

Wellsite Service, LLC

John Goldsmith
(316) 640-0236

427 Roosevelt St.
Cheney, KS 67025

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

Well Name: #1 Koehn-Mollenkamp
Location: 2480' FNL, 555' FWL, SECTION 14-15S-36W, W/2 W/2
License Number: API: 15-109-21459 Region: Logan County
Spud Date: 04/23/2016 Drilling Completed: 05/04/2016
Surface Coordinates: LAT 38.7526672
LONG -101.2961880
Bottom Hole Vertical hole
Coordinates: 3/4" Deviation
Ground Elevation (ft): 3314' K.B. Elevation (ft): 3319'
Logged Interval (ft): 3750' To: RTD Total Depth (ft): 4927'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

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 Service, LLC
Address: 427 Roosevelt St
Cheney, KS 67025
(316) 640-0236

COMMENTS

Contractor: WW Drilling Rig #2
Pusher: Lonnie Lang
Surface Casing: 5 joints of 8 5/8" set at 250'
Production Casing: 5 1/2" casing set at 4923'
Mud by: MudCo
DST's by: Diamond Testing
Logs by: Pioneer Energy Services (DIL, CN-CD, ML)
RTD=4927'
LTD=4925'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Heebner Shale	4032'	-713	4030'	-711
Toronto	4053'	-734	4050'	-731
Lansing	4081'	-762	4078'	-759
Muncie Creek Shale	4248'	-929	4243'	-924
Stark Shale	4351'	-1032	4347'	-1028
Hushpuckney Shale	4394'	-1075	4390'	-1071
Base of KC	4424'	-1105	4422'	-1103
Marmaton	4471'	-1152	4470'	-1151
Altamont	4480'	-1161	4478'	-1159
Pawnee	4561'	-1242	4560'	-1241
Myrick Station	4596'	-1277	4593'	-1274
Ft Scott	4616'	-1297	4613'	-1294
Cherokee Shale	4647'	-1328	4644'	-1325
Johnson Zone	4729'	-1410	4727'	-1408
Morrow	4769'	-1450	4766'	-1447
Mississippian	4855'	-1536	4853'	-1534
RTD	4927'	-1608		
LTD			4925'	-1606

DSTs

DST #1 4002'-4076' "Toronto" 04/27/2016 30-45-45-60
 1st Blow: Wk surf blw blt to 11" (No BB)
 2nd Blow: Wk surf blw blt to 8" (No BB)
 IFP: 14-106# ISIP: 1098# FFP: 109-186# FSIP: 1084#
 HYD: 1873-1866#
 Rec: 75' Mud, 125' HWCM (43%WTR), 180' MCW (68%WTR).

DST #2 4102'-4138' "LKC C" 04/27/2016 30-45-45-60
 1st Blow: 1" blw blt to BOB in 5 1/2" (No BB)
 2nd Blow: 1/4" blw blt to BOB in 6 1/2" (No BB)
 IFP: 38-298# ISIP: 1146# FFP: 310-561# FSIP: 1141#
 HYD: 1946-1935#
 Rec: 280' HWCM (49%WTR), 940' SMCW (92%WTR).

DST #3 4160'-4192' "LKC E/F" 04/28/2016 30-45-45-60
 1st Blow: 1/4" blw blt to 4" (No BB)
 2nd Blow: Wk surf blw blt to 1/4" (No BB)
 IFP: 9-55# ISIP: 1194# FFP: 59-84# FSIP: 1187#
 HYD: 1994-1991#
 Rec: 30' CO, 20' HOWCM (34%O, 22%WTR), 60' SOHWCM (6%O, 44%WTR), 60' SOMCW (1%O, 89%WTR).




DST #4 4264'-4312' "LKC H/I" 04/29/2016 30-45-45-60
 1st Blow: 1/4" blw blt to BOB in 14" (No BB)
 2nd Blow: Wk surf blw blt to BOB in 17" (No BB)
 IFP: 45-183# ISIP: 1272# FFP: 187-340# FSIP: 1264#
 HYD: 2106-2104#
 Rec: 55' HMCWtrO (56%WTR), 125' MCW (68%WTR), 500' SMCW (95%WTR).

DST #5 4441'-4506' "Altamont A" 04/30/2016 30-45-45-60
 1st Blow: 1/4" blw blt to BOB in 14 1/2" (Surf BB)
 2nd Blow: 1/2" blw blt to BOB in 14" (1 1/2 BB)
 IFP: 19-153# ISIP: 1271# FFP: 159-298# FSIP: 1267#
 HYD: 2217-2211#
 Rec: 160' GIP, 220' GSWMCO (63%O, 9%WTR), 190' GOHWCM(14%O, 33%WTR), 240' SOMCW(3%O, 75%WTR).




