

# Robert D. Hendrix

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co. Inc**

LEASE **Thiele #1-8**

FIELD **Wildcat**

LOCATION **330° FSL & 2310° FWL**

SEC **8** TWP **2 S** RGE **24 W**

COUNTY **NORTON** STATE **Kansas**

CONTRACTOR **Murfin Drilling Rig #21**

SPUD **2/11/2012** COMP **2/18/2012**

RTD **2/22** LTD **2/23**

MUD UP **2600** TYPE MUD **Chemical**

SAMPLES SAVED FROM **2700** TO **RTD**

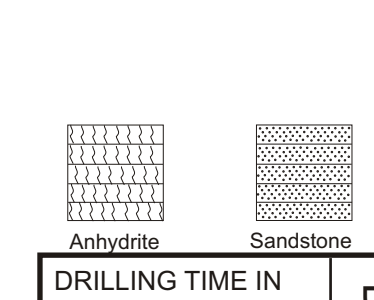
SAMPLES KEPT FROM **2770** TO **RTD**

SAMPLES EXAMINED FROM **2700** TO **RTD**

GEOLOGICAL SUPERVISION FROM **2000** TO **RTD**  
GEOLOGIST ON WELL **Robert D. Hendrix**

DILL / CN-CD  
Litho / Sonic  
Log-1-6ch

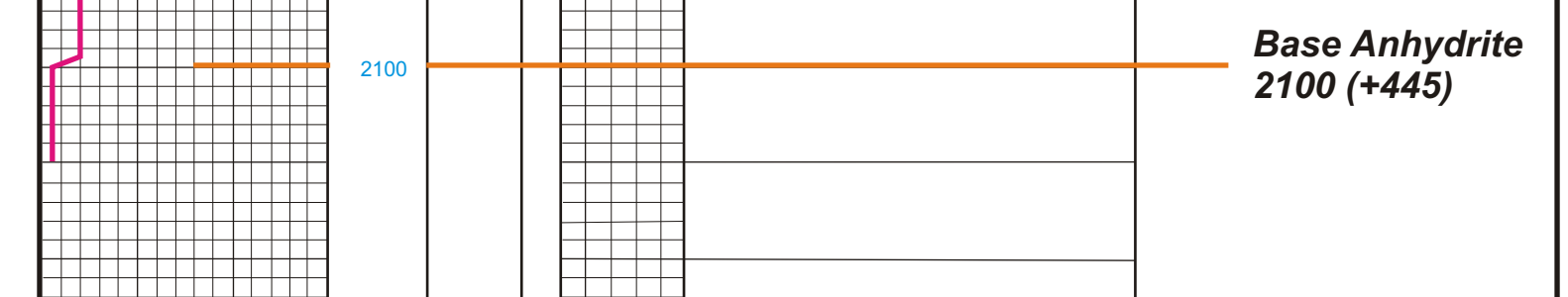
FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	2068 (+472)	2069 (+476)
Neva	2881 (-336)	2879 (-334)
Heebner Sh.	3281 (-736)	3278 (-733)
Heebner Sh.	3450 (-905)	3450 (-905)
Lansing	3496 (-951)	3491 (-946)
Stark	3644 (-1099)	3540 (-1095)
BKC	3688 (-1143)	3689 (-1144)
Granite Wash	3787 (-1242)	3782 (-1244)



APWD 15-137-20697

REMARKS *All shows were tested and due to a lack of positive results on the DST's it is suggested this test be plugged and abandoned.*

