



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

Well Name: Waters #1-32
Location: 800' FNL, 1410' FWL, Sec 32-T01S-R38W, Cheyenne County, Kansas
License Number: API: 15-023-21413 Region: Wildcat
Spud Date: 11/07/2014 Drilling Completed: 11/19/2014
Surface Coordinates: Lat: 39.9284559
Long: -101.6107506
Bottom Hole Vertical hole.
Coordinates:
Ground Elevation (ft): 3173' K.B. Elevation (ft): 3184'
Logged Interval (ft): 3480' To: RTD Total Depth (ft): 4720'
Formation: Cherokee at RTD.
Type of Drilling Fluid: Chemical.

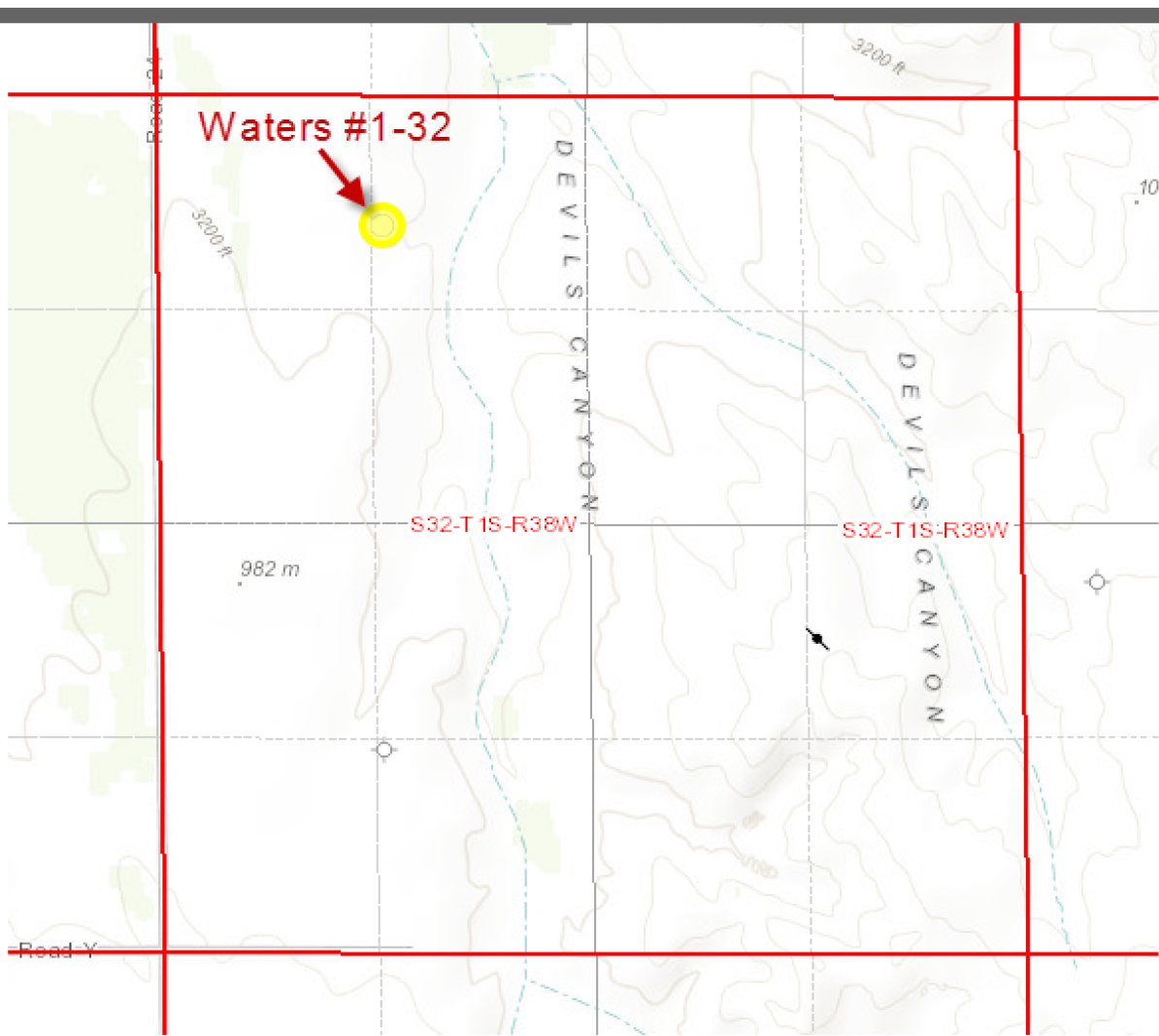
Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Murfin Drilling Company, Inc.
Address: 250 N. Water, Suite 300
Wichita, KS 67202
316-267-3241

GEOLOGIST

Name: Kent R. Matson
Company: Matson Geological Services, LLC
Address: 33300 W. 15th Street S.
Garden Plain, Kansas 67050
316-644-1975



COMMENTS

Murfin Company Geologist: Scott Robinson, 316-267-3241.

Drilling Contractor: Murfin Drilling Company, Inc. Rig #20.

Tool Pusher: Greg Condren, 785-443-3048.

Surface Casing: 8 5/8" set at 225' (KB) w/225sx cement.

Production Casing: based on field observations of drill cuttings, DST results and electric log review, production casing was not installed and the hole was plugged and abandoned.

Mud by: Morgan Mud, Inc. - Dave Korte, 308-340-6092.

DST's by: Trilobite Testing - Royal Fisher, 785-639-2835.

Logs by: Pioneer Energy Services (DI w/GR, CND, Sonic, Micro) - D. Fischer, 785-625-3858.






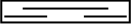



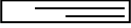




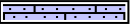











RTD= 4720', -1536'.

LTD= 4726', -1542'.

