

# **John Goldsmith Wellsite Service**

Cell and Home Phone:  
316-640-0236

427 Roosevelt St.  
Cheney, KS 67025

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

**Well Name:** Epley #1-10  
**Location:** 780' FSL, 1415' FEL, SECTION 10-16S-33W, SE/NE/SW/SE  
**License Number:** API: 15-171-21019 **Region:** Scott County  
**Spud Date:** 01/20/2014 **Drilling Completed:** 01/30/14  
**Surface Coordinates:** LAT 38.6724474  
LONG -100.9490791  
**Bottom Hole** Vertical hole  
**Coordinates:**  
**Ground Elevation (ft):** 3026' **K.B. Elevation (ft):** 3035'  
**Logged Interval (ft):** 3700' **To:** RTD **Total Depth (ft):** 4880'  
**Formation:** Mississippian at RTD  
**Type of Drilling Fluid:** Chemical

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

### **OPERATOR**

**Company:** Grand Mesa Operating Co.  
**Address:** 1700 N. Waterfront Parkway  
Bldg. 600  
Wichita, KS 67206-5514

### **GEOLOGIST**

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

### **COMMENTS**

**Contractor:** Duke Drilling Rig #4  
**Pusher:** Rich Wheeler  
**Surface Casing:** 5 joints of 8 5/8" set at 218'  
**Production Casing:** No production casing installed, well was plugged.  
**Mud by:** MudCo  
**DST's by:** Diamond Testing  
**Logs by:** Weatherford Wireline (DIL, CN-CD, ML)  
**RTD=**4880'  
**LTD=**4880'

## FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Heebner Shale	3950'	-915	3950'	-915
Lansing	3994'	-959	3994'	-959
Muncie Creek Shale	4172'	-1137	4172'	-1137
Stark Shale	4260'	-1225	4261'	-1226
Hushpuckney Shale	4303'	-1268	4303'	-1268
Marmaton	4380'	-1345	4379'	-1344
Pawnee	4442'	-1407	4442'	-1407
Little Osage Shale	4503'	-1468	4503'	-1468
Excello Shale	4520'	-1485	4520'	-1485
Johnson Zone	4596'	-1561	4596'	-1561
Morrow	4662'	-1627	4662'	-1627
Mississippian	4709'	-1674	4709'	-1674
RTD	4880'	-1845		
LTD			4880'	-1845






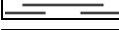



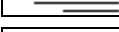









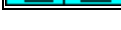


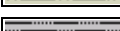



## DSTs

**DST #1 E/F Zone 4072'-4112' 30-45-45-60**  
 1st Blow: Gd Blw, blt to BOB in 11" (No BB)  
 2nd Blow: Gd Blw, blt to BOB in 13" (No BB)  
 IFP: 13-99# ISIP: 1055# FFP: 104-222# FSIP: 1041#  
 HYD: 1931-1912#  
 380' MW (90% WTR)

**DST #2 Johnson/Atoka 4548'-4656' 30-45-60-90**  
 1st Blow: Gd Blw, blt to BOB in 18" (1" BB)  
 2nd Blow: Gd Blw, blt to BOB in 8" (2" BB)  
 IFP: 13-61# ISIP: 1009# FFP: 66-129# FSIP: 1010#  
 HYD: 2208-2191#  
 465' GIP, 255' GOCM (35% Gas, 25% Oil)

**DST #3 Morrow 4660-4715' 30-30-30-30**  
 1st Blow: Wk Blw, blt to 1" (No BB)  
 2nd Blow: No Blw (No BB)  
 IFP: 9-13# ISIP: 321# FFP: 12-14# FSIP: 175#  
 HYD: 2260-2253#  
 10' Mud

## ROCK TYPES

	Anhy		Salt		Dol		SltysH
	Cht		Shale		Dtd		Sdy dolo
	Coal		Shcol		Gry sh		Silty dolo
	Congl		Shgy		Sandylms		Shy dolo
	Dol		Sltst		Shale		Shaly ls
	Gyp		Ss		Sltstn		
	Lmst		Carb sh		Shlyslts		

## ACCESSORIES

### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite

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- Plant
- Strom
- Fuss
- Oomold