DST #6 4498'-4546' "Altamont B/C" 05/01/2016 30-45-45-60
 1st Blow: 1" blw blt to BOB in 5 1/2" (9.5" BB)
 2nd Blow: 1 1/2" blw blt to BOB in 7 1/2" (Surf BB)
 IFP: 25-205# ISIP: 1258# FFP: 209-398# FSIP: 1238#
 HYD: 2191-2191#
 Rec: 570' GIP, 910' GO, 60' GSMCO(89%O), 60' GHMCO(57%O).

DST #7 4540'-4584' "Pawnee" 05/01/2016 30-30-30-30
 1st Blow: Wk Surf blw blt to 1/2" (No BB)
 2nd Blow: V Wk Surf blw blt to 1" (No BB)
 IFP: 14-19# ISIP: 51# FFP: 20-23# FSIP: 33#
 HYD: 2169-2158#
 Rec: 10' Mw/Ospts.

ROCK TYPES

 Anhy
 Cht
 Congl

 Dol
 Lmst
 Shale

 Sltst
 Ss
 Carb sh

 Gry sh
 Sandylms

ACCESSORIES





FOSSIL

-  Brach
-  Bryozoa
-  Crin
-  Foram
-  Fossil





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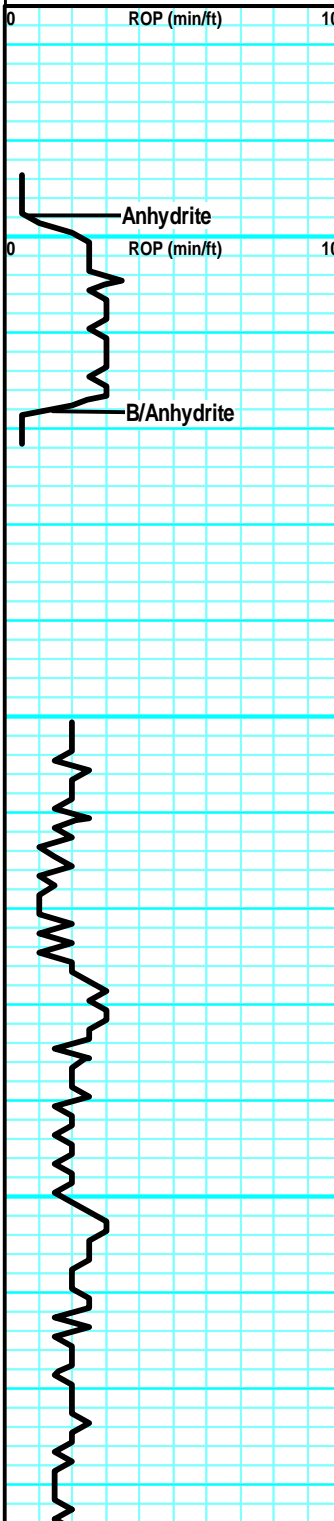
- Gastro
- Oolite
- Ostra
- Fuss
- Oomold