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stone Corral (Anhydrite)	3124'	+60	3124'	+60
Neva	3583'	-399	3580'	-396
Red Eagle	3650'	-466	3650'	-466
Foraker	3703'	-519	3704'	-520
Topeka	3931'	-747	3931'	-747
Oread	4067'	-883	4066'	-882
Lansing	4136'	-952	4138'	-954
Stark	4362'	-1178	4364'	-1180
Base/KC	4422'	-1238	4426'	-1242
Pawnee	4548'	-1364	4552'	-1368
Cherokee	4634'	-1450	4636'	-1452
RTD	4720'	-1536		
LTD			4726'	-1542

ROCK TYPES

	Anhy		Salt		Dol		Siltysh
	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



- Plant
- Strom
- Fuss
- Oomold

MINERAL

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

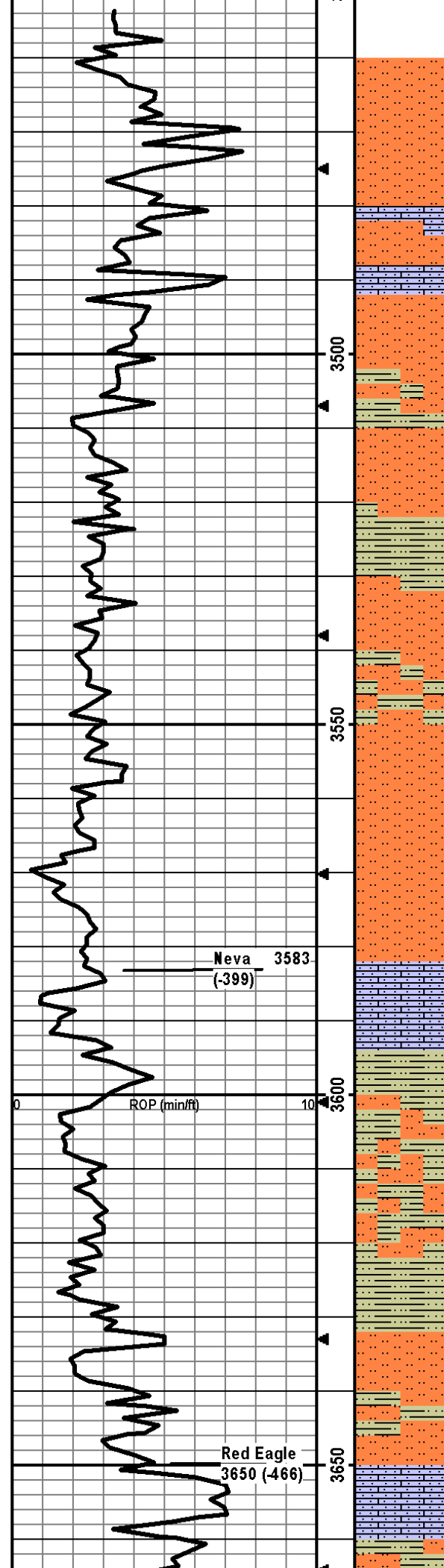


- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Sity

STRINGER

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

rop ROP (min/ft)		Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
0	ROP (min/ft)	10					
		33					
		3400				<p>Morning Report Depth/Activity</p> <p>11/07/2014, Spud. 11/08, drill @ 570'. 11/09, drill @ 2370'. 11/10, drill @ 3412'. 11/11, drill @ 3725'. 11/12, DST #1 @ 3812'. 11/13, DST #2 @ 4130'. 11/14, DST #3 @ 4220'. 11/15, DST #4 @ 4260'. 11/16, DST #5 @ 4350'. 11/17, drill @ 4545'. 11/18, drill @ 4620'; TD @ 4720'. 11/19, Straddle DST #7 @ 4720'.</p>	<p>Morgan Mud Check #0 @ Surface 11/07/14; drilling recommendations.</p> <p>Morgan Mud Check #1 @ 748' 11/08/14; cont. drilling recommendations.</p> <p>Morgan Mud Check #2 @ 2663' 11/09/14; cont. drilling recommendations.</p>
		3450				<p>Anhydrite: Top @ 3124', Bottom @ 3156' (Based on drill time).</p> <p>ROP data begins @ 3451'.</p> <p>Drill cutting samples at 10' intervals start at 3480'.</p> <p>Formation tops and lithology have been</p>	<p>Bit trip @ 3412', switched from PDC to tri-cone.</p> <p>Morgan Mud Check #3 @ 3437' 11/10/14 11:30am wt vis pH chl 8.6 78 11 700 Filt LCM 6.8 6</p>



adjusted to correlate to the electric log.

Slststn: dk red brn/tan, vry arg, slt carb, hard, friable, no odor, ns.

Slststn: same as above, no odor, ns.

Slststn as above. LS: crm/red brn, micro-fn xtal, vry silty/sndy, vry arg, no vis por, no odor, ns.

Slststn/LS mix as above, no odor, ns.

Slststn: crm/dk red brn, vry arg, slt carb, hard, friable; some SH: dk red brn, silty, firm, fissile, no odor, ns.

Slststn: med-dk red brn, vry arg, slt carb, hard, friable, no odor, ns.

SH: dk red brn, vry silty, slt carb, firm, fissile, no odor, ns.

Slststn: med-dk red brn, vry arg, slt carb, soft-firm, no odor, ns.

Slststn as above; SH: dk red brn, vry silty/sndy, firm, slt carb, some fissile, no odor, ns.

Slststn: as above, no odor, ns.

Slststn: crm/lt gry/lt brn, arg, slty carb, med-hard, friable, no odor ns.

LS: crm/lt gry-brn, micro-fn xtal, foss frags, vry silty/sndy, some vry chalky, some frac por, no odor, ns.

