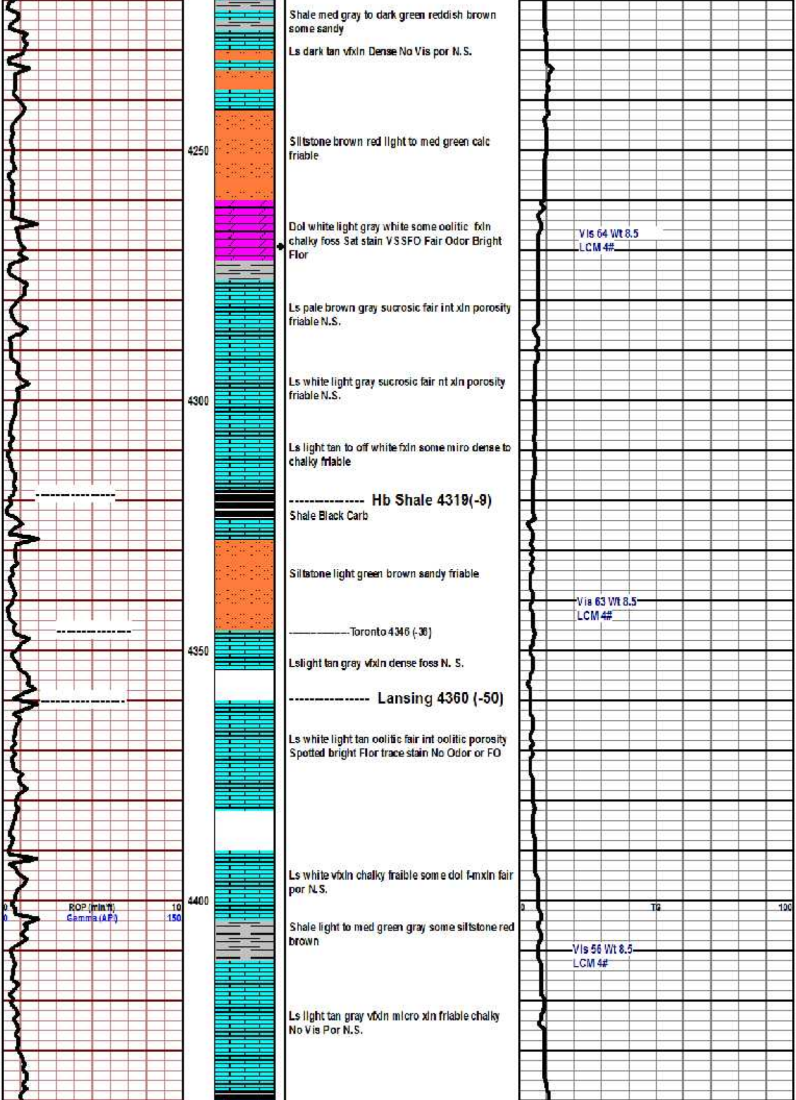
Shale red gray

---------- **Shawnee 4132 (+132)**

Ls light gray tan white fxln dense Poor porosity some subchalky Oolitic w/fair int ool porosity fossil fragments Mostly poor porosity Tr Dol fxln brown Slight brown stain dull Flor Very Faint Odor few gas bubbles Milky white when cut

Dol brown microxln poor int xln porosity sli foss sli cherty some w/fair intxln porosity dull Flor No Odor

Dol brown dense microxln poor porosity N. S.



Shale med gray to dark green reddish brown some sandy

Ls dark tan vfxln Dense No Vis por N.S.

Siltstone brown red light to med green calc friable

Dol white light gray white some oolitic fxln chalky foss Sat stain VS SFO Fair Odor Bright Flor

Ls pale brown gray sucrosic fair int xln porosity friable N.S.

Ls white light gray sucrosic fair nt xln porosity friable N.S.

Ls light tan to off white fxln some miro dense to chalky friable

--------------- Hb Shale 4319(-9)

Shale Black Carb

Siltstone light green brown sandy friable

--------------Toronto 4346 (-36)

Lslight tan gray vfxln dense foss N. S.

