Woolsey Operating Company, LLC

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

Well Name: MPW #1
Location: Section 13 - Township 31 South - Range 8 West
License Number: 33168 **Region:** Harper County, Kansas
Spud Date: October 22, 2018 **Drilling Completed:** October 30, 2018
Surface Coordinates: 175' FSL & 1600' FWL
155' S, 50' W of SW SE SW
Bottom Hole Coordinates:

Ground Elevation (ft): 1606' **K.B. Elevation (ft):** 1618'
Logged Interval (ft): 2000' **To:** 4926' **Total Depth (ft):** 4926'
Formation: Topeka >>> Simpson
Type of Drilling Fluid: Chemical Mud

Printed by MUD.LOG 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: Bill Klaver
Company: Woolsey Operating Co. LLC
Address: 125 N. Market, Wichita Kansas, 67202

COMMENTS

Surface Casing: Spud at 4 pm on 10/22/2018, set 6 joints of 8 5/8" X 23#/ft new casing at 274' KB (tally 260') with 175 sx 60/40 poz (by Basic). Plug down 11:15 pm on 10/22/2018. Cement did circulate.
Production Casing: None ran

Deviation Surveys: 3/4 at 275', 1 at 1001', 1/2 at 2016', 3/4 at 2300', see detail for additional surveys.
Pipe Strap @ 4435', strap: 4451.24', board: 4455.86', strap 4.62' short. No correction was made to the board.
Fossil Drilling Rig 3 Bit Record:
1) 12 1/4" Varel RR in at 0' out at 275', 4.75 hours
2) 7 7/8" Hughs Tool T506F PDC in at 275' out at 4926', 90 hrs

Gas Detection: Pason Systems
Mud System: Mud-Co. Brad Bortz, Engineer
DSTs: Trilobite Testing, Leal Cason, Tester
E-Logs: ELI, Dual Induction Laterolog w/SP, CNL-FDC w/PE, GR & Caliper, Sonic w/GR. Jeff Luebbers, Eng.
Company Man: Allen Dick, WOC
Hawkeye Directional LLC, Josh Riffe MWD, Kenneth Holland Directional Driller

DSTs

DST #1 Mississippi, 4422'-4435', 30"-60"-60"-90", IFP puny 6" blow, FFP lazy 6" blow, Rec: 10' GCM (2%G, 98%M), IHP 2310, IFP 16=51, ICIP 390, FFP 7-15, FCIP 95, FHP 2183, BHT 125 degrees

DST #2 Simpson, 4805'-4825', 30"-30"-15"-30", Strong blow, Rec: 378' MCW (30%M, 70%W), 3306' SW, API Rw 0.8 @ 85 deg, Chlorides: 80,000 ppm, IHP 2419, IFP 976-1625, ICIP 1789, FFP 1660-1759, FCIP 1790, FHP 2357, BHT 135 deg.

CREWS

Rick Barriger, Tool Pusher
Pablo Luna, Daylights
Chris Staats, Evening
Kevin Clifft, Morning

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
- Ss 2
- Shale 3
- Silty dol
- Dol lmst
- Dol 2
- Granite wash
- Lmst
- Calc dol
- Shale 3

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

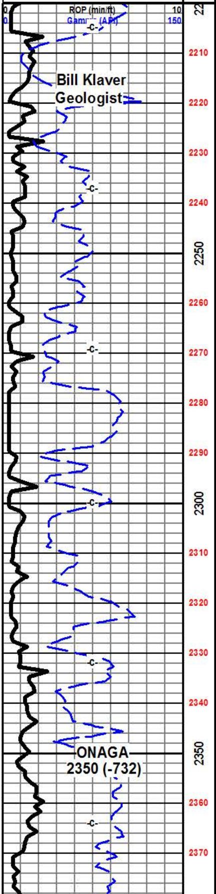
STRINGER

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

TEXTURE

- BS Boundst
- C Chalky
- CX Cryxln
- E Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

Curve Track 1	Depth	Lithology	Oil Shows	Geological Descriptions	TG, C1-C5
ROP (min/ft) ▬ Gamma (API) - - -					TG (units) ▬ C1 (units) ▬ C2 (units) ▬ C3 (units) ▬ C4 (units) ┅ C5 (units) ┅



Woolsey Operating Company LLC
MPW #1
175' FSL & 1600' FWL
155' S, 50' W of SW SE SW
Section 13 - Twp 31South - Rge 8 West
Harper County, Kansas
Field: Wildcat
API # 15-077-22177-00-00
GL 1606' KB 1618'

10' samples were gathered from 2800' to rotary total depth. 1 minute drill time was recorded from 2200' to rotary total depth. All samples were delivered to the Survey at the completion of the test.

Reference wells used for structural comparison: Pickrell Drilling's Jackson #1, C NW SW, 13-31S-8W, Sierra-Amerada's Browning #1, C SW SE, 13-31S-8W and Beardmore's Troyer #1, C NW SE, 14-31S-8W.

