

MACKLIN M. ARMSTRONG

Geologist

License Number 743

316-209-5047

Scale 1:240 Imperial

Well Name:	Tjaden 'C' No. 2	
Surface Location:	Sec 18 T30S R7W	
Bottom Location:	693' FNL and 712' FEL	
API:	15-095-22242	
License Number:	5144	
Spud Date:	1/20/2012	Time: 7:45 PM
Region:	Kingman County	
Drilling Completed:	1/28/2012	Time: 8:27 AM
Surface Coordinates:		
Bottom Hole Coordinates:		
Ground Elevation:	1468.00ft	
K.B. Elevation:	1480.00ft	
Logged Interval:	2900.00ft	To: 4602.00ft
Total Depth:	4600.00ft	
Formation:	Mississippi	
Drilling Fluid Type:	Chemical/Fresh Water Gel	

OPERATOR

Company:	Mull Drilling Company	
Address:	1700 North Waterfront Parkway Wichita, Kansas 67206	
Contact Geologist:	Ernie Morrison	
Contact Phone Nbr:	316-264-6366	
Well Name:	Tjaden 'C' No. 2	
Location:	Sec 18 T30S R7W	API: 15-095-22242
Pool:	Oil	Field: Spivey-Grabs-Basil
State:	Kansas	Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: 98° 8' 0.166"
N/S Co-ord:
E/W Co-ord:

Latitude: 37° 26' 26.545"

LOGGED BY

Company: Macklin M. Armstrong
Address: 100 South Ridge Road
Wichita, Kansas 67209

Phone Nbr: 316-209-5047

Logged By: Macklin M. Armstrong

Name: Kansas License Number 743

CONTRACTOR

Contractor: Duke Drilling
Rig #: 7
Rig Type: mud rotary
Spud Date: 1/20/2012
TD Date: 1/28/2012
Rig Release: 1/29/2012

Time: 7:45 PM

Time: 8:27 AM

Time: 10:45 AM

ELEVATIONS

K.B. Elevation: 1480.00ft
K.B. to Ground: 12.00ft

Ground Elevation: 1468.00ft

NOTES

Date	Depth at 7 am	Activity
1-20-12	MIRU	Spud at 7:45 pm
1-21-12	96	Drilling
1-22-12	235	WOC
1-23-12	1700	Drilling
1-24-12	2920	TOH to look for hole in pipe
1-25-12	3881	TOH to replace bit
1-26-12	4155	TIH for DST No. 1
1-27-12	4330	TIH for DST No. 2
1-28-12	4560	Drilling
1-29-12	4600	Set 5 1/2"

Surface Casing: 8 5/8" 20# at 227
Production Casing: 5 1/2" 17# at 4601

Deviation:	96 - 1/2°	235 - 1/2°	521 - 3/4°	1020 - 1°
	1209 - 1°	1397 - 1/2°	1617 - 1/4°	1898 - 1°
	2118 - 1/2°	2307 - 1/2°	2527 - 3/4°	2716 - 1/2°
	3064 - 1/2°	3408 - 3/4°	3723 - 1°	3881 - 1°
	4155 - 1°	4330 - 1/4°	4600 - 1°	

Bit Record:	Make	Type	Depth In	Depth Out	Hours
	HTC	DP506F	235	3881	43
	HTC	GX20C	3881	4600	34 1/4

Drill Stem Tests:

DST No. 1 4135 to 4155 Formation: Mississippi
5-30-60-120
Recovery: 181' Oil Specked Gas Cut Mud (3% gas, 97% mud)
IHP 1951 FHP 1949
IFP 24-32 FFP 36-63
ISIP 795 FSIP 1056
Temp 120°

DST No. 2 4230 to 4330 Formation: Mississippi
5-30-30-60

Recovery: 5' Drilling Mud
 IHP 2050 FHP 2050
 IFP 14-17 FFP 20-25
 ISIP 818 FSIP 263
 Temp 114°

Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3
Heebner	3126	3128	-1648	-4	-12	-3
Douglas	3159	3157	-1677	-1	-8	-3
Lansing	3349	3348	-1868	-7	-19	+2
Kansas City	3624	3624	-2144		-5	-5
Stark	3774	3775	-2295		-4	-7
Hertha	3810	3810	-2330		-5	-7
B/Kansas City	3888	3889	-2409		-2	-13
Cherokee Shale	4021	4020	-2540		+3	-6
Mississippi	4146	4146	-2666	+1	-5	-8
Kinderhook Shale	4394	4394	-2914			
Woodford Shale	4476	4475	-2995			
Viola	4505	4503	-3023			
Simpson Sand	4551	4551	-3071			
Total Depth	4600	4602	-3122			

Well 1: Mull Drilling Company Tower-Wells No. 1 NE SE NW Sec 18 T30S R7W
 Well 2: McCoy Petroleum Company Wells-Tower 'A' No. 1 SE SE NW Sec 18 T30S R7W
 Well 3: Drilling & Exploration Company Kohman No. 1 NE SE SW Sec 18 T30S R7W

Pile was set to further test the Mississippi zone.