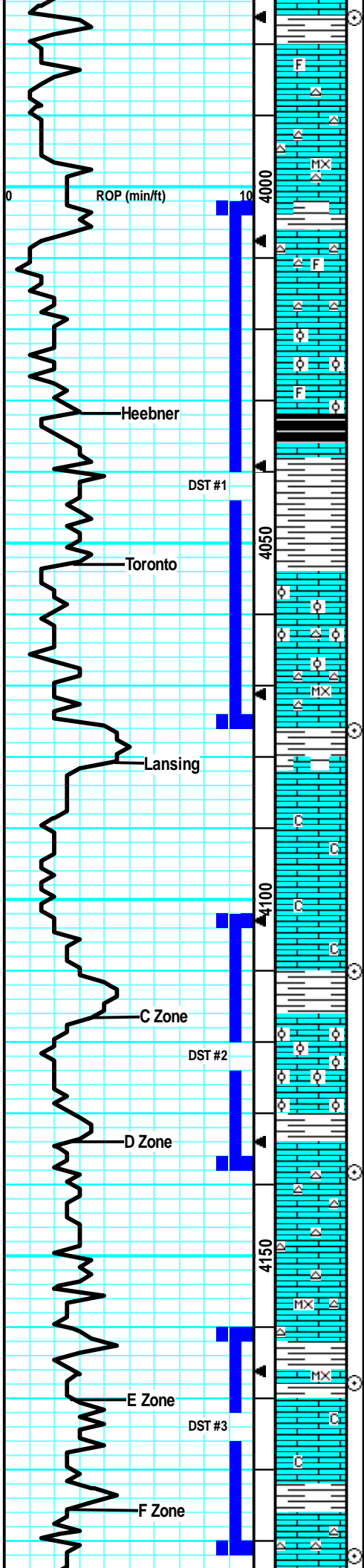
MINERAL

-  Calc
-  Chert
-  Glau
-  Pyr

TEXTURE

-  Chalky
-  Crslxn
-  Finexln
-  Microxln

ROP ROP (min/ft)	Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks																								
	<p>0</p> <p>10</p> <p>2600</p> <p>3450</p> <p>3500</p>	<div style="background-color: #e67e22; width: 100px; height: 50px; margin-bottom: 10px;"></div>			<p>Morning Report Depth/Activity</p> <p>4/23/2016: Spud 9:30am</p> <p>4/24/16: drlg, 760'</p> <p>4/25/16: drlg, 2756'</p> <p>4/26/16: drlg, 3650'</p> <p>4/27/16: testing, 4076' (DST #1, DST #2)</p> <p>4/28/16: circ, 4138' (DST #3)</p> <p>4/29/16: testing, 4312' (DST #4)</p> <p>4/30/16: testing, 4506' (DST #5, DST #6)</p> <p>5/1/16: testing, 4584' (DST #7)</p> <p>5/2/16: drlg, 4610'</p> <p>5/3/16: drlg, 4876' (TD)</p> <p> </p> <p>Drilling Time started on 4/26/2016</p>	<p>Mud-Co Check #1 @ 0' 4/15/16</p> <p>Survey @ 251' = 3/4 Degree</p> <hr/> <p>Anhydrite @ 2598' (+721)</p> <hr/> <p>B/Anhydrite @ 2618' (+701)</p> <p>Mud-Co Check #2 @ 1015' 4/24/15 8:45am</p> <table style="font-size: small;"> <tr><td>wt</td><td>vis</td><td>pH</td></tr> <tr><td>8.9</td><td>29</td><td>7.0</td></tr> <tr><td>Filt</td><td>chr</td><td>LCM</td></tr> <tr><td>n/c</td><td>140</td><td>tr</td></tr> </table> <hr/> <p>Mud-Co Check #3 @ 2837' 4/25/15 9:00am</p> <table style="font-size: small;"> <tr><td>wt</td><td>vis</td><td>pH</td></tr> <tr><td>9.6</td><td>33</td><td>7.0</td></tr> <tr><td>Filt</td><td>chr</td><td>LCM</td></tr> <tr><td>n/c</td><td>49K</td><td>3#</td></tr> </table>	wt	vis	pH	8.9	29	7.0	Filt	chr	LCM	n/c	140	tr	wt	vis	pH	9.6	33	7.0	Filt	chr	LCM	n/c	49K	3#
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n/c	140	tr																												
wt	vis	pH																												
9.6	33	7.0																												
Filt	chr	LCM																												
n/c	49K	3#																												



odr, ns.

LS: lt gry/lt tan, slight mott, fn xln, fw foss frags, many brittle, sm pr intfoss por, sub-chlky, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm dense, sm brittle, fw sub-chlky, fw pcs w/ tr-pr intxln por, fw SH: gry/brn, silty, no cup odr, ns.

LS: lt tan/lt gry, sing, micro-fn xln, mostly dense, mostly brittle, chlky, tr-nvp, fw Chert: wht/opaqu, sharp, no cup odr, ns.

LS: lt tan/lt gry, mostly sing, fn xln, fw foss frags, mostly dense, sm brittle, sub-chlky, tr-nvp, fw Chert: wht/opaqu, sharp, no cup odr, ns.

LS: lt tan, slight mott, fn xln, mostly brittle, sub-chlky, fw pcs w/ fr-gd intxln por, 3-4 pcs w/ drk stns in por, sml sphr of oil cling to chip, ssfo on brk, no cup odr.

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

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

LS: gry/tan, slight mott, fn xln, sm foss, sm ool, mostly brittle, sm fr-gd intool por, faint cup odr, fsfo in 4-5 pcs, sml gas bub cling to por, dul yel fluor, strm cut.

LS: gry/lt tan, slight mott, fn xln, many dense, sub-chlky, brittle, 2-3 pcs w/ drk stns in por, sml sphr of on cling to rx chp, dul yel fluor, strm cut, no cup odr, ssfo.

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

LS: crm/lt tan, mostly sing, micro-fn xln, dense, mostly brittle, chlky, tr-nvp, svrl pcs pur chl, sm Chert: wht/opaque, sharp, no cup odr, ns.

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

LS: tan/lt tan, mostly sing, fn xln, many dense, sm brittle, sub-chlky in prt, tr-pr intxln por in fw pcs, fw pcs pur chl, no cup odr, ns.

LS: lt tan/crm, sing, fn xln, mostly dense, mostly brittle, chlky in prt, fw pcs w/ scat vug por, svrl pcs pur chl, no cup odr, ns.