SH: dk red brn, slt carb, silty, slt carb, firm, fissile, no odor, ns.
Slststn: lt gry/med-dk red brn, vry arg, slt carb, hard, friable, no odor, ns.

SH/Slststn: as above, no odor, ns.

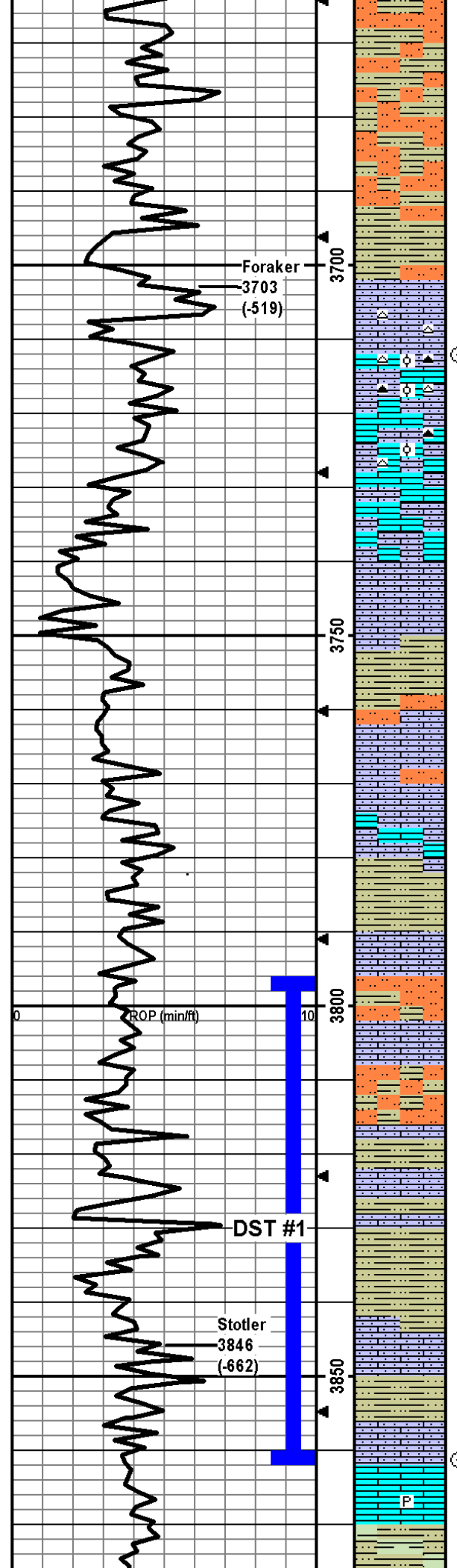
SH: dk red brn, vry silty, slt carb, firm, no odor, ns.

Slststn: lt-med gry/med-dk red brn, vry arg, slt carb, firm-hard, friable, no odor, ns.

Slststn as above w/some SH: red brn, vry silty, slt carb; no odor, ns.

LS: crm/lt gry-brn, micro-fn xtal, vry silty/sndy, some chalky/arg, min ppt in-xtal/frac por, no odor, ns.

SH: dk red brn/dk maroon, vry silty/sndy, slt carb, firm: Slststn:



med-dk red brn/med-dk maroon, vry arg, slt carb, firm, friable, no odor, ns.

SH/Sltstn as above, no odor, ns.

SH: as above w/some med-dk gry, vry silty, firm; Sltstn as above, no odor, ns.

SH: dk red brn/med-dk gry/dk maroon-brn, vry silty, slt carb, soft-firm, some dk red brn Sltstn, no odor, ns.

LS: crm/lt brn, micro-fn xtal, foss frags, vry silty/sndy, some maroon-brn chert, some ppt in-xtal/frac por, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-fn xtal, foss frags/ool, some vry silty/sndy, dk brn/dk maroon-brn/orange chert, min ppt-in-xtal/frac por, no odor, ns.

LS: crm/lt brn/lt gry/lt maroon-brn, micro-fn xtal, foss frags/min ool, some vry silty/sndy, maroon-brn/orange chert, min ppt in-xtal/frac por, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-fn xtal w/some med-crs 2ndry, some vry silty/sndy, some chalky, some foss frags, some ppt in-xtal/frac por, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-fn xtal, vry silty/sndy, some foss frags, some ppt-fn in-xtal/frac por, no odor, ns.

SH: med-dk red brn/med-dk gry, vry silty, slt carb, firm, fissile, no odor, ns.

LS: crm/lt gry-crm, micro-fn xtal, min foss frags, vry silty/sndy, min ppt in-xtal/frac por; some Sltstn: crm/lt gry, carb, arg, firm, friable; no odor, ns.

LS: crm/lt gry, micro-fn xtal, min foss frags, some vry silty/sndy, min frac por, no odor, ns.

SH: dk red brn/dk maroon red brn/med-dk gry, vry silty, carb, firm, some friable, no odor, ns.

LS: crm/lt red brn, micro-fn xtal, vry silty/sndy, vry arg, some frac por, no odor, ns.

Sltstn: med-dk red brn, vry arg, carb, firm-hard, some silty SH, no odor, ns.

LS: crm/lt brn, micro-med xtal, foss frags, vry silty/sndy, ppt in-xtal/frac por, no odor, ns.

Sltstn/SH: med-dk red brn, vry arg, carb, firm, some silty SH, no odor, ns.

SH: med-dk red brn/med-dk gry, vry silty/sndy, carb, soft-firm, no odor, ns.

LS: lt brn/lt gry-brn, micro-med xtal, foss frags, vry silty/sndy, min ppt in-xtal/frac por, no odor, ns. SH as above.

SH: dk brn/dk red brn/med-dk gry, some vry silty/sndy, firm-hard, fissile, no odor, ns.

