

Wellsite Services, LLC

John Goldsmith
(316) 640-0236

427 Roosevelt St.
Cheney, KS 67025

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

Well Name: #1 Blau-Schroeder
API: 15-109-21517
Location: 610' FSL & 2,570' FWL, Sec 16-15S-36W, S/2 S/2
License Number: REI #4767
Spud Date: 8/25/2017
Surface Coordinates: LAT: 38.7464629
LONG: -101.326285
Bottom Hole Vertical Hole
Coordinates: 1/4 Degree Deviation
Ground Elevation (ft): 3339' K.B. Elevation (ft): 3344'
Logged Interval (ft): 3800' To: RTD Total Depth (ft): 5010'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Region: Logan County

Drilling Completed: 9/4/2017

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

OPERATOR

Company: Ritchie Exploration Inc.
Address: 8100 E. 22nd St. N. #700
Wichita, KS 67226
(316) 691-9500

GEOLOGIST

Name: John Goldsmith
Company: Wellsite Services LLC
Address: 427 Roosevelt St.
Cheney, KS 67025
(316) 640-0236

RIG RECORDS

Contractor: WW Drilling Rig #10
Pusher: Ricky Hilgers

Collar Tally: 434'

Pump: National K-380
Liner & Stroke: 6 x 14

BIT RECORDS

Size:	Type:	Footage:	Condition:	Hours:	Serial #:
12 1/4"	Sm-tooth	0-268'	RR	2.75	RD 8002
7 7/8"	Varel	268'-5010"	New	127.75	1387952

COMMENTS

Surface Casing: 6 joints of 8 5/8" set @ 268'
Production Casing: No production casing was installed.
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: Pioneer Energy Services (DIL, CN-CD, ML, CS)
RTD=5010' LTD=5009'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stotler	3702'	-357	3700'	-355
Heebner Shale	4057'	-713	4055'	-711
Toronto	4078'	-734	4076'	-732
Lansing	4102'	-758	4102'	-758
Muncie Creek Shale	4284'	-940	4282'	-938
Stark Shale	4373'	-1029	4370'	-1026
Hushpuckney Shale	4420'	-1076	4418'	-1074
Base of KC	4460'	-1116	4458'	-1114
Marmaton	4501'	-1157	4500'	-1156
Altamont	4516'	-1172	4514'	-1170
Pawnee	4592'	-1248	4591'	-1247
Myrick	4633'	-1289	4633'	-1289
Ft Scott	4648'	-1304	4647'	-1303
Cherokee Shale	4676'	-1332	4676'	-1332
Johnson Zone	4764'	-1420	4764'	-1420
Morrow	4814'	-1470	4814'	-1470
Mississippian	4926'	-1582	4925'	-1581
RTD	5010'	-1666		
LTD			5009'	-1665

DST's

DST #1 "Toronto" 4054'-4094' 8/29/17 30-45-45-60
 1st Blw: Surf blw blt to 4" (No BB)
 2nd Blw: Surf blw blt to 3" (No BB)
 IFP: 28-64# ISIP: 1000# FFP: 72-88# FSIP: 1004#
 Hyd: 1999-1971#
 Rec: 51' WM w/ tr Oil (44%Wtr), 119' MCW w/ tr Oil(66%Wtr).

DST #2 "LKC A-D" 4096'-4184' 8/30/17 30-30-30-30
 1st Blw: Strg blw blt to BOB in 11min (No BB)
 2nd Blw: Strg blw blt to BOB in 2min (No BB)
 IFP: 462-1043# ISIP: 1173# FFP: 1057-1162# FSIP: 1181#
 Hyd: 2020-1970#
 Rec: 550' MCW (64%Wtr), 500' MCW (79%Wtr), 250' SMCW (94%Wtr), 1250' Wtr.

DST #3 "LKC E&F" 4191'-4234' 8/31/17 30-30-45-60
 1st Blw: 1/4" blw blt to 2.5" (No BB)
 2nd Blw: Blw started @ 2.5min blt to 2.75" (No BB)
 IFP: 17-50# ISIP: 1215# FFP: 51-80# FSIP: 1214#
 Hyd: 2095-2072#
 Rec: 140' WCM w/ tr Oil (15%Wtr).




DST #4 "Altamont A" 4501'-4536' 9/1/17 30-30-30-30
 1st Blw: Wk surf blw died @ 11min (No BB)
 2nd Blw: No blw (No BB)
 IFP: 15-17# ISIP: 118# FFP: 15-17# FSIP: 101#
 Hyd: 2306-2203#
 Rec: 2' Mud.

DST #5 "Altamont B" 4536'-4556' 9/2/17 30-45-45-60
 1st Blw: 1/4" blw blt to 3.25" (No BB)
 2nd Blw: Blw started @ 3.5min blt to 3.25" (No BB)
 IFP: 38-86# ISIP: 1224# FFP: 83-110# FSIP: 1180#
 Hyd: 2309-2269#
 Rec: 165' MCW (63%Wtr).