### LEGEND



DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
2050	Anhydrite		<b>Anhydrite 2069 (+476)</b>
2100	Anhydrite		<b>Base Anhydrite 2100 (+445)</b>
2700	Shale	Shale: red, muddy	
2750	Shale	Shale: red, muddy	
2800	Limestone	Limestone: gray, f,fxn, granular, no vis por	
2810	Shale	Shale: red, silty	
2820	Shale	Shale: red, gray	
2830	Limestone	Limestone: gray, f-mxln, sandy, no vis por	
2840	Shale	Shale: red, sandy	
2850	Siltstone	Siltstone: gray, black inclusions, no vis por	
2860	Shale	Shale: red, silty	
2870	Limestone	Limestone: gray, f,fxn, chalky, silty, sl fossiliferous, no vis por	<b>Neva 2879 (-334)</b>
2880	Limestone	Limestone: white to gray, f,fxn, sl cherty, chalky, sl fossiliferous, no vis por	Geologist on location, 10:48 pm, 2/13/2012
2890	Shale	Shale: red	
2900	Limestone	Limestone: gray, f,fxn, v-chalky, sl fossiliferous, no vis por	
2910	Shale	Shale: red, gray	
2920	Limestone	Limestone: brown to gray, f,fxn, chalky, sandy, no vis por	<b>Red Eagle 2944 (-399)</b>
2930	Shale	Shale: gray, red, brown	
2940	Dolomite	Dolomite: tan, f,fxn, dense, hard, no vis por	
2950	Shale	Shale: red, gray	
2960	Shale	Shale: gray, black	<b>Foraker 2987 (-442)</b>
2970	Limestone	Limestone: tan to white, f,fxn, dense, sl fossiliferous, sl sandy, no vis por	
2980	Limestone	Limestone: tan to white, f-mxln, v-chalky, no vis por	
2990	Shale	Shale: red, gray	
3000	Limestone	Limestone: gray, f-mxln, chalky, sl cherty, no vis por	
3010	Shale	Shale: red, silty	
3020	Limestone	Limestone: tan to white, f,fxn, v-chalky, no vis por	
3030	Shale	Shale: gray, red, green	
3040	Limestone	Limestone: gray, f,fxn, chalky, no vis por	
3050	Shale	Shale: gray, red	
3060	Limestone	Limestone: tan, f,fxn, granular, sl fossiliferous, no vis por	
3070	Siltstone	siltstone: gray brown, hard, no vis por	
3080	Shale	Shale: red, gray, brown, silty	
3090	Limestone	Limestone: tan to brown, f-mxln, sl fossiliferous, no vis por	<b>Stotter 3149 (-604)</b>
3100	Shale	Shale: red, gray, silty	
3110	Limestone	Limestone: tan, f,fxn, chalky, granular, no vis por	
3120	Limestone	Limestone: tan, f,fxn, chalky, granular, sl fossiliferous, no vis por	
3130	Shale	Shale: red, gray, green, silty	
3140	Limestone	Limestone: tan, f,fxn, chalky, granular, sl fossiliferous, no vis por	
3150	Shale	Shale: red, gray	
3160	Limestone	Limestone: tan to white, f,fxn, fossiliferous, chalky, granular, no vis por	
3170	Shale	Shale: red, gray	
3180	Limestone	Limestone: tan to gray, f,fxn, sl fossiliferous, chalky, no vis por	8:00 am, 2/14/2012
3190	Shale	Shale: gray, red	
3200	Limestone	Limestone: tan, f-mxln, chalky, fossiliferous, pr interxln por, ns	<b>Topeka 3278 (-733)</b>
3210	Limestone	Limestone: tan, f-mxln, sl fossiliferous, chalky, no vis por	
3220	Shale	Shale: gray, red, dark gray	
3230	Limestone	Limestone: tan to white, f,fxn, chalky, no vis por	
3240	Shale	Shale: red, gray	
3250	Shale	Shale: gray black, red	<b>Deer Creek 3331 (-786)</b>
3260	Limestone	Limestone: tan to white, f,fxn, chalky, no vis por	
3270	Limestone	Limestone: tan to white, f,fxn, chalky, fossiliferous, pr pp por	
3280	Limestone	Limestone: tan to white, f,fxn, v-chalky, fossiliferous, no vis por	
3290	Shale	Shale: black, gray, finely laminated	
3300	Limestone	Limestone: tan, f-mxln, sl fossiliferous, v-chalky, pr pp por, ns	
3310	Shale	Shale: red, gray, green	
3320	Limestone	Limestone: gray, f,fxn, chalky, granular, no vis por	
3330	Shale	Shale: gray, red, green	
3340	Limestone	Limestone: tan to white, f-mxln, v-chalky, sl fossiliferous, no vis por	
3350	Limestone	Limestone: tan to gray, f,fxn, chalky, sl fossiliferous, no vis por	
3360	Shale	Shale: black, carbonaceous	<b>Heebner 3450 (-905)</b>
3370	Limestone	Limestone: tan to brown, f,fxn, sl fossiliferous, no vis por	
3380	Shale	Shale: gray, red, silty	wt 9.2, vis 53, lcm 0 Morgan Mud, Dave Lines
3390	Limestone	Limestone: tan to white, f-xln, v-chalky, fossiliferous, sl cherty, no vis por, no fluorescence	<b>Toranti 2481 (-936)</b>