### MINERAL

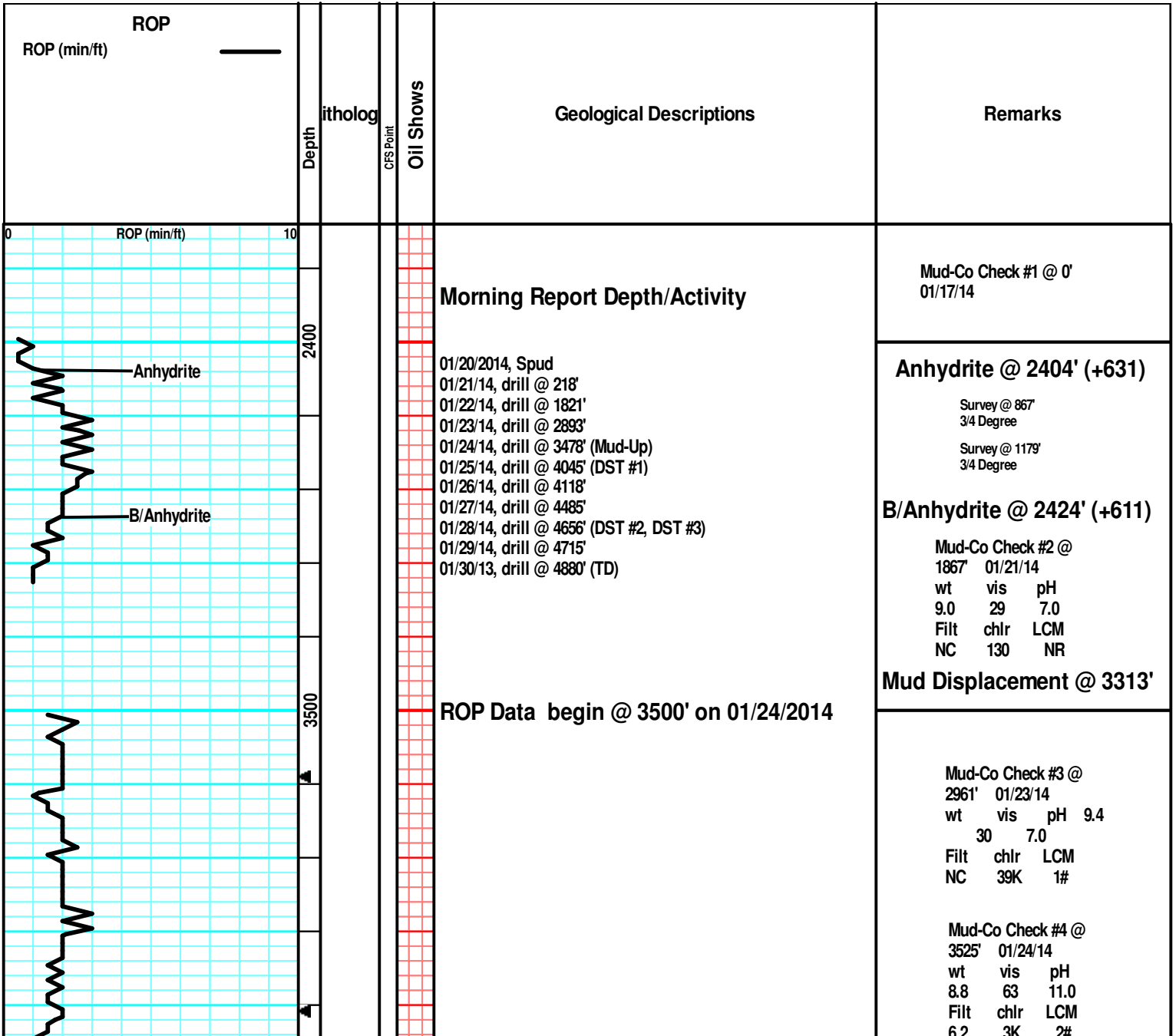
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr

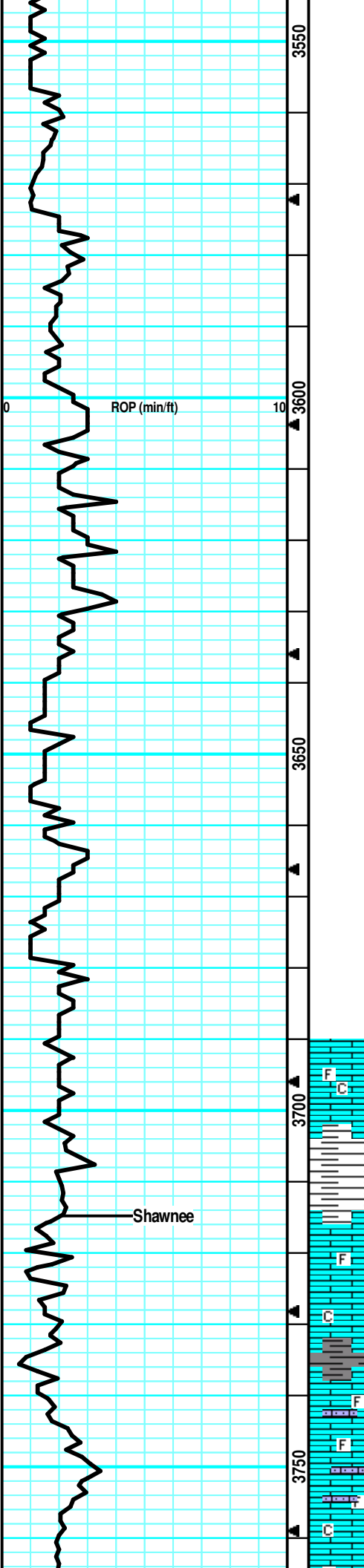
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- Glau
- Gyp
- Hvymn
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

### STRINGER

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





Survey @ 1711'  
3/4 Degree

Survey @ 2238'  
3/4 Degree

Survey @ 2704'  
3/4 Degree

Survey @ 3262'  
3/4 Degree

**Sample began @ 3700' on 01/24/2014**

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

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

LS: lt tan/gry, fn xln, sm brittle, sm dense, fw foss frags, many chlky, tr-nvp, fw pcs pur chl, sm SH: gry/brn, silty, fw soft, no cup odr, ns.