LS: crm/lt gry, micro-fn xtal, some vry silty/sndy, min foss frags, appx 25% of smpl w/sfo, dk brn/blk tarry, dul yel flor/cut, ppt in-xtal por, no odor, sfo.

SH: dk red brn/med-dk gry, some vry silty, carb, firm, fissile, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, some vry silty/sndy, some foss frags, some frac por, no odor, ns.

LS: crm/lt brn, micro-med xtal, foss frags, min pyritic, 2 pcs w/ppt-fn in-xtal por w/s of blk tar oil, no odor, no flor/slt dul yel cut, ssfo.

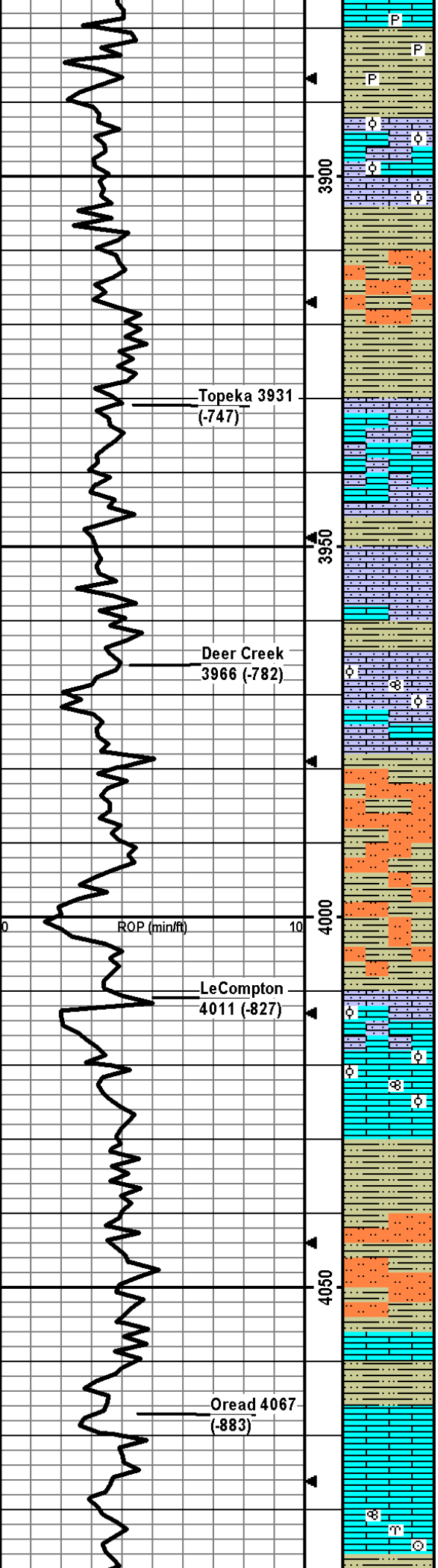
SH: lt-dk gry/gry-brn/brn/lt aqua-green, some silty, some carb, firm, fissile, no odor, ns.

CFS @ 3712'
30"60"

Morgan Mud Check #4 @
3809' 11/11/14 11:45am
wt vis pH chl
9.2 58 9.0 500
Filt LCM
8.0 6

DST1: 3795-3861
Stotler
30/60/30/60
1st) weak surface blow started at 15 min, no BB.
2nd) no blow, no BB.
IFP 18-21#
ISIP 49#
FFP 20-22#
FSIP 35#
HP 1976-1853#
Recvd: 5' Mud.

CFS @ 3861'
30"60"



LS: crm/lt brn/lt gry brn, micro-med xtal, foss frags, some silty, min pyritic, min frac por, no odor, ns.

SH: med-dk gry/brn/lt aqua-green, some vry silty, slt carb, pyritic, firm-hard, fissile, no odor, ns.

LS: crm/lt brn, micro-med xtal, foss frags/ool, some silty/sndy, 10-15 % of smple w/ppt-fn in-xtal/in-oo por w/sfo, dul yel flor/cut, no odor, sfo.

LS: as above w/cont sfo.

SH: lt-med gry/dk red brn/dk maroon brn, vry silty, carb, firm, fissile, no odor, ns.

SltStn/SH mix: lt-med gry/brn, vry arg, vry carb, firm-hard, some friable, 8 pcs w/blk tarry oil, no odor, no flor, slt dul yel flor when crushed, sfo. Some LS w/sfo from above.

SH: lt-dk gry/brn/maroon/lt aqua-green, some vry silty, carb, firm, fissile.

LS: crm/lt gry/lt brn, micro-med xtal, foss frags, some vry silty/sndy, some vry chalky, min ppt in-xtal por, 6 pcs w/s blk tar oil, no dul yel flor/cut, no odor, ns.

LS: same as above w/few pcs w/blk tar oil, no odor, ns.

SH: lt-dk red brn/gry, carb, vry silty/sndy, firm, fissile, no odor, ns.

LS: crm, micro-fn xtal, some foss frags, some silty/sndy, some chalky, some frac por, no odor, ns.

SH: lt-dk gry/dk red brn/min lt aqua-green, some vry silty, some carb, soft-firm, fissile, no odor, ns.

LS: wht/crm/lt brn, micro-med xtal, foss frags/fusln/ool, some silty/sndy, some chalky, some ppt-fn in-xtal por, no odor, ns.

Sltstn: lt gry/lt-dk red brn, vry arg, some carb, firm-hard, friable; some SH as above, no odor, ns.

Sltstn/SH as above, no odor, ns.

SH/Sltstn: dk red brn, SH is vry silty/sndy, Sltstn is vry arg, carb, some friable, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/dense ool, some silty/sndy, some chalky, min frac por, no odor, ns.

LS: same as above w/some fusln, no odor ns.

