

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: **Murfin Drilling Co. Inc.**

LEASE: **Kacirek Trust #2-5**

FIELD: **Brumum Northeast**

LOCATION: **2310'fsl & 600'fwi**

SEC: **5** TWP: **2S** RGE: **36W**

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

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

SPUD: **9/19/2014** COMP: **9/29/2014**

RTD: **4/7/70'** LTD: **4/7/70'**

MUD UP: **3/25/1'** TYPE MUD: **Chemical**

SAMPLES SAVED FROM: **3520' TO 11D**

DRILLING TIME KEPT FROM: **3520' TO 11D**

SAMPLES EXAMINED FROM: **3520' TO 11D**

GEOLOGICAL SUPERVISION FROM: **3520'**

GEOLOGIST ON WELL: **Robert D. Hendrix**

GEOLOGIST: **Robert D. Hendrix**

FORMER TOPS: **Robert D. Hendrix**

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ELEVATIONS: **KB 3241'**

DF: _____

GL: **3230'**

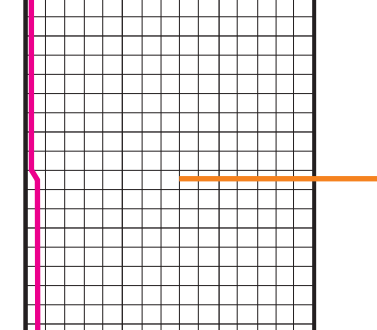
Measurements Are All From **Kelly Busting**

CASING CONDUCTOR: _____

CONDUCTOR SURFACE: **8.5/8" @ 365'**

PRODUCTION: **5-1/2"**

FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	3125 (+104)	3125 (+116)
Neva	3619 (+378)	3615 (+374)
Topoka	3935 (+712)	3948 (+727)
Ored	4081 (+840)	4077 (+836)
Lansing	4167 (+926)	4163 (+922)
Stark Shale	4385 (+1143)	4383 (+1142)
BKC	4431 (+1189)	4433 (+1192)
Pawnee	4564 (+1322)	4561 (+1320)
Cherokee Shale	4636 (+1394)	4636 (+1395)



REMARKS:

DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
3100			Anhydrite 3125 (+116)
50			Base Anhydrite 3160 (+81)
3200			bit trip at 3503' strap 2.42' short to board
3550		Sandstone: white, fn gr, well sorted, md, friable, calcareously, no vis por Shale: red, v-sandy	Geologist on location 3523' at 11:50 am 9/21/2014
3600		Sandstone: white, vfn gr, well sorted, subrd, semi-friable, calcareously, no vis por Shale: red, gray, green, brown, silty, chalky Shale: red, gray, silty, v-sandy	
3650		Shale: red, gray, green, brown, silty, sandy	
3680		Shale: red, gray, silty, v-sandy	Neva 3615 (-374)
50		Limestone: white, mxln, chalky, oolitic, fossiliferous, no vis por, 5% sample black flaky dead oil stain, nfo, no odor Shale: red, gray, green, waxy, silty	
3700		Shale: red, brown, gray, silty	
3720		Shale: red, brown, gray, silty	
3729		Limestone: tan to gray, f-mxn, silty, chalky, silty, fossiliferous, no vis por	Foraker 3729 (-488)
50		Limestone: tan, fxln, granular, silty, fossiliferous, no vis por, ns Shale: gray, green, silty	
3750		Limestone: tan, fxln, silty, fossiliferous, no vis por Shale: gray, red, black	
3770		Limestone: tan, fxln, silty, chalky, granular, fossiliferous, no vis por Shale: gray, dark gray, biotitic, silty	
3800		Shale: gray, red, black	
3820		Limestone: tan to white, fxln, chalky, oolitic, granular, no vis por Shale: red, gray, green, silty	
3840		Shale: red, gray, silty	
3860		Limestone: tan to white, fxln, granular, fossiliferous, no vis por Shale: red, gray, silty	
3883		Limestone: white, m-ixn, v-fossiliferous, fr interxn por, ns	Stotler 3883 (-642)
3900		Limestone: white to tan, m-ixn, oolitic, v-fossiliferous, no vis por, ns Shale: gray, red, silty	8:00am, 9/22/2014
3920		Limestone: tan, f-mxn, silty, fossiliferous, no vis por, gd black flaky stain, nfo, no odor Shale: gray, red, silty	
3940		Limestone: tan to white, f-mxn, v-fossiliferous, 5% sample fr pp por, gd dark sat stain, frsfo, no odor Shale: gray, red, silty	
3960		Limestone: white, f-mxn, silty, chalky, fossiliferous, no vis por, gd black flaky stain, nfo, no odor Shale: gray, red, silty	
3979		Limestone: white, m-ixn, silty, chalky, oolitic, v-fossiliferous, no vis por, ns Shale: gray, red, silty	Topeka 3979 (-712)
4000		Limestone: white, f-mxn, chalky, granular, fossiliferous, no vis por, 3 pieces spotty black stain, nfo, no odor Shale: gray, red, black, silty	
4020		Limestone: white, fxln, silty, chalky, oolitic in part, v-fossiliferous, no vis por, ns Shale: red, gray, silty	
4040		Shale: gray, red, purple, brown	
4060		Shale: gray, green	
4077		Limestone: white to tan, f-mxn, chalky, fossiliferous, 3% sample, fr interxn por, gd dark spotty to sat stain, silsfo, faint odor, some visible barren por	Ored 4077 (-836)
4100		Shale: red, gray, brown black	wt 9.1, vis. 90, lcm 8# Morgan Mud, Dave Korte
4120		Limestone: white, f-mxn, chalky, oolitic, fossiliferous, pr interxn por, pr, ns	
4140		Limestone: tan to brown, fxln, dense, no vis por, ns	
4160		Shale: black, gray, brown, silty	
4180		Sandstone: gray/green, fgm, well sorted, subrd, friable, gd intergranular, fl sat stain, frsfo on break, faint odor	
4200		Shale: red, gray, brown black	
4220		Limestone: tan to white, f-mxn, oolitic, fossiliferous, no vis por, ns Shale: gray, red, brown, black	
4240		Limestone: white, f-mxn, silty, chalky, oolitic in part, fossiliferous, pyritic, 25% sample gd interxn por, black sat stain, frsfo, fair odor	
4260		Shale: gray, red, black	
4280		Limestone: tan, fxln, granular, fossiliferous, silty, cherty, no vis por	
4300		Shale: gray, red, silty	
4320		Limestone: white to tan, fxln, silty, chalky, oolitic, fossiliferous, no vis por, ns	
4340		Limestone: tan to brown, fxln, silty, chalky, fossiliferous, pr interxn por, 1% sample dark sat stain, silsfo, faint odor	
4360		Limestone: brown, fxln, dense sil interxn por, 3% sample dark sat stain, profo mostly on break, faint odor	
4380		Shale: gray lt to dark, red, blocky	
4400		Limestone: white, fxln, silty, chalky, fossiliferous, pr pp por, 1% sample lt sat stain, silsfo, no odor	
4420		Shale: gray, red, brown	
4440		Limestone: white to tan, fxln, fossiliferous, nfo, no odor	
4460		Shale: gray, red	
4480		Limestone: white, f-mxn, silty, oolitic, fossiliferous, 5% sample pr interxn por, fl sat stain, frsfo, faint odor	
4500		Shale: gray light to dark, red	
4520		Limestone: white, f-mxn, chalky, oolitic in part, fossiliferous, dense, no vis por, 2 pieces v-lt stain, nfo, no odor	
4540		Shale: gray, green, red, silty	
4561		Shale: gray, red	BKC 4433 (-1192)
4580		Limestone: white to tan, fxln, dense, fossiliferous, no vis por	
4600		Sandstone: brown to red, fn-md gm, sub rd, well sorted, calcareous, no vis por, ns	
4620		Limestone: white to tan, fxln, silty, chalky, dense, no vis por	
4640		Shale: red, silty	
4660		Shale: gray, green, red, silty	
4680		Limestone: white, fxln, chalky, dense, no vis por	
4700		Shale: gray, brown, green, red, silty	
4720		Shale: red, brown, gray, silty	
4740		Sandstone: lt gray, fn gm, sub rd, well sorted, calcareous, no vis por, ns	
4760		Limestone: white to tan, fxln, silty, chalky, fossiliferous, no vis por	
4780		Limestone: lt gray to tan, fxln, silty, sandy, no vis por	
4800		Siltstone: lt gray, fxln, dense, no vis por	8:00am, 9/28/2014
4820		Shale: red, gray, black, silty	
4840		Limestone: gray to white, fxln, oolitic, silty, cherty, fossiliferous, no vis por	
4860		Limestone: white, fxln, dense, fossiliferous, no vis por	
4880		Shale: red, gray, black	
4900		Limestone: white to tan, fxln, oolitic, silty, pyritic, fossiliferous, no vis por	
4920		Limestone: tan to brown, fxln, dense, no vis por	
4940		Shale: black carbonaceous, gray	
4960		Limestone: white to tan, fxln, silty, chalky, oolitic in part, fossiliferous, no vis por	
4980		Shale: gray, red	
5000		Limestone: white to tan, fxln, silty, chalky, dense, hard, fossiliferous, no vis por	
5020		Sandstone: white, lt, micaceous, mdgm, sub rd, moderately sorted, calcareous, hard, no vis por, ns	
5040		Limestone: tan to brown, fxln, dense, hard, silty, fossiliferous, no vis por	
5060		Shale: gray, red	
5080		Shale: gray, red	
5100		Limestone: white to tan, fxln, silty, chalky, dense, silty, fossiliferous, no vis por	
5120		Shale: gray, brown, red	
5140		Sandstone: tan, silty, biotitic, fn-mdgm, sub rd, mod sorted, calcareous, semi-friable, no vis por, ns	
5160		Sandstone: tan to white, silty, biotitic, mdgm, sub rd, mod sorted, v-calcareous, semi-friable, no vis por, ns	
5180		Shale: red, v-sandy	
5200		Sandstone: white, lt, silty, biotitic, mdgm, sub rd, mod sorted, calcareous, hard, no vis por, ns	
5220		Shale: gray, red, yellow	
5240		Sandstone: white, lt, mdgm, sub rd, mod sorted, calcareous, hard, no vis por, ns	
5260		Shale: red, gray, sandy	
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