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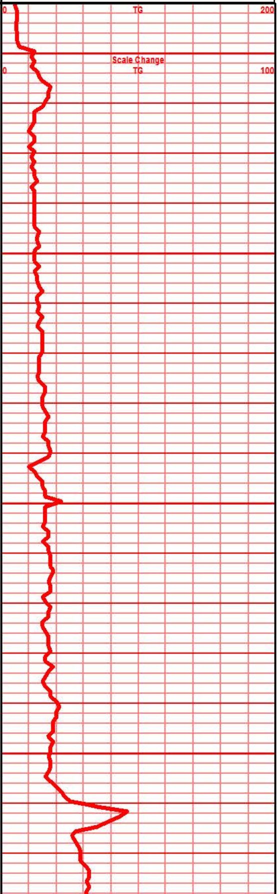
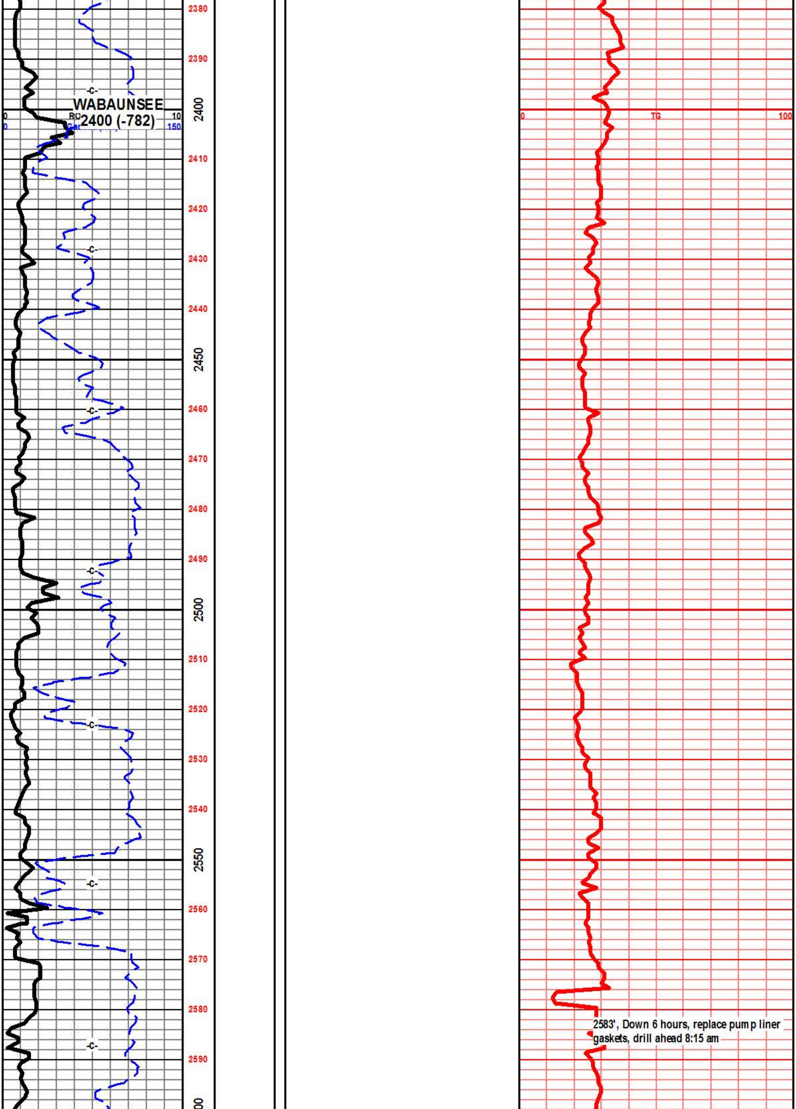
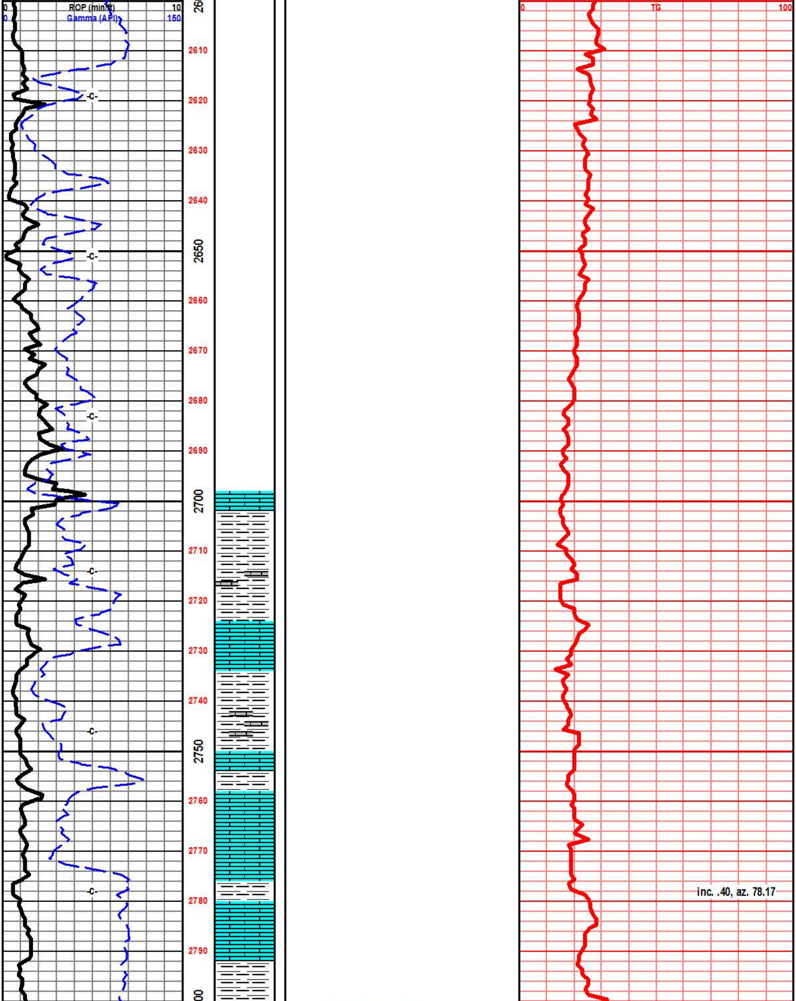
7 am Daily Drilling Progress:

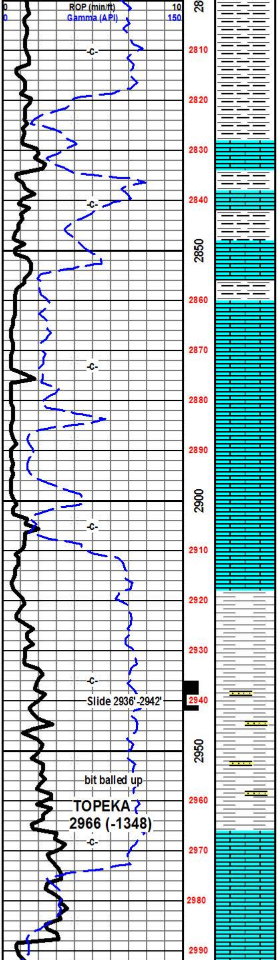
October 19, 2018	MIRT Shut down
October 22, 2018	Rig Repairs/Spud 4 pm
October 23, 2018	Drill plug 7 am
October 24, 2018	Drilling at 1900'
October 25, 2018	Drilling at 2583'/repairs
October 26, 2018	Drilling at 3305'
October 27, 2018	Drilling at 3890'
October 28, 2018	Circ/short trip at 4375'
October 29, 2018	Drilling at 4605'
October 30, 2018	DST #2 at 4825'
October 31, 2018	