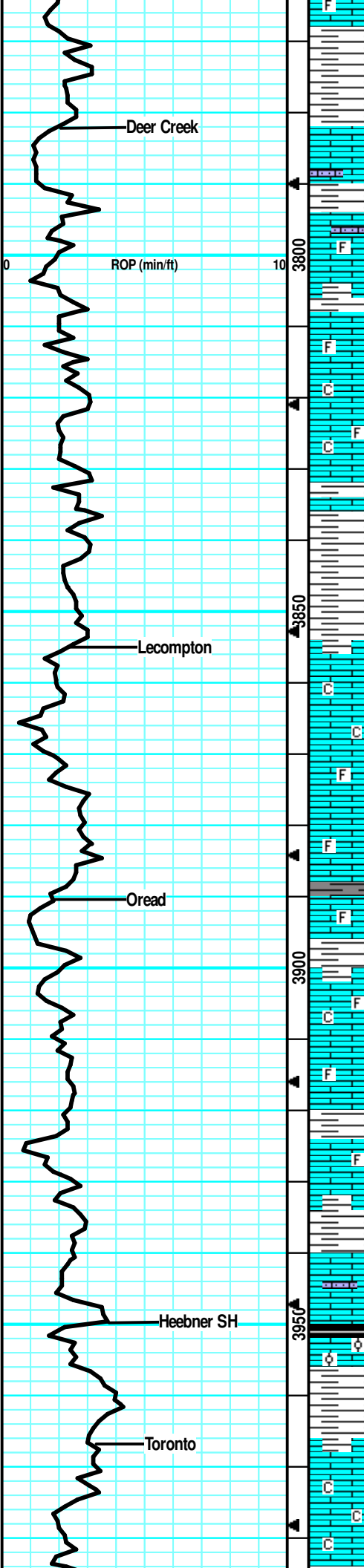
LS: gry/tan, fw mott in prt, fn xln, sm chlky, fw brittle, sm flakey, tr-nvp, fw SH: gry, silty, sm soft, no cup odr, ns.

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

LS: tan/lt gry, fw mott in prt, fn xln, fw sandy like, fw foss frags, sm sub-chlky, fw flakey, tr-nvp, fw SH: gry, silty, sm soft, no cup odr, ns.

LS: lt gry/lt tan, fw mott in prt, fn xln, fw scat foss frags, sm sub-chlky, fw brittle, fw sandy/gritty, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

LS: tan/lt gry, fw mott in prt, fn xln, sm brittle, fw foss frags, fw



sandy, tr-nvp, fw pcs pur chlk, fw SH: gry, silty, soft, no cup odr, ns.

LS: lt tan/lt gry, fn xln, sm brittle, fw dense, sm sandy like, fw chlky, tr-nvp, fw pcs pur chlk, fw SH: gry/lt brn, silty, soft, no cup odr, ns.

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

LS: tan/lt gry, fn xln, sm brittle, fw sandy/gritty, fw chlky in prt, tr-nvp, fw pcs pur chlk, fw SH: gry, silty, sm soft, no cup odr, ns.

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

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

LS: tan/lt gry, fw mott in prt, fn xln, v fw foss frags, mostly dense, fw brittle, sub-chlky in prt, tr-nvp, fw pcs pur chlk, fw SH: drk gry, silty, soft, no cup odr, ns.

LS: tan/gry, fw mott in prt, fn xln, many dense, sm brittle, sub-chlky in prt, fw flakey like, tr-nvp, fw pcs pur chlk, fw SH: gry, silty, easy-med crush, no cup odr, ns.

LS: gry/lt tan, fn xln, many dense, fw brittle, sm flakey, sub-chlky in prt, tr-nvp, fw pcs pur chlk, fw SH: gry/drk brn, silty, soft, no cup odr, ns.

LS: gry/tan, fn xln, mostly dense, fw brittle, sm flakey/mealy, tr-nvp, fw pcs pur chlk, v fw SH: gry, silty, sm soft, no cup odr, ns.

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

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

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

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

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

LS: lt tan/gry, sm mott in prt, fn xln, foss, many brittle, fw dense, fw gritty like, sub-chlky in prt, tr-ppt intxdn por in fw, fw pcs pur chlk, no cup odr, ns.

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

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

LS: lt gry/lt tan, fn xln, sm dense, sm brittle, fw gritty like, sub-chlky in prt, sm scat 2nd rxln, tr-? ppt intxdn por in fw, fw pcs pur chlk, no cup odr, ns.

LS: gry/lt tan, sm mott, fn xln, many dense, sm ool, fw brittle, sub-chlky, tr-nvp, fw pcs pur chlk, sm SH: gry/blk, silty, sm carb, no cup odr, ns.

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

LS: gry/tan, sm mott in prt, fn xln, sm dense, sm brittle, fw flakey/like, tr-nvp, 1 pc LS: crm, micro-fn xln, dense, 2 small sphr oil on surf, no cup odr, ns.

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

**Heebner @ 3950' (-915)**

Mud-Co Check #5 @  
3985' 01/25/14

wt	vis	pH
9.0	66	10.5
Filt	chl r	LCM
6.4	3.4K	2#

sharp, sm SH: gry, silty, soft, no cup odr, ns.

### Lansing @ 3994' (-959)

LS: tan/lt gry, fn xln, many dense, sm brittle, sub-chlky in prt, pr fn intxn por in sm, 2 pcs w/ scat dul yel fluor, cut pal blu, ssfo on brk, no cup odr, sm SH: gry/brn, silty.

LS: gry/lt tan/crm, fn xln, mostly dense, sm ool, sm brittle, sub-chlky in prt, tr-nvp, fw Chert: wht/opaque, sharp, no cup odr, ns.

LS: gry/lt tan, fn xln, mostly dense, sm brittle, sub-chlky in prt, fw ool, tr-nvp, fw Chert: wht/opaq, sharp, fw SH: gry/grn, silty, soft, no cup odr, ns.

LS: gry/tan, fn xln, mostly dense, sm brittle, sm chlky/sub-chlky in prt, tr-nvp, fw Chert: wht/opaq, sharp, sm SH: gry/grn/brn, silty, soft, no cup odr, ns.

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

LS: tan/lt gry, fn xln, many dense, sm ool, fw brittle, sm pr 2nd rxln, pr-fr intool por in fw, 5-6 pcs w/ fn salt/pepr look, dul yel fluor/cut pal blu, ssfo, no cup odr.

LS: lt gry/crm, fn xln, sm v ool, sm dense, many brittle, many chlky/sub-chlky, friable, tr-nvp, svrl pcs pur chl, fw SH: gry/grn, silty, soft, no cup odr, ns.