ROCK TYPES


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 Shale

 Sltst
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 Carb sh







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



ACCESSORIES

EVENTS
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 Conn

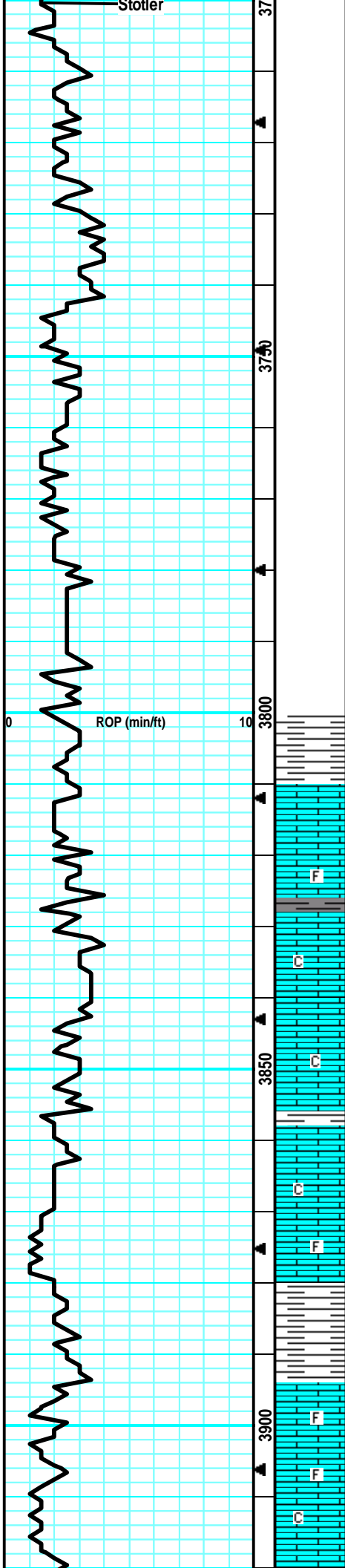
FOSSIL
 Brach
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 Foram
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 Gastro
 Oolite
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 Fuss
 Oolcast

MINERAL
 Calc
 Chtdk
 Chtlt
 Glau
 Pyr
 Sil

TEXTURE
 Chalky
 CrsxlIn
 FinexIn
 MicroxIn

Drilling Time ROP (min/ft)	Depth	Lithology	CFS Point Oil Shows	Geological Descriptions	Remarks
<p>ROP (min/ft)</p> <p>Anhydrite</p> <p>B/Anhydrite</p> <p>2650</p>	<p>2650</p>			<p>Morning Activity/Report @ 7:00am</p> <p>8/25/2017: Spud @ 2:00pm</p> <p>8/26/17: drlg @ 700'</p> <p>8/27/17: drlg @ 2465'</p> <p>8/28/17: drlg @ 3436'</p> <p>8/29/17: drlg @ 3978' (DST #1 Toronto)</p> <p>8/30/17: drlg @ 4128' (DST #2 LKC A-D)</p> <p>8/31/17: testing @ 4234' (DST #3 LKC E-F)</p> <p>9/1/17: drlg @ 4485' (DST #4 Altamont A)</p> <p>9/2/17: testing @ 4556' (DST #5 Altamont B)</p> <p>9/3/17: drlg @ 4775'</p> <p>9/4/17: circ @ RTD 5010' (Elec Logs)</p>	<p>Survey @ 260' = 1/4 Degree</p> <p>Anhydrite @ 2628' (+716)</p> <p>MudCo Check #2 @ 2628' 08/27/17 @ 10:00am Wt: 9.7 Vis: 28 pH: 7.0 Filt: n/c Chlr: 76K LCM: n/c</p> <p>B/Anhydrite @ 2647' (+697)</p>
<p>ROP (min/ft)</p> <p>3600</p> <p>3650</p> <p>4000</p>	<p>3600</p> <p>3650</p> <p>4000</p>				<p>MudCo Check #3 @ 3535' 08/28/17 @ 11:45am Wt: 8.7 Vis: 55 pH: 11.5 Filt: 8.0 Chlr: 3.4K LCM: 2#</p>



SH: gry/brn, silty, soft, fw LS: gry/tan, mott, fn xln, flakey/mealy, tr-nvp, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm flakey/mealy, sub-chlky, tr-? intxn por in sm, 2 pcs w/ drk hvy tar like stain, no fluor, no cut, pos drk dead oil, no cup odr, nsfo.

LS: gry/tan, slight mott, fn xln, fw foss, firm, sm gritty like, tr-nvp, sm SH: drk gry/gry, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm gritty/sandy, tr-pr intxn por, fw foss, dense, firm, tr-nvp, no cup odr, ns.

LS: lt tan/tan, mostly sing, fn xln, dense, sm firm, fw sub-chlky, tr-nvp, no cup odr, ns.

LS: lt tan/lt gry, mostly sing, fn xln, fw flakey, many dense, tr-nvp, fw lght brn spttd min specs, no fluor/cut, no cup odr, nsfo.

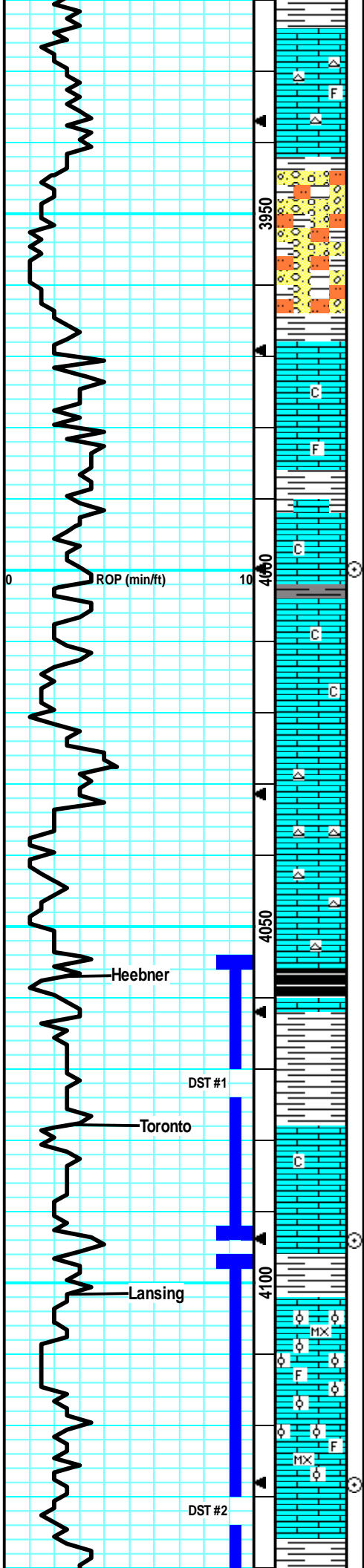
LS: lt gry/tan, slight mott, fn xln, fw foss, fw flakey/mealy, tr-nvp, fw SH: gry/drk gry, silty, no cup odr, ns.