2583', Down 6 hours, replace pump liner gaskets, drill ahead 8:15 am





shl gry drk gry blk, limy filrm calc

shl gry drrk gry calc firm

lst gry tan brn f xln gran soft chlky arg silty, micro foss calc inclu

lst tan crm brn f xln blky ang gran chlky pcs, foss frags, arg, shls gry green silty calc in prt

lst wht off wht tan f xln gran soft chlky, micro foss frags,

lst wht tan off wth tr lt gry brn f xln gran soft vry chlky in prt, foss frags, micro foss frags arg

lst crm tan off wht, tr tan lt brn f xln gran soft chlky, foss frags, tr calc xln, tr chrty wht shrp

lst crm tan brn f xln vry chlky gran soft, foss frags, foss ool, foss mold por, mstly soft gran chlky

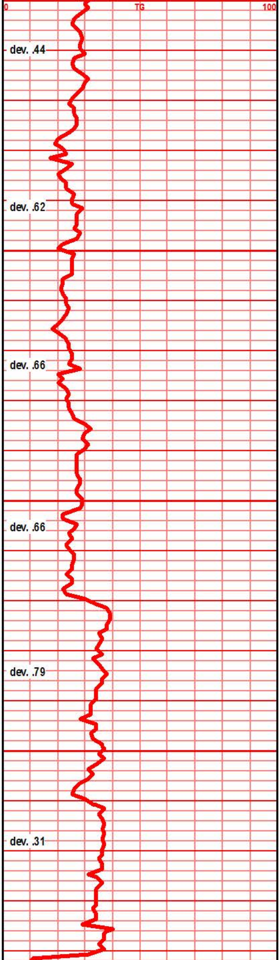
shl gry med drk gry, fnly sndy gritty, sub ang, prly srtd, mic silty

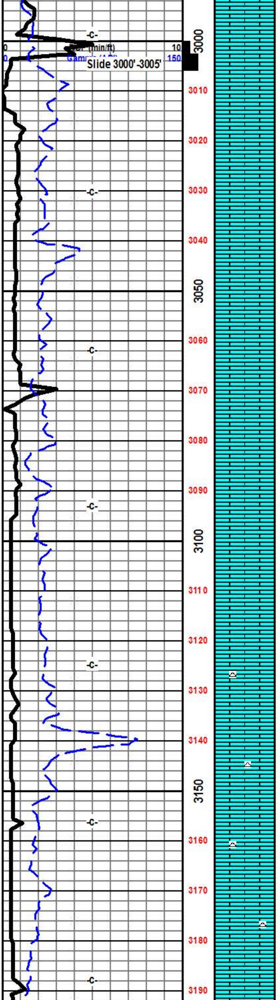
shl gry lt med gry gritty sndy pcs, f grnd, sub ang grns, prly srtd silty tr mic, shl gry med gry blky ang sub firm pcs

shl gry med lt gry silty gritty sndy mic, sst wht off wht tr lt gry f grnd sub ang grns, prly srtd, sub fria, arg, silty in prt,

lst crm tan tr tan/brn f xln blky ang gran tr soft, foss frags, foss mold por, calc xln indu, tr sndy gritty

sh gry mstly red flky firm gritty in prt, lst tan crm lt brn f xln blky ang sub chlk dns, poor spls, displacing





lst wht f xln soft very chlky, soft wht chlk balls, mushy

shl gry red brn, hole sweep material, lst tan crm buff lt brn f xln blky ang calc, foss frags, inter xln por, foss mold por

displace sample, mstly rotten ratty shls

lst crm tan gry/brn f xln blky ang sub chlky foss frags, calc xln fill, inter xln por

lst crm tan buff f xln blky ang gran in prt, dns sub chlky foss frags, calc xln fill, inter xln por, foss mold por

lst crm tan lt brn in prt, f med xln bly ang, calc xln fill, sub chlky, foss mold por, tr oomold por, inter xln por, soft gran in prt

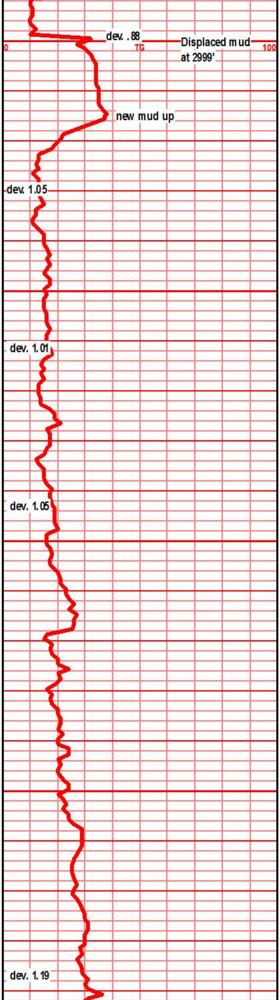
lst crm tan lt brn in prt, f xln dns blky ang hrd sub chlky calc xln fill, foss frags, inter xln por

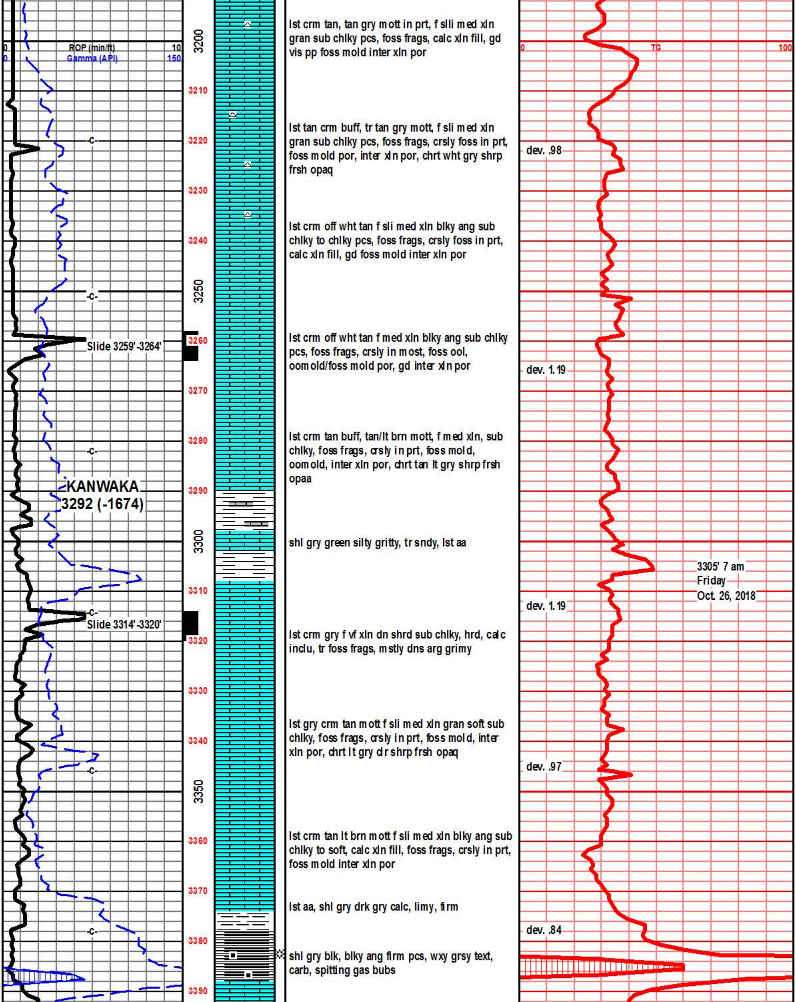
lst wht crm tan f sli med xln, blky ang sub chlky in prt, foss frags, foss mold por, calc xln fill, inter xln por, chrt lt gry shrp frsh opaq

