

GEOLOGIST'S REPORT
DRILLING TIME AND SAMPLE LOG

COMPANY **SHAKESPEAR OIL CO.**
 LEASE **Nightengale Grain 2-28**
 FIELD **Pence West**
 LOCATION **1650' FTL, 1200' FEL**
 SEC **28** TWPSP **16S** RGE **34W**
 COUNTY **Scott** STATE **Kansas**

CONTRACTOR **HD Rig #3**
 SPUD **7-8-15** COMP **LTD**
 RTD **3600'** TYPE MUD **Chemical**
 MUD UP **3600'**

SAMPLES SAVED FROM **3800'** to **RTD**
 DRILLING TIME KEPT FROM **3800'** to **RTD**
 SAMPLES EXAMINED FROM **3800'** to **RTD**
 GEOLOGICAL SUPERVISION FROM **3900'** to **RTD**
 GEOLOGIST ON WELL **Tim Priest**

FORMATION TOPS **ELECTRIC LOG** SAMPLE
 Anhydrite
 Heebner Shale
 Lansing
 Stark
 B/K.C.
 Fort Scott
 Cherokee Shale
 Mississippian

ELEVATIONS
 KG **3142'**
 DF _____
 GL **3133'**
 Measurements Are All From **KB**

CASING
 CONDUCTION **N/A**
 SURFACE **8-5/8" @ 264'**
 PRODUCTION _____

ELECTRICAL
 SURVEYS
 CND/D/SP/PE
 Micro Sonic
 By: Weatherford

REMARKS

Respectfully Submitted,
 Tim Priest
 Petroleum Geologist

API #15-171-21133-00-00



DRILLING TIME IN MINUTES PER FOOT
 Rate of Penetration Decreases

DEPTH	LITHOLOGY	DRILLING TIME IN MINUTES PER FOOT	SAMPLE DESCRIPTION	REMARKS
2450	Anhydrite	~1.0		Anhydrite 2451(+691)
2468	Anhydrite	~1.0		Base/ Anhydrite 2468(+674)
2500	Shale	~1.0	Ls crm-tan, fn xtl, fos, chky, f-gd int xtl & int frag por, NS	
2550	Shale	~1.0	Sh gry	
2600	Shale	~1.0	Ls crm-tan, fn xtl, sil fos, chky, arg in prt	
2650	Shale	~1.0	Sh blk, carb	
2700	Shale	~1.0	SS lt gry, vfn grn, friable, w/gry Sh	
2750	Shale	~1.0	Ls crm-tan-gry, fn xtl, fos, chky, p-f int xtl-pp por, NS	
2800	Shale	~1.0	Ls crm-tan, fn xtl, sil fos, chky, arg in prt	
2850	Shale	~1.0	Sh gry-blk	
2900	Shale	~1.0	Ls crm-tan, fn xtl, fos, chky, f-gd int xtl-pp por, NS	
2950	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chty, dnse	
3000	Shale	~1.0	Ls crm-t gry, fn xtl, fos, chky, f int xtl por, NS	
3050	Shale	~1.0	Ls crm-t gry, fn xtl, dnse	
3100	Shale	~1.0	Sh blk, carb	Heebner 4000 (-858)
3150	Shale	~1.0	Sh gry-dk gry, calc	Toronto 4013 (-871)
3200	Shale	~1.0	Ls crm-t gry, fn xtl, fos, chky, f int xtl-pp por, NS	
3250	Shale	~1.0	Ls crm, fn xtl, fos, v chky, p-f int xtl-pp por, NS	
3300	Shale	~1.0	Sh grn-gry	Lansing 4043 (-901)
3350	Shale	~1.0	Ls crm-t gry, fos, chky, p-f int xtl por, NS	
3400	Shale	~1.0	Ls crm, fn xtl, ool, sil chky, p int xtl & int ool por, NS	
3450	Shale	~1.0	Sh red-gry	
3500	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
3550	Shale	~1.0	Ls crm-tan, fn xtl, fos, p-f int xtl-pp por, sptd stn on few pcs, SSFO, no odor, dull fluor	
3600	Shale	~1.0	Sh red-gry	
3650	Shale	~1.0	Ls crm-t gry, fn xtl, fos, p-f int xtl-pp por, sptd stn on few pcs, VSSFO, no odor, dull fluor	
3700	Shale	~1.0	Ls crm-t gry, fn xtl, sil chty, dnse	
3750	Shale	~1.0	Sh blk, carb	
3800	Shale	~1.0	Ls crm-t gry, fos, chky, p-f int xtl por, NS	
3850	Shale	~1.0	Sh grn-gry	