3400	Shale	Shale: gray, red, green	
3410	Limestone	Limestone: tan to white, f-mxln, sl oolitic, chalky, sl fossiliferous, pr pp por, no fluorescence	<b>Lansing 3491 (-946)</b>
3420	Shale	Shale: gray, red	<b>DST #1</b> 3439-3582 30-60-60-90 1st open: BOB 9 1/2 min 2nd open: BOB 10 1/2 min Recovery: 155% mud 250' mcw 47/53 370' mcw 12/82 Hydro: 1684-1665# IF: 31-213# FF: 212-381# SIP: 1148-1119# BHT: 99"
3430	Limestone	Limestone: tan, f,fxn, sl chalky, sl pyritic, no vis por, 7-8 pieces flakey dead oil stain, nfo, no odor, no fluorescence	
3440	Shale	Shale: red, gray	
3450	Limestone	Limestone: tan, f,fxn, sl chalky, 4 pcs lt oil stain, fr pp-vug por, ns, no fluorescence	
3460	Shale	Shale: gray, black, red	
3470	Limestone	Limestone: tan to white, f-mxln, chalky, sl fossiliferous, no vis por, several pcs dark spotty stain, nfo, no odor, dull yellow fluorescence	<b>DST #2</b> 3575-3678 MIS-Run Hydro: 1773-1758# Recovery: 245% mud Hit tight spot 8' above bottom pulled 90,000 to get loose went back to bottom clean. Packer failure occurred
3480	Limestone	Limestone: white, f,fxn, chalky, cherty, sl fossiliferous, oolitic in part, pr interxln por, 2 pcs pr lt spotty stain, nfo, no odor, some barren porosity	8:00 am, 2/15/2012 Wt 9.3, vis 62, lcm 0 Morgan Mud, Cade Lines
3490	Shale	Shale: red, gray, black	
3500	Shale	Shale: red, gray	
3510	Limestone	Limestone: tan to white, f,fxn, chalky, sl fossiliferous, no vis por, no fluorescence	<b>DST #3</b> 3577-3678 30-60-60-90 1st open: BOB 27 min (loose hammer union) 2nd open: BOB 17 min Recovery: 515% slmow 4/96 60' mcw 31/69 Hydro: 1732-1684# IF: 31-213# FF: 161-294# SIP: 1178-1132# @ 50.2°F BHT: 103" CHL: 60,000ppm
3520	Shale	Shale: red, gray, muddy	
3530	Limestone	Limestone: white, f-mxln, chalky, sl cherty, no vis por	
3540	Shale	Shale: red, gray	
3550	Limestone	Limestone: white, f,fxn, chalky, sl pyritic, fossiliferous, pr vug por, gd lt spotty stain, v-sifo on break, no odor, no fluorescence	<b>Stark 3640 (-1095)</b>
3560	Shale	Shale: red, gray	
3570	Limestone	Limestone: white to tan, f,fxn, chalky, fossiliferous, no vis por, ns	8:00 am, 2/16/2012 Wt 9.2, vis 58, lcm 0 Morgan Mud, Cade Lines
3580	Shale	Shale: red, black, gray, green	<b>BKC 3689 (-1144)</b>
3590	Limestone	Limestone: tan to white, f,fxn, sl chalky, sl cherty, no vis por	
3600	Shale	Shale: red, gray, black	
3610	Limestone	Limestone: white to tan, f-mxln, chalky, sl pyritic, sl fossiliferous, oolitic, no vis por	<b>DST #4</b> 3720-3765 30-60-60-90 1st open: blow built to 8" 2nd open: BOB in 60 min Recovery: 8' mud with trace of oil Hydro: 1773-1758# IF: 17-19# FF: 20-22# SIP: 94-63# @ 50.2°F BHT: 100"
3620	Shale	Shale: red, gray, black	
3630	Limestone	Limestone: white, f-mxln, sandy, no vis por	
3640	Shale	Shale: red, gray	
3650	Limestone	Limestone: (dolomitic) white to tan, f,fxn, fr amt of dark spotty stain, nfo, no odor, dull yellow fluorescence, no vis por	
3660	Shale	Shale: red	
3670	Sandstone	Sandstone: white/clear, md gr, sub rnd, md sorted, 3 pcs gd spotty stain, nfo, no odor, dull yellow fluorescence, no vis por	8:00 am, 2/17/2012 Wt 9.2, vis 64, lcm 0 Morgan Mud, Cade Lines
3680	Shale	Shale: red	
3690	Limestone	Limestone: white/clear, md gr, sub rnd, well sorted, friable, gdsfo on break, no odor, dull yellow fluorescence, no vis por	
3700	Shale	Shale: red, gray	
3710	Granite Wash	Granite Wash: red/white, angular to sub-angular, biotitic, very black in places	
3720	Granite	Granite: red/white, biotitic, angular	8:00 am, 2/18/2012 Wt 9.2, vis 58, lcm 2# Morgan Mud, Cade Lines
3730	Limestone	Limestone: tan to white, f,fxn, sl chalky, sl cherty, no vis por	<b>DST #5</b> 3760-3800 30-60-60-90 1st open: blow built to 8" 2nd open: BOB in 60 min Recovery: 80' wcm 33/67 with trace of oil Hydro: 1811-1787# IF: 21-109# FF: 117-160# @ 42°F SIP: 894-844# @ 50.2°F BHT: 101" CHL: 52,000ppm