lst wth crm tan f sli med xln, blky ang sub chlky pcs, foss frags, foss mold porr, pp por, inter xln por, chrt lt gry shrp frsh opaq

lst wht crm, tan gry mott f sli med xln, blky ang sub chlky pcs, foss frags, tr foss ool, foss mold/oomold por, calc xln fill, inter xln fill, tr chrt lt gry shrp frsh

lst crm wht tan f sli med xln gran sub chlky pcs, foss frags, tr ool/oomold por, calc xln fill, gd vis por, inter xln pp por





lst crm tan, tan gry mott in prt, f slli med xln gran sub chlky pcs, foss frags, calc xln fill, gd vis pp foss mold inter xln por

lst tan crm buff, tr tan gry mott, f sli med xln gran sub chlky pcs, foss frags, crsly foss in prt, foss mold por, inter xln por, chrt wht gry shrp frsh opaq

lst crm off wht tan f sli med xln blky ang sub chlky to chlky pcs, foss frags, crsly foss in prt, calc xln fill, gd foss mold inter xln por

lst crm off wht tan f med xln blky ang sub chlky pcs, foss frags, crsly in most, foss ool, oomold/foss mold por, gd inter xln por

lst crm tan buff, tan/lt brn mott, f med xln, sub chlky, foss frags, crsly in prt, foss mold, oomold, inter xln por, chrt tan lt gry shrp frsh opaa

shl gry green silty gritty, tr sndy, lst aa

3305' 7 am
Friday
Oct. 26, 2018

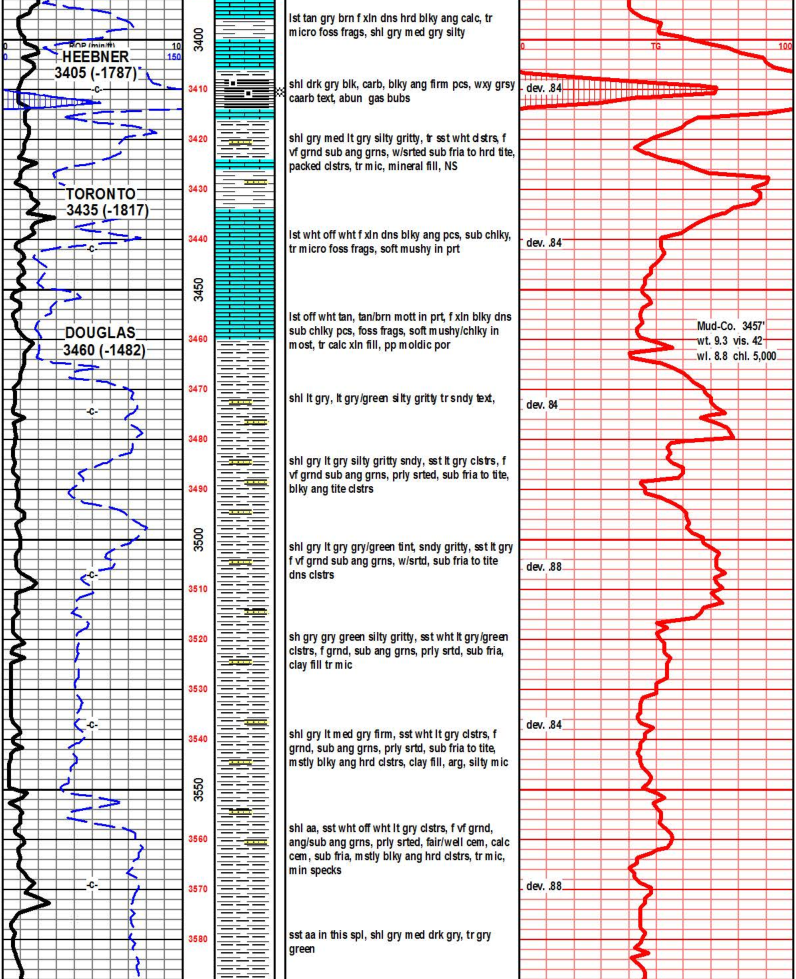
lst crm gry f vf xln dn shrd sub chlky, hrd, calc inclu, tr foss frags, mstly dns arg grimy

lst gry crm tan mott f sli med xln gran soft sub chlky, foss frags, crsly in prt, foss mold, inter xln por, chrt lt gry clr shrp frsh opaq

lst crm tan lt brn mott f sli med xln blky ang sub chlky to soft, calc xln fill, foss frags, crsly in prt, foss mold inter xln por

lst aa, shl gry drk gry calc, limy, firm

shl gry blk, blky ang firm pcs, wxy grsy text, carb, spitting gas bubs



lst tan gry brn f xln dns hrd blky ang calc, tr micro foss frags, shl gry med gry silty

HEEBNER
3405 (-1787)

shl drk gry blk, carb, blky ang firm pcs, wxy grsy caarb text, abun gas bubs

shl gry med lt gry silty gritty, tr sst wht clstrs, f vf grnd sub ang grns, w/srted sub fria to hrd tite, packed clstrs, tr mic, mineral fill, NS

TORONTO
3435 (-1817)

lst wht off wht f xln dns blky ang pcs, sub chlky, tr micro foss frags, soft mushy in prt

lst off wht tan, tan/brn mott in prt, f xln blky dns sub chlky pcs, foss frags, soft mushy/chlky in most, tr calc xln fill, pp moldic por

Mud-Co. 3457'
wt. 9.3 vis. 42
wl. 8.8 chl. 5,000

DOUGLAS
3460 (-1482)

shl lt gry, lt gry/green silty gritty tr sndy text,

shl gry lt gry silty gritty sndy, sst lt gry clstrs, f vf grnd sub ang grns, prly srted, sub fria to tite, blky ang tite clstrs

