Robert D. Hendrix
Petroleum Geologist

GEOLOGIST'S REPORT
DRILLING TIME AND SAMPLE LOG

COMPANY	Murfin Drilling Co. Inc.
LEASE	Marty Ann #4-1
WELL	1
LOCATION	990' FSL & 330'FEL Pad
SEC.	4
TWP.	21 S
RGE.	18 E
COUNTY	Franklin County, Kansas
CONTRACTOR	Murfin Drilling Co. Inc. Rig #16
SPUD	10/29/12
COMPLETED	11/1/12
TOTAL DEPTH	4500'
ELEVATIONS	KB 1010
	DF
	GL 1000
	Ref. Elev. KB
	From Kolb Bowling

CASING
SURFACE SIZE 8 5/8" at 20'
PRODUCTION SIZE 4 1/2" at 4500'
STAGE TOOL
CEMENTED WITH
PERFORATIONS

ELECTRICAL SURVEYS
Run by Petrologs
Dual Induction
Dual Compensated Porosity
Borehole Compensated Sonic
Micro Resistivity

DRILLING TIME BEGIN FROM 3400' TO TD
SAMPLES EXAMINED FROM 3400' TO TD
DRILLING TIME KEPT FROM 3400' TO TD
GEOLOGIST ON WELL FROM 3400' TO TD
GEOLOGIST ON WELL Robert D. Hendrix

FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	3093 (+68)	3090 (+68)
Base Anhydrite	3124 (+37)	3120 (+37)
Neva	3564 (-403)	3560 (-403)
Red Eagle	3629 (-465)	3625 (-465)
Foraker	3675 (-514)	3670 (-514)
Topeka	3892 (-731)	3890 (-731)
Oread	4006 (-845)	4004 (-845)
Lansing	4109 (-948)	4108 (-948)
Stark	4324 (-1163)	4323 (-1163)
BKC	4370 (-1209)	4370 (-1209)
BKC	4485 (-1324)	4485 (-1324)

ATD 4 1/2 15.5/10.5#K

REMARKS:

The well was drilled with a FDC bit to TD. I caught samples at every 30' interval which made descriptions more accurate. I used a Petrologs Dual Induction Resistivity Log to correlate with. I found the Lansing to be character on drill time I was unable to make calls on the Oread or Lansing. All shows were noted and should be further tested.

LEGEND

Drilling Time | Cuttings | Cores | Cuttings Stained | Chert | Dolomite

DRILLING TIME IN MINUTES PER FOOT
Rate of Penetration Decreases
5 10

DEPTH | LITHOLOGY | Drill Stem Tests | Percentage Scale | SAMPLE DESCRIPTION | REMARKS

