

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 York 34D
Location: 1460' FSL, 1530' FEL, SECTION 34-17S-32W
License Number: API: 15-171-21170
Spud Date: 06/17/2016
Surface Coordinates: LAT 38.5302796
LONG -100.8383798
Bottom Hole Vertical hole
Coordinates: 1.25 Degree Deviation
Ground Elevation (ft): 2979'
Logged Interval (ft): 3600' To: RTD
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Region: Scott County
Drilling Completed: 06/28/2016
K.B. Elevation (ft): 2985'
Total Depth (ft): 4710

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 AND BIT RECORDS

Contractor: WW Drilling Rig #2
Pusher: Lonnie Lang

Collar Talley: 414'

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

		Bit Record		
Size	Type	Footage	Condition	Serial #
12 1/4	Sm-tooth	0-250'	New	RD 6702
7 7/8	Sm-F 27	250'-4710'	New	RH 2415

COMMENTS

Surface Casing: 6 joints of 8 5/8" set at 250'
Production Casing: 5.5" Production casing was installed.
Mud by: MudCo
DST's by: Diamond Testing
Logs by: Superior Well Services (DIL, CN-CD, ML)
RTD=4710'
LTD=4710'

FORMATION TOPS & DATUMS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Heebner Shale	3898'	-913	3898'	-913
Toronto	3919'	-934	3919'	-934
Lansing	3948'	-963	3948'	-963
Muncie Creek Shale	4120'	-1135	4120'	-1135
Stark Shale	4219'	-1234	4219'	-1234
Hushpuckney Shale	4252'	-1267	4252'	-1267
Base of KC	4304'	-1319	4304'	-1319
Marmaton	4344'	-1359	4344'	-1359
Altamont	4351'	-1366	4350'	-1365
Pawnee	4434'	-1449	4434'	-1449
Myrick Station	4476'	-1491	4476'	-1491
Ft Scott	4486'	-1501	4486'	-1501
Cherokee Shale	4512'	-1527	4512'	-1527
Johnson Zone	4552'	-1567	4552'	-1567
Morrow	4596'	-1611	4596'	-1611
Mississippian	4616'	-1631	4616'	-1631
RTD	4710'	-1725		
LTD			4710'	-1725

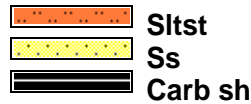
ROCK TYPES



Anhy
Cht
Congl



Dol
Lmst
Shale



Sltst
Ss
Carb sh



Gry sh
Sandylms
Shaly ls

ACCESSORIES



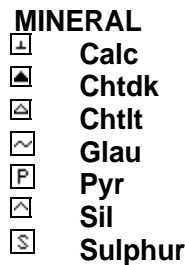
EVENTS
Circ
Conn



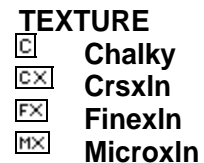
FOSSIL
Brach
Bryozoa
Crin



Foram
Fossil
Gastro
Oolite
Fuss
Oomold



MINERAL
Calc
Chtdk
Chtlt
Glau
Pyr
Sil
Sulphur



TEXTURE
Chalky
Crsxln
Finexln
Microxln

DSTs

DST #1 "LKC E" 4032'-4054' 6-21-16 30-45-45-60
1st Blw: Wk 1/4" Blw blt to BOB in 13.5min (No BB)
2nd Blw: Wk Surf blt to 8.5" (No BB)
IFP: 12-167# ISIP: 1002# FFP: 168-328# FSIP: 1002#
Hyd: 1924-1928#
Rec: 200' SMCW (92% WTR), 500' WTR.

DST #2 "LKC H" 4118'-4160' 6-22-16 30-30-30-30
1st Blw: 3" Blw blt to BOB in 1.5min (No BB)
2nd Blw: Wk 1/2" Blw blt to BOB in 3.5min (No BB)
IFP: 240-675# ISIP: 825# FFP: 697-812# FSIP: 861#
Hyd: 1999-1993#
Rec: 60' WCMw/TrO (36%Wtr), 395' Wtr, 910' SMCW (96%Wtr), 415' HMCW (60%Wtr).

DST #3 "LKC I" 4161'-4190' 6-23-16 30-45-45-60
1st Blw: Wk Surf Blw blt to 1/4" (No BB)
2nd Blw: V Wk Surf Blw died in 23min (No BB)
IFP: 8-9# ISIP: 33# FFP: 9-10# FSIP: 27#
Hyd: 1985-1983#
Rec: 2' Mw/OSpts.

