

**JAMES C. MUSGROVE**

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Claflin, KS 67525

Office (620) 588-4250

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Mai Oil Operations  
T.P. Miller #1  
NE-SW-SW-NW (2300' FNL & 480' FWL)  
Section 31-16s-19w  
Rush County, Kansas

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**5 1/2" Production Casing Set**

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** April 15, 2014  
**Completed:** April 21, 2014  
**Elevation:** 2082' K.B., 2080' D.F., 2074' G.L.  
**Casing program:** Surface; 8 5/8" @ 1103'  
Production, 5 1/2" @ 3899'  
**Sample:** Samples saved and examined 3300' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 3300 ft. to the Rotary Total Depth.  
**Measurements:** All depths measured from the Kelly Bushing.  
**Drill Stem Tests:** There were two (2) Drill Stem Tests ran by Trilobite Testing Co.  
**Electric Log:** By Nabors, Dual Induction, Compensated Density/Neutron and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	1308	+774
Base Anhydrite	1343	+739
Heebner	3401	-1319
Toronto	3419	-1337
Lansing	3444	-1362
Base Kansas City	3714	-1632
Marmaton	3753	-1671
Arbuckkle Sand	3829	-1747
Arbuckle	3834	-1752
Rotary Total Depth	3899	-1817
Log Total Depth	3900	-1818

(All top and zone determination were made from a correlation of Electric Log measurements).

**SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.**

**TORONTO SECTION**

3420-3427' Limestone, tan, gray, fossiliferous in part, chalky; no shows.

**LANSING SECTION**

- 3445-3451' Limestone, tan, white gray, slightly chalky, poor porosity, no shows.
- 3468-3480' Limestone, white, cream, gray, oomoldic, fair oomoldic porosity, brown stain, show of free oil and faint to fair odor fresh samples.

**Drill Stem Test #1 3460-3485**

**Times: 30-30-45-60**

**Blow: Weak**

**Recovery: 1' clean oil  
 19' slightly oil cut mud  
 (10% oil; 90% mud)  
 60' muddy water**

**Pressures: ISIP 680 psi  
 FSIP 690 psi  
 IFP 13-29 psi  
 FFP 31-48 psi  
 HSH 1700-1635 psi**

- 3490-3497' Limestone, white, cream oomoldic, scattered oomoldic porosity, chalky; no shows.
- 3524-3540' Limestone, white, tan, fossiliferous/oolitic, chalky increasingly cherty, poorly developed porosity, no shows.
- 3546-3560' Limestone, white, gray, oomoldic, few oolitic, fair oomoldic porosity, no shows.
- 3594-3600' Limestone, white, oolitic, sub-oomoldic, fair oomoldic porosity, no shows.
- 3618-3634' Limestone, tan, highly oolitic/fossiliferous, poor visible porosity.
- 3640-3652' Limestone, tan, oolitic, few medium crystalline, oomoldic in part; fair to good oomoldic to vuggy type porosity, no shows.
- 3666-3680' Limestone, gray, fossiliferous, chalky; poor visible porosity, no shows

**MARMATON SECTION**

- 3753-3796' Limestone, tan, fossiliferous/oolitic, slightly chalky, poor porosity, poor light brown stain, trace of free oil and no odor in fresh samples





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**Rotary Total Depth**            **3899**  
**Log Total Depth**            **3900**

**Recommendations:**

The 5 ½ Production Casing Set and cemented on the T&P Miller #1.

Respectfully submitted;

*James C. Musgrove*  
James C. Musgrove  
Petroleum Geologist







**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Mai Oil Operations, Inc.  
 8411 Preston Rd  
 Ste 800 Dallas TX 75225  
 ATTN: Jim Musgrove

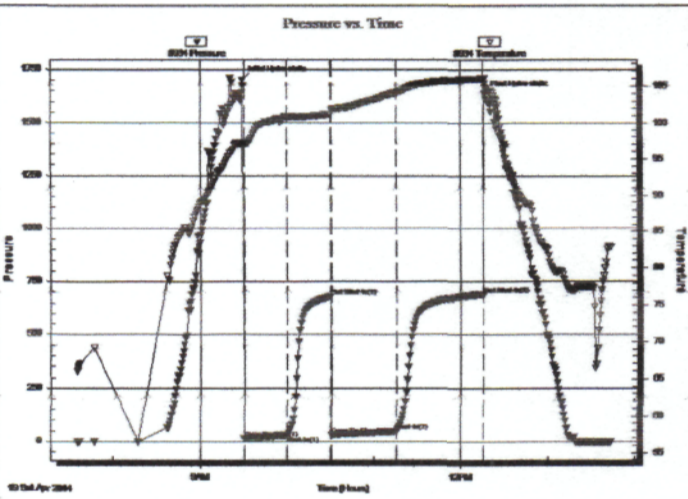
**31-16s-19w Rush,KS**  
**T&P Miller #1**  
 Job Ticket: 54120 **DST#: 1**  
 Test Start: 2014.04.19 @ 07:35:00

