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GEOLOGISTS' REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **Suemur Exp. & Prod., LLC**
LEASE **Jacobs Brothers #1**

LOC. SPOT **78 S & 13 E of NE NW NE**
LOC. FOOTAGE **408' FWL 1,637' FEL**
SEC. **27** TWP/S **5S** RANG. **28W**

COUNTY **Decatur** STATE **Kansas**
API **15-039 -21228-00-00**

CONTRACTOR **Mulfm Drilling Co., Inc.** RIG NO. **7**
DRILLING STARTED **1-15-2016** COMPLETED **1-23-2016**
MUD DISPLACED **3,310'** MUD TYPE **Chemical**

DWELLING TIME KEPT FROM **3,400'** TO **RTD**
DILLING TIME KEPT FROM **3,400'** TO **RTD**
SAMPLES SAVED FROM **3,500'** TO **RTD**
SAMPLES EXAMINED FROM **3,500'** TO **RTD**
GEOLOGICAL SUPERVISION FROM **3,500'** TO **RTD**

FORMATION	LOG	TOP DATUM	SAMPLE TOP DATUM
Stone Control		2,539'	+218'
Stotler		3,575'	-818'
Topeka		3,706'	-949'
Heebner		3,891'	-1134'
Toronto		3,921'	-1164'
Lansing		3,936'	-1179'
B/KC		4,142'	-1385'
Pawnee		4,244'	-1487'
Cherokee		4,314'	-1557'
Total Depth		4,400'	-1643'

ELEVATIONS
KB **2,757'**
GL **2,752'**

MEASUREMENTS FROM K.B.
CASING RECORD
Conductor
Surface **8.5/8" @ 285'**
w/ 250 sacks cement
Production

ELECTRICAL SUPPLIES:
Wheatcraft Wireline:
Compact Array -
Induction log

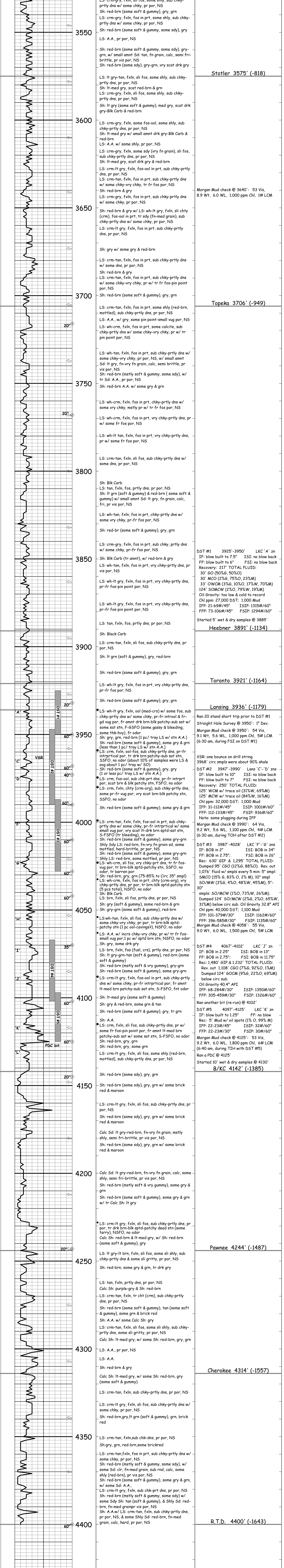
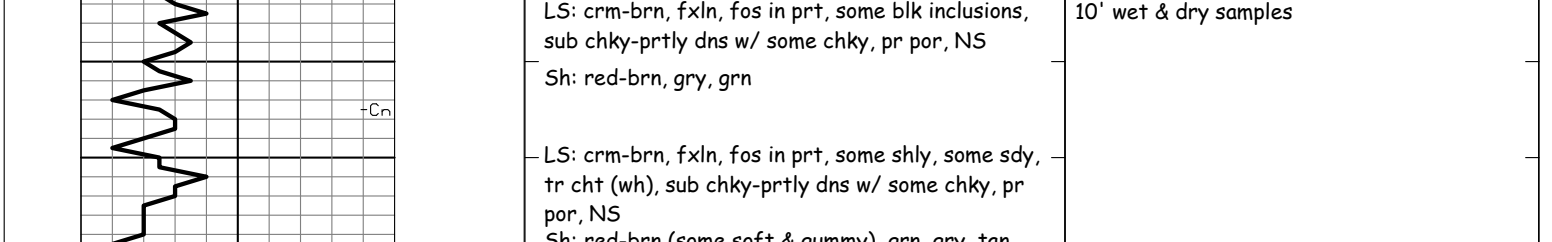
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DATE	7:00 AM DEPTH	REMARKS
1-15-2016	0'	Spud @ 3:15 pm. Plug down @ 8:00 pm. Drilled out plug @ 4:00 am on 1-16-16 w/ PDC bit
1-16-2016	475'	Cut 475' in last 24 hrs. Dev.: 1° @ 1675'. Hole taking fluid 1522'-2400', lost 380 bbls.
1-17-2016	2,785'	Cut 2,310' in last 24 hrs; 20.5 hrs drlg. Bit trip @ 3500' (ran button bit)
1-18-2016	3,650'	Cut 865' in last 24 hrs; 16.75 hrs drlg. DST #1 @ 3950'
1-19-2016	3,950'	Cut 300' in last 24 hrs; 10.75 hrs drlg. DST #2 @ 3990'
1-20-2016	3,990'	Cut 40' in last 24 hrs; 1.5 hrs drlg. DST #3 @ 4028'
1-21-2016	4,070'	Cut 80' in last 24 hrs; 3.75 hrs drlg. DST #4 @ 4102', DST #5 @ 4125'
1-22-2016	4,125'	Cut 55' in last 24 hrs; 3.25 hrs drlg. RTD 4400' @ 3:17 am on 1-23-16
1-23-2016	4,400'	Cut 275' in last 24 hrs; 9 hrs drlg.