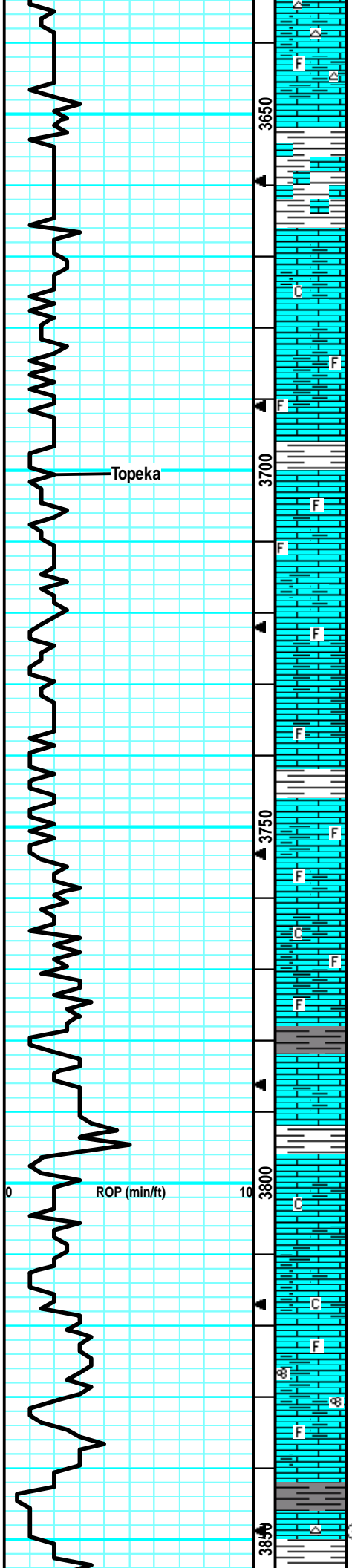
DST #4 "LKC J/K" 4191'-4258' 6-23-16 30-45-45-60
1st Blw: 1.5" Blw blt to BOB 4.5min (No BB)
2nd Blw: Wk Surf Blw blt to BOB in 7min (No BB)
IFP: 47-343# ISIP: 917# FFP: 353-603# FSIP: 916#
Hyd: 2017-1996#
Rec: 50' SOHMCW (7%Oil, 59%Wtr), 690' HMCWw/TrO (60%Wtr), 565' SMCWw/TrO (98%Wtr).

DST #5 "Altamont A" 4316'-4382' 6-24-16 30-45-45-60
1st Blw: 1/2" Blw blt to BOB 13min (No BB)
2nd Blw: 1/2" Blw blt to BOB in 11min (No BB)
IFP: 27-96# ISIP: 987# FFP: 104-147# FSIP: 982#
Hyd: 2094-2088#
Rec: 530' GIP, 35' GSMCO(90%O), 310' GMCO (57%O).

DST #6 "Altamont B" 4384'-4408' 6-25-16 30-45-45-60
1st Blw: Wk Surf Blw blt to 9.5" (No BB)
2nd Blw: 1/4" Blw blt to BOB in 32" (No BB)
IFP: 11-44# ISIP: 1106# FFP: 57-64# FSIP: 1088#
Hyd: 2119-2118#
Rec: 375' GIP, 5' GO(97%O), 120' GVHMCO (44%O).

DST #7 "Cherokee" 4506'-4611' 6-26-16 30-30-30-30
1st Blw: 1/4" Blw died to back to surf blw (No BB)
2nd Blw: Wk surf blw died in 2min (No BB)
IFP: 12-19# ISIP: 787# FFP: 20-08# FSIP: 712#
Hyd: 2216-2205#
Rec: 20' Mud.

ROP (min/ft)	Depth	Lithology	Oil Shows	Geological Descriptions	Remarks
				<p>Daily Morning Activity/Report</p> <p>June 17, 2016: Spud, 7:30am 06/18/16: drlg, 965' 06/19/16: drlg, 2600' 06/20/16: drlg, 3372' 06/21/16: circ, 3940' (DST #1) 06/22/16: drlg, 4096' (DST #2) 06/23/16: testing, 4190' (DST #3, DST #4) 06/24/16: circ, 4304' (DST #5) 06/25/16: drlg, 4408' (DST #6) 06/26/16: drlg, 4518' (DST #7) 06/27/16: drlg, 4640'</p>	<p>Anhydride @ 2307' (+678)</p> <p>Survey @ 250' = 3/4 Degree</p> <p>Mud-Co Check #2 @ 250' 6/17/16</p> <p>B/Anydride @ 2329' (+656)</p>
				<p>Mud-Co Check #3 @ 1209' 6/18/16 wt vis pH 8.8 29 7.5 Filt chlr LCM n/c 200 0#</p> <p>Mud-Co Check #4 @ 2688' 6/19/16 wt vis pH 9.1 32 7.0 Filt chlr LCM n/c 29K 2#</p>	<p>Mud-Co Check #5 @ 3442' 6/20/16 wt vis pH 8.6 67 11.5 Filt chlr LCM 6.4 2.2K 3#</p> <p>Mud Displaced @ 3422' (700bbls)</p>
				<p>LS: crm/lt tan, sing, fn xln, fw foss in prt, mostly brit, chlky in prt, tr-nvp, v fw SH: gry, silty, no cup odr, ns.</p> <p>LS: lt tan, slight mott in prt, fn xln, sm foss in prt, fw brach, sm dense, many brittle, sub-chlky in prt, tr-nvp, v fw SH: gry, no cup odr, ns.</p> <p>LS: gry/tan, mott in prt, fn xln, sm foss frags/brach, sm dense, fw brittle, tr-nvp, sm SH: gry, silty, med crush, no cup odr, ns.</p> <p>LS: gry/tan, slight mott, fn xln, sm foss in prt, brach/frags, dense, brit, tr-nvp, fw SH: gry, silty, no cup odr, ns.</p> <p>LS: gry/lt tan, brn, sing, fn xln, v fw foss frags, mostly</p>	



dense, sm brit, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.

LS: gry, slight mott, fn xln, fw foss frags, mostly brittl, sm dense, tr-nvp, fw Chert: gry, foss, sharp, svrl SH: gry, silty, soft, no cup odr, ns.

LS: gry, slight mott in prt, fn xln, v fw foss frags, mostly brit, sm dens, tr-nvp, abund SH: gry, silty, soft, fw SltStn: gritty, v soft, no cup odr, ns.