LS: tan/lt gry/crm, fn xln, many dense, sm chlky in prt, sm brittle, tr-nvp, svrl pcs pur chl, fw Chert: wht/opaque, sharp, 1-2 pcs LS: crm, micro xln, v chlky, pr fn intxn por, ssfo, dul yel fluor, strm cut, no cup odr.

LS: lt tan/crm, fn xln, chlky/sub-chlky, brittle, rare 2nd rxln, sm dense, pr fn intxn por, 3-4 w/ dul yel fluor/strm cut, ssfo on brk, 1-2 pcs w/ small sphr oil on watery surf, wk-fnt cup odr.

LS: gry/tan, fn xln, sm dense, sm brittle, fw sub-chlky, tr-pr fn intxn por in sm, fw SH: gry/grn, silty, soft, fw waxy, no cup odr, ns.

LS: gry/tan, fn xln, sm ool/foss, sm brittle, sm dense, v fw pcs w/ pr intool por, 1-2 dul yel fluor, strm cut, vssfo, no cup odr.

LS: tan/lt tan, fn xln, mostly brittle, fw dense, sub-chlky in prt, fr intxn por in sm, svrl pcs w/ smal sphr oil on surf, ssfo on brk, dul yel fluor, strm cut, faint-slight cup odr.

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

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

LS: lt gry/lt tan, fn xln, sm dense, sm brittle, fw sub-chlky in prt, sm ool, fw oolcast por, fw SH: gry/brn/grn, silty, soft, no cup odr, ns.

LS: tan/lt brn, fn xln, profus ool, sm brittle, fw sub-chlky, gd oolcast por, fw Chert: wht/opaq, sharp, foss, fw SH: gry/brn, silty, soft, no cup odr, ns.

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

LS: lt gry/crm/lt tan, micro-fn xln, mandy dense, many brittle, chlky/sub-chlky, tr-nvp, svrl pcs pur chl, fw Chert: wht/opaq, sharp, foss, no cup odr, ns.

LS: lt tan/lt gry, micro-fn xln, mostly dense, fw scat foss frags, many chlky, many brittle, tr-nvp, svrl pcs pur chl, no cup odr, ns.

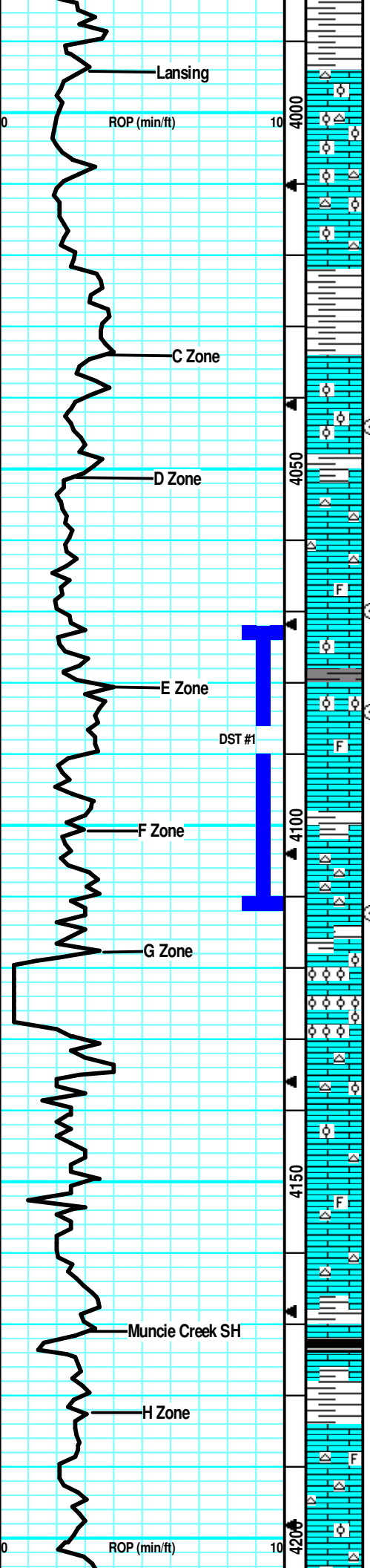
LS: lt tan/lt gry, micro-fn xln, many dense, mostly brittle, sub-chlky in prt, tr-nvp, fw pcs pur chl, fw Chert: wht/opaq, sharp, no cup odr, ns.

LS: tan/lt gry, fw mott in prt, fn xln, sm dense, fw brittle, sm scat 2nd rxln, tr-? intxn por in sm, sm SH: gry/blk, silty, fw carb, soft, no cup odr, ns.

LS: gry/lt tan, fw mott in prt, fn xln, many dense, fw foss frags, chlky/sub-chlky, tr-nvp, svrl SH: gry/grn, silty, soft, no cup odr, ns.

LS: lt gry/lt tan/crm, micro-fn xln, mostly dense, sm brittle, sub-chlky in prt, fw flakey like, tr-nvp, fw Chert: gry/smokey, sharp, fw SH: gry/grn, silty, no cup odr, ns.

