Robert D. Hendrix
Petroleum Geologist

GEOLOGIST'S REPORT
DRILLING TIME AND SAMPLE LOG
ELEVATIONS
KB: 3033
DF:
GL: 3006

LEASE: Clifford Ranch
COMPANY: Cabot Oil & Gas Corp.
LOCATION: 330'FSL & 330'FWL
SECT: 34 TWSP: 15S RGE: 31W
COUNTY: Gove STATE: Kansas
CONTRACTOR: Murfin Drilling Rig 26
SPUD: 1/5/2012 COMP: 1/17/2012 TOTAL DEPTH: 4688
CASING: 8 5/8" @ 225' w/ 160 sks Class A
Float: 5 1/2" @ 4688' w/ 175 sks EA-2
MUD UP: 3915 TYPE MUD: Chemical
DRILLING TIME KEPT FROM: 3700 TO: RTD
SAMPLES SAVED FROM: 3700 TO: RTD
DRILLING TIME: Mud Dog
SAMPLES EXAMINED FROM: 3700 TO: RTD
GEOLOGIST ON WELL: Robert D. Hendrix
ELECTRICAL SURVEYS: Log-Tech
DST(S): 8 DST(S) - Trilobite Testing
FORMATION TOPS: ELECTRIC LOG SAMPLE
Anhydrite 2666 (+347)
Base Anhydrite 2702 (+311)
Topeka 3712 (-699)
Heebner 3926 (-913)
Lansing 3966 (-953)
Muncie Creek 4033 (-1020)
Stark Shale 4108 (-1095)
Pawnee 4281 (-1268)
BKC 4160 (-1147)
Cherokee Shale 4357 (-1344)
Mississippian 4504 (-1491)
Kinderhook (Gilmore City) 4562 (-1549)
Viola 4674 (-1661)
RTD 4694 (-1681)
LTD 4688 (-1655)
DST #1 3915-3945 (Topeka) 30-60-30-60 1st open: 1/2" in 3/4" 2nd open: built to 7" Recovery: 10' mud Gas in pipe: CO 2 75% M: CHloride 10%O, 10%K, 80%M IHP 1811 FHP 1808 IF 23-28 FF 32-54 ISIP 1111 FSIP 1109 BHT 107° Gravity 30°
DST #2 3960-3995 (Lansing) 30-60-30-60 Strong blow 1/2" blow built to 1 1/4" 2nd open: built to 1/4" no returns Recovery: 10' CGO Hydro: 1867-1943# IHP 1911 FHP 1911 IF 29-29# ISIP 1169 FSIP 1169 BHT 112°
DST #3 4033-4070 (Muncie Creek) 30-60-30-60 1st open: BOB 9 min 1st shut in: surface return started at 20 min no build 2nd open: BOB 10 min 2nd shut in: no return Recovery: 30' CGMW: 50/50 1' M 240' MW: 50/50 1' M Hydro: 2030-1989# IF 37-37# FF: 219-448# ISIP: 1213-1162# FSIP: 1213-1162# CHL: 25,000 ppm
DST #4 4068-4110 (Stark) 1st open: BOB 18 min 1st shut in: surface return started at 20 min no build 1/2" blow 2nd open: BOB 5 min 2nd shut in: no return Recovery: 45' MW: 60/40 45' MW: 90/10 1' M 1' MW: 90/10 Hydro: 2100-2050# IF 40-50# FF: 60-70# ISIP: 1330-1259# BHT: 112° CHL: 25,000 ppm PH: 7.5 ETT
DST #5 4281-4337 (Pawnee) 30-60-30-60 1st open: 1/4" blow died 10 min 2nd open: no blow 1st open: surface blow at 2 min, built to 1/4" died 20 min 2nd shut in: no return Recovery: 10' CGM 10/90 Hydro: 2179-2123# IF 26-27# FF: 38-43# ISIP: 1128-1072# BHT: 107°
DST #6 4339-4365 (Cherokee) 30-60-30-60 1st open: 1/4" blow built to 2" 1st shut in: no return 2nd open: no blow 2nd shut in: no return Recovery: 10' Mud contaminated oil Hydro: 2278-2208# IF 23-27# FF: 29-29# ISIP: 69-55# BHT: 122°
Mississippian Log Top 4486c (-1473)
RTD 4694 (-1681)
Geologist offsite 10:52pm, 1/17/2012

LEGEND
Anhydrite, Limestone, Dolomite, Chert, Lime Wk, Shale, Sandstone, Chalky Ls, Oolitic, Chert, Crystalline

DRILLING TIME IN MINUTES PER FOOT
Rate of Penetration Deviation
5 10 15

DEPTH | LITHOLOGY | Oil Across Tests | Ex Ch | SAMPLE DESCRIPTION | REMARKS

2620
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red, brown, black
Limestone: white to brown, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red, black
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red, brown
Limestone: white, Fossiliferous, no porosity, no fluor, no stain
Shale: gray, green, red