LS: tan/lt gry, mostly sing, fn xln, mostly dense, many brittle, chlky, tr-nvp, svrl pcs pur chl, sm SH: brn, gritty, no cup odr, ns.

LS: tan/lt tan, sing, fn xln, sub-chlky in prt, pr intxln por in fw pcs, 2 pcs w/ spptd drk stns, dul yel fluor, strm cut, vssfo on brk, no cup odr.

LS: tan/lt tan, slight mott, fn xln, sm profus ool, mostly brittle, sm gd intool por in fw, 2-3 pcs w/ hvy stns in por, fr sfo, fw gas bub on brk, wk odr when htd undr lght.

LS: tan/lt tan, mott in prt, fn xln, sm foss, sm ool, mostly dense, many brittle, tr-nvp, svrl Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slight mott in prt, fn xln, sm dense, sm brittle, fw sub-chlky, tr-nvp, fw Chert: wht/opaq, sharp, svrl SH: brn/gry, gritty, no cup odr, ns.

lt tan/crm, mostly sing, micro-fn xln, dense, brittle, many chlky, tr-nvp, svrl pcs pur chl, no cup odr, ns.

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

LS: tan/lt gry, slight mott, fn xln, sm flakey/mealy, sm brittle, tr-pr intxln por, patchy lght brn stns, dul yel fluor, vssfo on brk, gd cup odr.

LS: tan/lt gry, slight mott, fn xln, sm brittle, pr intxln por in svrl pcs, sm slight vuggy, small gas bub pop in vug, fr sfo on brk, dul yel fluor, strm cut, gd cup odr.

60" smpl: cont svrl more pcs w/ sho, lght brn patchy stns, fr intxln/slight vuggy por, fr sfo, gd cup odr.

CFS @ 3976'
(30"/60")

Short Trip 25 Stands @ 3976', Circ 1hr, resume drilling.

DST #1 4002'-4076' "Toronto"
04/27/2016 30-45-45-60
1st Blow: Wk surf blw blt to 11" (No BB)
2nd Blow: Wk surf blw blt to 8" (No BB)
IFP: 14-106# ISIP: 1098# FFP:
109-186# FSIP: 1084#
HYD: 1873-1866#
Rec: 75' Mud, 125' HWCM (43%WTR),
180' MCW (68%WTR).

Heebner @ 4032' (-713)

Toronto @ 4053' (-734)

Mud-Co Check #5
@ 4076' 4/27/15
9:45am
wt vis pH
9.0 55 11.0
Filt chlr LCM
8.8 4.0K 2#

CFS @ 4076'
(30"/60") Survey @ 4076' = 1/2 Degree

Lansing @ 4081' (-762)

CFS @ 4110'
(30"/60")

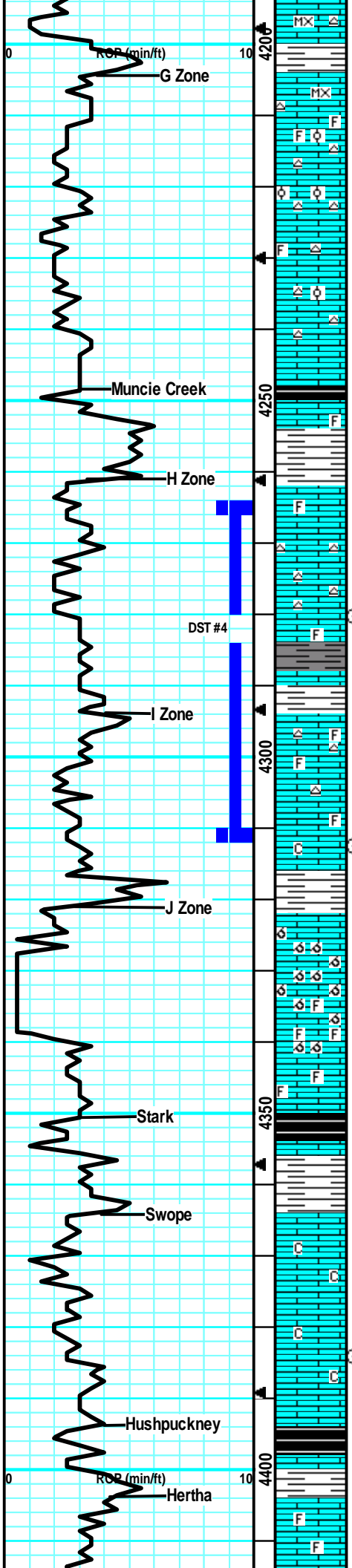
DST #2 4102'-4138' "LKC C"
04/27/2016 30-45-45-60
1st Blow: 1" blw blt to BOB in 5 1/2" (No BB)
2nd Blow: 1/4" blw blt to BOB in 6 1/2" (No BB)
IFP: 38-298# ISIP: 1146# FFP:
310-561# FSIP: 1141#
HYD: 1946-1935#
Rec: 280' HWCM (49%WTR), 940' SMCW (92%WTR).