SH: gry/drk gry, silty, fw LS: gry, slight mott, foss, flakey, tr-nvp, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, fw foss frags, sm dense, fw brittle, tr-nvp, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm flakey, fw foss, many firm, tr-nvp, fw pcs w/ brn min stns, no fluor/cut, no cup odr, nsfo.

LS: lt tan/tan, mostly sing, fn xln, many firm, sub-chlky in prt, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.



LS: lt tan/lt gry, slght mott, fn xln, fw foss, many firm, fw dense, Cherty in prt, tr-nvp, fw SH: lght grn, silty, gritty, no cup odr, ns.

LS: gry, mott, fn xln, sandy/gritty, sm friable, fw sub-chlky, tr-nvp, svrl SH: gry, silty, soft, fw waxy, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, sm sandy/gritty, fw sub chlky, tr-nvp, svrl SH: gry, silty, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, many dense, sm flakey/mealy, tr-nvp, fw pcs w/ drk brn stns, no fluor/cut, no cup odr, ns.

LS: lt gry/lt tan, mostly sing, fn xln, fw foss frags/fuss, fw sub-chlky, tr-nvp, no cup odr, ns.

LS: lt gry/lt tan, mostly sing, fn xln, dense, sm brittle, fw sub-chlky in prt, tr-nvp, no cup odr, ns.

LS: tan/lt gry, slght mott in prt, fn xln, mostly dense, sm flakey, sub-chlky, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt gry, mostly sing, fn xln, mostly dense, sub-chlky, tr-nvp, fw SH: gry/blu/brn, silty, no cup odr, ns.

Much of the same LS, infx of Chert: wht/opaq, foss, sharp, less SH, no cup odr, ns.

LS: tan, mostly sing, fn xln, mostly dense, sm firm, sub-chlky in prt, tr-nvp, sm Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, mostly dense, fw flakey, sub-chlky in prt, tr-nvp, fw Chert: wht/lt gry, foss, sharp, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, many flakey/mealy, sm pr intxln por in sm, fw pcs w/ drk brn stns, no fluor/cut, pos drk dead oil, sm SH: blk, carb, no cup odr, nsfo.

SH: gry/blu/brn, silty, soft, fw LS: gry/tan, slght mott, fn xln, pr intxln por in sm, lght brn spttd stn, ? fluor, no cut, no cup odr, nsfo.

LS: tan/lt tan, slght mott, fn xln, mostly brittle, fr intxln por in sm, lght brn stns in por in svrl pcs, fr sfo on brk, gd fluor & cut.

LS: crm/lt tan, mostl sing, miro/fn xln, mostly brittle, sub-chlky in prt, tight scat fn intxln-ppt por in svrl pcs, svrl pcs w/ hvy stn, fr sfo on brk, gd cup odr.

SH: gry/blu/brn, silty, soft, fw pcs of LS: most like above, sm with ppt intxln por with show, pos base of TOR or v top of LANS rx, gd cup odr, fw sfo.

LS: crm/lt tan, mostly sing, micro-fn xln, sm dense, sub-chlky in fw, tight ppt intxln por scat in sm, drk brn stns in por, ssfo on brk, fr cup odr, gd fluor/cut.

LS: crm/lt tan, slght mott, fn xln, sm v ool/foss, many brittle, drk stns in por, fr sfo ok brk, fr cup odr, strng w/ heat, gd fluor/cut, svrl pcs/ try.

LS: crm/lt tan, sm of rx above w/ ool/foss and sho, mostly micro/fn xln, dense, brittle, sub-chlky, tr-nvp, fr cup odr, ssfo in 5-6 pcs.

60" Smpl: LS: lght gry/crm, sing, micro-fn xln, dense, sm brittle, sub-chlky, tr-nvp, svrl pcs pur chlky, faint-? cup odr, nsfo.

LS: crm/lt tan, sing, fn xln, mostly dense, sm brittle, sub-chlky in prt, tr-nvp, fw SH: gry/grn, silty, soft, fw waxy, no cup odr, ns.

MudCo Check #4 @ 3981'
08/29/17 @ 7:15am
Wt: 9.0 Vis: 54
pH: 11.0 Filt: 8.0
Chr: 4.2K LCM: 2#

**Short Trip @ 4000'
(25 Stands)**

CFS @ 4000'
(30"/60")

DST #1 "Toronto" 4054'-4094' 8/29/17
30-45-45-60
1st Blw: Surf blw blt to 4" (No BB)
2nd Blw: Surf blw blt to 3" (No BB)
IFP: 28-64# ISIP: 1000# FFP: 72-88#
FSIP: 1004#
Hyd: 1999-1971#
Rec: 51' WM w/tr Oil (44%Wtr), 119' MCW w/tr Oil (66%Wtr).