LS: gry/tan/lt brn, fw mott in prt, fn xln, fw foss frags, mostly



CFS @ 4044' (30"/60")

CFS @ 4070' (30"/60")

CFS @ 4084' (30"/60")

Survey @ 4112' 1/2 Degree

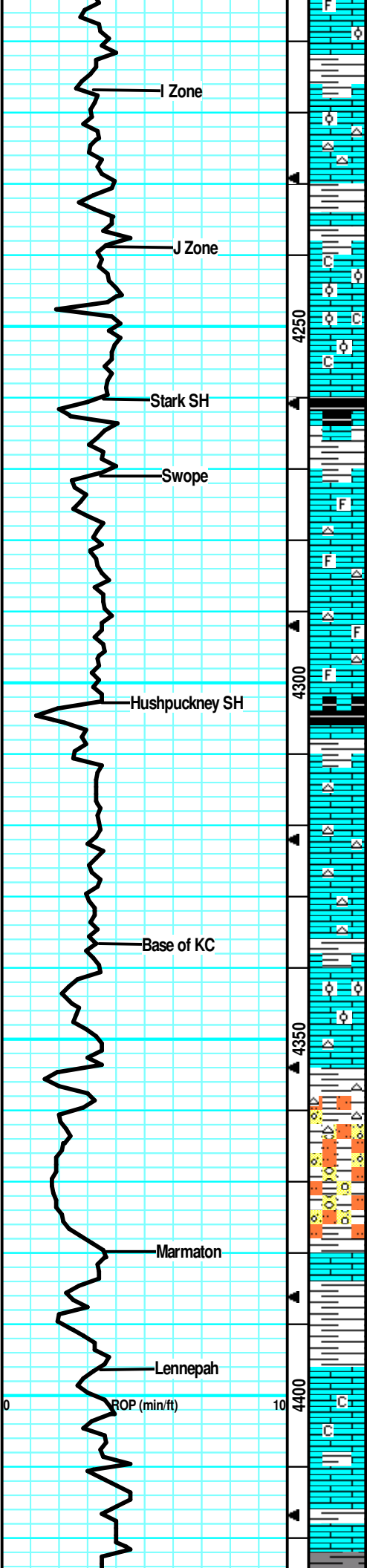
CFS @ 4112' (30"/60")

Mud-Co Check #6 @ 4112' 01/26/14

wt	vis	pH	9.1
57	10.0		
Filt	chl'r	LCM	
7.2	4.4K	2#	

### Muncie Creek @ 4172' (-1137)





dense, sm firm, fw flakey/mealy, tr-nvp, fw pcs chlky/brittle, tr-nvp, no cup odr, ns.

LS: tan/lt tan, fw mott in prt, fn xln, fw ool, mostly dense, fw brittle, sub-chlky in prt, fw flakey, tr-nvp, fw pcs w/ drk min stns, no fluor/cut, no cup odr, ns.

LS: tan/lt gry, fn xln, many dense, sm brittle, sm sub-chlky in prt, tr-nvp, fw Chert: wht/opaq, sharp, fw pcs pur chl, fw SH: gry/brn, silty, no cup odr, ns.

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

LS: lt gry/lt tan, fn xln, mostly brittle, fw dense, sub-chlky in most, tr-nvp, fw pcs LS: profus ool, gd oolcast por, fw pcs pur chl, no cup odr, ns.

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

LS: gry/lt tan, fn xln, mostly dense, mostly brittle, sub-chlky in prt, fw flakey/mealy, tr-nvp, fw pcs pur chl, abund SH: blk/drk gry, silty, soft, carb, no cup odr, ns.

LS: lt gry/lt tan/crm, fn xln, sm foss in prt, sm dense, many brittle, sub-chlky, fw flakey/mealy, rare scat 2nd rxln, tr-nvp, fw pcs pur chl, no cup odr, ns.

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

LS: tan/lt gry, fn xln, v fw foss frags, mostly dense, sm brittle, sub-chlky in prt, fw flakey, tr-nvp, fw Chert: wht/opaq, foss, sharp, fw SH: gry/grn, silty, sm soft, no cup odr, ns.

LS: tan/gry, sm mott in prt, fn xln, fw foss frags, mostly dense, many brittle, sub-chlky in prt, scat 2nd rxln, tr-vp, abund SH: blk/drk gry, silty, carb, soft, no cup odr, ns.

LS: lt tan/gry, micro-fn xln, mostly dense, sm brittle, sub-chlky in prt, fw flakey/mealy, tr-nvp, fw pcs pur chl, 2-3 pcs w/ pos patchy brn stns, wk-? fluor, no cut, no cup odr, nsfo.

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

LS: lt gry/lt tan, micro-fn xln, mostly dense, sm brittle, sub-chlky in prt, tr-nvp, fw pcs pur chl, fw Chert: wht/opaq, sharp, sm SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt gry, fn xln, sm dense, sm brittle, fw ool, sub-chlky, sm 2nd rxln on edge, fw pcs w/ fr intxln por on edges, tr-nvp in most, no cup odr, ns.

LS: tan/lt gry, fn xln, many dense, sm brittle, sub-chlky in prt, scat 2nd rxln in fw, fw flakey, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS: lt gry/lt tan, fn xln, mostly dense, fw brittle, sm sub-chlky in prt, flakey/mealy, fw firm, tr-nvp, fw Chert: wht/opaq, sm SH: gry/grn, silty, no cup odr, ns.

LS: lt tan, fn xln, mostly dense, fw brittle, tr-nvp, fw SS: lt gry, fn grn, arg, fw glauc, friable, fw soft, sm SH: gry/grn/brn, silty, fw waxy, fw SitStn: lt brn, v soft, muddy like, no cup odr, ns.

SS: gry/grn, fn xln, arg, fw soft, friable, tr-nvp, fw SitStn: lt brn, gritty, sm muddy like, svrl LS: tan/lt tan, fn xln, brittle, fw dense, sub-chlky, tr-nvp, no cup odr, ns.

LS: gry/tan, fw slight mott in prt, fn xln, scat foss frags, mostly dense, fw firm, sm flakey/mealy, tr-nvp, fw pcs pur chl, fw SH: gry/grn, silty, soft, no cup odr, ns.