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

LS: lt tan/lt gry, mostly sing, fn xln, mostly brit, sub-chlky in prt, sm scat pr intxn por in fw, fw SH: gry, silty, no cup odr, ns.

LS: lt gry/tan, slight mott, fn xln, fw foss frags, mostly brit, sub-chlky, tr-nvp, fw SH: gry, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, fw foss frags, fw flakey/mealy, brit, sub-chlky, tr-nvp, 2-3 pcs w/ drk stns, no fluor/cut, no cup odr, nsfo.

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

LS: gry/tan, mott in prt, fn xln, fw foss, fw flakey/grainy, mostly brit, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, fw foss in prt, fw sandy/grainy, many brit, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

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

LS: tan/lt tan, slight mott in prt, fn xln, v fw foss in prt, mostly brit, sub-chlky in prt, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: tan/lt tan, slight mott in prt, fn xln, v fw foss frags, mostly brit, sub-chlky, tr-nvp, fw SH: gyr, silty, no cup odr, ns.

LS: tan/lt tan, slight mott, fn xln, v fw foss frags, fw dens, mostly brit, sub-chlky, tr-nvp, fw pcs w/ drk brn spts, no fluor/cut, no cup odr, ns.

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

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

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

LS: tan/lt gry, mostly sing, fn xln, svrl dens, fw brittl, fw flakey/mealy, sub-chlky, tr-nvp, fw pcs pur chlk, no cup odr, ns.

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

LS: tan/lt gry, slight mott, fn xln, sm foss, frags/foram, sm brit, sub-chlky in prt, tr-nvp, sm SH: brn/gry, silty, no cup odr, ns.

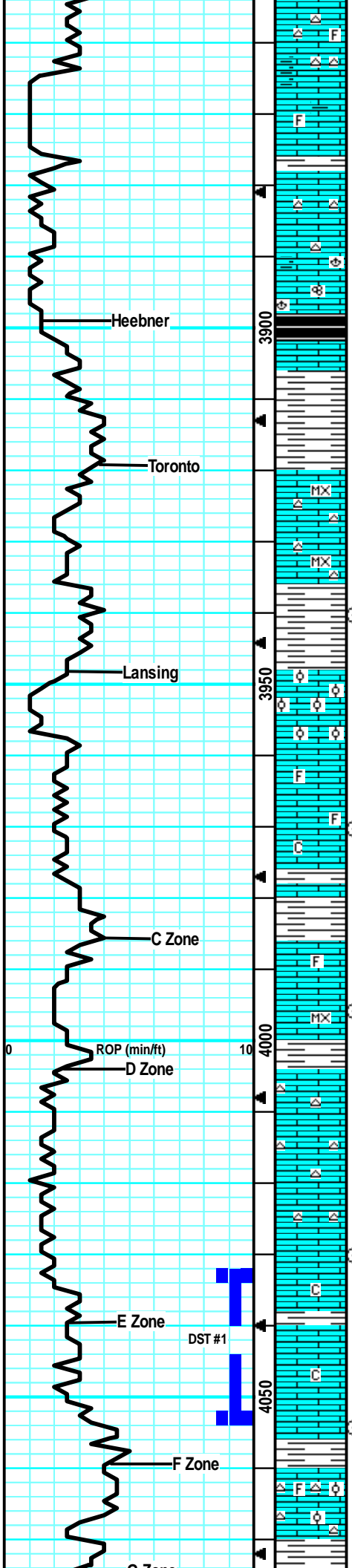
LS: tan/lt gry, slight mott, fn xln, fw foss frags, sm brit, sm dens, sub-chlky in prt, tr-nvp, v fw SH: gry, silty, no cup odr, ns.

LS: tan/lt gry, mostly sing, fn xln, fw foss frags/crin, many dense, sm brit, sub-chlky, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: tan/lt gry, slight mott in prt, fn xln, fw foss frags, many brit, sm flakey, sub-chlky, tr-nvp, fw Chert: wht/lt

Wiper Short Trip 25 Stands

CFS @ 3849'
(30"/60")



many brk, sm flakey, sub-chlky, tr-nvp, fw Chert: wht tan, foss fust/frags, sharp, no cup odr, ns.

LS: tan/gry, slight mott in prt, fn xln, fw foss frags, sm brit, sub-chlky, tr-nvp, fw SH: gry, silty, no cup odr, ns.

LS: gry/lt tan, slight mott in prt, fn xln, sm brit, fw flakey, pr intxln por in fw, 3-4 pcs w/ patchy brn stns, wk fluor, pos cut, ss hvy oil on brk, faint-? odr

LS: gry/tan, mostly mott, fn xln, sm dens, sm brit, fw flakey, tr-nvp, svrl pcs drk min stns, no fluor, tr-nvp, fw Chert: wht/gry, foss, sharp, fw SH; gry/blu, silty, no cup odr, ns.

LS: lt brn/gry, mostly mott, fn xln, fw foss brach/foram, sm dens, fw brit, drk spttd min stns, no fluor, svrl SH: gry/brn, silty, no odr, ns.

LS: tan/gry, mott in prt, fn xln, svrl dense, sm brit, tr-nvp, abund SH: blk/gry, silty, soft, many carb, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, mostly dense, sm brittle, tr-nvp, svrl SH: gry/brn, silty, sm soft, no cup odr, ns.

LS: crm/lt tan, sing, micro-fn xln, dense, brittle, sub-chlky in prt, ptchy brn stns, pr intxln por, dul yel fluor, strm cut, vssfo on brk, no odr.