Heebner @ 4057' (-713)

Toronto @ 4078' (-734)

Survey @ 4094' = 1/2 Degree

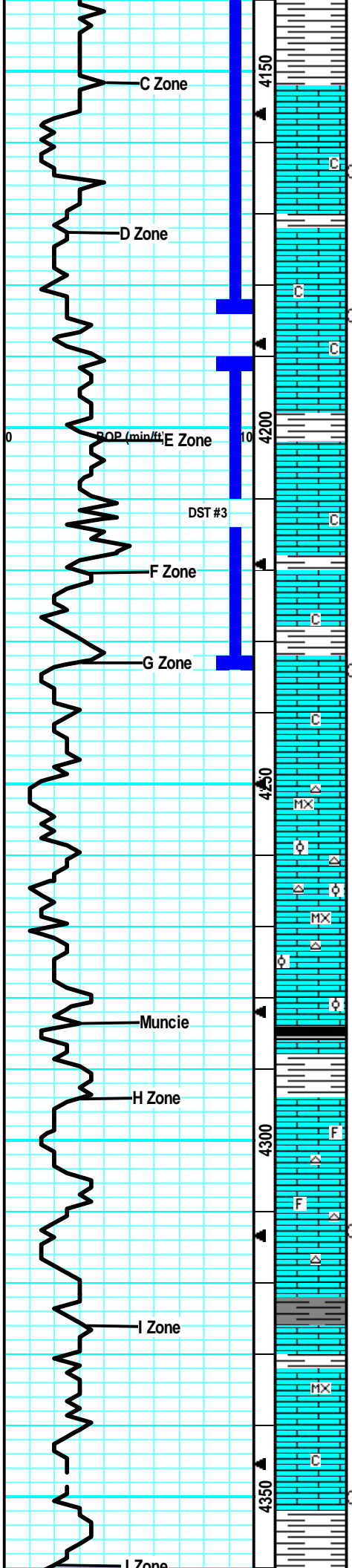
CFS @ 4094'
(30"/60")

Pipe Strap was
0.4' Short to the
board.

Lansing @ 4102' (-758)

CFS @ 4128'
(30"/60")

DST #2 "LKC A-D" 4096'-4184' 8/30/17
30-30-30-30
1st Blw: Strg blw blt to BOB in 11 min (No BB)
2nd Blw: Strg blw blt to ROP in 6 min (No BB)



LS: lt gry/lt tan, sing, fn xln, mostly dense, fw sub-chlky, tr-nvp, fw SH: gry/grn/blu, silty, ? cup odr, ns pcs found.

LS: gry/lt tan, sing, fn xln, many, dense, sm firm, 4-5 pcs w/ pr intxn por, lght brn stns, gd fluor/cut, wk cup odr, ssfo.

LS: gry/tan, slght mott, fn xln, fw ool, many dense, pr intxn sm scat intool por, drk brn stns, sm tarry like, faint cup odr, vssfo.

LS: lt tan, sing, fn xln, mostly dense, sm pr intxn por on edge, scat gd vuggy por, drk hvy glbs of oil in vugs, gd sfo in 6-8 pcs, faint-wk cup odr.

LS: lt tan, sing, fn xln, mostly dense, sm patchy pr intxn por w/ scat vuggy por, drk stns in por, dul yel fluor, strm cut, faint-wk cup odr, vssfo.

LS: lt tan/lt gry, sing, fn xln, mostly dense, fw pcs w/ pr intxn patchy por, scat drk brn stns, vssfo in 3-4 pcs, wk fluor, gd cut, faint-? cup odr,

LS: tan/lt gry, sing, fn xln, mostly dense, sm brittle, sub-chlky in prt, tr-nvp, fw pcs SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, tan, slght mott, fn xln, many dense, sm firm, fw flakey, scat vuggy por, lght brn sphr of oil in por, gd cup odr + w/ heat, ssfo in 5-6 pcs.

LS: tan/gry, slght mott, fn xln, many dense, sm firm, fw pcs w/ tight ppt intxn por, lght brn patchy stns, gd fluor/cut, vssfo in 4-5 pcs, faint cup odr.

LS: tan/lt gry, slght mott, fn xln, sm dense, fw flakey/mealy, sub-chlky in prt, v fw pcs w/ pr intxn por, no fluor/cut, nsfo, faint-? cup odr.

LS: lt gry/lt tan, mostly sing, fn xln, many dense, fw flakey/mealy, sub-chlky in prt, tr-nvp, fw SH: gry/grn, silty, no cup odr, ns.

LS: lt gry/tan, mostly sing, fn xln, many dense, sub-chlky, sm firm, tr-nvp, svrl SH: brn/gry, silty, no cup odr, ns.

LS: tan/lt tan, sing, fn xln, sub-chlky in prt, fw firm, tr-nvp, 2 pcs w/ pr intxn por, wk stn in por, vssfo on brk, no cup odr, pos from above.

LS: lt tan, sing, micro-fn xln, sub-chlky, many brittle, tr-nvp, fw Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: lt tan, sing, micro-fn xln, fw ool, mostly brittle, sub-chlky, tr-nvp, fw pcs pur chlk, tr-nvp, fw Chert: wht/opaq, foss, sharp, no odr, ns.

LS: tan/gry, slght mott, fn xln, mostly dense, fw brittle, fw pcs w/ pr intxn por, fw SH: gry/grn, silty, no cup odr, ns.

LS: gry/tan, fn xln, mostly dense, sm firm, fw flakey/mealy, tr-nvp, sm SH: blk/gry, silty, carb, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, fw foss, mostly flakey/mealy, tr-pr intxn por in fw, fw pcs pur chlk, no cup odr, ns.

LS: gry/ltan, slght mott, fn xln, flakey/mealy, sub-chlky, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, mostly dense, sm flakey/mealy, fw brittle, tr-nvp, fw Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: lt tan/lt gry, sing, fn xln, mostly brittle, fw flakey, sub-chlky in prt, tr-nvp, fw SH: gry, silty, no cup odr, ns.