LS: gry/lt tan, fn xln, mostly dense, sm brittle, sub-chlky in prt, fw firm, many flakey/mealy, tr-pr fn intxln por in fw, 2-3 w/ drk scat stns on edge, scat dul yel fluo, strm cut, vssfo on brk, no cup odr.

LS: tan/lt gry, fn xln, mostly dense, sm brittle, fw firm, fw pcs sub-chlky, sm flakey/mealy, tr-pr intxln por in sm, 3-4 pcs w/ drk sptd stns, wk-? fluor, no cut, pos drk dead oil, no cup odr, nsfo.

LS: lt gry/lt tan, micro-fn xln, mostly dense, sm brittle, sub-chlky in prt, v fw flakey like, tr-nvp, fw SH: grn/blu, silty, sm

**Stark @ 4260' (-1225)**

CFS @ 4277'  
(30"/60")

**Hushpuckney @ 4303' (-1268)**

**B/KC @ 4337' (-1302)**

CFS @ 4354'  
(30"/60")

**Marmaton @ 4380' (-1345)**

sub-chlky in prt, v fw flakey like, tr-nvp, fw SH: grn/blu, silty, grn  
gritty, med crush, no cup odr, ns.  
LS: lt tan/crm, micro-fn xln, many dense, sm brittle, fw sub  
chlky, scat 2nd rxln in sm, sm patchy fn ppt intxln por in sm,  
patchy lght brn stns, wk dul yeal fluor, strm cut, sso on brk,  
faint cup odr, 4-5 pcs in 30" smpl, 6-7 in 60" smple.

**Pawnee @ 4442' (-1407)**

CFS @ 4454'  
(30"/60")

Mud-Co Check #7 @  
4496' 01/27/14

wt	vis	pH
9.1	53	10.0
Filt	chl	LCM
7.2	4K	2#

**Little Osage @  
4503' (-1468)**

CFS @ 4506'  
(30"/60")

**Excello @ 4520' (-1485)**

**Cherokee @ 4552' (-1517)**

DST #2 Johnson/Atoka  
4548'-4656' 30-45-60-90  
1st Blow: Gd Blw, bit to BOB in  
18" (1" BB)  
2nd Blow: Gd Blw, bit to BOB in  
8" (2" BB)  
IFP: 13-61# ISIP: 1009# FFP:  
66-129# FSIP: 1010#  
HYD: 2208-2191#  
465' GIP, 255' GOCM (35% Gas, 25%  
Oil)

**Johnson @ 4596' (-1561)**

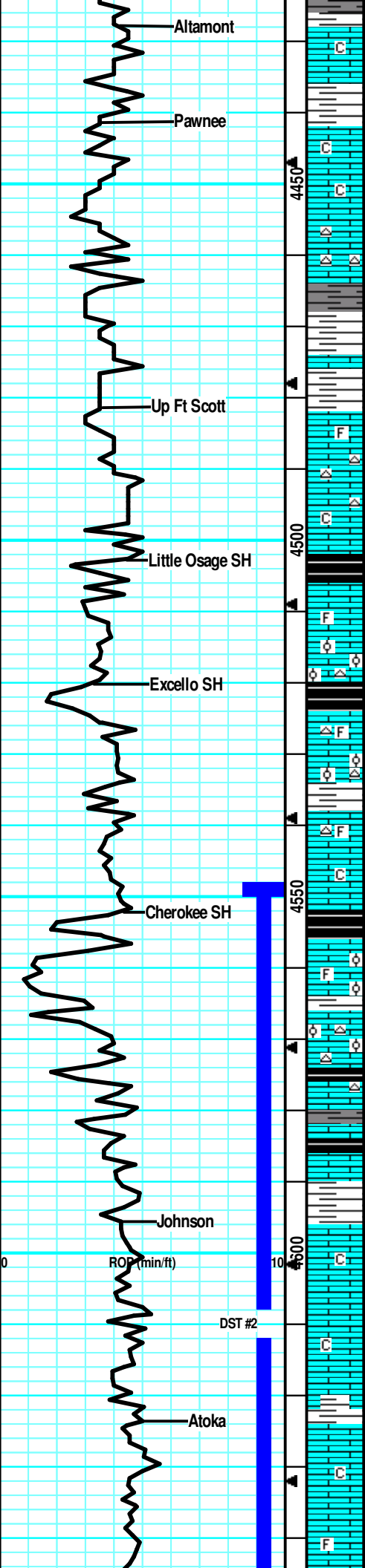
CFS @ 4618'  
(30"/60")