Respectfully submitted,
 Macklin M. Armstrong

ROCK TYPES

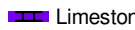
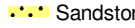
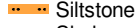
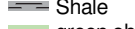
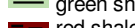
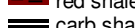
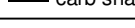
 Cht	 Lmst fw7>	 Carbon Sh
 Dolprim	 shale, gry	 Ss

ACCESSORIES

MINERAL


• Sandy
 △ Chert White

STRINGER

 Limestone
 Sandstone
 Siltstone
 Shale
 green shale
 red shale
 carb shale

OTHER SYMBOLS

DST

 DST Int
 DST alt
 Core

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

Curve Track #1		Depth Intervals	DST	Lithology	Oil Show	Geological Descriptions	Comment
ROP (min/ft)	Gamma (API)						
Cal (in)							

1:240 Imperial

Mull Drilling Company
Tjaden 'C' No. 2
693' FNL and 712' FWL
Sec 18 T30S R7W
Kingman County, Kansas
GL 1468 KB 1480

Geologist on Loc at 2920'
8:40 am 1-24-12

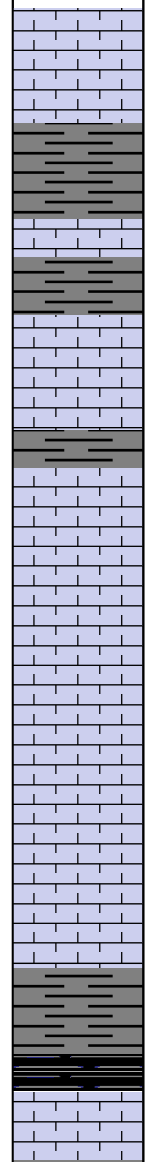
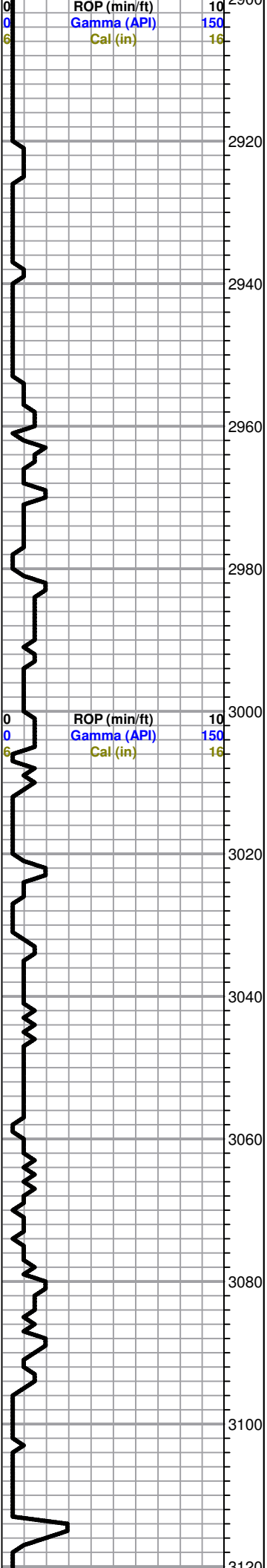
Mud Program:
Mud Co/Service Mud, Inc.
Chemical Gel/Premix