LS: lt gry/lt tan, sing, fn xln, many dense, sm brittle, tr-nvp, fw pcs w/ lght brn stns, no fluor/cut, nsfo, sm SH: blk/drk gry, silty, sm carb, no cup odr.

LS: lt gry/tan, slght mott, micro-fn xln, sm dense, sm firm, 3 pcs w/ scat vuggy por, drk stns in por, gd fluor/cut, vssfo, faint cup odr.

LS: lt tan/lt gry, slght mott, fn xln, sm dense, fw flakey, 4 pcs w/ scat vuggy por w/ sho, gd fluor/cut, vssfo on brk, no cup odr.

LS: gry/tan, slght mott, fn xln, many foss, brittle, sub-chlky in prt, tr-pr intxn/intfoss por, sm SH: gry, silty, soft, no cup odr, ns.

2nd Blw: Strg blw bit to BOB in zmin (No BB)
 IFP: 462-1043# ISIP: 1173# FFP:
 1057-1162# FSIP: 1181#
 Hyd: 2020-1970#
 Rec: 550' MCW (64%Wtr), 500' MCW
 (79%Wtr), 250' SMCW (94%Wtr), 1250' Wtr.

CFS @ 4164'
(30"/60")

MudCo Check #5 @ 4184'
 08/30/17 @ 11:30am
 Wt: 9.1 Vis: 56
 pH: 10.0 Fil: 9.6
 Chir: 7.0K LCM: 2#

CFS @ 4184'
(30"/60")

DST #3 "LKC E&F" 4191'-4234' 8/31/17
 30-30-45-60
 1st Blw: 1/4" blw bit to 2.5" (No BB)
 2nd Blw: Blw started @ 2.5min bit to 2.75"
 (No BB)
 IFP: 17-50# ISIP: 1215# FFP: 51-80# FSIP:
 1214#
 Hyd: 2095-2072#
 Rec: 140' WCM w/ tr Oil (15%Wtr).

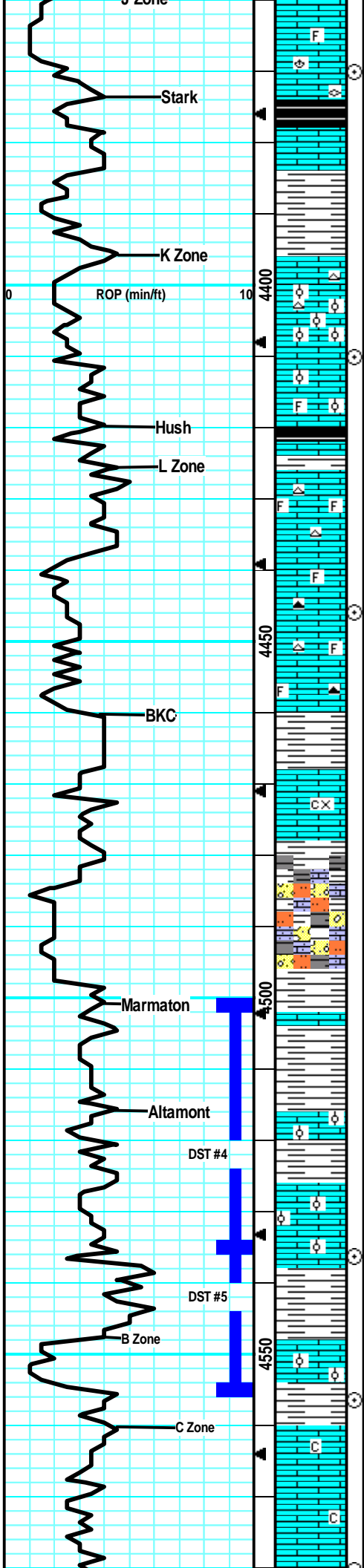
CFS @ 4234'
(30"/60")

MudCo Check #6 @ 4234'
 08/31/17 @ 8:45am
 Wt: 9.3 Vis: 45
 pH: 10.0 Fil: 9.6
 Chir: 8.0K LCM: 2#

Muncie @ 4284' (-940)

CFS @ 4313'
(30"/60")

CFS @ 4350'
(30"/60")



LS: tan/gry, slight mott, fn xln, many foss brach/frags, brittle, svrl chlky in prt, tr-pr intxn por in sm, sm SH: gry, silty, no cup odr, ns.

LS: gry/tan, mott, fn xln, many foss w/ brach/fuss, sm brit, tr-pr intxn/intfoss por, sm SH: gry/blk, silty, sm carb, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, many flakey/mealy, sub-chlky, sm brit, tr-nvp, svrl SH: gry/brn/blk, silty, fw carb, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw flakey/mealy, sm brit, pr intxn por in sm, sm Chert: wht/opaq, sharp, fw SH: gry/brn, silty, no odr, ns.

LS: gry/tan, slight mott, fn xln, many ool, svrl dense, sm firm, tr-nvp, svrl SH: gry/drk gry, silty, no cup odr, ns.

LS: tan/gry, mott, fn xln, sm v ool/foss, brit, fw dense, pr intool/foss por in fw, sm Chert: wht/gry, opa, foss, no cup odr, ns.

SH: blk/drk gry, silty, carb.

LS: lt gry/crm, sing, fn xln, fw foss, chlky, brittle, tr-nvp, fw pcs pur chl, fw Chert: wht/opaq, sharp, no odr, ns.

LS: gry/lt tan, sing, fn xln, dense, sub-chlky in prt, tr-nvp, 1 pcs ool, tght pr intool pos, drk brn tarry stns in por, vssfo, pos from above, no odr.