**Atoka @ 4624' (-1589)**

Mud-Co Check #8 @  
4656' 01/28/14

wt	vis	pH
9.2	57	10.5
Filt	chl	LCM

LS: lt gry/lt tan, micro-fn xln, mostly dense, many brittle,  
sub-chlky, tr-nvp, 1 pcs w/ small 2nd rxln spt, fr intxln por,  
vssfo, no cup odr.  
LS: lt gry/lt tan, fn xln, mostly dense, sm brittle, sub-chlky in  
prt, tr-nvp, 3-4 pcs LS: tan, micro xln, dense, firm, gd 2nd rxln,  
fr intxln por, scat dul yel fluor, strm cut, sso on brk, fnt-? cup  
odr.  
LS: lt gry/crm, fn xln, mostly dense, many brittle, chlky/sub  
chlky in prt, tr-nvp, fw Chert: wht/opaq, sharp, svrl SH: gry/blk,  
silty, many carb, no cup odr, ns.  
LS: gry/lt tan, fn xln, mostly brittle, chlky, fw dense, tr-nvp,  
abund chl, svrl SH: gry/blk, silty, fw carb, sm gritty like, no  
cup odr, ns.  
LS: tan/lt brn, micro-fn xln, fw foss fags, mostly dense,  
sub-chlky, brittle, v fw pcs w/ pr intxln por, fw Chert: lt brn,  
foss, sharp, fw SH: gry/lt brn, silty, med crush, no cup odr, ns.  
LS: gry/tan/lt brn, sm mott in prt, fn-crs xln, many dense, fw  
firm, fw sub-chlky/brittle, tr-? intxln por in fw, sm SH: gry/blk,  
silty, soft, carb, no cup odr, ns.  
LS: gry/tan, sm mott in prt, fn-crs xln, many dense, firm,  
sub-chlky in prt, tr-? intxln por in sm, abund SH: blk/gry, silty,  
carb, soft, no cup odr, ns.  
LS: tan/lt gry, fn xln, fw foss frags, fw dense, sm brittle, sub-chlky in prt, 2-3 pcs  
dense, micro xln, ppt intxln por in prt, patchy brn stns, wk dul yel fluor, slw cut,  
vssfo, no cup odr.  
LS: gry/tan, fn xln, sm ool, dense, sm firm, fw sub-chlky, tr-pr  
intxln por in fw, dul yel fluor, wk cut, sso on brk, no cup odr,  
svrl Chert: gry, foss, sharp, abund SH: blk/gry, silty, carb, soft,  
no cup odr, ns.  
LS: tan/gry, fn xln, mostly dense, fw firm, fw ool, tr-nvp, fw pcs  
w/ drk hvy stns, wk-? fluor, no cut, pos drk dead oil, svrl  
Chert: wht/gry, ool, sharp, svrl SH: gry/brn, silty, no cup odr,  
ns.  
LS: tan/lt gry, fn xln, mostly dense, sm brittle, fw sub-chlky in  
prt, tr-nvp, svrl Chert: wht/gry, foss, sharp, sm SH: brn/gry,  
silty, no cup odr, ns.  
LS: tan/gry, slight mott in prt, fn-crs xln, dense, fw brittle, fw  
foss frags, sm flakey/mealy, tr-nvp, svrl SH: gry/brn/blk, silty,  
fw carb, med crush, no cup odr, ns.  
LS: lt tan/crm, fw slight mott, micro-fn xln, dense, brittle,  
sub-chlky, fw ool, sm foss in prt, tr-nvp, fw pcs w/ pos lght brn  
stns, wk-? fluor, no cut, fw SH: gry/blk, silty, fw carb, no cup  
odr, nsfo.  
LS: gry/tan, sm mott in prt, fn xln, sm dense, fw firm sm  
flakey/mealy, fw chlky/brittle, tr-nvp, fw Chert: wht/gry, ool,  
sharp, svrl SH: gry/blk, silty, carb, soft, no cup odr, ns.  
LS: tan/lt brn/gry, sm mott, fn xln, sm firm, fw dense, sandy,  
sm 2nd rxln, tr-nvp, fw pcs chl, svrl SH: gry/blk, silty, sm  
carb, no cup odr, ns.  
LS: lt brn/gry, fn xln, mostly dense, sm hard, sm 2nd rxln, sm  
flakey/mealy, tr-nvp, sm SH: gry/grn, silty, sm waxy, soft, no  
cup odr, ns.  
LS: lt tan/lt gry, micro-fn xln, mostly dense, sm brittle, fw  
sub-chlky in prt, tr-? ppt intxln por, fw pcs w/ patchy lght brn  
stns, scat wk fluor, slw cut, vssfo, no cup odr.  
LS: lt tan/lt gry, micro-fn xln, mostly dense, sm brittle, scat pr  
ppt intxln por sites, patchy lght brn stns, sso on brk, scat dul  
yel fluor, strm cut, faint-? cup odr.  
LS: gry/tan, fn xln, mostly dense, fw brittle, tr-? ppt intxln por,  
fw pcs patchy brn stns, scat fluor, wk cut, many pcs  
flakey/mealy, fw SH: gry/brn, silty, no cup odr, nsfo.  
LS: lt tan/lt gry, fn xln, mostly dense, sm brittle, fw sub-chlky,  
1-2 pcs w/ pr intxln por, hvy vis fo on surf, majority, tr-nvp, no  
cup odr.  
LS: lt tan/lt gry, micro-fn xln, mostly dense, brittle, fw foss





frags, sub-chlky in prt, pr ppt intxn por, smal sphr oil on surf, ssfo on brk, svrl pcs/try, no cup odr.

SS: lt gry/clr, fn-crs qrtz grn, sub-rnd, brittle, v friable, hvv stns in wet and dry, ssfo on brk, gd cut resid, no cup odr.

LS: lt tan/lt gry, fn xln, mostly dense, fw sandy, many brittle, sub-chlky, fw flakey, tr-nvp, abund SH: gry/brn/grn, silty, sm soft, fw waxy, fw SS: lt gry/crm, fn grn, arg, friable, tr-nvp, no cup odr, ns.

SS: crm/lt gry, fn grn, sub-rnd, arg, sub-chlky in prt, tr-nvp, fw pcs w/ drk min stns, no fluor/cut, no fo on brk in wtr, abund SH: gry/brn/grn, silty, fw waxy, no cup odr, ns.

SH: gry/grn/brn, silty, sm soft, fw med crush, sm SS: lt gry/crm, fn grn, sub-rnd, arg/limey, brittle, many friable, sm lght brn min stns, no fluor/cut, no cup odr, nsfo. 30' smple had a fw more pcs of SS, fw SlStn: lt brn, v soft, muddy like.

SS: lt gry/crm, fn grn, sub-rd, well srtd, fw tight, sm arg, fw sub-chlky, friable, sm fr intgnr por, wk fluor, strm cut on brk, fr sfo, wk no cup odr.