SH: lt-dk gry/maroon brn/brn/med-dk red brn, vry silty, carb, firm, fissile, no odor, ns.

SH: med-dk gry, some vry silty, carb, firm, fissile; Sltstn: gry/lt-med brn, carb, arg, firm-hard, some friable, no odor, ns.

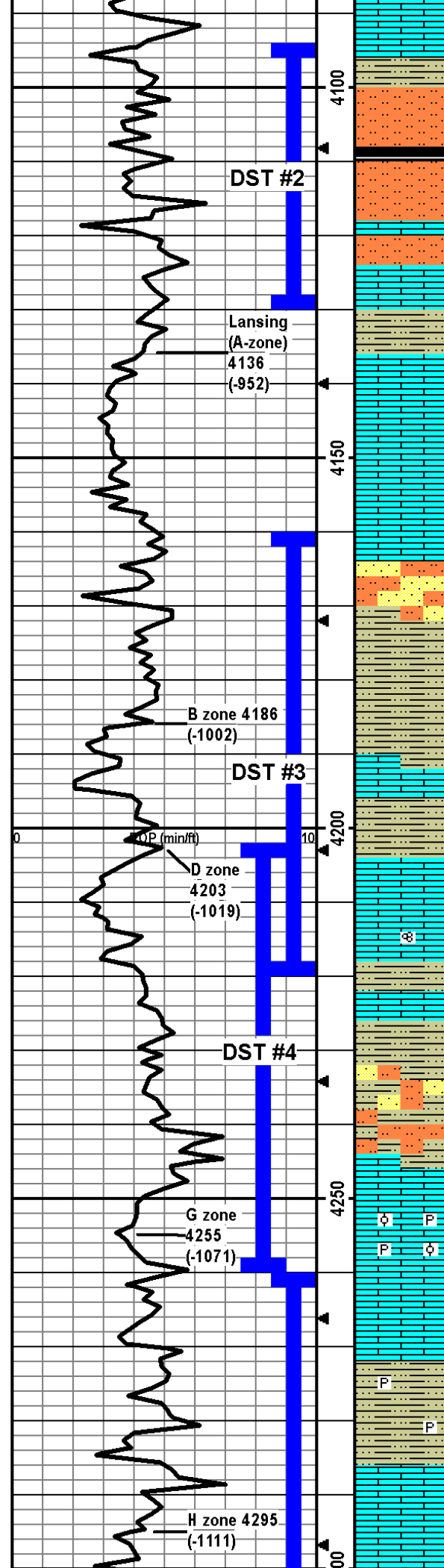
LS: wht/crm, micro-fn xtal, min foss frags, some chalky, 8 pcs w/ppt-fn in-xtal por w/sfo, some dk brn mostly blk tar, dul yel flor/slt yel cut, no odor, sfo.

LS: crm/lt gry-brn, micro-fn xtal, min foss frags, some chalky, 32 pcs w/ppt-fn in-xtal por w/sfo, blk tarry oil, some dul yel flor w/cut, no odor, ns.

LS: crm/lt gry-brn, micro-fn xtal, some foss frags/fusln/bryzn/crin, 8 pcs w/ppt-fn in-xtal por w/sfo, blk tar oil, dul yel flor/cut, slt crush odor, sfo. Min SH: lt-med gry, silty, slt carb, soft-firm.

CFS @ 4065'
 30"60"

CFS @ 4076'
 30"60"



LS: crm/lt gry brn, micro-fn xtal, min foss frags, 14 pcs w/ppt in-xtal por w/sfo, some dk brn mostly blk tar oil, dul yel flor/cut, slt crush odor, sfo.

SH: gry, slt silty, slt carb, firm, fissile.

Sltstn: lt-med gry/lt-dk brn, arg, carb, slt crush odor, 3 pcs w/ppt in-clastic por w/sfo, dul yel flor/cut, slt crush odor, ssfo. SH: dk gry, silty, carb, firm.

Sltstn: same as above, no odor, ns.

Some LS: crm/brn, micro-fn xtal, min foss frags, 4 pcs w/ppt-fn in-xtal por w/sfo, dk brn fluid oil, yel flor/cut, slt crush odor, sfo.

Sltstn: lt-dk brn, arg, carb, hard, some friable, several pcs w/sfo, dul yel flor/cut.

LS: crm/lt brn, micro-fn xtal, min foss frags, 10 pcs w/mostly ppt some fn-med in-xtal por w/sfo, dk brn/blk, fluid, dul yel flor/cut, slt crush odor, sfo.

SH: lt-med gry, silty, slt carb, firm.

LS: wht/crm/lt brn, micro-fn xtal, min foss frags, some chalky, 7 pcs w/ppt-fn in-xtal por w/sfo, dk brn/blk, dul yel flor/cut, no odor, sfo.

LS: same as above, 6 pcs w/ppt-fn in-xtal por w/sfo, dk brn/blk, dul yel flor/cut, no odor, sfo.

LS: lt brn, micro xtal, no vis por, no odor, ns.

LS: crm/lt brn, micro xtal, 2 pcs w/ppt-fn in-xtal por w/sfo, dul yel flor/cut, no odor, ssfo.

SS/Sltstn: lt-med gry/brn/blk mottle, vf-f, sr-wr, friable, carb, 10 pcs w/sfo, no flor w/dul yel cut, no odor, sfo.

SH: red brn/lt-med gry/lt aqua-green/brn, some vry silty/sndy, carb, soft-firm, some fissile, some SS w/cont sfo, no odor, ns.

SH: as above, no odor, ns.

LS: crm/lt gry/lt brn, micro-fn xtal, some chalky, some SH, mostly dense w/5 pcs w/ppt in-xtal por 1 pcs w/ppt-med in-xtal por w/sfo, dul yel flor/cut, no odor, sfo.