CFS @ 4138'
(30"/60")

Mud-Co Check #6
@ 4168' 4/28/15
9:45am
wt vis pH
8.9 56 11.0
Filt chlr LCM
8.0 5.0K 2#

CFS @ 4168'
(30"/60")

CFS @ 4192' Pipe Strap was



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

LS: lt tan, mostly sing, micro-fn xln, brittle, sub-chlky in prt, fw Chert: gry/wht, sharp, svrl SH: grn/brn, silty, sm waxy, no cup odr, ns.

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

LS: tan/lt tan, mostly sing, fn xln, sm dense, sm brittle, sub-chlky in prt, tr-pr intxln por in fw, fw pcs pur chl, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, many dense, sm brittle, fw pcs w/ pr intxln por, sm Chert: wht/opaq, foss, sharp, no cup odr, ns.

LS: lt gry/lt tan, mostly sing, fn xln, many dense, sm brittle, sub-chlky, tr-nvp, svrl Chert: gry/wht, foss, sharp, svrl SH: blk, drk gry/drck gry, silty, fw carb, sm waxy, no cup odr, ns.

LS: lt gry/lt tan, slight mott, fn xln, fw foss frags, mostly dense, sm brittle, chlky in prt, tr-nvp, svrl SH: drk gry/brn, silty, no cup odr, ns.

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

LS: gry/tan, slight mott, fn xln, dense, fw brittle, tr-nvp, 2 pcs w/ drk hvy vis oil stns on edges, tarry/sticky, gd fluor, strm cut, fr sfo, no cup odr.

60: Smpl, only one sml pcs w/ sho, betr flwing oil, lrg infx Chert: wht/opaq, foss, sharp, ? fnt cup odr.

LS: tan/lt tan, mostly sing, fn xln, sm foss in prt, mostly dense, brittle, sm pr scat vuggy por, svrl Chert: tan/wht, foss, sharp, no cup odr, ns.

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

LS: gry/tan, mott in prt, fn xln, flakey/mealy, pr intxln por on edge, 2-3 pcs w/ drk brn stns on edge, gd fluor/cut, vssfo on brk, no cup odr.

60" smpl: 4-5 pcs w/ pr-fr intxln por, patchy drk brn stns, faint-? cup odr, sso on brk.

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

Sample was not caught. Mix up during tour change.

LS: tan/gry, mott in prt, fn xln, sm profus ool, mostly brittle, many gd oolcast por, svrl SH: brn, silty, no cup odr, ns.

LS: tan/gry, mostly mott, fn xln, many foss, many profus ool, gd oolcast por, brittle, chlky, svrl pcs pur chl, no cup odr, ns.

LS: tan, mostly sing, fn xln, mostly dense, many brittle, sub-chlky in prt, tr-nvp, abund SH: blk/gry, silty, soft, many carb, no cup odr, ns.

LS: tan/lt tan, slight mott, fn xln, many dense, sm brittle, many flakey/mealy, tr-nvp, 1 pcs drk brn stns on edge, ? fluor, no cut, nsfo, no odr.

LS: tan, slight mott in prt, fn xln, many dense, sm brittle, sub-chlky in prt, fw flakey/mealy, tr-nvp, abund SH: brn, gritty, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, mostly brittle, chlky, tr-nvp, svrl pcs pur chl, abund SH: brn, silty, fissile, no cup odr, ns.

60" Smpl: Much like above w/ brittle, chlky, LS: even more infx of SH: brn, gritty, soft, no cup odr, ns.

SH: brn/gry/grn, silty, gritty, sm waxy, soft, v fw LS: lt tan, slight mott, fn xln, mostly brittle, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, many dense, sm brittle, sub-chlky in prt, tr-nvp, svrl SH: gry/blk, silty, soft, sm carb, no cup odr, ns.

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

LS: gry/lt tan, mott in prt, fn xln, many dense.

(30"/60") 0.13 Long

DST #3 4160'-4192' "LKC EF"
 04/28/2016 30-45-45-60
 1st Blow: 1/4" blw blt to 4" (No BB)
 2nd Blow: Wk surf blw blt to 1/4" (No BB)
 IFP: 9-55# ISIP: 1194# FFP: 59-84#
 FSIP: 1187#
 HYD: 1994-1991#
 Rec: 30' CO, 20' HOWCM (34%O,
 22%WTR), 60' SOHWCW (6%O,
 44%WTR), 60' SOMCW (1%O, 89%WTR).