Testing: Diamond Testing

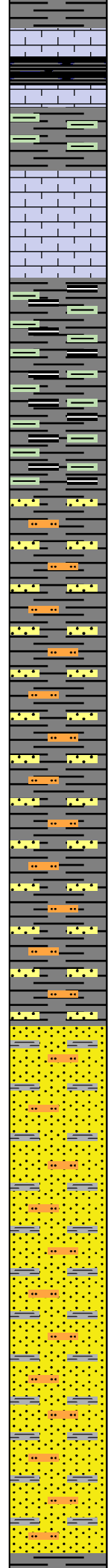
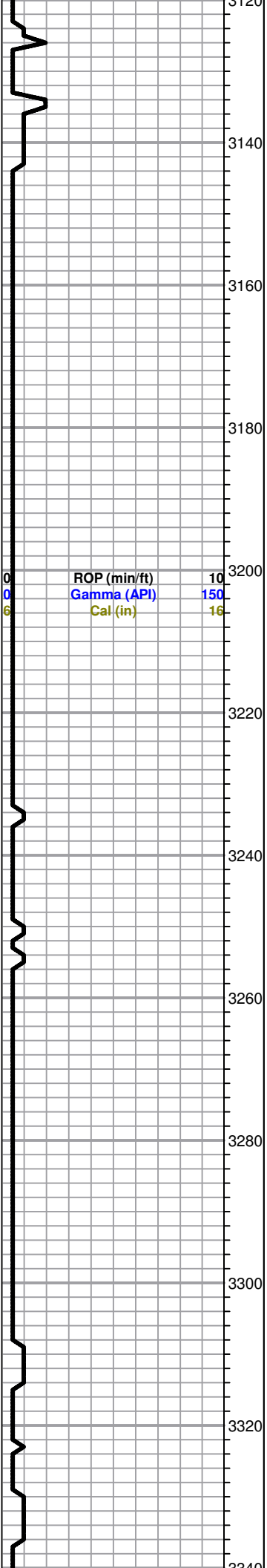
Sample Cuttings:
KGS Well Sample Library

Electric Logs:
Superior Well Services
DIL
CNL/CDL
Sonic
MEL

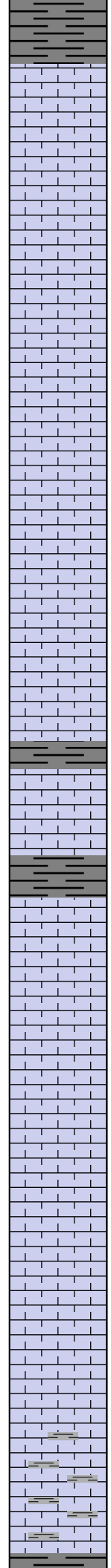
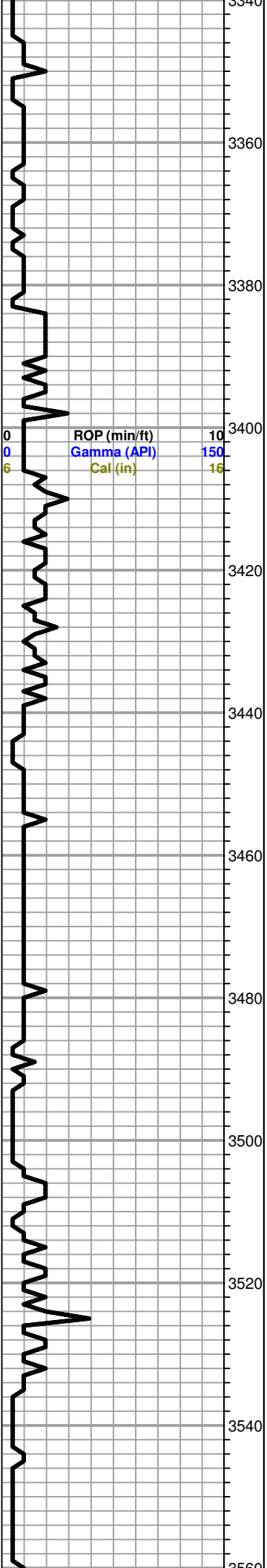
Deviation:
96' - 1/2°
235' - 1/2°
521' - 3/4°
1020' - 1°
1209' - 1°
1397' - 1/2°
1617' - 1/4°
1898' - 1°
2118' - 1/2°
2307' - 1/2°
2527' - 3/4°
2716' - 1/2°
3064' - 3/4°
3408' - 1°
3723' - 1°
3881' - 1°
4155' - 1°
4330' - 1/4°
4600' - 1°



Ls-crm fxln mhd no por
Sh-gry/dk gry
Ls-crm fxln mhd no por
Sh-gry/dk gry
Ls-crm fxln mhd no por
Sh-gry/dk gry
Ls-crm fxln mhd pr interxln por nsfo
Ls-crm fxln mhd no por
Ls-AA
Ls-crm fxln mhd/dns no por
Ls-crm/lt gry fxln mhd/dns no por
Ls-lt gry/crm fxln soft pr interxln por
Sh-gry/dk gry
Sh-blk carb
Ls-lt gry/crm fxln dns no por
Ls-lt gry/crm fxln soft pr interxln por nsfo