SH: dk red brn/med-dk gry, some vry silty/sndy, carb, firm, fissile.

LS: wht/crm, micro-fn xtal, some chalky, no vis por, no odor, ns.

LS: wht/crm, micro-fn xtal, min fusln, some chalky, 35 pcs w/fn-crs in-xtal por w/sfo, dk brn fluid, some fo in tray, dul yel flor, gd cup odor, gsfo.

SH: brn/dk red brn/med-dk gry/dk maroon, some vry silty/sndy, carb, firm, fissile, no odor, ns. Some LS w/sfo.

SH as above w/some Sltstn/SS: lt gry, vf-f, pred qtz, sf-wr, arg, carb, no odor, ns.

LS: crm/lt gry-brn, micro-fn xtal, min foss frags, some chalky, 24 pcs w/ppt-med in-xtal por w/sfo, some fluid dk brn some blk tar, dul yel flor/cut, no odor, sfo.

LS: crm/gry-dk gry, micro-fn xtal, min foss frags/some ool pcs, pyritic, some chalky, 16 pcs w/ppt-med in-xtal por w/sfo, some fluid dk brn some blk tar, dul yel flor, no odor, sfo.

LS: crm/gry, micro-fn xtal, min foss frags, some chalky, no odor, ns.

SH: as above w/increase in silt/sand content, some pyrite nod.

LS: crm/lt-dk brn/lt gry, micro-fn xtal, min foss frags/fusln, some sndy, some chalky, 5 pcs w/ppt-med in-xtal por w/sfo, dul yel flor, no odor, sfo.

LS: crm/lt gry, micro-fn xtal, some vry chalky, 25 pcs w/ppt-med in-xtal por w/sfo, some dk brn fluid some blk tar, dul yel flor, slt crush odor, sfo.

9.1 50 10.5 500
Filt LCM
6.8 6

DST2: 4094-4130
Lansing A Zone
30/60/30/60
1st) surface blow built to 1 3/4", no BB.
2nd) no blow, no BB.
IFP 28-30#
ISIP 51#
FFP 30-31#
FSIP 42#
HP 2078-2010#
Recvd: 10' Mud.

DST3: 4160-4220
Lansing D Zone
30/60/30/60
1st) surface blow built to 1 1/4", no BB.
2nd) very faint surface blow, no BB.
IFP 34-50#
ISIP 752#
FFP 32-55#
FSIP 291#
HP 2141-2107#
Recvd: 10' Oil Spotted Mud.

Morgan Mud Check #7 @
4220' 11/14/14 11:45am
wt vis pH chl
9.4 56 10.5 600
Filt LCM
7.6 4

CFS @ 4200'
30"60"

CFS @ 4220'
30"60"

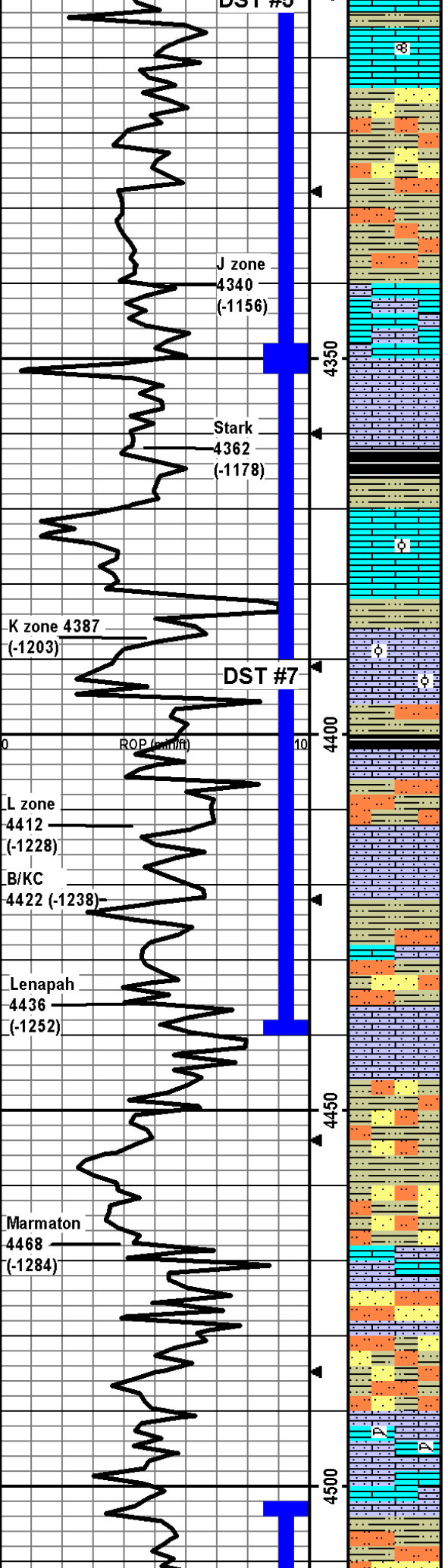
DST4: 4202-4260
Lansing G Zone
30/60/30/60
1st) surface blow built to 3/4", no BB.
2nd) no blow, no BB.
IFP 40-71#
ISIP 553#
FFP 49-73#
FSIP 128#
HP 2208-2152#
Recvd: 6' Oil Spotted Mud.

CFS @ 4260'
30"60"

Morgan Mud Check #8 @
4260' 11/15/14 11:45am
wt vis pH chl
9.5 85 10.5 500
Filt LCM
7.6 6

CFS @ 4290'
30"60"

DST #5



LS: wht/crm, micro-fn xtal, few fusln, some vry chalky, 22 pcs w/mostly ppt and min fn-med in-xtal por w/sfo, some dk brn fluid some blk tar, dul yel flor/cut, slt crush odor, sfo. Some SH: dk gry/dk red brn, silty, slt carb, firm, fissile.

