

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co Inc.**

LEASE **Gassmann #1-25**

FIELD **Wildcat**

LOCATION **1730' fs1 & 870' fw1**

SEC **25** TWP **5S** RGE **26W**

COUNTY **Decatur** STATE **Kansas**

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

SPUD **06/01/2013** COMP **06/07/013**

RTD **3840'** LTD **3840'**

MUD UP **2995'** TYPE MUD **Chemical**

SAMPLES SAVED FROM **3180'** TO **TD**

DRILLING TIME KEPT FROM **3180'** TO **TD**

SAMPLES EXAMINED FROM **3180'** TO **TD**

GEOLOGICAL SUPERVISION FROM **3200'**

GEOLOGIST ON WELL **Robert D. Hendrix**

FORMATION TOPS

ELECTRIC LOG

SAMPLE

Anhydrite **2068 (+401)**

Toppeka **3303 (-883)**

Heebner **3502 (-1033)**

Toronto **3526 (-1057)**

Lansing **3543 (-1073)**

Stark Shale **3694 (-1226)**

BKC **3736 (-1267)**

ELEVATIONS

KB **2469'**

DF

GL **2458'**

Measurements Are All From **Kelly Bushing**

CASING

CONDUCTOR

SURFACE **8.518" at 235'**

PRODUCTION **5 1/2" @ 3830'**

ELECTRICAL SURVEYS

Boonville/Inducton/MicroSeismic

Pioneer Energy Services

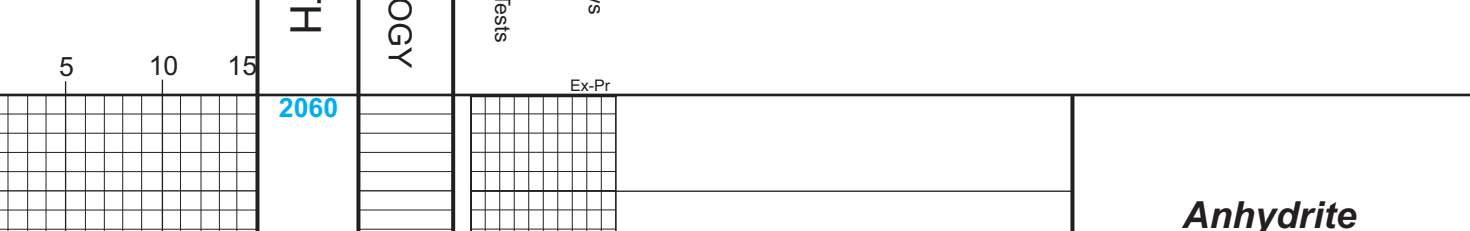
AP# 15-039-21180



REMARKS:

It was determined that casing be run to further test this well in the Lansing K zone.