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

LS: tan/lt gry, mostly sing, fn xln, mostly dens, sm brit, sub-chlky in prt, tr-nvp, abund SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt tan, mostly mott, fn xln, mostly v ool, mostly brittle, gd intool/oolcast por, fw SH: gry, silty, fissile, no cup odr, ns.

LS: lt tan/crm/lt gry, mostly sing, fn xln, sm foss/ool, sm dens, sm brit, sub-chlky in prt, tr-nvp, no cup odr, ns.

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

LS: gry/tan, slight mott, fn xln, v fw foss frags, sm dense, sm firm, sub-chlky, fw flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.

LS: tan, mott in prt, fn xln, sm ool, mostly dens, sm brittle, fw flakey, tr-nvp, fw firm, fw SH: gry/blu, silty, no cup odr, ns.

LS: lt tan/lt gry, sing, micro-fn xln, mostly dense, brit, sub-chlky, tr-nvp, fw pcs pur chlk, fw SH: gry, silty, no cup odr, ns.

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

LS: crm/lt tan/lt gry, sing, fn xln, sm dens, mostly brit, chlky, tr-pr intxln por in sm, sm Chert: wht/opaque, sharp, no cup odr, ns.

LS: lt gry/lt tan, slight mott, fn xln, sm dens, mostly brit, chlky, pr intxln por in sm, svrl pcs pur chlk, sm Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, mostly brittle, sm fr intxln por, slight vuggy, no sho, fw pcs chlk, fw SH: gry/brn, silty, fissile, no cup odr.

Stp Smpl: LS: tan/lt tan, slight mott, fn xln, brittle, sm chlky, patchy lght brn stns, gd fluor/cut, vssfo on brk, fr-gd cup odr.

30" Smpl: lt tan/tan, slight mott, fn xln, mostly brittle, sm dense, sub-chlky in prt, tr-pr intxln por in sm, sm dul yel fluor, vss lght filmy oil on brk, fr cup odr, 60" LS: tan, slight mott, fn xln, dense, patchy lght brn stns, fr cup odr, gas bub on brk, ssfo in 4-5 pcs.

LS: tan/lt brn, slight mott, fn xln, dense, sm firm, many flakey/mealy, tr-nvp, sm Chert: lt gry/lt brn, ool/foss, sharp, no cup odr, ns.

LS: tan/lt gry, slght tmott in prt, fn xln, sm dense, fw brit, sub-chlky in prt, fw flakey, tr-nvp, 1 pcs w/ v sm lght brn stn on edge, dul yel fluor, slw pos cut, no cup odr, sho pos from above.

Heeber @ 3898' (-913)

Toronto @ 3919' (-934)

CFS @ 3940'
(30"/60")

Lansing @ 3948' (-963)

CFS @ 3970'
(30"/60")

Mud-Co Check #6			
@ 3978' 6/21/16			
wt	vis	pH	
9.3	58	10.5	
Filt	chl	LCM	
7.2	1.5K	1.5#	

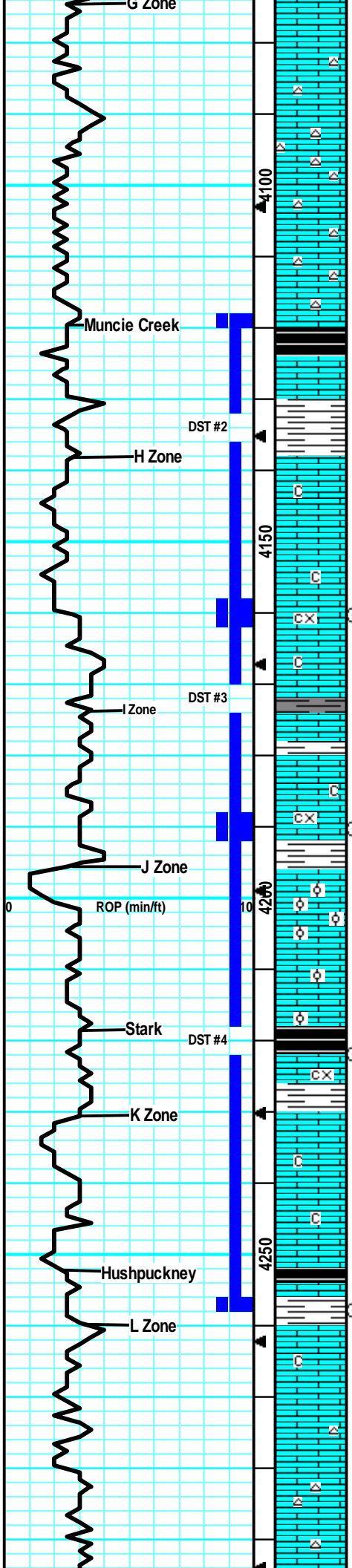
CFS @ 4030'
(30"/60")

Survey @ 4054' = 1 1/4 Degrees

CFS @ 4054'
(30"/60")

Too windy to strap pipe.

DST #1 "LKC E" 4032'-4054'
6-21-16 30-45-45-60
1st Blw: Wk 1/4" Blw blt to BOB in 13.5min (No BB)
2nd Blw: Wk Surf blt to 8.5" (No BB)
IFP: 12-167# ISIP: 1002# FFP:



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

LS: lt tan/lt gry, mostly sing, fn xln, mostly dense, firm, chlky in prt, tr-nvp, svrl pcs pur chlk, no cup odr, ns.