Muncie Creek @ 4248' (-929)

**CFS @ 4280'
(30"/60")**

Mud-Co Check #7
 @ 4312' 4/29/15
 9:05am
 wt vis pH
 9.3 55 10.5
 Filt chlr LCM
 9.2 6.2K 2#

**CFS @ 4312'
(30"/60")**

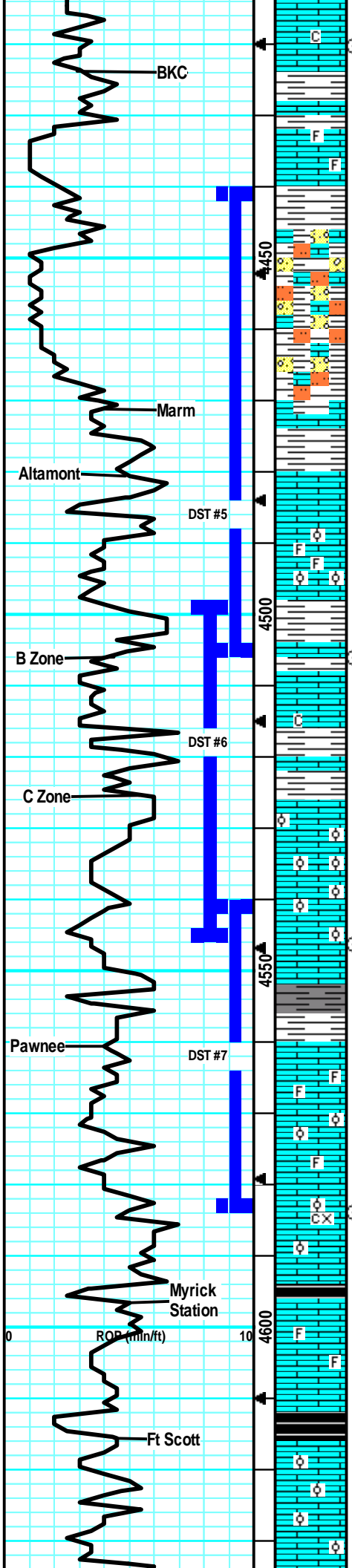
DST #4 4264'-4312' "LKC HI"
 04/29/2016 30-45-45-60
 1st Blow: 1/4" blw blt to BOB in 14" (No BB)
 2nd Blow: Wk surf blw blt to BOB in 17" (No BB)
 IFP: 45-183# ISIP: 1272# FFP:
 187-340# FSIP: 1264#
 HYD: 2106-2104#
 Rec: 55' HMCWtrO (56%WTR), 125'
 MCW (68%WTR), 500' SMCW
 (95%WTR).

Stark @ 4351' (-1032)

Sample Quality got bad from poor mud properties. Had large amounts of rain.

**CFS @ 4384'
(30"/60")**

Hushpuckney @ 4394' (-1075)



flakey/mealy, sub-chlky, tr-nvp, abund SH: gry/brn, silty, no cup odr, ns.

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

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

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

LS: lt gry/lt tan, slight mott, fn xln, chlky, brittle, tr-nvp, svrl SH: brn/drk gry, silty, waxy, fw SiltStn: tan/lt gry, grity, v soft, no cup odr, ns.

LS: lt tan/lt gry, slight mott, fn xln, fw foss frags, mostly brittle, chlky, tr-nvp, fw SH: brn/gry, silty, fw SiltStn: lt gry/lt brn, grity, v sft, no cup odr. ns.

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

LS: lt tan, sing, fn xln, mostly dense, sub-chlky, pr intxln por in fw, patchy brn stns, dul yel fluor, strm cut, vssfo on brk in 3-4 pcs, no odr.

LS: tan/lt tan, slight mott, fn xln, many brittle, mostly chlky, svrl pcs pur chl, pr scat intxln por in sm, patchy brn stns, dul yel fluor, strm cut, ssfo on brk in 5-6 pcs, faint-? cup odr.

LS: tan/lt tan, slight mott, fn xln, fw foss/ool, mostly chlky, brittle, tr-nvp, svrl pcs pur chl, fw SH: gry/brn, silty, no cup odr, ns.

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

LS: gry/tan, mott in prt, fn xln, slight ool, mostly brittle, sub-chlky in prt, sm fr intxln por in fw, 3-4 pcs w/ lght brn spty stns, gd fluor, strm cut, ssfo, faint-? cup odr.

LS: gry/tan, mott in prt, fn xln, sm v ool, brittle, fw sub-chlky, fr intool por, scat brn stns in por, gd fluor/cut, ssfo in 6-8 pcs, faint cup odr.

LS: tan/lt gry, slight mott, fn xln, mostly dense, 3-4 pcs w/ slight stns on edge, tr-pr intxln por, vssfo on brk, ? cup odr.

LS: tan/gry, slight mott, fn xln, sm brittle, sm dense, fw w/ pr intxln por, 2-3 pcs w/ drk brn stns, vssfo, dul yel fluor, pos cut, no cup odr.