3900	Shale	~1.0	Ls/Dol crm, fn-med xtl, sil chky, p-f int xtl por, sptd-sli sat stn, SSFO, sli odor, f fluor	
3950	Shale	~1.0	Ls crm-t gry, fn xtl, fos, sil chty, p int xtl-pp por, NS	
4000	Shale	~1.0	Sh gry-dk gry	
4050	Shale	~1.0	Ls crm-t gry, fn xtl, fos, sil chky, f int xtl-pp por w/scat vugs, NS	
4100	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chty, dnse	
4150	Shale	~1.0	Ls crm-t gry, fn xtl, fos, chky, p-f int xtl & ooc por, NS	
4200	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chty, dnse	
4250	Shale	~1.0	Ls crm-t gry, fn xtl, fos, chky, p int xtl-pp por, NS	
4300	Shale	~1.0	Ls crm-t gry, vfn xtl, chty, dnse	Muncie Creek 4227 (-1085)
4350	Shale	~1.0	Sh blk, carb	
4400	Shale	~1.0	Ls crm-t gry, vfn xtl, chty, dnse	
4450	Shale	~1.0	Sh dk gry	
4500	Shale	~1.0	Ls crm-t gry, fn xtl, fos, dolo in prt, sil chty, f int xtl-pp por, NS	
4550	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chty, dnse	
4600	Shale	~1.0	Sh blk, carb	
4650	Shale	~1.0	Ls crm-tan, fn xtl, sil fos, dnse	
4700	Shale	~1.0	Sh grn-gry	
4750	Shale	~1.0	Ls crm-tan, fn xtl, fos-sli ool, chky, p-f int xtl-pp por w/wfew vugs, sptd-sli sat dk stn, SFO, f odor, dull fluor	
4800	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
4850	Shale	~1.0	Ls crm-gry, fn xtl, fos, chky, f int xtl-pp por w/scat vugs, NS	
4900	Shale	~1.0	Sh blk, carb	Hushpuckney Shale 4371 (-1229)
4950	Shale	~1.0	Ls tan-gry, fn xtl, arg, w/int bed gry Sh	
5000	Shale	~1.0	Ls gry, vfn xtl, dnse	
5050	Shale	~1.0	Ls crm-gry, fn xtl, fos, chky, p int xtl-pp por w/scat vugs, NS	
5100	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
5150	Shale	~1.0	Sh blk, carb	B/K.C. 4418 (-1276)
5200	Shale	~1.0	Sh dk gry	
5250	Shale	~1.0	Ls crm-t gry, fn xtl, fos, chky, p-f int xtl-pp por, NS	
5300	Shale	~1.0	Sh dk gry-blk	
5350	Shale	~1.0	Sh var col, silty, sandy	
5400	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chky, dnse	Marmaton 4427 (-1085)
5450	Shale	~1.0	Ls crm-tan, fn xtl, sil fos, sli chky, p-f int xtl-pp por, sptd-sli sat stn, SSFO, sli odor, dull fluor	
5500	Shale	~1.0	Sh grn-gry	
5550	Shale	~1.0	Ls crm-t gry, fn xtl, fos-ool, sil chky, p-f int xtl & int frag por w/few vugs, sptd-sli sat stn, SSFO, sli odor, dull fluor	
5600	Shale	~1.0	Sh grn-gry	
5650	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chky, dnse	
5700	Shale	~1.0	Ls crm-t gry, fn xtl, fos, sli chky, p-f int xtl & pp-vug por, sptd-sat stn, SFO, f odor, dull fluor	
5750	Shale	~1.0	Sh grn-gry	
5800	Shale	~1.0	Ls crm-t gry, vfn xtl, sil chky, dnse	
5850	Shale	~1.0	Sh blk, carb	
5900	Shale	~1.0	Ls lt gry-gry, vfn xtl, arg in prt, dnse	Pawnee 4551 (-1409)
5950	Shale	~1.0	Ls crm-tan, vfn xtl, sil chty, dnse	
6000	Shale	~1.0	Ls crm-tan, vfn xtl, sil chty, dnse	
6050	Shale	~1.0	Sh blk, carb	Myric Station 4584 (-1442)
6100	Shale	~1.0	Ls lt gry-gry, vfn xtl, arg in prt	
6150	Shale	~1.0	Sh blk, carb	
6200	Shale	~1.0	Ls tan-gry mtd, fn xtl, ool, p-f int ool por, NS	Fort Scott 4598 (-1454)