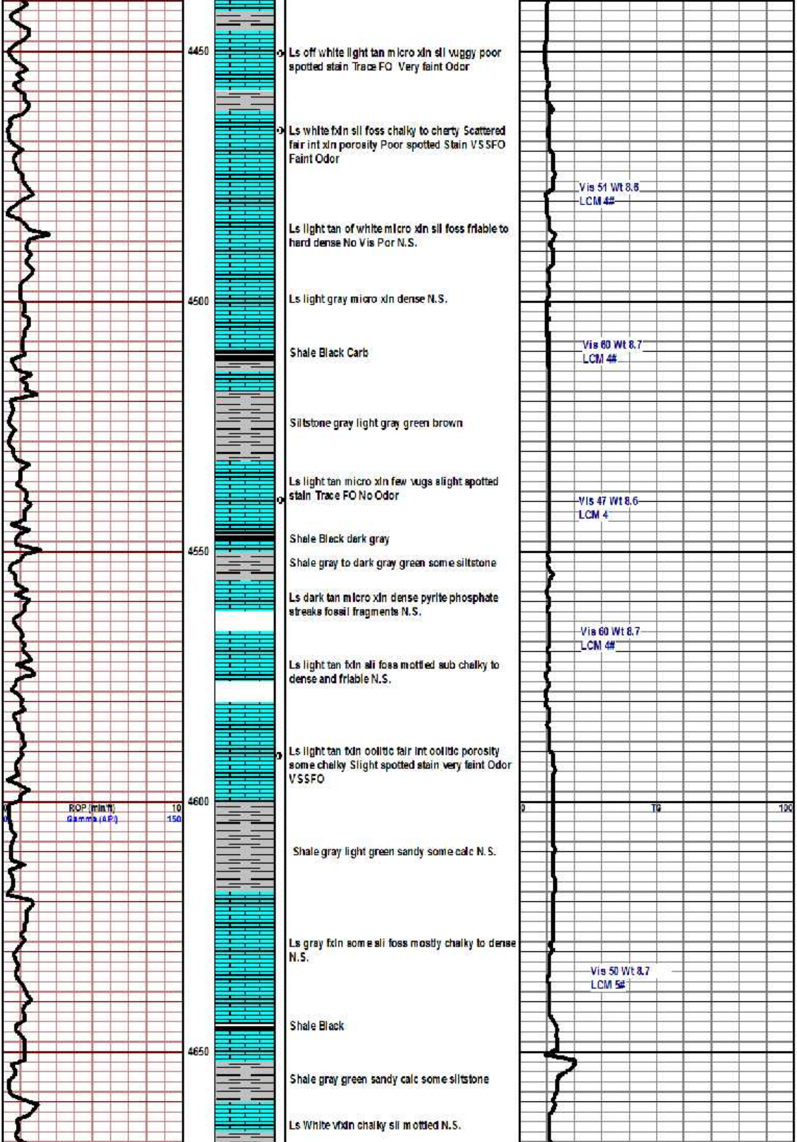
--------------- Lansing 4360 (-50)

Ls white light tan oolitic fair int oolitic porosity Spotted bright Flor trace stain No Odor or FO

Ls white vfxln chalky fraible some dol f-mxln fair por N.S.

Shale light to med green gray some siltstone red brown

Ls light tan gray vfxln micro xln friable chalky No Vis Por N.S.



Ls off white light tan micro xln sli vuggy poor spotted stain Trace FO Very faint Odor

Ls white fxln sli foss chalky to cherty Scattered fair int xln porosity Poor spotted Stain VSSFO Faint Odor

Vis 51 Wt 8.6
LCM 4#

Ls light tan of white micro xln sli foss friable to hard dense No Vis Por N.S.

Ls light gray micro xln dense N.S.

Vis 60 Wt 8.7
LCM 4#

Shale Black Carb

Siltstone gray light gray green brown

Ls light tan micro xln few vugs slight spotted stain Trace FO No Odor

Vis 47 Wt 8.6
LCM 4

Shale Black dark gray

Shale gray to dark gray green some siltstone

Ls dark tan micro xln dense pyrite phosphate streaks fossil fragments N.S.

Vis 60 Wt 8.7
LCM 4#

Ls light tan fxln sli foss mottled sub chalky to dense and friable N.S.

Ls light tan fxln oolitic fair int oolitic porosity some chalky Slight spotted stain very faint Odor VSSFO

Shale gray light green sandy some calc N.S.