LEGEND



DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
2060	Anhydrite		Anhydrite 2071 (+397)
2100	Anhydrite		Base Anhydrite 2105 (+363)
3200	Limestone	Limestone: tan to brown, f.xln, silty, fossiliferous, no vis por	Geologist on location at 5:03 pm 6/03/2013 @ 3200'
	Shale	Shale: black, gray, brown, red, silty	
	Limestone	Limestone: tan to gray, f.xln, sl chalky, fossiliferous, no vis por, ns	
	Shale	Shale: black, gray, brown, red, silty	
	Limestone	Limestone: white to yellow, f.xln, chalky, granular (silty), no vis por	
	Shale	Shale: gray, black, red	
	Limestone	Limestone: tan to lt gray, f-m.xln, sl chalky, fossiliferous, no vis por, ns	
	Shale	Shale: gray, red, silty	
	Limestone	Limestone: tan, f-m.xln, sl chalky, granular, fossiliferous, no vis por	
	Shale	Shale: red, gray, silty	
3300	Limestone	Limestone: tan to gray, f.xln, granular, silty, fossiliferous, no vis por	Topeka 3302 (-833)
	Shale	Shale: red, gray, silty	
	Limestone	Limestone: tan, f.xln, chalky, granular, silty, fossiliferous, no vis por	
	Limestone	Limestone: tan to brown, f.xln, sl chalky, granular, fossiliferous, no vis por	
	Shale	Shale: red, gray, silty	
	Limestone	Limestone: tan to gray, f.xln, sl chalky, fossiliferous, no vis por	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: tan, f.xln, chalky, granular, fossiliferous, no vis por	
	Limestone	Limestone: tan, f-m.xln, chalky, granular, fossiliferous, pr interxln por, ns	
	Limestone	Limestone: tan to white to gray, f-m.xln, chalky, granular, fossiliferous, pr interxln por	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: tan to white, mxln, chalky, granular, fossiliferous, no vis por	
	Shale	Shale: gray, green, red	
	Limestone	Limestone: tan to white, mxln, chalky, granular, v-fossiliferous, no vis por	
	Limestone	Limestone: tan to white, mxln, chalky, granular, v-fossiliferous, no vis por	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: tan, f.xln, sl chalky, fossiliferous, no vis por	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: tan to white, f-m.xln, v-chalky, fossiliferous, no vis por	
	Shale	Shale: gray, green, red	
	Limestone	Limestone: tan to lt gray, f.xln, v-chalky, fossiliferous, no vis por	
	Limestone	Limestone: tan to lt gray, f.xln, v-chalky, mostly dense, sl fossiliferous, sl pp por, ns	
3500	Shale	Shale: black carbonaceous	Heebner 3503 (-1034)
	Limestone	Limestone: tan, f.xln, dense, fossiliferous, no vis por	
	Shale	Shale: red, gray, black	
	Limestone	Limestone: tan to lt gray, f.xln, sl chalky, oolitic, fossiliferous, no vis por, ns	
	Shale	Shale: gray, green, red, soft silty	
	Limestone	Limestone: tan, f-xln, oolitic in part, sl fossiliferous, 50% sample gd oolitic to vug por, lt sat stain, exsfo, gd odor	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: white, f.xln, chalky, sl fossiliferous, 4 pieces sl vug por, lt sat stain, slsfo, no odor	
	Shale	Shale: red, gray, green	
	Limestone	Limestone: tan to white, f-m.xln, oolitic, fossiliferous, fr oolitic & fossiliferous por, 20% of the sample, gd dark sat stain, frsfo, fair odor	
	Limestone	Limestone: tan to white, f-m.xln, fossiliferous, fr fossiliferous to vug por, 25% of the sample, gd dark sat stain, frsfo, fair odor	
	Shale	Shale: red, gray	
	Limestone	Limestone: tan to lt gray, f.xln, chalky, mostly dense, sl fossiliferous, 6 pieces, sl interxln por, slsfo, no odor	
	Shale	Shale: red, brown, gray, black	
	Limestone	Limestone: white, mxln, chalky, oolitic, fossiliferous, 5% sample, sl interxln por, lt spotty stain, slsfo on break, no odor, some porosity is barren	
	Limestone	Limestone: white, f.xln, cherty, dense, sl pyritic, no vis por	
	Shale	Shale: black, red, gray	
	Limestone	Limestone: brown to gray, f-m.xln, dense, fossiliferous, no vis por	
	Shale	Shale: black, red, gray	
	Limestone	Limestone: white to lt gray, f-m.xln, sl chalky, fossiliferous, mostly dense, 1% sample, sl interxln por, lt sat stain, nfo, no odor	
	Limestone	Limestone: white to lt gray, f.xln, dense, sl fossiliferous, no vis por, ns	
	Shale	Shale: red, gray, silty	
	Limestone	Limestone: white, f.xln, chalky, dense, no vis por, 8 pieces, black stain, nfo, no odor	
	Shale	Shale: red, gray, silty, soft	
	Limestone	Limestone: white to tan, f.xln, sl chalky, mostly dense, sl pp to interxln por, 3 percent dark spotty stain, slsfo, no odor	
	Limestone	Limestone: white, f.xln, chalky, soft, sl fossiliferous, no vis por	
	Shale	Shale: red, gray, black	
	Limestone	Limestone: white to tan (greenish tinted), f.xln, chalky, dense, oolitic in part, no vis por, ns	
	Shale	Shale: red, gray, brown	
	Shale	Shale: red, gray, brown	
	Limestone	Limestone: white to tan, f.xln, sl chalky, dense, no vis por	
	Shale	Shale: red, gray, silty, muddy	
	Shale	Shale: red, brown, silty, muddy	
	Limestone	Limestone: tan to brown, f.xln, sl chalky, dense, no vis por	
	Shale	Shale: red, brown, silty, sandy, muddy	
	Limestone	Limestone: lt gray, f.xln, chalky, sandy, no vis por	
	Shale	Shale: red, brown, silty, sandy, muddy	
	Shale	Shale: red, brown, silty, sandy, muddy	
3700			Stark 3695 (-1226)
			BKC 3736 (-1267)
			RTD 3840 (-1371)

DST #1
3500-3553
30-60-60-90
1st open: fair blow bob 10 min
2nd open: fair blow bob 15 min
no returns
Rec:
120' wcm 20/80
120' mcw 30/70
240' mcw 10/90
hydro: 1771-1684 psi
lf: 53-164 psi
ff: 83-271 psi
sip: 1044-977 psi
bht: 105°F
chl: 90,000 ppm

DST #2
3592-3616
30-60-30-60
1st open: wk surf died 2 min
2nd open: flushed, no blow
no returns
Rec:
25' mud
hydro: 1804-1725 psi
lf: 15-22 psi
ff: 20-25 psi
sip: 1108-990 psi
bht: 100°F
8:00am, 6/5/2013

DST #3
3593-3632
30-60-60-90
1st open: wk blow built to 2"
2nd open: wk blow built to 5"
no returns
Rec:
200' mud
hydro: 1832-1760 psi
lf: 17-62 psi
ff: 54-121 psi
sip: 1083-1059 psi
bht: 103°F
wt 9.1, vis. 66, lcm 4#
Morgan Mud, Cade Lines

8:00am, 6/6/2013
Stark 3695 (-1226)
wt 9.2, vis. 67, lcm 4#
Morgan Mud, Cade Lines

8:00am, 6/7/2013
BKC 3736 (-1267)
DST #4
3640-3715
30-60-30-60
1st open: wk blow built to 3"
2nd open: wk surface blow died in 12 min
no returns
Rec:
60' ocm 20/80
60' ocm 10/90
hydro: 1874-1817 psi
lf: 21-51 psi
ff: 114-1181 psi
sip: 1188-1231 psi
bht: 102°F
note tool failed to stay open on 2nd open which changed to a shut in.

wt 9.2, vis. 66, lcm 4#
Morgan Mud, Cade Lines

RTD 3840 (-1371)
DST #5
3693-3735
30-60-60-90
1st open: wk intermittent surface blow
2nd open: wk surface blow built to 1 1/4" (plugging)
no returns
Rec:
120' w&gcmo 10/20/20/50
180' gip
hydro: 1936-1820 psi
lf: 18-31 psi
ff: 121-175 psi (plugging)
sip: 1148-1163 psi
bht: 100°F

Geologist off location at 10:00pm, 6/7/2013