SH: med-dk gry/med-dk red brn, vry silty, carb, soft-firm; Sltstn/SS: lt-med gry/brn/red brn, vry arg, carb, some friable, firm-hard, no odor, ns.

SH/Sltstn mix as above, no odor, ns.

LS: wht/crm/lt gry, micro-fn xtal, foss frags/grainy, some vry chalky, 14 pcs w/ppt-med in-xtal por w/sfo, mostly blk tar oil w/some dk brn fluid, no flor/dul yel cut, no odor, sfo.

LS: wht/crm/lt-med brn, foss frags/some grainy, some vry silty/sndy, 12 pcs w/ppt-med in-xtal por w/sfo, dk brn fluid and blk tar oil, dul yel flor/cut, slt crush odor, sfo.

SH: lt-dk gry/dk red brn/min maroon, some vry silty, slt carb, firm, fissile, no odor, ns.

SH: lt-dk gry/dk red brn/lt aqua-green, some vry silty, slt carb, firm, fissile, no odor, ns.

LS: wht/crm/lt gry, micro-fn xtal, min foss frags/ool, some chalky, mostly dense w/1 pce w/ppt-fn in-xtal por w/blk tar oil, yel cut, no odor, ssfo.

LS: crm/lt brn/lt gry, micro-med, foss frags/ool, grainy, some chalky, some vry sndy, some ppt-med in-xtal por, no odor, ns.

SH: brn/dk red brn/lt-med gry, vry silty/sndy, carb, firm, fissile, some Sltstn, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags, some vry sndy, some frac por, no odor ns.

Sltstn/SS: lt-med gry/brn, vry arg, carb, some vf-f, sr-wr, no odor, ns. Some SH: med-dk gry/dk red brn, vry silty, carb, firm.

LS: crm/lt brn/min lt gry, micro-med xtal, foss frags, some vry sndy, some chalky, some ppt-fn in-xtal por, no odor, ns.

SH: red brn/med gry, vry silty, slt carb, soft-firm, some Sltstn/SS: lt gry, arg, vf-f, wr-r, slt carb, friable, no odo, ns.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags, some vry silty/sndy, min frac por, no odor, ns.

SS/Sltstn: lt gry/lt brn/lt maroon-gry, vf-f, hard, some friable; SH: lt-med gry/dk red brn, vry silty/sndy, carb, firm, no odor, ns.

LS: lt gry/lt brn, micro-med xtal, foss frags, vry sndy, some carb SS, no vis por, no odor, ns.

SS/Sltstn: lt gry/red brn/crm, vry arg, carb, hard, some friable; SH: lt-med gry/maroon/some yel mottling/red brn, vry silty/sndy, carb, firm, no odor, ns.

SS/Sltstn/SH as above, no odor, ns.

LS: crm/lt brn/gry, micro-med xtal, foss frags, some vry silty/sndy, some frac por, no odor, ns.

SS/Sltstn: wht/lt gry/red brn, vf-f, sr-wr, vry arg, slt carb, hard, some friable, no odor, ns. Some sndy LS.

SS/Sltstn: lt gry/brn, vf-f, sr-wr, vry agr, slt carb, firm-hard, some friable; some SH: red brn/maroon/lt-med gry, vry silty, slt carb, firm, no odor, ns.

LS: crm/lt brn/lt gry, micro-fn xtal, min foss frags/min lattice coral w/med por, some vry silty/sndy, some chalky, some frac por, no odor, ns.

SH: dk red brn/maroon/gry, vry silty, slt carb, firm some Sltstn: med-dk red brn/lt brn/lt gry, vry arg, hard some friable, no odor, ns.

CFS @ 4320' 30"60"

Morgan Mud Check #9 @ 4350' 11/16/14 01:15pm wt vis pH chl 9.4 157 10.5 600 Filt LCM 6.8 6

CFS @ 4350' 30"60"

DST5: 4260-4350 Lansing H thru J Zones

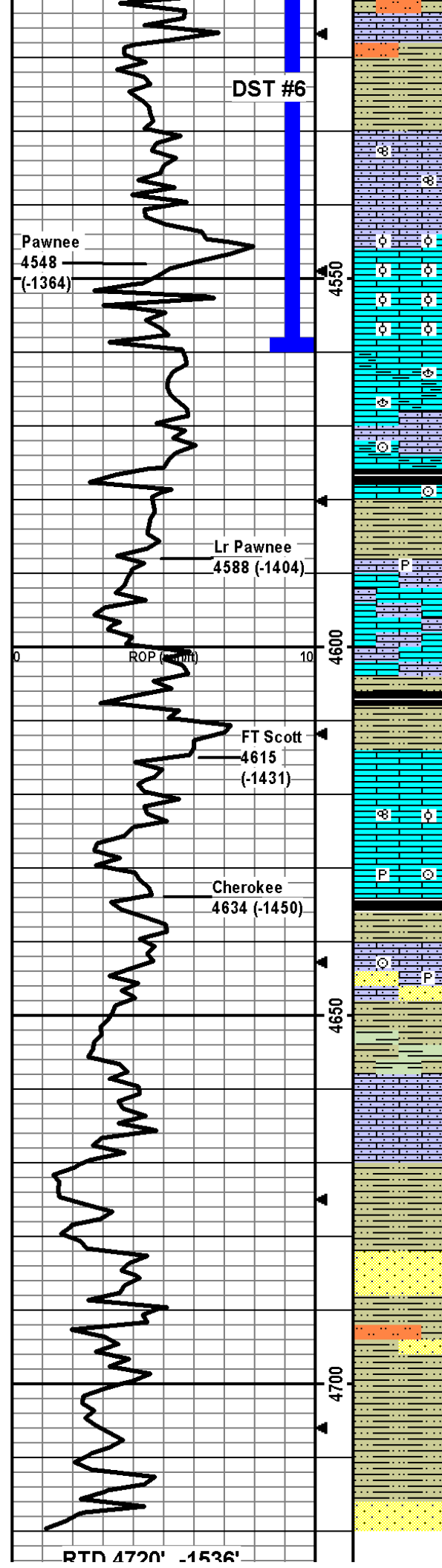
30/60/30/60 1st) surface blow built to 3/4", no BB. 2nd) no blow, no BB. IFP 18-21# ISIP 236# FFP 22-23# FSIP 173# HP 2171-2097# Recvd: 5' Oil Spotted Mud.