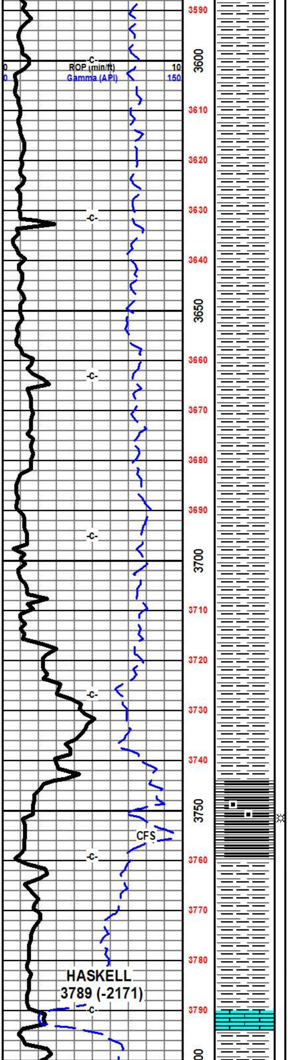
shl gry lt gry gry/green tint, sndy gritty, sst lt gry f vf grnd sub ang grns, w/srtd, sub fria to tite dns clstrs

sh gry gry green silty gritty, sst wht lt gry/green clstrs, f grnd, sub ang grns, prly srtd, sub fria, clay fill tr mic

shl gry lt med gry firm, sst wht lt gry clstrs, f grnd, sub ang grns, prly srtd, sub fria to tite, mstly blky ang hrd clstrs, clay fill, arg, silty mic

shl aa, sst wht off wht lt gry clstrs, f vf grnd, ang/sub ang grns, prly srted, fair/well cem, calc cem, sub fria, mstly blky ang hrd clstrs, tr mic, min specks

sst aa in this spl, shl gry med drk gry, tr gry green



shl gry, gry/green tint, silty gritty tr sndy, mic in prt

shl gry, gry/green tint, silty gritty, sndy in prt, mic, tr blk min flecks

shl gry drk gry, gry/green silty gritty, mic, firm, mic in prt

shl gry drk gry, drk gry/green blky ang firm pcs,

shl gry drk gry, drk gry/green, silty, blky ang firm pcs

shl gryr drk gry, drk gry/green silty tr gritty tr mic tr min flecks, firm blky ang pcs

shl gry med gry, gry w/green tint, spls ground to vry fn mush, muddy, wsh drk gry

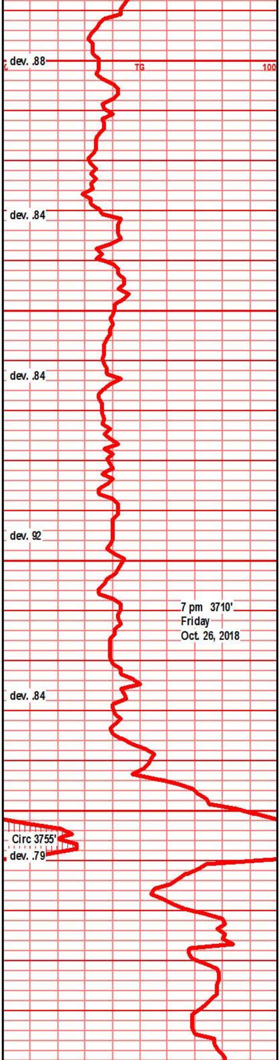
shl gry drkr gry blk, drk gry/green silty muddy tr gritty, spls vry fn

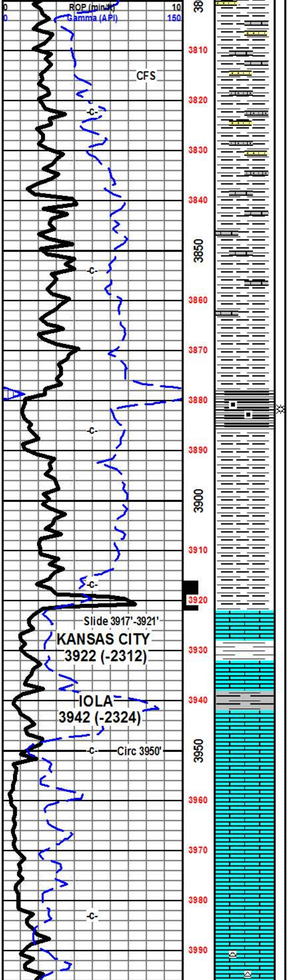
flood of shl drk gry blk, red /brn tint, blk carb, wxy grsy text, blky ang firm pcs, abun gas bubs

lst gry brn blk, vf xln dns hrd ang arg, spls remain vry fine, mushy pp spls

shl gry drk gry silty gritty, mstly blky ang firm pcs

lst tan gry f vf xln blky ang arg silty chlky, sst lt gry clstrs, f grnd, sub ang grns, prly srtd, calc cem, sub fria to w/cem, arg, clay fill, tr mic





CFS

Slide 3917'-3921'

KANSAS CITY
3922 (-2312)

IOLA
3942 (-2324)

Circ 3950'

shl gry calc, lst tan gry mott f xln chlky gran arg silty, sst lt gry f grnd sub ang grns, prly srtd, sub fria, blky ang packed clstrs, arg clay fill, tr mic

sndy lst, drk gry brn vf xln blky ang sndy, snd grn inclu, hard massive, shrp, lst gry brn mott vf xln dns hrd chlky

shl drk gry brn, dns sndy hrd firm pcs, snd grn inclu, calc, , shl gry drk gry ang silty sndy pcs, blky flky firm pcs

shl drk gry brn, brn/reddish tint, hard firm massive, calc,

shl drk gry blk, blk carb, wxy grsy text, blky ang firm pcs, abun gas bubs

shl gry drk gry blk, blky ang firm pcs, tr semi carg, wxy grsy firm pcs

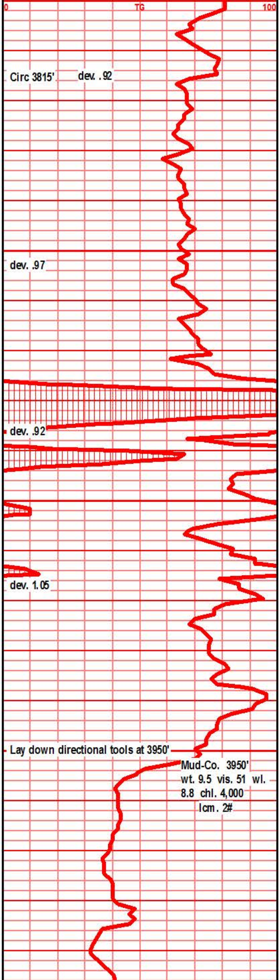
shl drk gry blk, carb text in prt, wxy grsy firm pcs,

lst crm gry tan f xln blky flky ang pcs, foss frags tr arg, dull tan gry f xln blky sub chlky, foss frags,

lst tan buff off wht f xln blky ang sub chlky foss frags, calc xln fill, miro foss in prt, foss mold, pp por

shl gry, med gry, firm pcs, calc in prt, foss inclu, lst tan buff crm f xln gran sub chlkky foss frags,

lst crm tan buff f sli med xln blky ang chlky to cub chlky foss frags, crsly foss in prt, calc xln fill, foss mold por, inter xln por, mstly soft chlky mushy



