

# Robert D. Hendrix

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co. Inc.**

LEASE **Walter #6-1**

FIELD **N/A**

LOCATION **13207ml & 2270'el**

SIC **1** TWP **S** RGE **36W**

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

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

SPUD **11/21/2013** COMP **12/13/2013**

RTD **4480'** LTD **4436'**

MUD UP **3250'** TYPE MUD **Chemical**

SAMPLES SAVED FROM **3480'** TO **11D**

DRILLING TIME KEPT FROM **3480'** TO **11D**

SAMPLES EXAMINED FROM **3480'** TO **11D**

GEOLOGICAL SUPERVISION FROM **3700'**

GEOLOGIST ON WELL **Robert D. Hendrix**

FORMATION TOPS

ANHYDRITE

NEVA

FORAKER

TOPEKA

OREAD

LANSING

STARK

BKC

ELEVATIONS

KB **3163'**

DF \_\_\_\_\_

GL **3152'**

Measurements Are All From **Kelly Bushing**

CASING

CONDUCTOR

SURFACE **8-5/8" at 255'**

PRODUCTION **5-1/2" @ 4430'**

ELECTRICAL SURVEYS

Power/Energy Services

Positron/Inductance/Resonance

FORMATION TOPS

ANHYDRITE

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REMARKS: The well was drilled with a PDC bit to TD. I caught samples at every 20' interval which made descriptions an their correlation to drill time somewhat less precise than normally would be achieved. Due to lack of character on drill time I was unable to make calls on the Topeka through Stark. All shows were noted and should be further tested.