DST7: 4356-4446 Lansing K Zone Straddle Test

Note: above depths based on E-log, adjusted depths to 4350-4440 based on drill time. 30/60/60/90 1st) surface blow built to 10 3/4", no BB. 2nd) surface blow built to 10", no BB. IFP 22-125# ISIP 1348# FFP 128-212# FSIP 1275# HP 2246-2197# Recvd: 217' WM (15%W), 217' MW (60%W).

DST6: 4502-4560 Pawnee

30/60/30/60



SH/Sltstn: as above, some SS med-dk red brn/gry, vf-f, sr-wr, vry arg, slt carb, hard, some friable, no odor, ns.

SH: lt-med gry, vry silty, vry carb, firm, fissile, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-med xtal, some vry silty/sndy, foss frags/fusln, no vis por, no odor, ns.

LS: crm, micro-fn xtal, foss frags/fn abund ool pcs, silty/sndy, some chalky, 60+ pcs w/ppt-med in-xtal/in-ool por w/sfo, dk brn fluid, dul yel flor, gd odor, vgsfo.

LS: crm/lt gry, micro-fn xtal, foss frags/abund ool pcs, some chalky, 31 pcs w/ppt-med in-xtal/in-ool por w/sfo, dk brn fluid, dul yel flor, gd odor, vgsfo.

LS: crm/lt gry, micro-fn xtal, some vry silty, firm, brac foss, no odor, ns.

LS: lt-dk brn, micro-med xtal, foss frags/crin, some vry chalky, arg, some silty/sndy, no vis por, no odor, ns.

SH: lt-dk gry, some silty, carb, firm, fissile.

SH: lt-dk gry/gry-brn, some vry sndy, some vry carb w/LS inclus, firm, no odor, ns. Also LS: crm/lt brn, micro-fn xtal, foss frags, min frac por, no odor, ns.

LS: crm/lt-med brn/lt gry, micro-med xtal, foss frags, some silty/sndy, some chalky, min pyritic, min ppt in-xtal por, 1 pce w/ppt-fn in-xtal por w/blk tar oil, dul yel cut, no odor, ssfo.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/some grainy, some vry silty/sndy, some vry chalky, min ppt in-xtal por, no odor, ns.

SH: med-dk gy/blk, slt carb, some silty, firm, fissile.

LS: crm/lt-med brn, micro-med xtal, foss frags, some silty/sndy, some chalky, some frac por, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/min ool/fusln/grainy, some chalky, some ppt-fn in-xtal por, no odor, ns.

SH: gry/red brn/min maroon, some vry silty/sndy, slt carb, firm.

LS: crm/lt-med brn, micro-med xtal, some chalky, min pyritic, foss frags/crin, some frac por, no odor, ns. Some SH: lt-dk gry, silty/sndy, slt carb, soft-firm.

LS: wht/crm/lt brn, micro-med xtal, vry sndy w/qtz, foss frags, min frac por, no odor, ns. Some SS: lt gry, f-m, wr, pred qtz, vry carb, hard, no odor, ns.

SH: med-dk gry/maroon/min lt aqua-green, slt carb, some silty/sndy, firm, no odor, ns.

LS: crm/lt brn/lt gry, micro-fn xtal, foss frags, some sndy, some chalky, min frac por, no odor, ns.

SH: med-dk gry/dlk maroon brn/ br-dk brn/min lt aqua-green, some carb, some silty, no odor, ns.

SS: wht/gry/red brn, f-m, sa-sr, pred qtz, some dk incl, carb, poss some in-part por, hard, slt friable, no odor, ns.

SH: med-dk gry/brn/red brn, vry silty/sndy, carb, firm.

SH: as above; Sltstn/SS, med-dk red brn, vf-m, sr-wr, vry arg, carb, hard, slt friable, no odor, ns.

SH: med-dk gry/brn/dk red brn, vry silty/sndy, carb, firm, fissile, no odor, ns.

SS: wht/brn/red brn, f-m, sr-wr, pred qtz, some vry arg, some slt glac, carb, no odor, ns.

TD @ 4720'.

1st) surface blow built to 314" then died off to 114", no BB. 2nd) no blow, no BB.
IFP 14-17#
ISIP 31#
FFP 17-19#
FSIP 27#
HP 2306-2288#
Recvd: 5' Mud.

Morgan Mud Check #10 @ 4560' 11/17/14 12:30pm
wt vis pH chl
9.4 57 10.5 600
Filt LCM
6.8 5

CFS @ 4560'
30"/60"

CFS @ 4590'
30"/60"

CFS @ 4610'
30"/60"

CFS @ 4631'
30"/60"

Morgan Mud Check #11 @ 4685' 11/18/14 12:10pm
wt vis pH chl
9.3 53 10 900
Filt LCM
6.8 4

CFS @ 4720'
30"/60"
Conducted 10 stand short

RTD 4720', -1539'
LTD 4726', -1542'

50

Conducted 10 stand short
trip then circulated one hour
before TOH for logging.