Circ 3815'

dev. .92

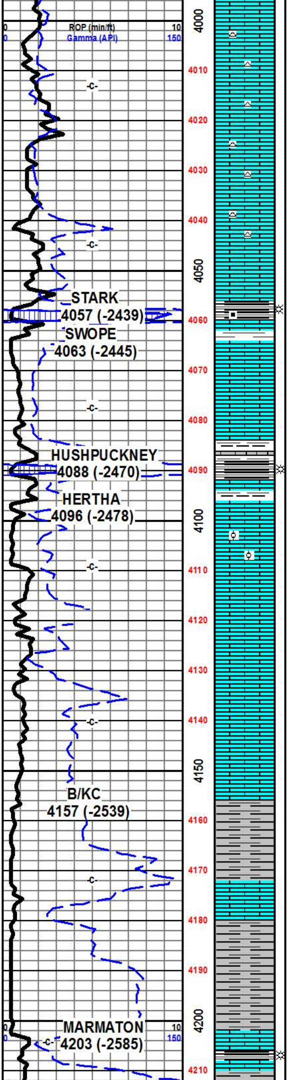
dev. .97

dev. .92

dev. 1.05

Lay down directional tools at 3950'

Mud-Co. 3950'
wt. 9.5 vis. 51 wl.
8.8 chl. 4,000
lcm. 2#



lst crm tan off wht f xln dns hrd sub chlky flky, foss frags, calc xln fill, chrt wht shrp frsh opaq

lst tan gry mott f vf xln dn shrd blky ang pcs, sli chlky tr sub chlky, foss frags, mstly dull dns hrd, tr gran chrt lt gry shrp frsh

lst crm buff tan f xln blky ang chlky/sub chlky pcs, foss frags, crsly in prt, tr calc xln fill, foss mold por, chrt lt gry shrp frsh

flood blk carb shl, wxy grsy blky firm pcs, gassy, lst crm buff tan f xln blky sub chlky foss frags, crsly in prt,

lst crm tan burr, tan lgry mott, f xln blky ang pcs, sub chlky crsly foss in prt, foss frags, inter foss frag por, mstly soft mushy chlky, tr chrt wht shrp frsh

lst crrm tan brn f med xln gran ang blky pcs, foss ool, crsly oomold por, foss mold por

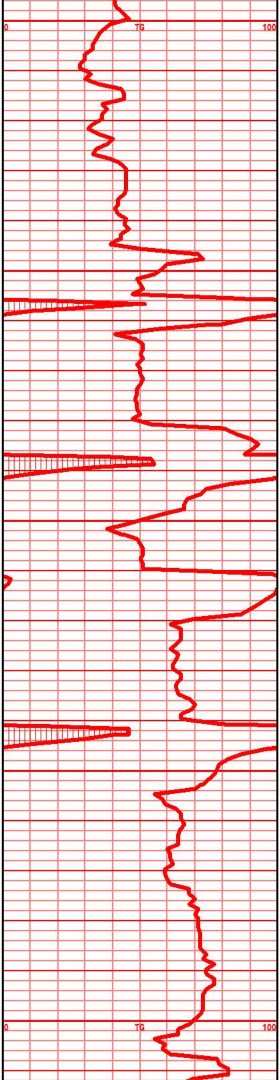
lst crm tan bec tan/gry f vf xln dns hrd blky ang calc xln fill, foss ool, micro foss/ool, chrt lt gry shrp frsh

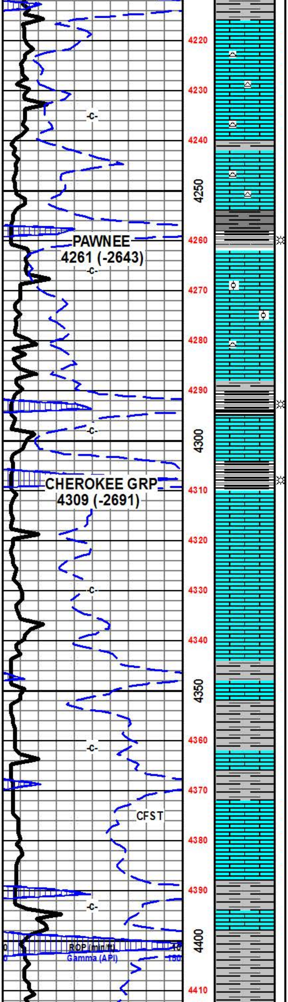
lst crm tan f xln gran blky and chlky foss frags, calc xln fill, lst tan gry mott vf xln dns hard massive, micro foss frags, chrt lt gry shrp frsh opaq

lst drk gry micro xln dns hrd blky ang vry arg, shl gry drk gry calc, blky ang vry firm pcs

lst gry drk gry vf xln dns hrd massive, arg, lst drk tan gry/brn vf xln dns hrd blky sub chlky foss frags,

shl gry green, drk green, silty gritty, lst tan lt brn vf xln dns hrd blky ang micro foss frags,





lst buff tan f vf xln dns hrd, blky ang pcs, micro foss frags, tr sub chlky, chrt tan shrp frsh

shl gry green slick, blky ang firm pcs, tr gritty silty, lst tan buff f xln blky ang dns micro foss frags, sli chlky in prt

shl drk gry blk, tr carb blky ang firm pcs, lst buff tan f vf xln dns hrd blky sli sub chlky mirco foss frags

lst off wht crm buff f vf xln dns hrrd blky ang, flky in prt, sub chlky, tr micro foss frags, tr micro ool,

blk carb shl in spl, blky ang firm pcs, lst crm tan buff f vf xln blky flky sub chlky miroc foss frags

shl blk carb in spl, blky ang firm pcs, lst crm buff tan f vf xln blky ang tr sub chlky micro foss frags dns