LS: lt tan/lt gry, sing, fn xln, dense, sm brittle, sub-chlky, sm calc inclus, tr-nvp, fw pcs pur chlk, fw Chert: wht/opaqu, sharp, no cup odr, ns.

LS: tan/lt tan, sing, fn xln, mostly dense, sm brittle, chlky in prt, tr-nvp, fw pcs pur chlk, fw Chert: wht/opaq, sharp, no cup odr, ns.

LS: lt tan/lt gry, fw slight mott, fn xln, most dens, sm brit, sub-chlky, fw flakey, tr-nvp, svrl pcs pur chlk, fw Chert: wht/opaq, sharp, no odr, ns.

LS: gry/lt brn, mott in prt, fn xln, mostly brit, sm fr intxln por/slight vuggy, brn sphr of oil clng to rx chp, faint quick odr, ssfo in 2 pcs, svrl SH: blk, silty, carb.

LS: gry/lt brn, mott in prt, fn xln, mostly dense, sm firm, flakey/mealy, tr-ppt intxln por in fw, sm brn patchy brn stns, v sml sphr of oil on brk in 2-3 pcs, faint-? cup odr.

LS: gry/lt tan, slight mott, fn xln, sm dense, fw firm, sub-chlky, tr-nvp, 2 pcs w/ pr intxln por on edge, drk brn stn, lght fo clng to rx chp, min gas bub, vssfo, fr cup odr.

LS: lt tan/gry, mostly sing, fn xln, mostly dens, sm brittle, sub-chlky in prt, fw flakey, tr-nvp, 3-4 pcs w/ drk hvy tarry stns, wk fluor, hvy vis oil, faint-? cup odr, fr sho fo.

LS: gry/lt brn, slight mott, fn-crs xln, mostly dense, sm brittle, sub-chlky in prt, sm flakey/mealy, tr-nvp, fw SH: drk gry, silty, soft, fw carb, no cup odr, ns.

LS: lt tan/lt gry, sing, micro-fn xln, mostly dense, mostly brit, sub-chlky, sm fr intxln por on edges, patchy brn stns mostly on edge, dul yel fluor, 4-5 pcs w/ ssfo on rx chp, fr sfo on brk, fr-gd odr bldg undr lght.

LS: gry/tan, slight mott, fn xln, mostly brit, sub-chlky in prt, sm flakey, svrl pcs w/ fr intxln/slight vuggy por, many 15+ pcs w/ spttd salt/pep brn stns, dul yel fluor, strm cut, fr sfo on brk, gd cup odr incrs to strng undr lght.

LS: lt gry/tan, slight mott, fn-crs xln, many frim, sm flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, sm soft, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, sm ool, many dens, svrl firm, fw pcs w/ slight vuggy/pr oolcast por, drk sat stns in por, dul yel fluor, strm cut, fr cup odr, ssfo on brk in 5-6 pcs.

LS: gry/tan, slight mott, fn xln, sm ool, many dense, sm brit, fw sub-chlky, pr scat vuggy por, dul yel fluor, sat stns in por, vssfo on brk in 3-4 pcs, slight cup odr.

LS: gry/tan, mott in prt, fn-crs xln, many dense, sm brittle, fw sub-chlky in prt, many flakey/mealy, tr-nvp, fw pcs SH: blk, silty, carb, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, many brittle, fw flakey, sub-chlky in prt, tr-pr ppt intxln por in svrl pcs, slt/pep stns, dul yel fluor, pos cut resid, ssfo in 4-5pcs, slight cup odr, svrl SH: blk, carb.

LS: gry/lt tan, slight mott in prt, fn xln, mostly brittle, sub-chlky in prt, fr ppt intxln por, patchy salt/pep stns, ssfo on brk in svrl pcs, fr cup odr.

LS: lt gry/lt tan, slight mott, fn xln, mostly dense, sm brittle, sub-chlky, 2 pcs w/ gd intxln por, sat w/ oil in por, gd sfo on brk, fr-gd cup odr. 60" Smpl: more dense rock on 2 pcs w/ sho. faint-? cup odr.

LS: gry/tan, slight mott, fn xln, mostly dense, many firm, sub-chlky in prt, tr-nvp, 2 pcs w/ pr intxln por, patchy brn stns, vssfo on brk, pos from above, fw SH: blk, silty, carb, no cup odr.

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

LS: gry/lt tan, mostly sing, fn xln, many dens, sm brit, sub-chlky, fw flakey, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: lt gry/lt tan, mostly sing, fn xln, many dense, sm brittle, sub-chlky, tr-nvp, fw pcs pur chlk, fw Chert:

168-328# FSIP: 1002#
Hyd: 1924-1928#
Rec: 200' SMCW (92%WTR), 500' WTR.

Mud-Co Check #7
@ 4154' 6/22/16

wt	vis	pH
9.3	54	10.5
Filt	chl	LCM
8.8	3.8K	1#

Muncie Creek @ 4120' (-1135)

DST #2 "LKC H" 4118'-4160'
6-22-16 30-30-30-30
1st Blw: 3" Blw blt to BOB in 1.5min (No BB)
2nd Blw: Wk 1/2" Blw blt to BOB in 3.5min (No BB)
IFP: 240-675# ISIP: 825# FFP: 697-812# FSIP: 861#
Hyd: 1999-1993#
Rec: 60' WCMw/TrO (36%Wtr), 395' Wtr, 910' SMCW (96%Wtr), 415' HMCW (60%Wtr).

