

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Company Inc.**

LEASE **Burk Trust A #2-23**

FIELD **East Fork**

LOCATION **1800'fml & 1320'fml**

SEC **23** TWP **1s** RGE **36w**

COUNTY **Rawlins** STATE **Kansas**

CONTRACTOR **Murfin Drilling Co. Inc. Rig #2**

SPUD **12/16/13** COMP **12/19/13**

RTD **4:56:07** LTD **4:56:17**

MUD UP **3:34:27** TYPE MUD **Chemical**

SAMPLES SAVED FROM **3:55:07** TO **7TD**

DRILLING TIME KEPT FROM **3:56:07** TO **7TD**

SAMPLES EXAMINED FROM **3:56:07** TO **7TD**

GEOLOGICAL SUPERVISION FROM **3881'**

GEOLOGIST ON WELL **Robert D. Hendrix**

Promote, Induction, Micro, Sonic
Pioneer Energy Services

ELEVATIONS
KB **3268'**

DF _____

GL **3257'**

Measurements Are All From **Kelly Bushing**

CASING

CONDUCTOR SURFACE **8:51:08** at **280'**

PRODUCTION **5.12"**

ELECTRICAL SURVEYS

FORMATION TOPS

ELECTRIC LOG

SAMPLE

Anhydrite

Neva

Foraker

Topeka

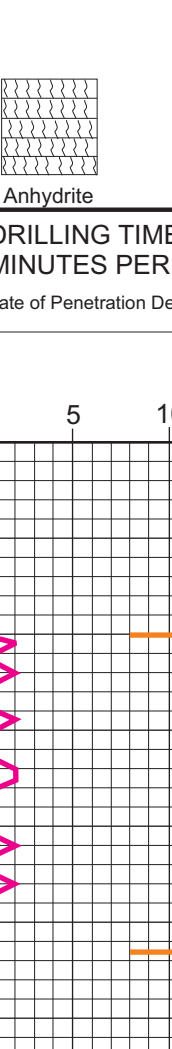
Oread

Lansing

Stark Shale

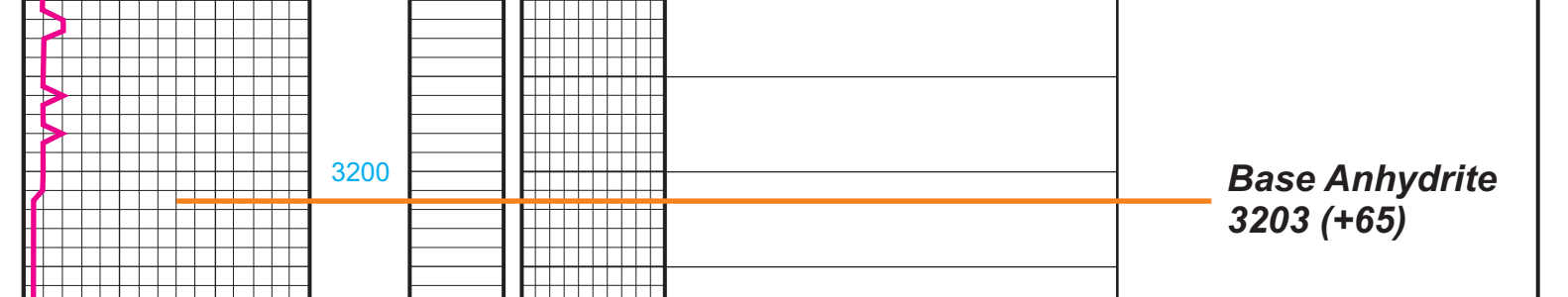
BKC

AP# 15-153-20971



REMARKS:
This test was drilled with a PDC bit from surface to TD. I was only able to confidently make a call on Lansing and Stark tops due to lack of drilling character. The shows in this well should be further tested.