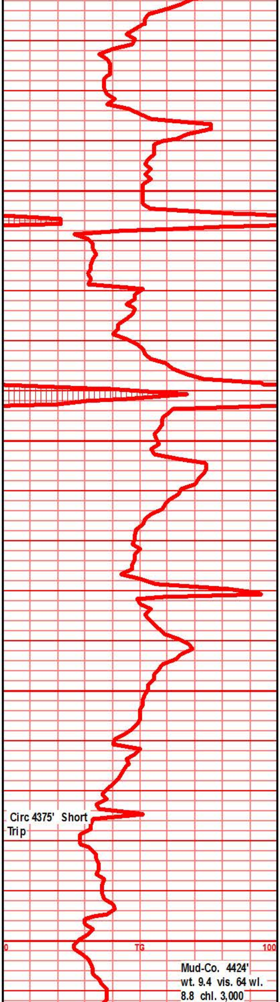
lst crm tan lt brn f vf lxln sndy gritty in prt, dns hrd, tr sub chlky mstly blky ang hrd dns tr arg, shl gry blk calc

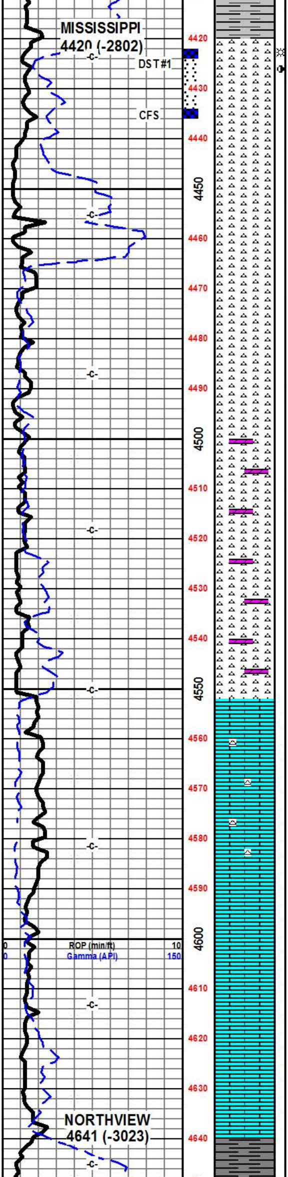
lst gry tan lt brn f vf xln dns blky ang sndy gritty, arg, silty, shl drk gry/brn ang firm calc pcs

shl gry med gry brn silty gritty tr sndy, pyritic, calc, lst tan brn drk gry f xln gran arg silty, gritty sndy

twbow, shl gry green reds, silty gritty snd, shl gry blk ratty splintery,

lst gry brn vf xln dns hrd massive, shlt drk gry brn, tr maroon, blue/green, silty gritty mslty blky firm pcs, tr ratty splintery aa





shl gry green maroon, tr vari mott color, silty gritty, tr loose clr rded snd grns

chrt wht off wht trip text, weath text, pp moldic por, sli odor, SSFO, blk stain, tan brn stain, fair sho gas bubs, tr blky grsy SFO t filmy SFO, chrt wht off wht frsh shrp opaq, tr w/gran crumbly weath edge

chrt wht off wht tr bone wht frsh shrp opaq, chrt wht off wht weath gran tr cumbly text, chrt wht shrp frsh wweath sli trip text, tr dead stain along weath edge on frsh chrt pcs, odor?

chrt wht off wht tr bone wht shrp frsh opaq, some w/weath sli trip text edges, crumbly gran weath text, tr blk stain along weath frsh chrt edge, odor?

chrt wht shrp frsh opaq, frsh chrt w/sli weath gran edges, chrt wht off wht weath sli trip text, crumbly soft, wht chlky, spls wsh wht in prt

chrt wht bone wht gran weath chlky text, soft sub chlky mushy in prt, chrt wht shrp frsh w/weath gran edge, dolo off wht w/green tint, f vf xln fnly sndy blky ang hrd pcs

chrt wht off wht bone wht shrp frsh opaq w/weath gran soft chlky edge, tr dolo aa, lst wht f med xln blky flky w/ chrt nod inclu

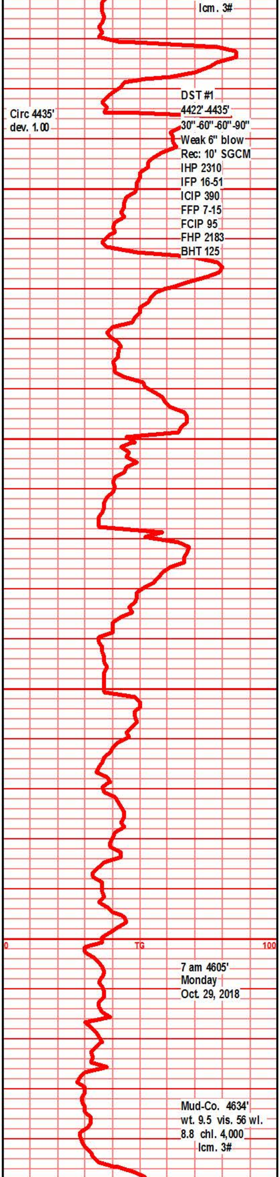
chrt aa, lst wht off wht f med xln dns hrd massive, red brn tint in prt, red brn gritty shls, dolo lt gry/grn f xln sndy gritty arg

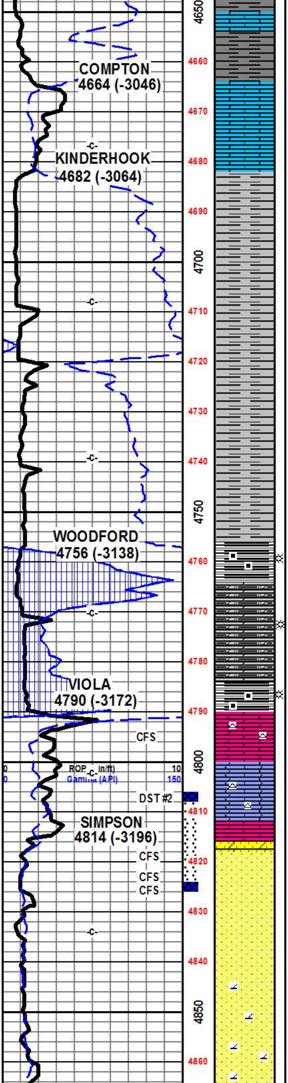
lst crm tan off wht f vf xln dns blky massive, chrtty in prt, chrt wht w/gran weath edge,