Pipe Strap was .87ft short to the board.

CFS @ 4160' (30"/60")

DST #3 "LKC I" 4161'-4190'
6-23-16 30-45-45-60
1st Blw: Wk Surf Blw blt to 1/4" (No BB)
2nd Blw: V Wk Surf Blw died in 23min (No BB)
IFP: 8-9# ISIP: 33# FFP: 9-10# FSIP: 27#
Hyd: 1985-1983#
Rec: 2' Mw/OSpts.

CFS @ 4190' (30"/60")

Stark @ 4219' (-1234)

Mud-Co Check #8
@ 4190' 6/23/16

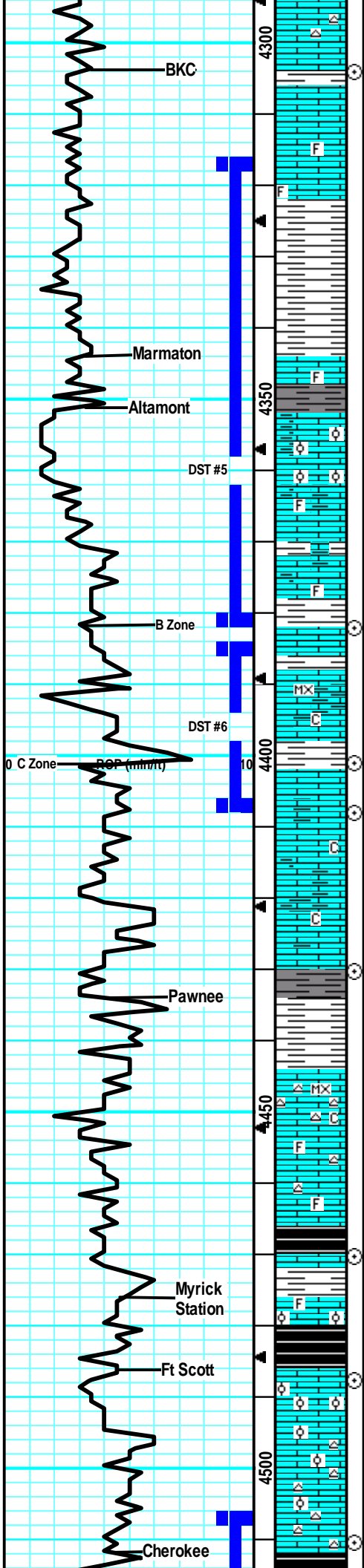
wt	vis	pH
9.2	59	10.0
Filt	chl	LCM
8.8	4K	1#

CFS @ 4222' (30"/60")

DST #4 "LKC J/K" 4191'-4258'
6-23-16 30-45-45-60
1st Blw: 1.5" Blw blt to BOB 4.5min (No BB)
2nd Blw: Wk Surf Blw blt to BOB in 7min (No BB)
IFP: 47-343# ISIP: 917# FFP: 353-603# FSIP: 916#
Hyd: 2017-1996#
Rec: 50' SOHMCW (7%Oil, 59%Wtr), 690' HMCWw/TrO (60%Wtr), 565' SMCWw/TrO (98%Wtr).

Hushpuckney @ 4252' (-1267)

CFS @ 4258' (30"/60")