6250	Shale	~1.0	Sh grn-gry-dk gry	
6300	Shale	~1.0	Ls crm-gry, fn xtl, fos, sil chty, mostly dnse	
6350	Shale	~1.0	Sh blk, carb	
6400	Shale	~1.0	Ls crm-tan-gry mtd, fn xtl, fos, chky, f int frag por, NS	
6450	Shale	~1.0	Sh grn-gry	
6500	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
6550	Shale	~1.0	Sh blk, carb	Cherokee Shale 4626 (-1484)
6600	Shale	~1.0	Ls tan-gry, vfn xtl, w/int bed blk carb Sh	
6650	Shale	~1.0	Sh grn-gry	
6700	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
6750	Shale	~1.0	Sh gry-dk gry	
6800	Shale	~1.0	Ls crm-gry, vfn xtl, sil fos, sli chty, dnse	
6850	Shale	~1.0	Ls crm-gry, vfn xtl, sil fos, sli chty, dnse	
6900	Shale	~1.0	Sh gry	
6950	Shale	~1.0	Ls crm-tan-gry, vfn xtl, sil chky, dnse	
7000	Shale	~1.0	Ls crm-t gry, fn-vfn xtl, sil fos, p-f int xtl-pp por, sptd-sli sat stn, SFO, sli odor, dull fluor	
7050	Shale	~1.0	Ls crm-tan-gry, vfn xtl, sil chky, dnse	
7100	Shale	~1.0	Sh var col	
7150	Shale	~1.0	SS clear-lt gry, fn-med grn, sli fria, NS	
7200	Shale	~1.0	SS clear-lt gry, fn-med grn, sli fria, NS	
7250	Shale	~1.0	Sh var col	
7300	Shale	~1.0	Sh grn-gry-brn, silty	
7350	Shale	~1.0	Sh var col	
7400	Shale	~1.0	SS clear-lt gry, med-coarse grn, friable w/ooze grms, sptd-sat stn, SFO, sli odor, no fluor	
7450	Shale	~1.0	Ls crm-tan-lt gry, sandy, dnse	Mississippian 4816 (-1674)
7500	Shale	~1.0	Ls crm-t gry, v sandy, sil chky, dnse	
7550	Shale	~1.0	Ls crm-tan, vfn xtl, sil sandy, dnse	
7600	Shale	~1.0	Ls crm-tan, vfn xtl, sil sandy, dnse	
7650	Shale	~1.0	Ls crm-t gry, vfn xtl, dnse	
7700	Shale	~1.0		
7750	Shale	~1.0		
7800	Shale	~1.0		
7850	Shale	~1.0		
7900	Shale	~1.0		
7950	Shale	~1.0		
8000	Shale	~1.0		
8050	Shale	~1.0		
8100	Shale	~1.0		
8150	Shale	~1.0		
8200	Shale	~1.0		
8250	Shale	~1.0		
8300	Shale	~1.0		
8350	Shale	~1.0		
8400	Shale	~1.0		
8450	Shale	~1.0		
8500	Shale	~1.0		
8550	Shale	~1.0		
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8650	Shale	~1.0		
8700	Shale	~1.0		
8750	Shale	~1.0		
8800	Shale	~1.0		
8850	Shale	~1.0		
8900	Shale	~1.0		
8950	Shale	~1.0		
9000	Shale	~1.0		
9050	Shale	~1.0		
9100	Shale	~1.0		
9150	Shale	~1.0		
9200	Shale	~1.0		
9250	Shale	~1.0		
9300	Shale	~1.0		
9350	Shale	~1.0		
9400	Shale	~1.0		
9450	Shale	~1.0		
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9700	Shale	~1.0		
9750	Shale	~1.0		
9800	Shale	~1.0		
9850	Shale	~1.0		
9900	Shale	~1.0		
9950	Shale	~1.0		
4910			Total Depth	4910' (-1768)



DST #1 (4463'-4510')
 IF: Built to 3 1/2 in, no return
 FF: 30'-30'-60'-90'
 Rec: 115 GPM, 52' CO, 80' OCM, (50% O, 70% M)
 Total fluid: 130
 Fps: 23-24/61-69#
 S/Ps: 471#/603#
 HSPs: 2276/2194#
 BHT: 115 deg F
 Grav: 31

DST #2 (4510'-4540')
 IF: Built to 5 in, no return
 FF: 30'-30'-60'-90'
 Rec: 1080 GPM, 240' CO (25% O, 75% M), 120' GMM (50% O, 40% M, 30% M)
 Total fluid: 350'
 Fps: 32-62/93-127#
 S/Ps: 252/252#
 HSPs: 2266/2150#
 BHT: 113 deg F
 Grav: 31