### LEGEND

	Anhydrite		Sandstone		Limestone		Shale		Carb Sh		Cherty LS		Chert		Dolomite
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DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
3050			<b>Anhydrite 3093 (+70)</b>
3100			<b>Base Anhydrite 3124 (+39)</b>
3150		Shale: red, silty, sandy.	
3200		Shale: red, gray in part, silty, sandy.	
3250		Shale: red, silty, sandy.	
3300		Shale: red, silty, sandy.	
3350		Shale: red, silty, sandy.	
3400		Sandstone: gray, v-fgm, md, well sorted, argillaceous, no vis por, ns	
3450		Limestone: white, f-mxn, granular, sl oolitic, black flaky stain, no vis por, nfo, no odor	<b>Neva 3570 (-407)</b>
3500		Shale: red, silty, sandy.	
3550		Shale: red, silty, sandy.	
3600		Shale: red, gray, silty, sandy.	
3650		Limestone: white to tan, f-mxn, chalky, sl fossiliferous, pr interxn por, 5% sample dk sat stain, frsfo	<b>Red Eagle 3632 (-469)</b>
3700		Limestone: tan to gray, fxdn, dense, fossiliferous, no vis por, ns	
3750		Shale: red, silty, sandy.	
3800		Limestone: white to lt gray, f-mxn, fossiliferous, sl oolitic, pr interxn por, fr spotty black stain, slsfo, faint odor	<b>Foraker 3676 (-513)</b>
3850		Shale: red, gray, silty, blocky	wt 8.9, vis, 61, lcm 4# Morgan Mud, Dave Lines
3900		Limestone: white, f-mxn, fossiliferous, pr interxn por, fr spotty to sat stain, frsfo, faint odor	Geologist on location 3704' at 3:42pm 12/12/2013
3950		Limestone: white to gray, f-mxn, chalky, granular, sl fossiliferous, no vis por, ns	
4000		Shale: gray.	
4050		Limestone: white to gray, fxdn, chalky, fossiliferous, no vis por	
4100		Shale: gray, brown, red, silty	
4150		Limestone: tan to white, fxdn, v-chalky, fossiliferous, no vis por, sl spotty stain, nfo, no odor	
4200		Shale: gray, green, sandy, silty	
4250		Limestone: tan to white, fxdn, sl chalky, pyritic, fossiliferous, no vis por, ns	
4300		Shale: gray, green, red, silty	
4350		Limestone: tan to white, fxdn, sl chalky, fossiliferous, no vis por, ns	
4400		Shale: gray, green, red, silty	
4450		Limestone: white to tan, f-mxn, chalky, sl oolitic, no vis por, 2% black flaky spotty stain, vslsfo, no odor	<b>Topeka 3886 (-723)</b>
4500		Limestone: tan to white, f-mxn, fossiliferous, no vis por, ns	
4550		Shale: red, gray, silty	
4600		Shale: red, maroon, gray, silty	
4650		Limestone: tan to gray, fxdn, sl chalky, no vis por	
4700		Shale: gray, red, laminated	
4750		Limestone: white to gray, fxdn, chalky, sl oolitic, sl fossiliferous, 2% sample pr oolitic por, dark spotty stain, slsfo on break, no odor	<b>Oread 4000 (-837)</b>
4800		Limestone: white to gray, fxdn, chalky, sl oolitic, sl fossiliferous, no vis por, ns	
4850		Shale: gray, hard, blocky	
4900		Limestone: tan, fxdn, dense, hard, no vis por	
4950		Shale: gray, hard, blocky	
5000		Shale: gray, hard, blocky	
5050		Limestone: tan to white, fxdn, sl chalky, fossiliferous, 20% sample, fr pp to vug por, gd dark sat stain, prsfo, gd odor	<b>Lansing 4105 (-942)</b>
5100		Shale: gray, brown, blocky, laminated	
5150		Limestone: tan, fxdn, sl chalky, fossiliferous, 10% sample, fr vug por, gd dark sat stain, frsfo, gd odor	
5200		Shale: gray, black, red, silty	
5250		Limestone: tan to white, f-mxn, sl chalky, fossiliferous, sl pyritic, 20% sample, gd vug por, gd lt to dark sat stain, gdsfo, gd odor	
5300		Shale: gray, red	
5350		Limestone: tan to white, fxdn, sl chalky, fossiliferous, 1% sample, sl vug por, dark sat stain, slsfo, faint odor	
5400		Limestone: tan to brown, fxdn, dense, fossiliferous, no vis por	
5450		Shale: gray, red	
5500		Limestone: tan to lt gray, fxdn, sl chalky, sl fossiliferous, 10% sample, sl vug por, dark spotty to sat stain, nfo, no odor	
5550		Shale: gray, red, silty	
5600		Limestone: tan to white, fxdn, 1% sample, no vis por, dark spotty stain, nfo, no odor	
5650		Shale: gray, red	
5700		Limestone: white to tan, f-mxn, sl chalky, sl oolitic, fossiliferous, 5% sample, pr oolitic por, dark spotty stain, nfo, no odor	
5750		Shale: gray, red	
5800		Limestone: white to tan, fxdn, sl chalky, fossiliferous, 10% sample, pr interxn to sl vug por, lt spotty to sat stain, slsfo, no odor	<b>Stark 4319 (-1156)</b>
5850		Shale: gray, dark gray, red, brown	
5900		Limestone: tan to white, f-mxn, fossiliferous, no vis por, 5% sample lt sat to spotty stain, nfo, no odor	
5950		Limestone: white to gray, f-mxn, sl chalky, fossiliferous, no vis por, few pieces lt spotty stain, nfo, no odor	<b>BKC 4367 (-1204)</b>
6000		Shale: gray, red	
6050		Shale: gray, red	
6100		Limestone: gray to white, f-mxn, fossiliferous, no vis por, ns	
6150		Shale: gray, green, red, waxy	
6200		Limestone: white to gray, f-mxn, sl chalky, sl fossiliferous, no vis por, several pieces of black flaky stain, nfo, no odor	
6250		Shale: red, gray, silty	
6300		Shale: gray, green, brown, red, silty, with abundant sandstone found through out very argillaceous	
6350		Limestone: white to gray, fxdn, dense, sl fossiliferous, no vis por, ns	
6400		Shale: red, gray, silty	
6450		<b>RTD 4480 (-1317)</b>	8:00am, 12/13/2013 Geologist off location at 3:30pm, 12/13/2013