LS: gry/lt tan, mott in prt, fn xln, many foss in prt, mostly brittle, chlky in prt, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, fw foss, sm ool, sm dense, fw brittle, sub-chlky in prt, pr intool por in fw, hvy brn stns, gd fluor/cut, ssfo in 2 pcs, no cup odr.

LS: tan/lt gry, mott in prt, fn xln, sm foss, fw ool, 3-4 pcs w/ lght brn stns in por, sm fr intool por, ssfo no cup odr.

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

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

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

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

LS: gry/lt tan, slight mott, fn xln, fw foss, many brittle, sub-chlky in prt, tr-nvp, svrl SH: blk/drk gry, silty, many carb, no cup odr, ns.

LS: lt gry/lt tan, mott in prt, fn xln, sm v ool, many brittle, chlky in prt, tr-nvp, svrl pcs pur chl, no cup odr, ns.

LS: lt gry/tan, mott in prt, fn xln, sm v ool, mostly dense, sm brittle, sub-chlky in prt, tr-nvp, fw pcs pur chl, no cup odr, ns.

LS: gry/lt brn, slight mott, fn xln, fw ool, sm dense

CFS @ 4420'
(30"/60")

Base of KC @ 4424' (-1105)

DST #5 4441'-4506' "Altamont A" 04/30/2016 30-45-45-60
1st Blow: 1/4" blw blt to BOB in 14 1/2" (Surf BB)
2nd Blow: 1/2" blw blt to BOB in 14" (1 1/2 BB)
IFP: 19-153# ISIP: 1271# FFP: 159-298# FSIP: 1267#
HYD: 2217-2211#
Rec: 160' GIP, 220' GSWMCO (63%O, 9%WTR), 190' GOHWCM(14%O, 33%WTR), 240' SOMCW(3%O, 75%WTR).

Marmaton @ 4471' (-1152)

Altamont @ 4480' (-1161)

Mud-Co Check #8
@ 4506' 4/30/15
9:25am
wt vis pH
9.5 63 10.0
Filt chl LCM
8.8 6.6K 2#

CFS @ 4506'
(30"/60")

DST #6 4498'-4546' "Altamont B/C" 05/01/2016 30-45-45-60
1st Blow: 1" blw blt to BOB in 5 1/2" (9.5" BB)
2nd Blow: 1 1/2" blw blt to BOB in 7 1/2" (Surf BB)
IFP: 25-205# ISIP: 1258# FFP: 209-398#
FSIP: 1238#
HYD: 2191-2191#
Rec: 570' GIP, 910' GO, 60' GSMCO(89%O), 60' GHMCO(57%O).

Mud-Co Check #9
@ 4546' 5/1/15
9:15am
wt vis pH
9.2 59 10.0
Filt chl LCM
9.6 9.0K 2#

Pawnee @ 4561' (-1242)

DST #7 4540'-4584' "Pawnee" 05/01/2016 30-30-30-30
1st Blow: Wk Surf blw blt to 1/2" (No BB)
2nd Blow: V Wk Surf blw blt to 1" (No BB)
IFP: 14-19# ISIP: 51# FFP: 20-23# FSIP: 33#
HYD: 2169-2158#
Rec: 10' MwOspets.

CFS @ 4584'
(30"/60")

Myrick Station @ 4596' (-1277)

Ft Scott @ 4616' (-1297)

Mud-Co Check #10
@ 4634' 5/2/15
9:00am
wt vis pH
9.1 54 10.5

CFS @ 4642'
(30"/60")

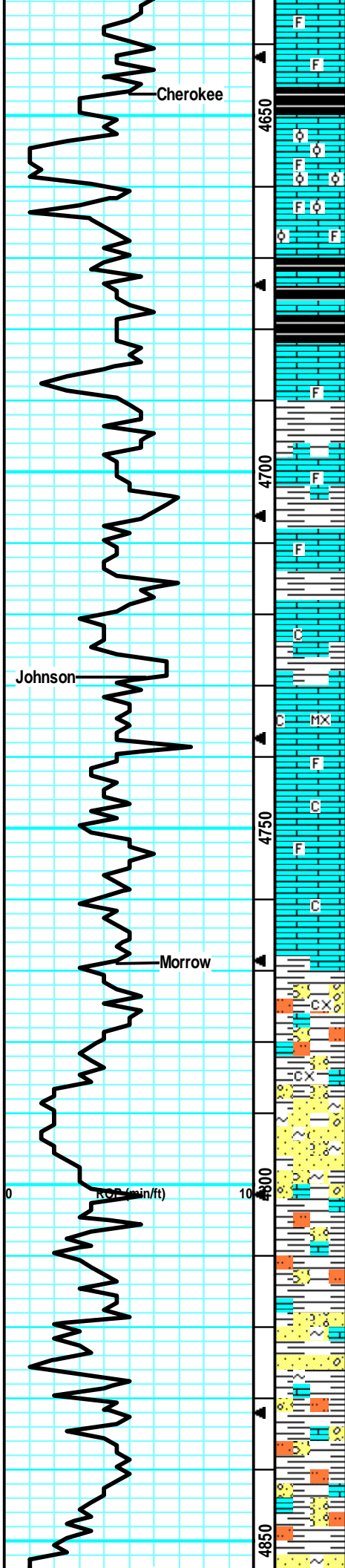
Cherokee @ 4647' (-1328)