LS: gry/lt tan, slight mott, fn xln, sm flakey/mealy, chlky in prt, sm brittle, tr-nvp, fw pcs pur chl, fw Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, sm foss frags, mostly brit, chlky in prt, tr-nvp, svrl pcs pur chl, fw Chert: wht/gry, opa, foss, sharp, no cup odr, ns.

LS: gry/tan, mott in prt, fn-crs xln, mostly dense, sm flakey/mealy, many firm, tr-nvp, v fw SH: gry/brn, silty, med crush, no cup odr, ns.

LS: gry/tan, slight mott in prt, fn xln, many dense, fw flakey/mealy, man firm, tr-nvp, cpl pcs w/ drk min stns, no fluor/cut, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, dense, sm brit, fw grainy, tr-nvp, svrl SH: gry/brn/grn, silty, soft, fw SltStn: gry/brn, gritty, friable, no cup odr, ns.

LS: tan/gry, mott in prt, fn xln, sm foss frags, mostly firm, many dense, fw flakey, tr-nvp, fw SH: gry/brn, med crush, no cup odr, ns.

LS: gry/tan, mott, fn xln, mostly dense, many firm, fw flakey, tr-nvp, svrl SH: gry/blu, silty, gritty, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, many dense, sm brit, pr ppt intxn and frac por, drk patchy stns, gd fluor/cut, vssfo on 5-6 pcs, faint cup odr.

LS: tan/lt tan, slight mott, fn xln, sm ool, many dense, sm fr intxn por and tight intool por, drk hvy stns in por, fr sfo on brk in svrl pcs, wk cup odr.

LS: tan/lt tan, slight mott, fn xln, fw ool, mostly dense, many firm, 3-4 pcs w/ fr intxn por and sm frac por, fr sfo on brk, faint cup odr.

LS: lt tan/lt gry, slight mott, fn xln, mostly dense, sub-chlky, tr-nvp, abund SH: gry/brn/blu/grn, silty, soft, no cup odr, ns.

LS: tan, slight mott, fn xln, sm ool, many dense, sm brittle, tr-pr intxn por in sm, fw pcs w/ lght brn stns, gd fluor/cut, vssfo on brk, fnt cup odr.

SH: gry/blu/brn, silty, soft.

LS: tan, fw slight mott, fn xln, mostly dense, sub-chlky in prt, fw firm, tr-nvp, abund SH: gry/brn, silty, soft, no cup odr, ns.

LS: tan/gry, mostly sing, fn xln, sm dense, fw brittle, tr-nvp, fw pcs w/ drk min stns, no fluor/cut, abund SH: drk gry/brn, silty, no odr, ns.

CFS @ 4370'
(30"/60")

Stark @ 4373' (-1029)

CFS @ 4410'
(30"/60")

Hush @ 4420' (-1076)

CFS @ 4446'
(30"/60")

BKC @ 4460' (-1116)

DST #4 "Altamont A" 4501'-4536' 9/1/17
30-30-30-30
1st Blw: Wk surf blw died @ 11 min (No BB)
2nd Blw: No blw (No BB)
IFP: 15-17# ISIP: 118# FFP: 15-17# FSIP:
101#
Hyd: 2306-2203#
Rec: 2' Mud.

Marmaton @ 4501' (-1157)

Altamont @ 4516' (-1172)

CFS @ 4536'
(30"/60")

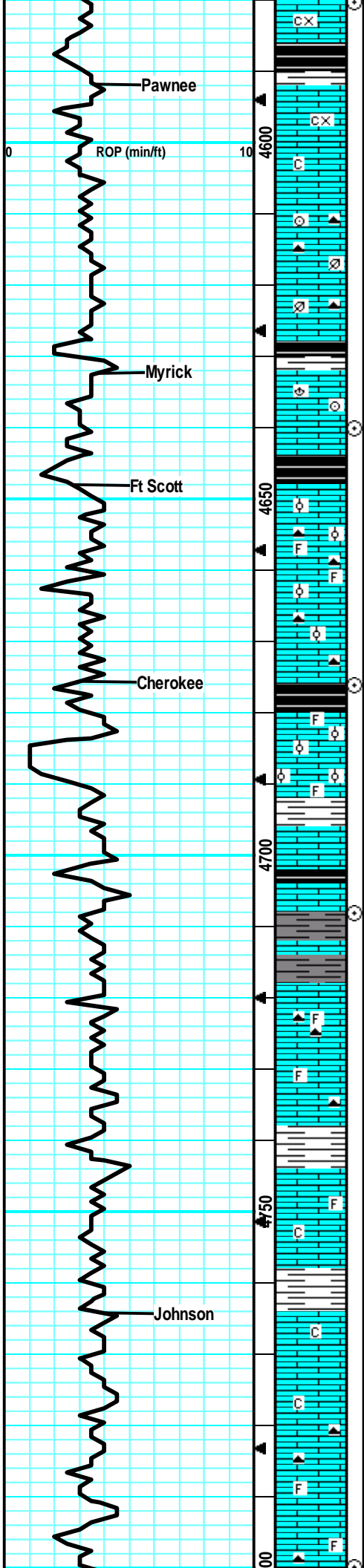
MudCo Check #7 @ 4536'
09/1/17 @ 10:00am
Wt: 9.2 Vis: 52
pH: 10.0 Filt: 9.6
Chlr: 8.2K LCM: 1#

DST #5 "Altamont B" 4536'-4556' 9/2/17
30-45-45-60
1st Blw: 1/4" blw blt to 3.25" (No BB)
2nd Blw: Blw started @ 3.5min blt to 3.25" (No BB)
IFP: 38-86# ISIP: 1224# FFP: 83-110#
FSIP: 1180#
Hyd: 2309-2269#
Rec: 165' MCW (63%Wtr).