Sh-gry/dk gry
 Ls-gry/brn fxln dns no por
 -----Heebner 3128 -1648-----
 Ls-gry/brn fxln dns no por
 Sh-gry/kd gry/gry grn
 Ls-gry/brn fxln mhd no por
 Ls-AA
 -----Douglas 3159 -1679-----
 Sh-gry/dk gry/blk/gry grn/grn
 Sh-AA
 Shgry/dk gry/gry grn/sm blk
 Sh-gry/dk gry/gry grn sm Ss-gry vfgrn sub ang to sub rnd sl fri
 to tite cement sl gils and Siltstone-gry
 Sh-AA sm Ss and Siltstone
 Sh-AA sm Ss and Siltstone
 Sh-AA sm Ss and Siltstone
 Sh-gry/dk gry/gry grn sm Ss-gry fgrr sub ang to sub rnd sl fri
 to tite cement sl gils and Siltstone-gry
 Sh-AA sm Ss and Siltstone
 Sh-AA sm Ss and Siltstone
 Ss-gry/lt gry f/mgrn sub ang to sub rnd sl fri to tite cement sl gils
 sm Sh-gry/dk gry and Siltstone-gry/dk gry
 Ss-AA sm Sh and Siltstone
 Ss-AA sm Sh and Siltstone
 Ss-gry/lt gry f/mgrn sub and to sub rnd sl fri to tite cement sl gils
 sm Sh-gry/dk gry and Siltstone-gry/dk gry
 Ss-AA sm Sh and Siltstone
 Ss-AA sm Sh and Siltstone
 Ss-AA sm Sh and Siltstone



Sh-gry/dk gry

-----Lansing 3349 -1869-----

Ls-crm/tan fxln mhd no por

Ls-tan fxln mhd no por

Ls-AA

Ls-AA

Ls-tan fxln dns no por

Ls-tan/crm fxln dns no por

Ls-crm/lt gry fxln soft/mhd fr interxln por nsfo

Ls-crm/lt gry mhd no por

Ls-AA

Ls-crm/lt gry fxln mhd no por

Ls-AA

Sh-gry/dk gry

Ls-lt gry/gry fxln mhd no por

Sh-gry/dk gry

Ls-lt gry/gry fxln mhd no por

Ls-AA

Ls-lt gry/gry fxln mhd no por

Ls-lt gry/gry fxln soft/mhd fr interxln por nsfo

Ls-gry fxln dns no por

Ls-gry fxln mhd fr interxln por nsfo

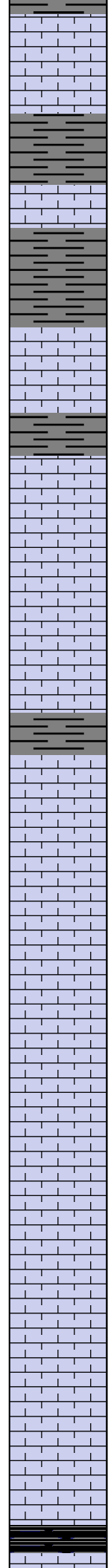
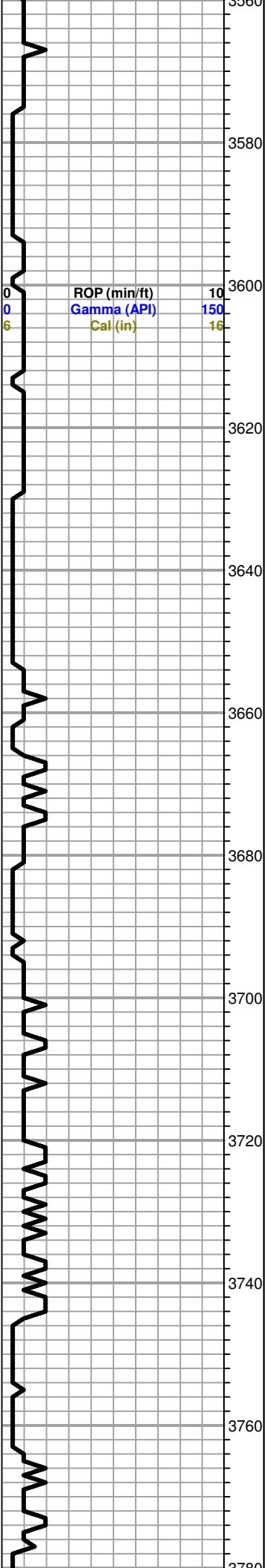
Ls-gry fxln mhd/dns no por