Remarks

Drill Stem Test Charts

Drill Stem Test by **Trilobite Testing, Inc.**



Bit trip at 3500'. Replaced PDC bit with button bit. Circ 15" to clean hole prior to TOH. Circ 30" to clean hole after TIH.

Pipe Strap @ 3500': Strap long 1.71'

Straight Hole Survey @ 3500': 0.75° Dev.

Samples start 3500' @ 12:34 am on 1-18-16 10' wet & dry samples

Stotler 3575' (-818)

Morgan Mud check @ 3640': 53 Vis, 8.9 Wt, 6.0 WL, 1,000 ppm Chl, 1# LCM

Topeka 3706' (-949)

DST #1 3925'-3950' LKC 'A' zn

DST #2 3947'-3990' IS: BOB in 34" FF: blow built to 7.5" FSI: no blow back Recovery: 217' TOTAL FLUID: 30' GO (50%G, 50%O) 30' MCO (2%G, 75%O, 23%M) 33' OWCW (3%G, 10%O, 17%W, 70%M) 124' SOMCW (2%O, 79%W, 19%M) Oil Gravity: too low & cold to record Chl ppm: 27,000 DST: 1,000 Mud IFF: 21-69#/45" ISIP: 1315#/60" FFP: 73-106#/45" FSIP: 1294#/60"

Started 5' wet & dry samples @ 3885'

Heebner 3891' (-1134)

Toronto 3921' (-1164)

Lansing 3936' (-1179)

Ran 20 stand short trip prior to DST #1

Straight Hole Survey @ 3950': 1° Dev.

Morgan Mud check @ 3990': 54 Vis, 9.1 Wt, 5.6 WL, 1,000 ppm Chl, 5# LCM (6:30 am, during FSI on DST #1)

VSR: circ smpls were about 90% shale

DST #3 3987'-4028' LKC 'F'-'G' zns

IFF: BOB in 2" IS: BOB in 34" FF: BOB in 2.75" FSI: BOB in 26" Rec: 630' GIP & 1,295' TOTAL FLUID: Dumped 95' GO (12%G, 88%O). Rev. out 1,076' fluid w/ smpls every 5 min: 5' smpl: SMCO (15% G, 83% O, 2% M), 10' smpl SO/MW (3%G, 4%O, 48%W, 45%M), 5'-30": Note: some plugging during IFF

Morgan Mud check @ 3990': 64 Vis, 9.2 Wt, 5.6 WL, 1,100 ppm Chl, 4# LCM (6:30 am, during TOH after DST #2)

DST #4 4067'-4102' LKC 'J' zn

IFF: BOB in 2.25" IS: BOB in 13" FF: BOB in 2.75" FSI: BOB in 11.75" Rec: 1,480' GIP & 1,232' TOTAL FLUID: Rev. out 1,108' GCO (7%G, 92%O, 1%M) Dumped 124' GOCM (9%G, 22%O, 69%M) below circ sub. Oil Gravity 40.4° API IFF: 68-284#/30" ISIP: 1350#/60" FFP: 305-459#/30" FSIP: 1326#/60"

Ran another bit (re-run) @ 4102'

DST #5 4097'-4125' LKC 'K' zn

IFF: blow built to 1.25" FF: no blow Rec: 5' Mud w/ oil spots (1% O, 99% M) IFF: 22-23#/45" ISIP: 32#/60" FFP: 22-23#/30" FSIP: 30#/60"

Morgan Mud check @ 4125': 53 Vis, 9.2 Wt, 6.0 WL, 1,800 ppm Chl, 6# LCM (6:40 am, during TIH with DST #5)

Ran a PDC @ 4125'

Started 10' wet & dry samples @ 4130' B/KC 4142' (-1385)

Pawnee 4244' (-1487)

Cherokee 4314' (-1557)

R.T.D. 4400' (-1643)