CFS @ 4556'
(30"/60")

MudCo Check #8 @ 4556'
09/2/17 @ 10:15am
Wt: 9.2 Vis: 50
pH: 10.5 Filt: 9.6
Chlr: 6.0K LCM: 1#

CFS @ 4580'



LS: gry/tan, slight mott in prt, fn-crs xln, mostly dense, fw flakey, many firm, tr-nvp, svrl SH: gry/brn, silty, med crush, no odr, ns.

LS: gry/tan, sing, fn-crs xln, many dense, sm firm, tr-nvp, abund SH: gry/brn/blk, silty, sm carb, no cup odr, ns.

LS: gry, slight mott, fn xln, mostly dense, sm flakey, sub-chlky in prt, fw firm, tr-nvp, svrl SH: gry, silty, soft, no cup odr, ns.

LS: gry, slight mott, fn xln, foss w/ crin & frags, sm firm, sub-chlky, tr-nvp, fw Chert: gry/tan, no cup odr, ns.

LS: gry, slight mott, fn xln, mostly dense, sm firm, tr-pr intxln por in fw, abund SH: drk gry/blk, many carb, no cup odr, ns.

LS: gry/lt brn, mott, fn xln, foss w/ brach/crin, dense, firm, tr-nvp, svrl SH: drk gry/blk, silty, many carb, no cup odr, ns.

LS: gry/lt tan, mott in prt, fn xln, sm ool, sm brittle, sub-chlky in prt, tr-nvp, fw Chert: wht/gry, foss, sharp, no odr, ns.

LS: gry/tan, mott, fn xln, many ool/foss, svrl firm, tr-nvp, fw pcs SH: gry/drk gry, silty, no cup odr, ns.

LS: gry/tan, mott, fn xln, many ool/foss, svrl firm, tr-nvp, fw pcs w/ drk blk/brn min stns, no fluor/cut, nsfo sm Chert: wht/gry, foss, sharp, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, mostly dense, sm firm, fw sub-chlky, tr-nvp, fw Chert: wht/gry, foss, sharp, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, sm ool/foss, many dense, sm firm, tr-nvp, fw SH: drk gry/blk, silty, soft, many carb, no cup odr, ns.

LS: gry/tan, mott, fn xln, sm v ool, sm foss w/ crin and frags, svrl dense/firm, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.

LS: lt gry/tan, slight mott, fn xln, mostly dense, sm flakey, sub-chlky in prt, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, mostly dense, sub-chlky, tr-nvp, fw SH: blk, silty, carb, no odr, ns.

SH: drk gry/blk, silty, soft, sm carb, fw LS: tan/gry, slight mott, fn xln, fw dense, sm brittle, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw ool, sm firm, fw sub-chlky/brittle, tr-nvp, abund SH: drk gry, silty, soft, no cup odr, ns.

LS: tan/lt brn/gry, slight mott, fn xln, sm foss, mostly dense, many firm, fw sub-chlky, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

LS: lt brn/gry, slight mott, fn xln, v fw foss frags, mostly dense, hard, tr-nvp, fw Chert: brn/gry, foss, sharp, fw SH: gry/grn, silty, no cup odr, ns.

LS: lt brn/gry, slight mott, fn xln, fw foss frags, many dense, sm firm, tr-nvp, fw Chert: gry, smokey, foss, fw SH: gry/drk gry, silty, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, v fw foss frags, mostly dense, sm firm, tr-nvp, fw SH: gry/blu, silty, sm v soft, no cup odr, ns.

LS: lt brn/tan, slight mott, fn xln, mostly dense, mostly firm, many flakey/mealy, tr-nvp, sm SH: drk gry/gry, silty, soft, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, sm dense, many sub-chlky, fw flakey/mealy, tr-nvp, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, many dense, mostly firm, sub-chlky in prt, tr-nvp, fw Chert: tan/lt brn, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss frags, many dense, mostly firm, fw sub-chlky in prt, tr-nvp, no cup odr, ns.

CFS @ 4550' (30"/60")

Pawnee @ 4592' (-1248)

Myrick @ 4633' (-1289)

CFS @ 4640' (30"/60")

Ft Scott @ 4648' (-1304)

CFS @ 4676' (30"/60")

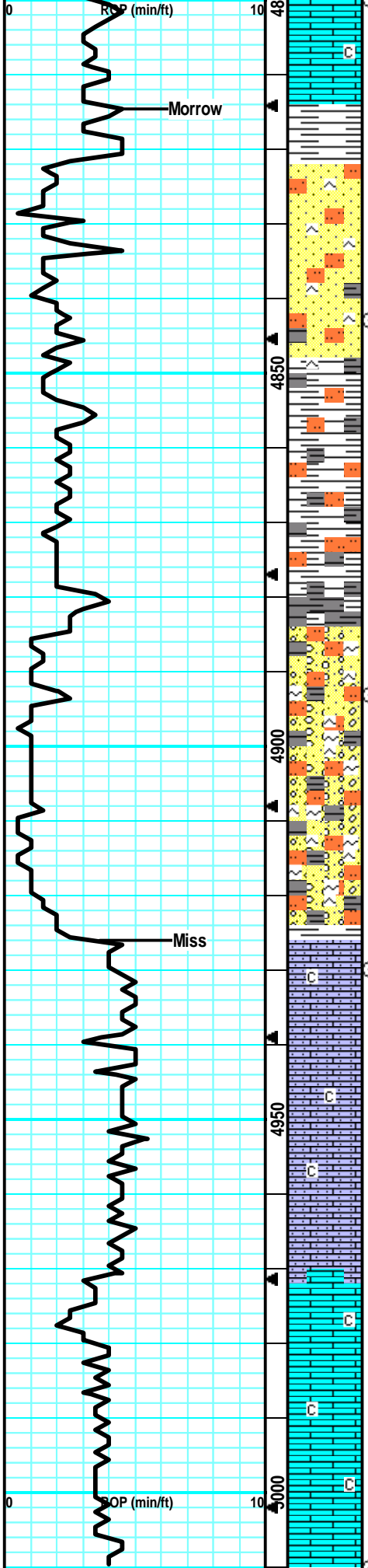
Cherokee @ 4676' (-1332)