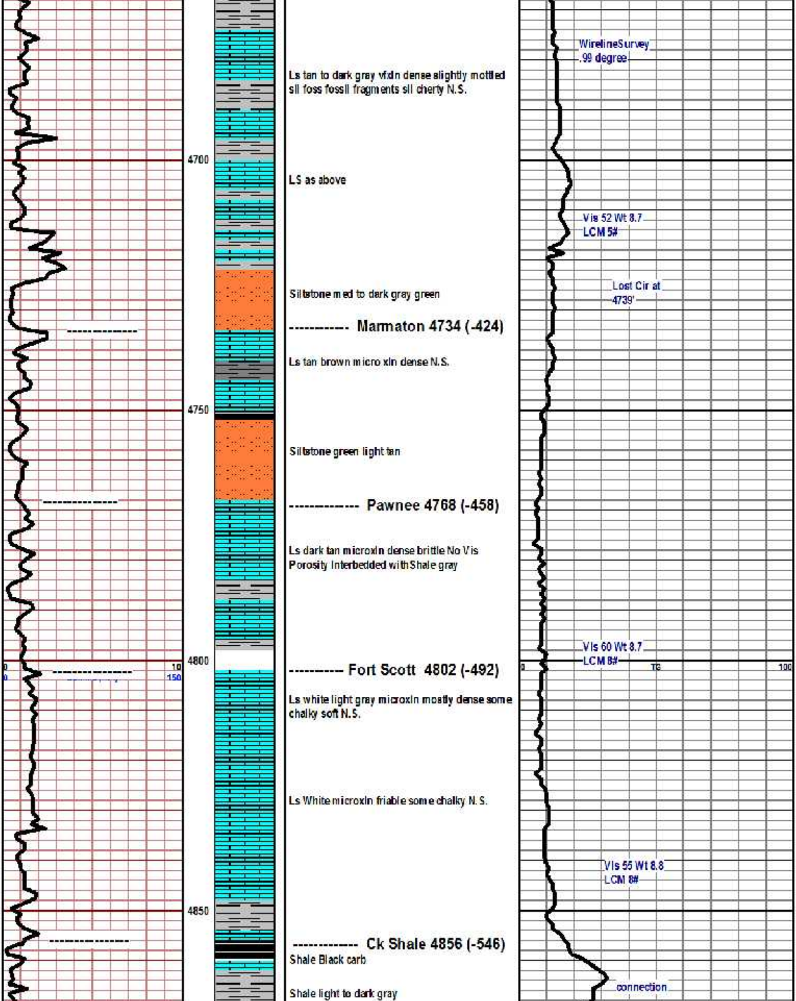
Ls gray fxln some sli foss mostly chalky to dense N.S.

Vis 50 Wt 8.7
LCM 5#

Shale Black

Shale gray green sandy calc some siltstone

Ls White vfxln chalky sli mottled N.S.



Ls tan to dark gray vfxln dense slightly mottled sli foss fossil fragments sli cherty N.S.

LS as above

Siltstone med to dark gray green

----------- Marmaton 4734 (-424)

Ls tan brown micro xln dense N.S.

Siltstone green light tan

------------- Pawnee 4768 (-458)

Ls dark tan microxln dense brittle No Vis Porosity Interbedded with Shale gray

---------- Fort Scott 4802 (-492)

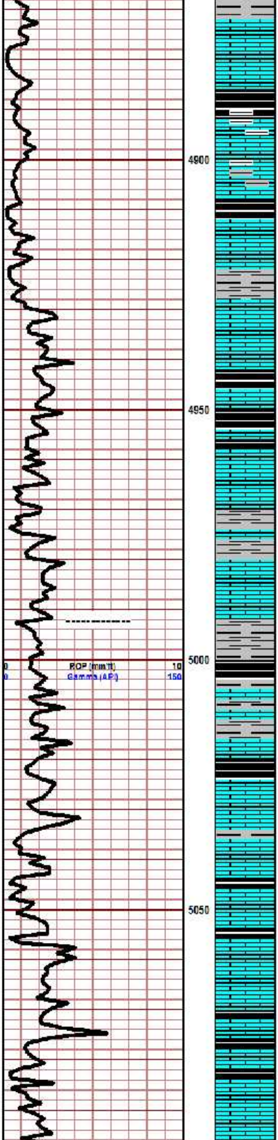
Ls white light gray microxln mostly dense some chalky soft N.S.

Ls White microxln friable some chalky N.S.

------------ Ck Shale 4856 (-546)

Shale Black carb

Shale light to dark gray



Ls gray tan off white microxln dense brittle some chalky N.S.

Shale black carb

Ls dark gray to tan micro xln some agril brittle some chalky

Shale Black Carb

Ls gray microxln sli foss chalky in few mostly dense some argil shale gray mealy N.S.

Ls dark gray micro xln sli foss argil in part dense some brittle N.S.

Shale Black carb light to bright green green silty
Ls tan gray dense micro xln dense brittle modttled N.S.

Ls light gray micro xln sli foss some chalky brittle poor porosity N.S.

Shale med to dark gray some sandy silty

Ls dark gray microxln sli foss brittle No vis por N.S.