Ls-AA

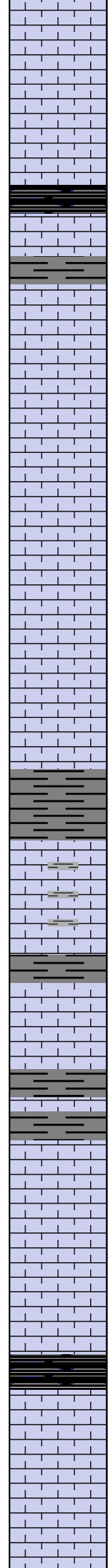
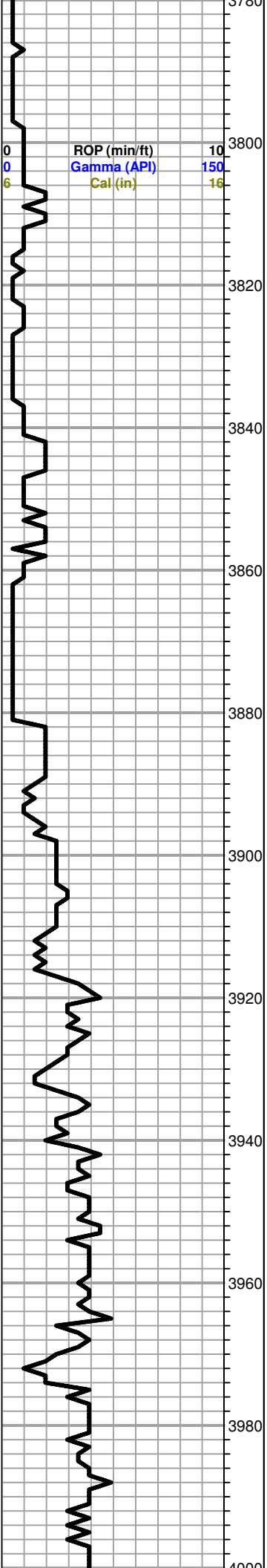
Ls-gry/lt gry fxln mhd no por

Ls-gry fxln mhd shly no por

Ls-AA



Sh-gry/dk gry
 Ls-gry/gry brn fxln mhd no por
 Ls-AA
 Sh-gry/dk gry/blk
 Ls-gry/gry brn fxln mhd no por
 Sh-gry/dk gry/blk
 Sh-AA
 Ls-gry/gry brn fxln mhd no por
 Ls-AA
 Sh-gry/dk gry/blk
 -----**Kansas City 3624 -2144**-----
 Ls-crm fxln mhd no por
 Ls-crm fxln soft fr interxln por nsfo
 Ls-AA
 Ls-AA
 Ls-crm fxln mhd no por
 Sh-gry/dk gry
 Ls-crm fxln mhd no por
 Ls-AA
 Ls-crm/tan f/mxln soft fr interxln por nsfo
 Ls-crm/tan f/mxln soft/mhd pr interxln por nsfo
 Ls-crm/tan f/mxln soft/mhd pr interxln por nsfo
 Ls-AA
 Ls-tan/brn fxln mhd no por
 Ls-AA
 Ls-AA
 Ls-tan/brn fxln soft fr interxln por nsfo
 Ls-AA
 Ls-tan/brnfxln mhd no por
 -----**Stark 3774 -2294**-----
 Sh-blk carb