LEGEND



DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
3150			Anhydrite 3170 (+98)
3200			Base Anhydrite 3203 (+65)
3250			
3600		Shale: red, silty, v-sandy Trace amt LS: white, fxn, sandy, sl fossiliferous, no vis por	
3650		Shale: red, brown, some gray, silty, sl sandy	
3700		Shale: red, brown, gray, silty	
3750		Limestone: white to tan, f-mxn, chalky, sl oolitic, fossiliferous, no vis por, ns	Neva 3653 (-385)
3800		Shale: red, brown, gray, silty	
3850		Sandstone: white to gray, vf gr, rd, well srt'd, calcareous crmt, friable, no vis por, ns	wt 8.7, vis. 65, lcm 8# Morgan Mud, Dave Lines
3900		Shale: red, brown, gray, silty	
3950		Limestone: white to tan, f-mxn, chalky, sl cherty (orange/red), fossiliferous, no vis por	Red Eagle 3714 (-446)
4000		Limestone: lt gray, fxn, fossiliferous, no vis por	
4050		Shale: red, brown, gray, silty	
4100		Limestone: gray to brown, fxn, chalky, fossiliferous, no vis por	Foraker 3762 (-494)
4150		Limestone: tan to gray, f-mxn, chalky, silty, sl fossiliferous, no vis por	
4200		Shale: gray, brown, silty	
4250		Dolomite: brown to tan, fxn, sl chalky, granular, no vis por	
4300		Shale: red, gray, silty, sandy	
4350		Limestone: tan to white, fxn, sl chalky, sl cherty, fossiliferous, no vis por	
4400		Shale: gray, brown, red, silty, blocky in part	
4450		Limestone: white to tan, f-mxn, sl chalky, . no vis por, ns	
4500		Shale: red, gray, silty	
4550		Limestone: tan to white to gray, f-mxn, sl chalky, no vis por	Geologist on location 3882' at 3:20 pm 12/18/2013
4600		Shale: red, gray, green, silty	
4650		Limestone: gray to white, fxn, sl chalky, argillaceous, sl fossiliferous, no vis por, ns	
4700		Shale: red, gray, silty	
4750		Limestone: tan to white, f-mxn, chalky, v-fossiliferous, no vis por	
4800		Shale: gray, red	
4850		Limestone: white, f-mxn, sl chalky, fossiliferous, no vis por, ns	
4900		Shale: red, gray, silty	
4950		Limestone: tan to white, f-mxn, chalky, granular, fossiliferous, no vis por	Topeka 3983 (-715)
5000		Limestone: white, f-mxn, sl chalky, fossiliferous, no vis por, ns	
5050		Shale: gray, black, brown, red	4:50pm, Wiper Trip to clean hole
5100		Shale: gray, red, silty	
5150		Limestone: white to tan, f-mxn, chalky, sl fossiliferous, no vis por, ns	
5200		Shale: red, gray, purple, brown, silty	
5250		Limestone: white to lt gray, f-mxn, sl oolitic, fossiliferous, no vis por, few pieces pr black flaky stain, nfo, no odor	Oread 4088 (-820)
5300		Limestone: white to gray, fxn, sl chalky, fossiliferous, no vis por	
5350		Limestone: lt gray, fxn, dense, silty in part, no vis por	
5400		Siltstone: lt gray, hard, hard, blocky, silty	
5450		Shale: gray, red, silty	
5500		Limestone: gray to white, fxn, silty, chalky, soft, no vis por	
5550		Shale: gray, red, silty	
5600		Shale: red, gray to dark gray, green, silty, waxy in part	
5650		Limestone: tan to white, fxn, chalky, mostly dense, fossiliferous, no vis por, ns	Lansing 4189 (-921)
5700		Limestone: white to tan, fxn, chalky, sl fossiliferous, no vis por	
5750		Shale: gray, red, silty	
5800		Sandstone: gray, v-f gr, rd, well srt'd, poorly cemented calcareous, argillaceous, no vis por, dark spotty stain, sifsfo on break, no odor	
5850		Shale: red, brown, gray, silty, sandy	
5900		Limestone: tan to white, fxn, sl chalky, sl fossiliferous, fr interxn por, 5% sample dark spotty to sat stain, sifsfo, faint odor	
5950		Limestone: white, fxn, chalky, sl fossiliferous, no vis por	
6000		Shale: red, gray, silty, sl sandy	
6050		Limestone: tan to white, fxn, sl chalky, pr vug por, 1% sample dark sat stain, prsfo, fair odor	
6100		Shale: gray, red, green, silty	
6150		Limestone: white to tan, fxn, sl chalky, sl fossiliferous, pr vug por, 2% sample lt to dark sat stain, sifsfo, faint odor	
6200		Limestone: tan to white, fxn, sl chalky, no vis por, 7 pieces dark spotty tarry stain, sifsfo, faint odor	
6250		Shale: gray, red, green, silty	
6300		Limestone: tan to white, fxn, sl chalky, pyritic, pr vug por, 2% sample dark spotty stain, sifsfo, faint odor	
6350		Shale: gray, red, pyritic	
6400		Limestone: tan to gray, fxn, sl chalky, sl fossiliferous, pr interxn to vug por, 4 pieces lt spotty stain, sifsfo on break, no odor	
6450		Shale: gray, green, red	
6500		Limestone: white to tan, fxn, fossiliferous, no vis por, 2 pieces lt surface stain, nfo, no odor	
6550		Shale: red, gray, silty	
6600		Limestone: white to lt gray, fxn, sl chalky, sl fossiliferous, no vis por	Stark Shale 4409 (-1141)
6650		Shale: gray, black	
6700		Shale: red, gray, brown silty	
6750		Limestone: white to lt gray, fxn, sl chalky, fossiliferous, no vis por	
6800		Shale: red, sl gray, silty	
6850		Limestone: white to lt gray, fxn, granular in part, fossiliferous, no vis por	BKC 4458 (-1190)
6900		Shale: red, sl gray, silty	
6950		Limestone: tan to gray, fxn, fossiliferous, no vis por	
7000		Shale: red, gray, green, silty	
7050		Limestone: white, f-mxn, sl chalky, fossiliferous, pr interxn por, ns	
7100		Shale: gray, red, silty	
7150		Limestone: tan to lt gray, fxn, granular in part, fossiliferous, soft, no vis por, ns	
7200		Shale: gray, red, silty	
7250		Sandstone: clear white, tt, fr-md gm, sub md, mod sorted, pr intergranular por, ns	
7300		Shale: gray, red brown, yellow, sandy, silty	
7350		Limestone: tan to gray, fxn, sl chalky, fossiliferous, dense, no vis por, ns	
7400		Shale: red, gray, silty	RTD 4560 (-1292)
7450			8:00am, 12/19/2013 Geologist off location at 6:30pm, 12/19/2013