lst wht off wht f vf xln dns blky massive, sub chlky tr gran soft mushy, sm/lrge calc inclu, foss frags

lst off wht tan f sli med xln blky ang tr sub chlky crsly foss in prt, large calc xstl inclu, tr green tint, lst tan rdb brn mott f xln blky ang chlky dns tr calc inclu

shl red brn silty gritty w/lrge calc xstl inclu, shl gry green, lst off wht tan f med xln blky chky crsly foss, lrg calc inclu, lst gry green vf xln dns hrd gritty dolo in prt calc fill





shl drk gry/blue/green, silty gritty, blky ang firm pcs, lst gry blue green micro xln dns hrd blky ang arg gritty

lst wht crm f med xln tr crs xln, blky ang tr sub chlky, m slty massive dns hrd, lrg calc xstl inclu, tr blue gry tinted,

shl drk gry, drk gry/brn, brn/blk, fnly silty, flky firm pcs, tr spintery, vis gas bubs

shl drk gry/brn blk, fnly silty/gritty, platey, tr splintery, gas bubss

shl gry drk gry blk, tr blk/brn tinted, fnly silty gritty in prt, blky ang firm pcs

shl blk, carb, blk/drk red tint, blky firm pcs, wxy grsy text, bedded, abun gas bubs

shl gry drk gry blk, blk w/drk red tint, firm blkyang pcs, dolomitic text, wxy grsy text, pyritic in prt, abun gas bubs, "spitting" gas

dolo drk gry brn vf xln, sli sucr, dns hrd chrty, gas bub, tr RBSFO/filmy smear, dolo tan brn f xln blky soft inter xln por, gas bubs, blk flky stain, vry sli odor

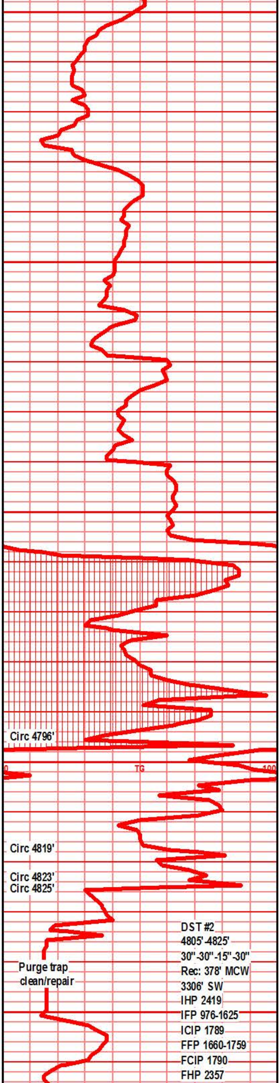
dolo tan lt brn f xln gran, cucr, tr sndy, inter xln por, calc fill, chrt drk brn shrp frsh, lst wht bone wht f med xln, tr crs calc xln inclu, tr pyritic, tr crs foss frags

dolo drk brn med xln, sucr, sndy text, gd inter xln por, sst clstrs clr f grnd, w/rded, fria, fair to well srtd, tr silic dolo fill, tr dead flky stain, no blk or NSFO

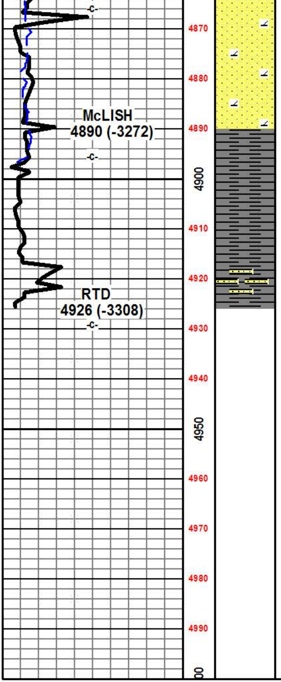
sst clr clstrs, f grnd sub rded grns, fair to well srted, fria, odor? filmy SFO, fair gas bubs, stain

sst clr tr lt gry clstrs, fn grnd sub rded grns, fair to sub prly srtd, prly cem, silic cem, inter gran por, NS

sst clr tan lt gry/brn clstrs, vry dolomitic, f grnd sub rded grns, w/srtd, w/cem hvy silic cem, inter grain por, sub fria to tite, blky ang firm clstrs, sst clr tan clstrs, f vf grnd, rded grain, fair srted, sub fria to fria, tr silic cem, spl tray full of loose snd grns, clear w/rded, tr frosted, tr gas bubs, blk oil droplets, brn/blk oil smears, odor



DST #2
4805'-4825'
30"-30"-15"-30"
Rec: 378' MCW
3306' SW
IHP 2419
IFP 976-1625
ICIP 1789
FFP 1660-1759
FCIP 1790
FHP 2357

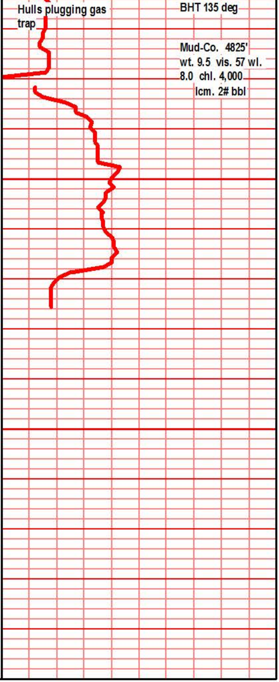


sst aa, sst wht clr clstrs, f grnd sub ang, sub rded grns, prly srtd w/smaller grains inbed, mstly fria soft, odor in 4888' 30" spl, blk oil droplets, tr gas bubs, sst clr lt tan clstrs, f grnd, sub rded grns, w/srtd, w/cem, blky ang tite dns firm clstrs, no show

shl drk gry green, teal green, sndy, snd grn inclu, much glau, blky ang firm pcs

shl lt gry green, teal green, sndy, clr w/rded snd grn inclu, glau, crsly in prt

shl gry drk gry green teal green, silty slick, wxy grsy text, snd grn inclu, glau inclu, spls wsh gry



Hulls plugging gas trap

BHT 135 deg

Mud-Co. 4825'
wt. 9.5 vis. 57 wl.
8.0 chl. 4,000
lcm. 2# bbl

Woolsey Operating Co, LLC
MPW #1
Section 13-Twp 31S-Rge 8W
175' FSL & 1600' FWL
155' S, 50' W of SW SE SW
Harper County, Kansa
API # 15-077-22177-00-00
GL 1606' KB 1618'