wh/opaq, sharp, no cup odr, ns.
 LS: gry/tan, slight mott in prt, fn xln, fw dense, fw flaky, tr-nvp, 3-4 pcs w/ patchy brn stns, tight ppt intxn por in prt, vssfo on brk, fr cup odr.
 LS: gry/tan, slight mott, fn xln, sm dense, sm flakey/mealy, sub-chlky in prt, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.
 LS: tan/lt gry, slight mott, fn xln, sm foss in prt, many dense, sm flakey, sub-chlky, tr-nvp, svrl SH: drk brn/gry, silty, no cup odr, ns.
 LS: tan/lt gry, slight mott, fn xln, many dense, flakey, fw sub-chlky, tr-nvp, fw SltStn: gry, gritty, brit, fw frib, fw SH: drkgry/brn, silty, fissile, no cup odr, ns.
 SH: gry/blu/brn, silty, soft, fw SltStn: gry, sandy/gritty, britt, fw LS: gry/tan, mott in prt, fw flakey, firm, tr-nvp, no cup odr, ns.
 LS: tan/lt gry, slight mott, fn xln, fw foss frags, many brit, sub-chlky, fw flakey, tr-nvp, svrl SH: gry/brn, silty, fw soft, no cup odr, ns.
 LS: tan/gry, slight mott, fn xln, sm foss/ool, many dens, sm brittle, flakey, tr-nvp, 3-4 pcs w/ pr intfoss/intool por, drk brn stns in por, ssfo on brk, no cup odr, abund SH: gry/brn.
 LS: lt tan/lt gry, slight mott, fn xln, sm foss/ool, mostly brittle, sm fr intfoss/intool por, lght brn stns in por, ssfo on brk in 5-6 pcs, faint cup odr.
 LS: tan/lt tan, slight mott in prt, fn xln, fw foss frags, mostly brittle, sm flakey, sub-chlky, tr-nvp, 2-3 pcs w/ sho like above, no cup odr.
 60" Smpl: Much like the above, on 2 pcs w/ vssfo, svrl more pcs SH: gry/brn silty, sm soft, no cup odr.
 LS: tan/gry, slight mott, fn xln, most dens, sm firm, tr-nvp, 2 pcs w/ pr part intxn por, spottd brn stns, vssfo on brk, fnt-? cup odr, svrl SH.
 LS: lt tan/tan, micro-fn xln, many dense, fw firm, patchy drk brn stns, pr ppt intxn por, ssfo in 8-10 pcs, dul yel fluor, slight cup odr on brk.
 LS: lt tan/tan, slight mott, fn xln, micro-fn xln, fw foss, mostly firm, sm fr intxn/slight vuggy, spottd lght brn stns in por, fr sfo on brk in 10+ pcs, fr cup odr.
 LS: gry/tan, slight mott in prt, fn xln, mostly flakey/mealy, sub-chlky, fw brit, tr-nvp, fw pcs SH: drk gry, silty, fissile, no cup odr, ns.
 LS: gry/lt brn, mott in prt, fn xln, fw foss frags, mostly dens, sm firm, flakey/mealy, tr-nvp, no cup odr, ns.
 LS: gry/lt tan, slight mott, fn xln, mostly dense, sm firm, flakey/mealy, tr-nvp, fw SH: drk gry/gry, silty, med crush, no cup odr, ns.
 LS: lt gry/lt tan, mostly sing, micro-fn xln, mostly dense, sm firm, tr-nvp, fw Chert: lt gry/wh/ opa, sharp, no cup odr, ns.
 LS: lt gry/lt tan, slight mott, fn xln, mostly dense, sm firm, tr-nvp, svrl pcs w/ patchy lght brn stns, wk fluor, v slw cut, sm SH: gry/wh/ sharp, nsfo, no cup odr.
 LS: gry/lt brn, mott in prt, fn xln, fw foss frags, dens, sm firm, fw flakey, tr-nvp, fw SH: gry, silty, med crush, no cup odr, ns.
 LS: tan/gry, slight mott, fn xln, fw foss/ool, mostly dense, firm, flakey, tr-nvp, fw SH: drk gry, silty, no cup odr, ns.
 LS: gry/lt brn, mott, fn xln, flakey/mealy, dense, firm, tr-nvp, abund SH: blk, silty, carb, soft, no cup odr, ns.
 LS: gry/brn, mott, fn xln, sm v ool, mostly brit, sm friable, fw flakey, tr-nvp, v fw SH: gry, silty, no cup odr, ns.
 LS: gry/lt brn, mott in prt, fn xln, sm v ool, mostly dense, sm firm, tr-nvp, 2 pcs w/ v tight pr intool por, lght brn stn on each, wk fluor, pos cut resid, v sml sphr of oil on brk in hgh mag, no cup odr. 60" Smpl: LS: gry/tan, fn xln, fw foss firm, tr-nvp, fw Chert: gry, sharp, no cup odr, ns.
 LS: lt brn/gry, mott, fn xln, profus ool, mostly brittle

CFS @ 4304'
 (30"/60")

BKC @ 4304' (-1319)

DST #5 "Altamont A" 4316'-4382' 6-24-16
 30-45-45-60
 1st Blw: 1/2" Blw blt to BOB 13min (No BB)
 2nd Blw: 1/2" Blw blt to BOB in 11min (No BB)
 IFP: 27-96# ISIP: 987# FFP: 104-147# FSIP: 982#
 Hyd: 2094-2088#
 Rec: 530' GIP, 35' GSMCO(90%), 310' GMCO (57%O).

Marmaton @ 4344' (-1359)

Mud-Co Check #9
 @ 4381' 6/24/16

wt	vis	pH
9.3	53	10.5
Filt	chl	LCM
8.0	3.5K	2#

Altamont @ 4351' (-1366)

DST #6 "Altamont B"
 4384'-4408' 6-25-16
 30-45-45-60
 1st Blw: Wk Surf Blw blt to 9.5" (No BB)
 2nd Blw: 1/4" Blw blt to BOB in 32" (No BB)
 IFP: 11-44# ISIP: 1106# FFP: 57-64# FSIP: 1088#
 Hyd: 2119-2118#
 Rec: 375' GIP, 5' GO(97%O), 120' GVHMCO (44%O).

CFS @ 4382'
 (30"/60")

CFS @ 4401'
 (30"/60")

CFS @ 4408'
 (30"/60")

Mud-Co Check #10
 @ 4408' 6/25/16

wt	vis	pH
9.3	54	10.0
Filt	chl	LCM
7.2	4.5K	1#

CFS @ 4430'
 (30"/60")

Pawnee @ 4434' (-1449)

CFS @ 4470'
 (30"/60")

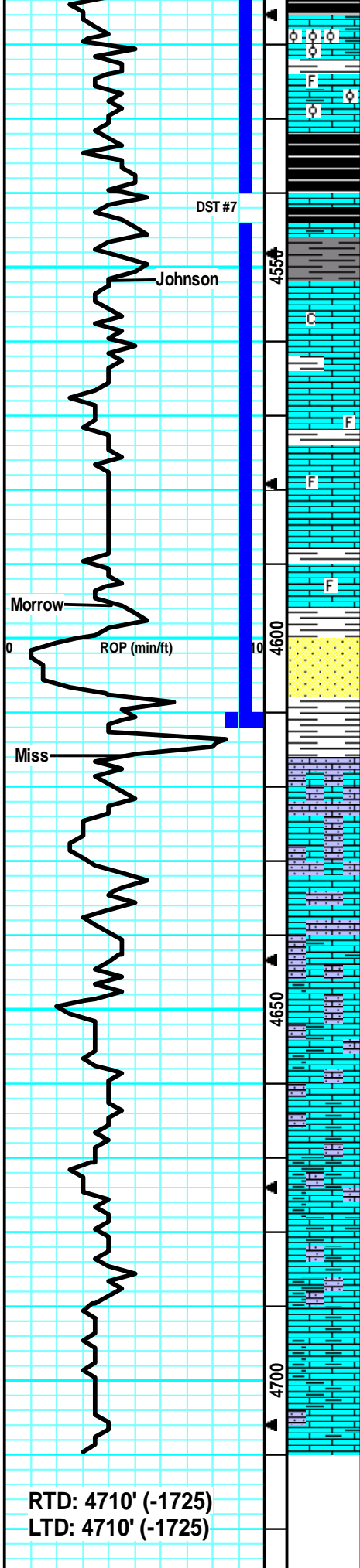
Myrick Station @ 4476' (-1491)