3090
Anhydrite 3093 (+68)
3100
Base Anhydrite 3124 (+37)
3110
Geologist on location 3121' at 7:30pm 10/29/2012
3200
Shale: red, gray in part, silty, sandy.
Shale: red, silty, sandy.
Shale: red, silty, sandy.
Shale: red, silty, sandy.
50
Sandstone: gray, v-fgrn, mod. well sorted, argillaceous, no vis por, no
Neva 3564 (-403)
3500
Limestone: white, f-mxtx, granular, sl oolitic, black fossil stain, no vis por, nfc, no odor
Shale: red, silty, sandy.
Shale: red, silty, sandy.
Shale: red, silty, sandy.
Shale: red, gray, silty, sandy.
Red Eagle 3629 (-465)
3600
Limestone: white to tan, fxln, pyritic, no vis por, no
Limestone: tan to gray, fxln, dense, fossiliferous, no vis por, no
Shale: red, silty, sandy.
50
Foraker 3675 (-514)
3700
Limestone: white, f-mxln, fossiliferous, sp chksh por, fr spotty to sat black stain, pratly dull yellow
Limestone: white, f-mxln, fossiliferous, sp chksh por, fr spotty to sat stain, fratly, fluid stain
Shale: red, gray, silty, blocky
Limestone: white to gray, f-mxln, chalky, granular, sl fossiliferous, no vis por, no
Shale: gray
50
Limestone: tan to white, fxln, granular, sl fossiliferous, no vis por
Shale: gray, brown, red, silty
Limestone: white, fxln, v-chalky fossiliferous, 10% sample, fr mixxln por, gd dark sat stain, fratly, no odor
Shale: gray, green, sandy, silty
3800
Limestone: tan to white, fxln, sl chalky pyritic, fossiliferous, no vis por, no
Shale: gray, green, red, silty
Shale: gray, green, red, silty
Limestone: tan to white, fxln, sl chalky, fossiliferous, no vis por, no
Shale: gray, green, red, silty
50
Limestone: tan to white, fxln, sl chalky, fossiliferous, no vis por, no
Shale: gray, green, red, silty
Limestone: white, f-mxln, v-fossiliferous, no vis por, no
Shale: gray, green, red, silty
Topeka 3892 (-731)
3900
Limestone: white to tan, f-mxln, chalky, fossiliferous, 5% sample, fr pinpoint por, gd dark sat stain, fratly, no odor
Limestone: tan, fxln, fossiliferous, sp vug por, no
Shale: red, gray, silty
50
8:00am, 12/6/2012
Shale: red, maroon, gray, silty
Limestone: tan to gray, fxln, sl chalky, no vis por
4000
Shale: gray, red, laminated
Oread 4006 (-845)
Limestone: white to gray, fxln, chalky, sl oolitic, sp fossiliferous, pr oolicastic por, dark spotty stain, with oil smell, no odor
Mjver Top
Limestone: white to gray, fxln, chalky, sl oolitic, sp fossiliferous, sp oolicastic por, sp vug por, fr dark spotty stain, oil smell, no odor
wf B.S. c/o 01, 1pm #8
Morgan Mud, Dave Lines
50
Limestone: tan, fxln, dense, hard, no vis por
4100
Shale: gray, hard, blocky
Lansing 4109 (-948)
Limestone: tan, fxln, sl chalky, fossiliferous, 10% sample, fr mixxln por, gd dark sat stain, fratly, no odor
Shale: gray, brown, blocky, laminated
Limestone: tan, fxln, sl chalky, fossiliferous, 10% sample, fr mixxln/sp vug por, gd dark sat stain, fratly, gd odor
Shale: gray, black, red, silty
50
Limestone: tan to white, fxln, sl chalky, fossiliferous, 10% sample, fr vug por, gd dark sat stain, pratly, gd odor
4200
Shale: gray, red
Limestone: tan to gray, fxln, fossiliferous, 10% sample, sp vug por, dark sat stain, pratly, no odor
Shale: gray, red
Limestone: tan to brown, fxln, dense, fossiliferous, no vis por
50
Limestone: tan to gray, fxln, sl chalky, fossiliferous, 10% sample, fr mixxln por, dark stain, fr spotty to sat stain, nfc, no odor
Shale: gray, red, silty
Limestone: white to gray, f-mxln, sl chalky, fossiliferous, no vis por, no
4300
Shale: gray, red
Limestone: white to tan, fxln, sl chalky, fossiliferous, 10% sample, pr mixxln por, fr spotty to sat stain, pratly, no odor
Stark 4324 (-1163)
Shale: gray, dark gray, red, brown
50
Limestone: tan to white, fxln, fossiliferous, no vis por
Limestone: tan to white, f-mxln, fossiliferous, no vis por, sl pinpoint, fr dull stain, nfc, no odor
Shale: gray, red
BKC 4370 (-1209)
Limestone: white to gray, f-mxln, fossiliferous, no vis por, no
Shale: gray, red
Limestone: white to gray, f-mxln, sl chalky, fossiliferous, no vis por, no
4400
Shale: gray, green, red, waxy
Limestone: white to gray, f-mxln, sl chalky, sl fossiliferous, no vis por, no
Shale: red, gray, silty
50
Shale: gray, green, brown, red, silty, with abundant sandstone found through out very argillaceous
Limestone: white to gray, fxln, dense, sl fossiliferous, no vis por, no
Shale: red, gray, silty
BKC 4485 (-1324)
8:00am, 12/7/2012
Geologist off location at 10:00am, 12/7/2012
4500
50

Murfin Drilling Co Inc
Marty Ann #4-1
990'FSL & 1650'FWL
11-0ne Rawlins County, Kansas
Robert D. Hendrix
API: 15-153-20865