Ls-tan/crm/brn fxln soft fr interxln por nsfo

Ls-AA

Ls-tan/crm/brn fxln mhd no por

Sh-blk carb

-----**Hertha 3810 -2330**-----

Ls-tan/crm/brn fxln mhd no por

Sh-gry/dk gry

Ls-tan/brn fxln soft fr interxln por nsfo

Ls-AA

Ls-AA

Ls-tan/brn/gry fxln mhd/dns no por

Ls-AA

Ls-gry fxln mhd fr interxln por nsfo

Ls-AA

Ls-gry fxln mhd/dns no por

-----**B/Kansas City 3888 -2408**-----

Sh-gry/dk gry/blk

Ls-gry fxln mhd/dns sl shly no por

Ls-AA

Sh-gry/dk gry

Ls-gry/brn fxln dns no por

Ls-AA

Sh-gry/dk gry

Sh-gry/dk gry

Ls-tan/brn fxln mhd no por

Ls-AA

Ls-tan/brn/gry f/mxln mhd no por

Ls-AA

Sh-blk carb

Ls-gry/brn fxln dns no por

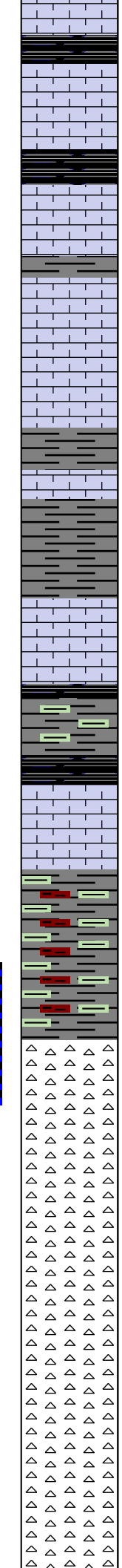
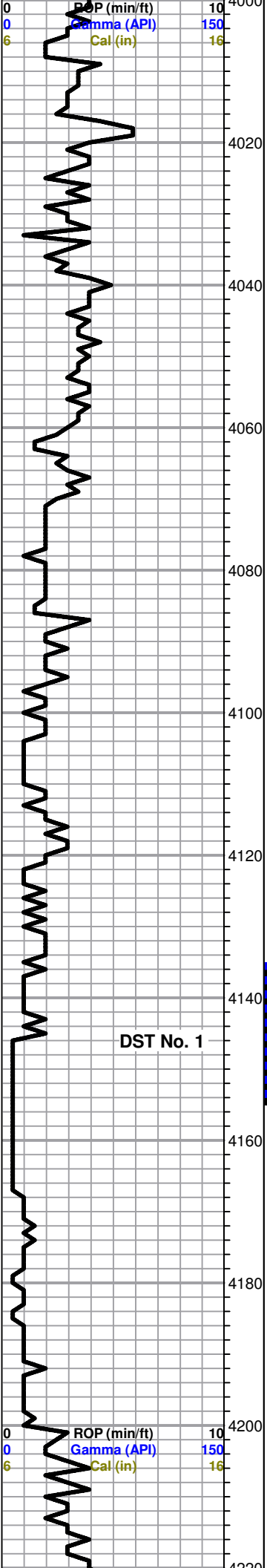
Ls-AA

Ls-gry/tan fxln mhd no por

Ls-gry/tan/brn fxln dns no por

Bit Trip at 3881'
Replaced PRC bit with roller cone bit

Mud Data at 3921'
1:30 pm 1-25-12
Wt 8.9
Vis 49
WL 8.8
pH 11
Chl 3000
Sol 4.1%
YP 15
LCM 3#



Ls-gry/tan/brn fxln dns no por
 Sh-blk carb
 Ls-tan/gry fxln mhd/dns no por
 Ls-tan/gry fxln dns no por
 -----Cherokee Shale 4021 -2541-----
 Sh-blk carb
 Ls-gry fxln mhd/dns no por
 Ls-AA
 Sh-gry/dk gry
 Ls-gry fxln dns no por
 Ls-AA
 Ls-gry/brn fxln dns no por
 Ls-AA
 Sh-gry/dk gry
 Ls-gry/brn fxln dns no por
 Sh-gry/dk gry
 Sh-AA
 Ls-gry/gry brn fxln dns no por
 Ls-AA
 Sh-blk carb
 Sh-gry/dk gry/gry grn/blk
 Sh-blk carb
 Ls-gry/gry brn fxln dns no por
 Sh-gry/dk gry/grn/mar/yel
 Sh-AA
 Sh-AA
 -----Mississippi 4146 -2666-----
 Cht-wt opac weat and trip pr vug por brn sat stn fr odor gd cut gsfo and gas
 Cht-wt opac weat and trip brn sat stn fr/gd vug por fr odor gsfo and gas
 Cht-AA
 Cht-wt fsh opac nsfo or gas and Cht-wt opac weat and trip fr vug por spt brn stn faint odor fsfo
 Cht-AA
 Cht-AA
 Cht-wt/gry wt sm lt gry fsh opac no por no stn sm Cht-wt opac weat and trip sct brn stn nsfo or gas
 Cht-AA