CFS @ 4708' (30"/60")

Johnson @ 4764' (-1420)

MudCo Check #9 @ 4800'
09/3/17 @ 9:25am
Wt: 9.1 Vis: 57
pH: 10.0 Filt: 9.6
Chlr: 6.6K LCM: 2#

CFS @ 4800' (30"/60")



LS: gry/lt brn, slight mott, fn xln, mostly dense, many firm, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm sandy/grainy, sub-chlky in prt, fw flakey/mealy, tr-nvp, abund SH: gry, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, tr-nvp, abund SH: gry/brn/grn, silty, soft, fw StStn: lt brn, gritty, v soft, no cup odr, ns.

SS: crm/gry, fn grn, sub-rnd, arg, clky, friable, tr-? intgrn por, fw SS: brn, silty, arg, tr-nvp, svrl SH: gry/grn/brn, silty, no cup odr, ns.

SS: gry/wht/brn, arg, fn-crs grn, sub-ang, fning upward, fr intgrn por in crs grn clustrs, no cup odr, ns.

SS: lt gry/blu/grn, fn grn, sub-rnd, arg, friabl, sil cem, fw glauc, tr-? intgrn in sm, fw brn silty/dirty, no cup odr, ns.

SS: crm/lt gry, fn grn, sub-ang, fw arg, friable/brittle, fr intgrn por in sm, fw pcs w/ drk mins stns, no fluor/cut, abund SH: gry/brn, silty, no odr, ns.

SS: crm/brn/grn, fn grn, sm sub-ang, mostly rnd, many arg/silty, brittle, friable, tr-? intgrn por in most, fw pr intgrn por, abund SH: gry/brn, no cup odr, ns.

SS: crm/lt tan, sub-rnd/sub-ang, fn-crs xln, pr intgrn por in crs grn clust, friable, sil cem, abund SH: gry/brn, silty, no cup odr, ns.

SS: crm/lt gry, fn-crs grn, sub-ang, arg, brit, many friable, tr-pr intgrn por in sm, abund SH: gry/brn, silty, no cup odr, ns.

SS: gry/grn, fn-crs grn, sub-ang, sil cem, arg, glauc, sm firm, friable, pr intgrn por, no odr, ns.

SS: crm/lt gry, fn-crs grn, sub-ang, friable, sm firm, fr intgrn por, sm glauc, abund SH: gry/brn, silty, soft, no cup odr, ns.

SS: lt gry, fn grn, sub-rnd, friable, sil cem, tr intgrn por, glauc in prt, abund SH: gry/brn, silty, soft, no cup odr, ns.

SS: lt gry, fn grn, sub rnd, sil cem, friable, tr-pr intgrn por, sm glauc, abund SH: gry/brn, silty, soft, no cup odr, ns.

Much of the same SS as desc above, svrl LS: crm/lt tan, fn grn, sandy/gritty, sm brittle, sub-chlky, tr-nvp, no cup odr, ns.

LS: crm/lt tan, fn xln, mostly sandy/gritty, fn xln, sm friable, sub-chlky in prt, tr-nvp, abund SH: gry/brn, silty, soft, no cup odr, ns.

LS: crm/lt tan, fn xln, sandy/gritty, many firm, sm friable, tr-nvp, abund SH: gry/grn, silty, no cup odr, ns.

LS: crm/lt tan/lt gry, fn xln, sandy/gritty, fn xln, sm firm, friable in prt, sub-chlky in sm, tr-nvp, sm SH: gry/grn, silty, fw fissile, no cup odr, ns.

LS: crm/lt tan, fn xln, sandy/gritty, fw firm, sm friable, sub-chlky, tr-nvp, svrl SH: gry/grn/brn, silty, soft, no cup odr, ns.

LS: crm/lt tan, fn xln, sandy/gritty, sub-chlky, friable, tr-nvp, fw LS: tan/lt tan, fn xln, dense, flakey/mealy, tr-nvp, abund SH, no cup odr, ns.

LS: tan/lt gry, fn xln, mostly dense, fw flakey/mealy, fw firm, sub-chlky in prt, tr-nvp, abund slough SH, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, mostly dense, fw flakey, sm firm, sub-chlky in prt, tr-nvp, abund SH: gry/grn, silty, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, mostly dense, sm flakey, fw firm, chlky in prt, tr-nvp, abund SH: gry/grn/brn, no cup odr, ns.

Morrow @ 4814' (-1470)

CFS @ 4843'
(30"/60")

CFS @ 4893'
(30"/60")

Miss @ 4926' (-1582)

CFS @ 4930'
(30"/60")

Large Influx of slough Shale.....

RTD: 5010' (-1666)
LTD: 5009' (-1665)

MudCo Check #10 @ 5010'
09/4/17 @ 9:30am
Wt: 9.3 Vis: 56
pH: 10.5 Filt: 8.8
Chlr: 6.4K LCM: 2#

CFS @ 5010'
(30"/60")

Survey @ 5010' = 1/4 Degree

11/11/2020 (10:00)				
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