SS: lt tan/crm, fn-med grn, arg, fr srtd, chlky, brittle, friable, tr-nvp, sm SS: gry, fn grn, frible, fw firm, well srtd, fn intgnr por, hvv sat stns, wk fluor, strm cut, fr-gd sfo, no cup odr.

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

LS: tan/lt gry, fn xln, mostly brittle, v fw dense, sandy/gritty, sm v friable, tr-nvp, fw SS: lt gry, fn grn, well srtd, arg, limey, tr-nvp, v friable, no cup odr, ns.

LS: tan/lt gry, fn xln, sm dense, sm brittle, fw firm, sandy/gritty, sm sub-chlky in prt, fw w/ lrg qrtz grns, tr-nvp, fw SH: gry/grn, silty, no cup odr, ns.

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

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

LS: tan/lt gry, fn xln, sm dense, sm sub-chlky/brittle, fw flakey/mealy, fw w/ 2nd rlxn, tr-nvp, svrl SH: gry/brn/grn, silty, sm soft, no cup odr, ns.

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

LS: tan/lt gry, micro-fn xln, mostly dense, sm brittle, sub-chlky in prt, mostly uniform, fw flakey, svrl SH: gry/brn/blu, silty, sm soft, no cup odr, ns.

LS: tan/lt tan, micro-fn xln, mostly dense, sm brittle, fw firm, fw sub-chlky in prt, mostly uniform, tr-nvp, abund SH: gry/blu/grn, silty, sm soft, no cup odr, ns.

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

LS: lt tan/tan, micro-fn xln, mostly dense, fw firm, fw brittle/sub-chlky, fw flakey like, tr-nvp, sm SH: gry/brn/grn, silty, sm soft, no cup odr, ns.

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

LS: tan/lt gry, micro-fn xln, mostly dense, fw brittle, sm firm, semi-uniform, tr-nvp, abund SH: gry/brn/grn, silty, sm soft, no cup odr, ns.

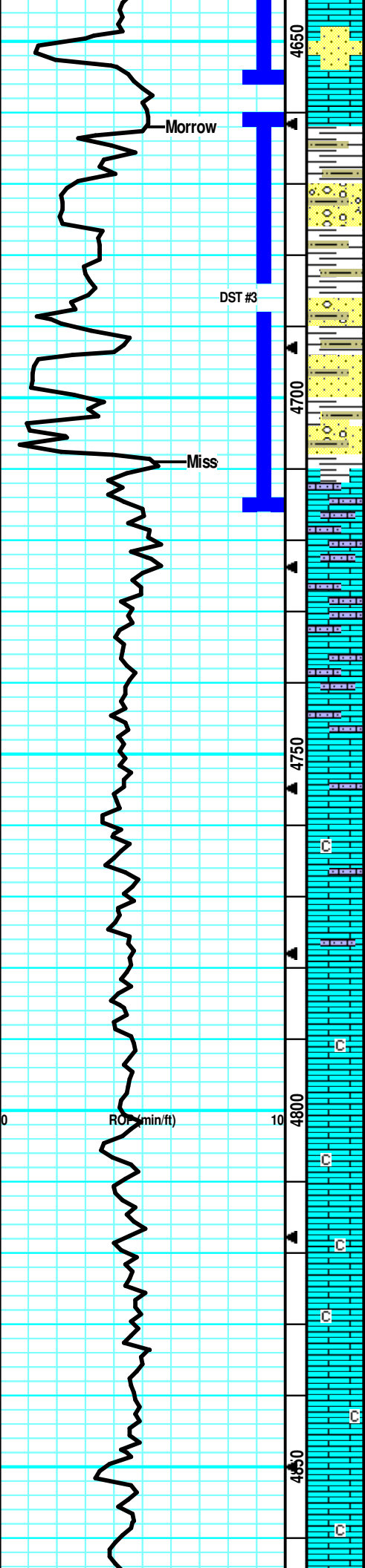
LS: tan/lt gry, micro-fn xln, dense, fw brittle, fw flakey, sub-chlky in prt, tr-nvp, svrl SH: brn/gry, silty, fw fissile, no cup odr, ns.

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

LS: lt gry/tan, micro-fn xln, dense, fw brittle, sub-chlky, tr-nvp,

CFS @ 4656' (30"/60") Survey @ 4656' 3/4 Degree  
**Morrow @ 4662' (-1627)**  
 DST #3 Morrow 4660-4715' 30-30-30-30  
 1st Blow: Wk Blw, blt to 1" (No BB)  
 2nd Blow: No Blw (No BB)  
 IFP: 9-13# ISIP: 321# FFP: 12-14# FSIP: 175#  
 HYD: 2260-2253#  
 10' Mud  
 CFS @ 4678' (30"/60")  
 CFS @ 4695' (30"/60")

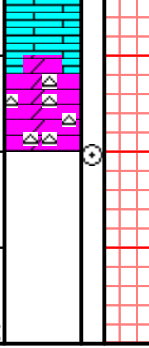
**Miss @ 4709' (1674)**  
 CFS @ 4715' (30"/60")  
 Mud-Co Check #9 @ 4719' 01/29/14  
 wt vis pH 9.1  
 54 10.5  
 Filt chlr LCM  
 6.4 4.5K 2#





RTD 4880', -1845  
LTD 4880', -1845

00



tw DOL: lt tan, fn xln, fw dense, many brittle, friable, fw chky, tr-nvp, no cup odr, ns.  
DOL: lt gry/tan, fn xln, mostly brittle, sm dense, sm friable, tr sub-chky, tr-nvp, svrl Chert: lt gry, semi-trans, sharp, no cup odr, ns.

CFS @ 4880'  
(30"/60')

Survey @ 4880'  
3/4 Degree