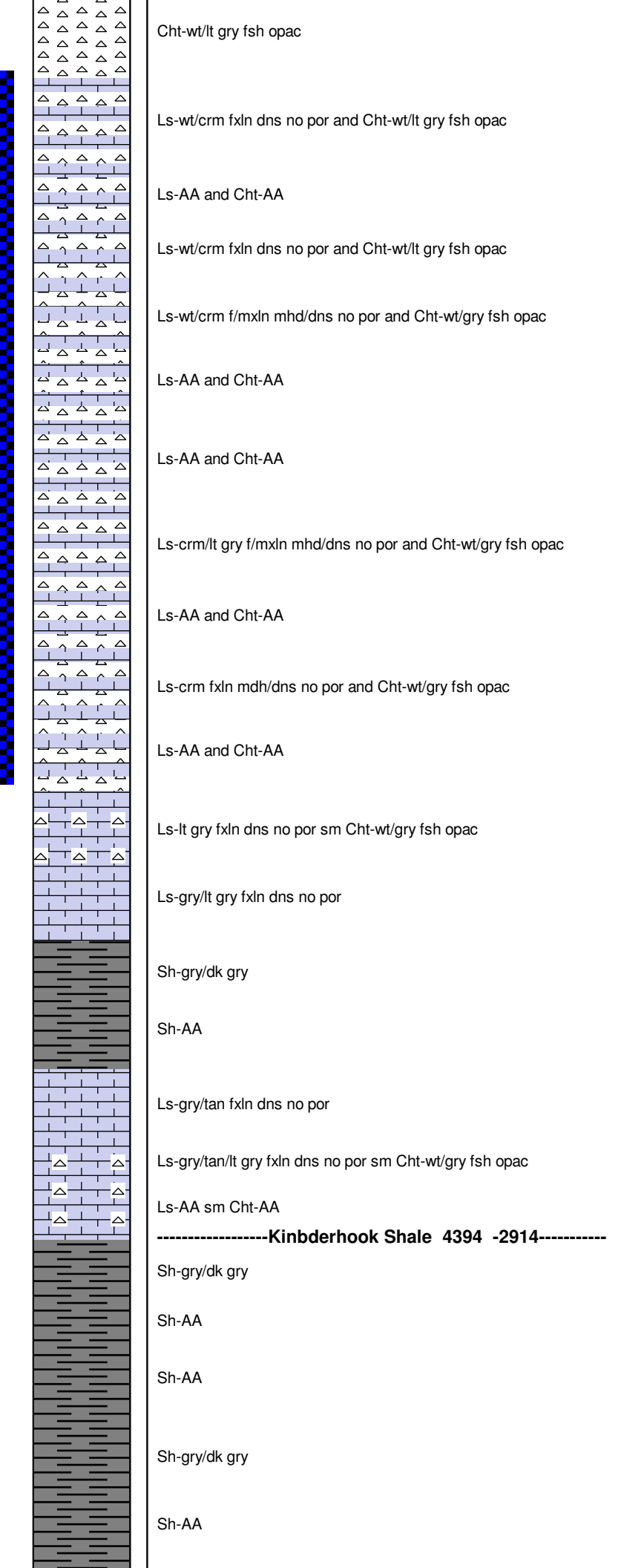
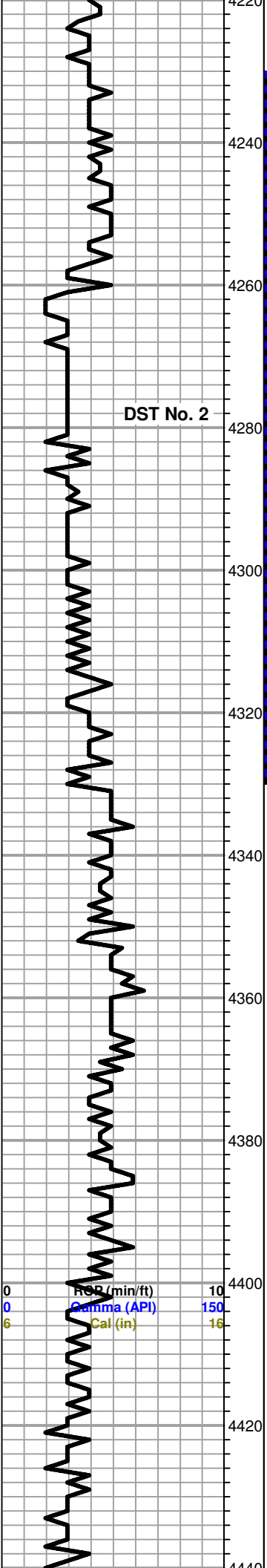
DST No. 2 4135 to 4155
 5-30-60-120
 1st Open: BOB in 2"
 2nd Opeb: BOB Immed
 Rec: 181' Oil Specked GCM
 (3% gas, 97% mud)
 IHP 1951 FHP 1949
 IFP 24-32 FFP 36-63
 ISIP 795 FSIP 1056
 Temp 120 deg