CFS @ 4698'
(30"/60")

Johnson @ 4729' (-1410)

Morrow @ 4769' (-1450)

CFS @ 4770'
(30"/60")



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

LS: gry/lt brn, mott in prt, fn xln, many foss, fw brittle, sub-chlky, tr-nvp, svrl SH: gry/blk, silty, sm carb, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, many foss, mostly flakey/mealy, brittle, tr-nvp, abund SH: gry/blk, silty, sm carb, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, sm foss/ool, sub-chlky, brittle, tr-nvp, svrl SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, sm foss in prt, sub-chlky, sm brittle, fw flakey, tr-nvp, abund SH: brn/gry/blk, silty, soft, fw carb, no odr, ns.

LS: tan/lt gry, mott in prt, fn xln, sm foss, sandy/grainy in prt, many brittle, tr-nvp, abund SH: drk gry/brn, silty, soft, no cup odr, ns.

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

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

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

LS: gry/lt brn, slight mott in prt, fn xln, sm foss, mostly flakey/mealy, sub-chlky in prt, firm, tr-nvp, svrl SH: gry/drk gry/brn, silty, no odr, ns.

LS: tan/gry, mott in prt, fn xln, fw foss frags, many dense, mostly flakey/mealy, tr-nvp, abund SH: gry/brn, silty, soft, no cup odr, ns.

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

LS: gry/tan, slight mott, fn xln, fw foss in prt, many flakey/mealy, sm brittle, tr-nvp, abund SH: gry/brn, silty, soft, fw waxy, no odr, ns.

LS: gry/lt tan, slight mott in prt, fn xln, many dense, sm flakey/mealy, sub-chlky, sm brittle, tr-nvp, svrl SH: gry/grn, silty, no cup odr, ns.

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

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

SH: gry/blu/brn, silty, fw gritty, sm waxy, fissile, fw LS: tan/lt gry, slight mott, fn xln, flakey/mealy, sub-chlky, tr-nvp, no cup odr, ns.

SH: gry/grn/brn, silty, soft, sm fissile, fw SS: gry, fn grn, arg, dirty, friable, tr-nvp, fw LS: gry/lt tan, fn xln, brittle, tr-nvp, no cup odr, ns.

SH: gry/grn/brn, silty, soft, sm fissile, fw waxy, fw LS: lt tan/lt gry, fn xln, sm brittle, fw flakey/mealy, tr-nvp, no cup odr, ns.

SH: gry/grn/blu/brn, silty, soft, sm fissile, fw LS: lt tan, fn xln, sub-chlky, sm brittle, tr-nvp, fw SS: crm/wht, arg, friable, fn grn, glauc, tr-? intgrn por, no cup odr, ns.

SH: gry/grn/blu, silty, soft, fw fissile, fw SlStn: lt brn/gry, v soft, gritty, fw LS: lt gry, fn xln, mostly brittle, tr-nvp, no cup odr, ns.

SH: gry/grn/blu/grn, silty, soft, sm fissile, fw SlStn: lt brn/gry, silty, gritty, v soft, sm LS: lt tan/lt gry, slight mott, fn xln, brittle, tr-nvp, no odr, ns.

SH: gry/grn/blu/brn, silty, fissile, fw waxy, soft, fw SS:

Miss

gry, arg, drity, pr sortd, tr-nvp, fw SltStn: gry, gritty, friable, v soft, no cup odr, ns.

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

Very Poor Sample Quality. Large amounts of Shale in a known dense LS formation, v fw LS: lt tan, fn xln, brittle, sandy/gritty, tr-nvp.

Very Poor Sample Quality continued through the bottom of the hole. Mud was checked and remained consistant.

Mississippi @ 4855' (-1536)

Mud Properties checked and are good. Huge amounts of Shale in sample. Possible cavings from Morrow or turbide mud.

Mud-Co Check #11
 @ 4925' 5/3/15
 9:15am
 wt vis pH
 9.2 64 10.0
 Filt chlr LCM
 10.4 13K 2#

CFS @ 4927'
(30"/60")

Survey @ 4927' = 3/4 Degree

RTD 4927' (-1608)
LTD 4925' (-1606)

4900