--------------- Atoka 4992 (-682)

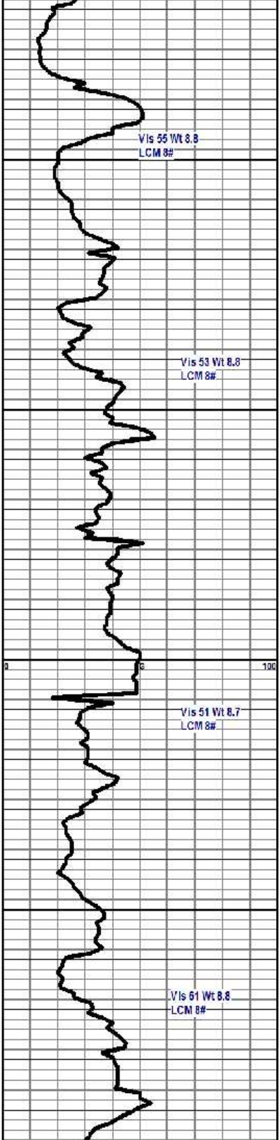
Ls light gray microxln brittle some chalky Shale Med to dark gray Black

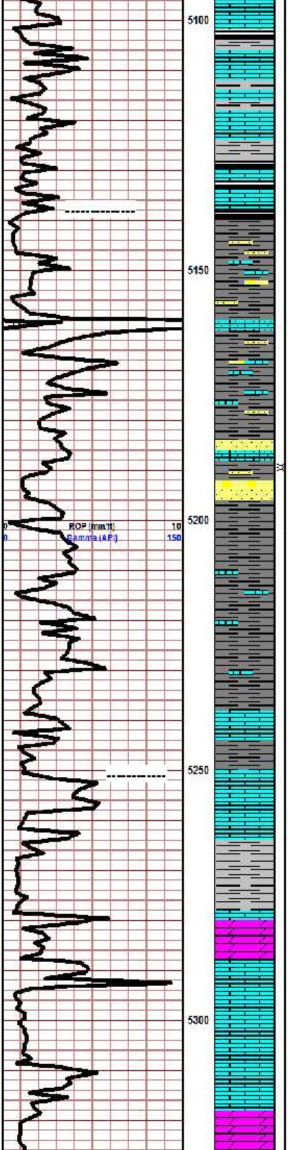
Ls light gray to light tan fxln sli foss chalky to dense and brittle No Vis Por N.S.

Ls light tan light gray microxln sli foss sli cherty friable some chalky N.S.

Shale Black carb Massive blocky gas bubbles

Ls as above





Ls light tan light gray micro xln brittle some oolites Shale Black gray

---------- Morrow SH 5138 (-828)

Shale Black carb some pale to med green soft to firm waxy Sandy Ls Light to med gray microxln poor xln porosity dense N.S.

Sst light gray clear very fine some clusters f-med grain rounded to ang well cmt w/calcite pyrite rare dull Flor when cut rare gas bubble

Shale Black carb green gray soft waxy

Ls Stringers light gray micro xln some sli silty

-------------- Keyes 5239 (-929)

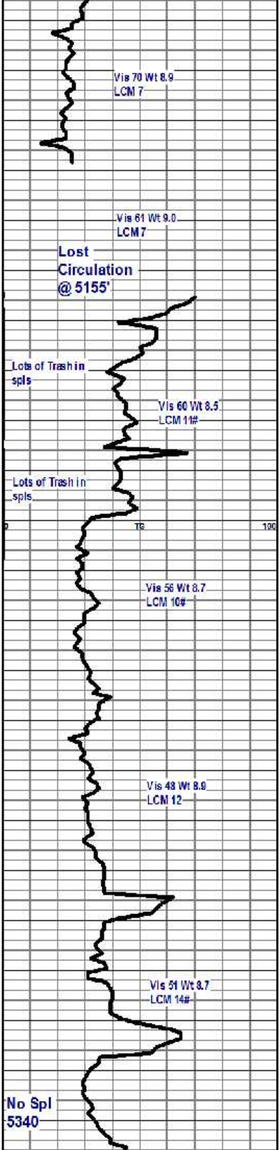
Ls off white microxln phosphate nodules No vis por N.S.