Ft Scott @ 4486' (-1501)

CFS @ 4488'
 (30"/60")

CFS @ 4510'
 (30"/60")

Cherokee @ 4512' (-1527)



LS: lt brn/gry, mott, fn xln, prous ool, mostly brittle, tr-pr intol por, 3 pcs w/ lght brn stns in por, dul yel fluor, vssfo on brk, faint-? cup odr.

LS: gry/lt brn, mott, fn xln, many v ool, sm dense, sm firm, tr-nvp, fw pcs SH: drk gry, silty, no cup odr, ns.

LS: tan/gry, mott in prt, fn xln, many foss/ool, many flakey, sm brit, tr-pr intxln por in fw, svrl SH: drk gry/blk, silty, fw carb, no cup odr, ns.

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

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

LS: gry/tan, slight mott, fn xln, many dense, sm flakey/mealy, sm brit, tr-nvp, 2-3 pcs w/ drk brn spstd stns, wk-? flour, nfo on brk, pos drk dead oil, no cup odr.

LS: lt gry/tan, slight mott, fn xln, fw foss frags, mostly dense, sm brittle, sub-chlky, tr-ppt intxln por in fw (tght), dul yel fluor in sm, spstd lght brn stns, vssfo in 2-3 pcs, no cup odr.

LS: gry/lt tan, slight mott, fn xln, sm brit, flakey/mealy, tr-? intxln por, spstd drk brn stns in fw, sml glb hvy tarry vis oil, no cup odr.

LS: gry/lt brn, mott in prt, fn xln, fw foss frags, many flakey/mealy, sm firm, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mott, fn xln, sm foss, many flakey, sm brit, tr-nvp, svrl SH: gry/brn, silty, sm gritty, sm v soft, no cup odr, ns. Drilling break indicates good sand zone, only 1 pcs of fn gr qrtz sand found in 2 trays, clean, v friable, v brit, fr intgrn por.

SH: gry/brn/grn/oliv, silty, sm fissile, withrd, fw SS: gry/crm, fn grn, sb rnd, arg, brit, fw glauc, tr-? intgrn por in couple, svrl LS: lt gry/lt tan, slight mott, fn xln, tr-nvp, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, many dens, sandy/gritty in prt, brit, sm gd intxln por in fw pcs, no cup odr, ns.

LS: tan/lt tan, slight mott, fn xln, sm brittle, many flakey/mealy, sm sandy/gritty like, sub-chlky in prt, tr-nvp, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, fw dense, mostly brit, many flakey, fw sandy/grainy, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, many flakey, brittle, sub-chlky in prt, tr-nvp, sm grainy, fw pcs pur chlk, no cup odr, ns.

LS: crm/lt tan, mostly sing, fn xln, flakey, brittle, sub-chlky, fw sandy/grainy, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: crm/lt tan, mostly sing, fn xln, many brittle, mostly flakey/mealy, sub-chlky in prt, fw grainy, tr-nvp, no cup odr, ns.

LS: lt tan/lt gry, slight mott in prt, fn xln, mostly brittle, many flakey/mealy, sandy/grainy in prt, tr-nvp, fw SH: gry, silty, no cup odr, ns.

LS: lt tan/lt gry, slight mott, fn xln, sm brittle, many flakey/mealy, fw sandy/grainy, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: lt gry/lt tan, slight mott in prt, fn xln, many brit, mostly flakey/mealy, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

DST #7 "Cherokee" 4506'-4611' 6-26-16
 30-30-30-30
 1st Blw: 1/4" Blw died to back to surf blw (No BB)
 2nd Blw: Wk surf blw died in 2min (No BB)
 IFP: 12-19# ISIP: 787# FFP: 20-08# FSIP: 712#
 Hyd: 2216-2205#
 Rec: 20' Mud.

Johnson @ 4552' (-1567)

Mud-Co Check #11
 @ 4564' 6/26/16
 wt vis pH
 9.3 64 9.5
 Filt chlr LCM
 8.8 4.7K 2#

CFS @ 4579'
 (30"/60")

Morrow @ 4596' (-1611)

CFS @ 4611'
 (30"/60")

Mississippi @ 4616' (-1631)

Mud-Co Check #12
 @ 4643' 6/27/16
 wt vis pH
 9.1 60 10.5
 Filt chlr LCM
 8.0 4K 3#

CFS @ 4640'
 (30"/60")

CFS @ 4710'
 (30"/60")

Survey @ 4710' = 1 1/4 Degrees

RTD: 4710' (-1725)
 LTD: 4710' (-1725)