CFS at 4155' - 60"

Pulled 15 stand Short Trip at 4155' then Cir for Test - 60"

Mud Data at 4155'
 11 am 1-26-12
 Wt 9.2
 Vis 49
 WL 8.8
 pH 11.5
 Chl 5000
 Sol 6.1%
 YP 17
 LCM 2#

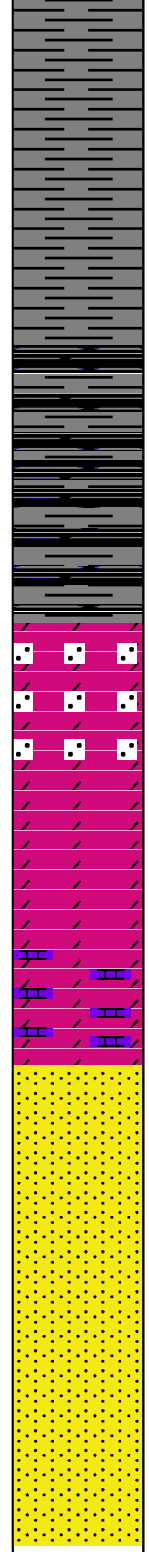
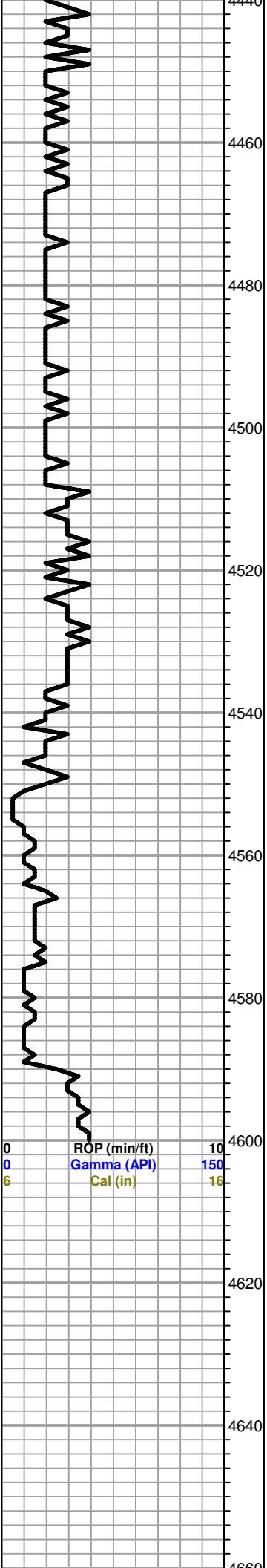
DST No. 1



DST NO. 2 4230 to 4330
 5-30-30-60
 1st Open: Weak blow
 2nd Open: Weak surface,
 blow died in 5 min
 Rec: 5' Mud
 IHP 2050 FHP 2050
 IFP 14-17 FFP 20-25
 ISIP 818 FSIP 263
 Temp 114 deg

CFS at 4330' - 60"

Mud Data at 4330'
 12:45 pm 1-27-12
 Wt 9.2
 Vis 47
 WL 8.8
 pH 10.5
 Chl 6400
 Sol 6.7%
 YP 14
 LCM 2#



Sh-AA

Sh-gry/dk gry

Sh-AA

-----Woodford Shale 4476 -2996-----

Sh-gry/dk gry/blk

Sh-AA

Sh-AA

-----Viola 4505 -3025-----

Dolo-lt gry/brn suc dns sl sdy no por nsfo or gas

Dolo-AA

Dolo-lt gry/brn fsuc dns no por

Dolo-AA

Dolo-lt gry fxln to fsuc dns sl lmy no por

Dolo-AA

-----Simpson Sand 4551 -3071-----

Ss-wt/gry cgrn ang to sub ang tite cement nsfo or gas

Ss-wt/gry mgrn sub ang tite cement sl gils nsfo or gas

Ss-wt/lt gry f/mgrn sub ang tite cement sl gils nsfo or gas

Ss-AA

Ss-wt/fgrn sub ang tite cement

-----RTD 4600 -3120-----

Finished Drilling at 8:27 am
on 1-28-12 CFS - 60"

Pulled 10 stand short trip at
4600' then Cir for Log - 90"

Finished Logging at 7 pm
on 1-28-12