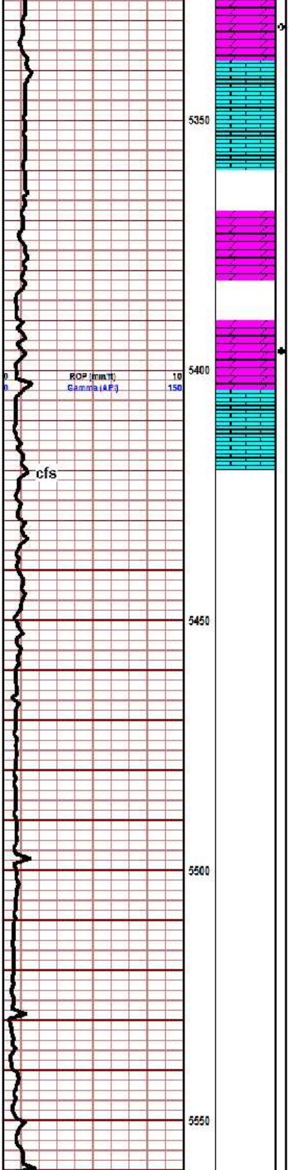
Ls off white light tan friable and chalky some mottled No Vis Porosity

St Louis 5288 (-978)

Dol light tan sucrosic in part chalky friable N.S.

Poor samples





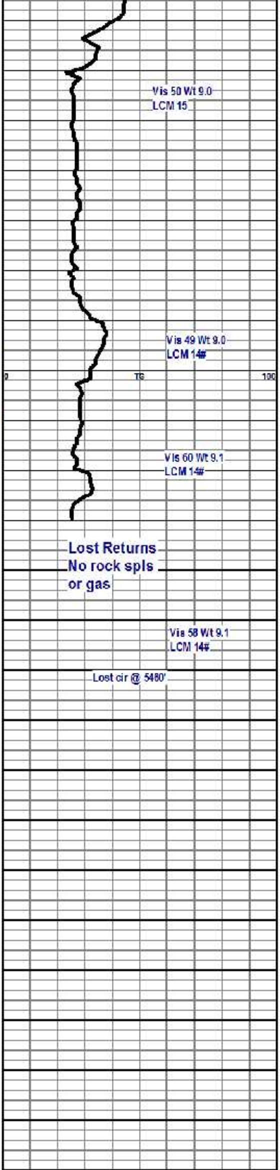
Dol Light tan sucrosic some chalky fair int xln porosity slightly vuggy friable some dense and brittle Sli spotted Stain Sli spotted Flor Very faint Odor Very faint milk flor when cut

Ls light gray microxln fragments foss dense poor porosity

Dol light to dark tan sucrosic subchalky friable few small vugs fair int xln porosity rare gas bubble No Flor or Odor

Dol light tan gray sucrosic poor int xln por subchalky friable soft slight spotted to saturated stain SSGFO Bright Flor No Odor

Ls light tan light gray microxln poor porosity sli cherty white fresh sharp Silty sandstone light tan light gray friable N.S.



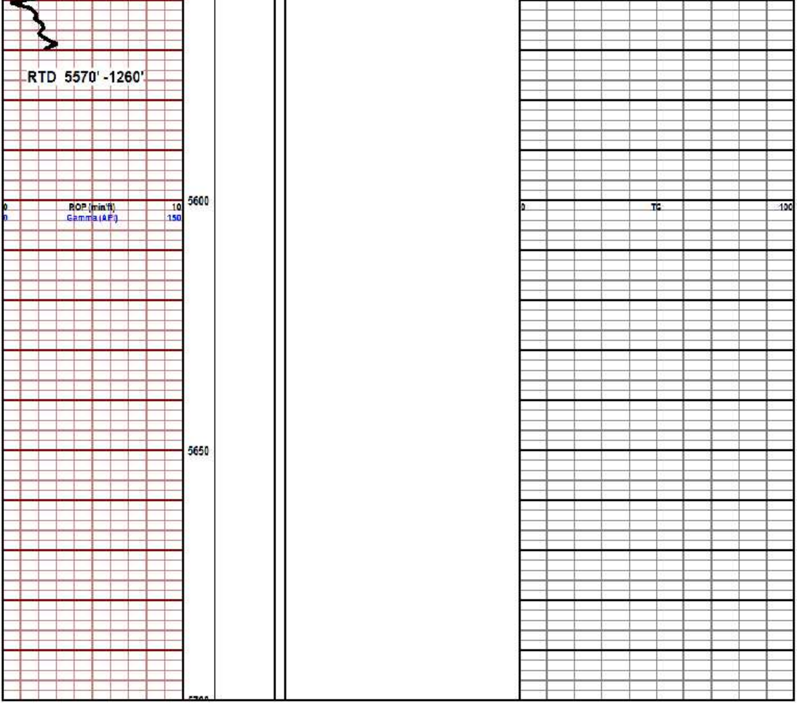
Vis 50 Wt 9.0
LCM 15

Vis 49 Wt 9.0
LCM 14#

Vis 60 Wt 9.1
LCM 14#

Lost Returns
No rock spls
or gas

Vis 58 Wt 9.1
LCM 14#

Lost cir @ 5480'