**GENERAL INFORMATION:**

Formation: **KC "B"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:30:30  
 Time Test Ended: 13:43:45  
 Interval: **3460.00 ft (KB) To 3485.00 ft (KB) (TVD)**  
 Total Depth: 3485.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 2082.00 ft (KB)  
 2074.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8934** Outside  
 Press@RunDepth: 48.32 psig @ 3482.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.19 End Date: 2014.04.19 Last Calib.: 2014.04.19  
 Start Time: 07:35:05 End Time: 13:43:44 Time On Btm: 2014.04.19 @ 09:29:15  
 Time Off Btm: 2014.04.19 @ 12:16:30

**TEST COMMENT:** F-2 1/2" blow  
 IS- No blow  
 FF-3" blow  
 FSI- No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1700.06	97.00	Initial Hydro-static
2	12.93	96.76	Open To Flow (1)
31	28.95	100.73	Shut-in(1)
61	679.71	101.15	End Shut-in(1)
62	30.50	101.72	Open To Flow (2)
107	48.32	104.11	Shut-in(2)
167	689.65	105.97	End Shut-in(2)
168	1635.03	105.41	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
60.00	SMCW 10%M 90%W	0.84
19.00	SOCM 10%O 90%M	0.27
1.00	Free Oil	0.01

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



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**DRILL STEM TEST REPORT**

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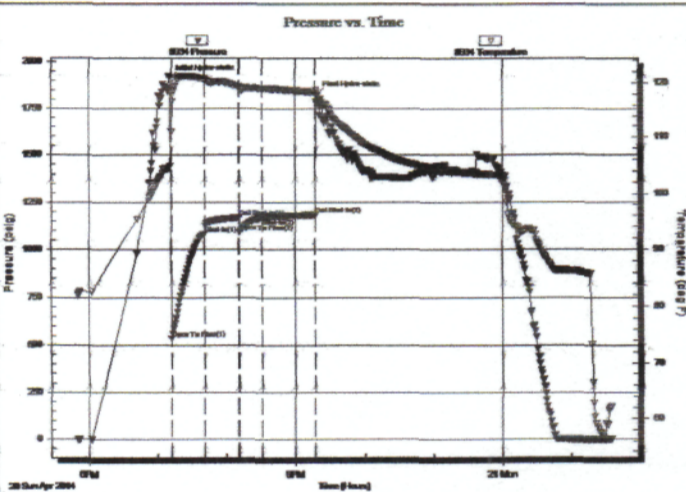
**31-16s-19w Rush,KS**  
**T&P Miller #1**  
 Job Ticket: 54121 **DST#: 2**  
 Test Start: 2014.04.20 @ 17:50:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 19:11:45  
 Time Test Ended: 01:35:30  
 Interval: **3782.00 ft (KB) To 3839.00 ft (KB) (TVD)**  
 Total Depth: 3839.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 2082.00 ft (KB)  
 2074.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8934 Outside**  
 Press@RunDepth: 1166.66 psig @ 3836.00 ft (KB)  
 Start Date: 2014.04.20 End Date: 2014.04.21  
 Start Time: 17:50:05 End Time: 01:35:29  
 Capacity: 8000.00 psig  
 Last Calib.: 2014.04.21  
 Time On Btmr: 2014.04.20 @ 19:10:15  
 Time Off Btmr: 2014.04.20 @ 21:18:15

TEST COMMENT: IF-BOB in 1/2 min  
 IS-BOB in 4 min  
 FF-BOB in 1/2 min GTS in 10 min  
 FS-1" blow died in 40 min



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1912.27	104.71	Initial Hydro-static
2	536.40	110.98	Open To Flow (1)
31	1079.37	120.65	Shut-In(1)
61	1170.23	119.30	End Shut-In(1)
61	1092.25	119.23	Open To Flow (2)
81	1166.66	118.98	Shut-In(2)
127	1183.56	118.28	End Shut-In(2)
128	1824.36	118.35	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
3375.00	GO 20%G 80%O	47.34
125.00	SGOWCM 5%G 15%O 15%W 65%M	1.75
0.00	GTS	0.00

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 206

Date 4-16-14	Sec. 31	Twp. 16	Range 19	County Rush	State KS	On Location	Finish 1:00 P.M
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Location *Lilenthal, 15, 8W, 15*

Lease <i>T&amp;P Miller</i>	Well No. <i>1</i>	Owner
Contractor <i>Southwind #3</i>		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Type Job <i>Surface</i>		
Hole Size <i>12 1/4</i>	T.D. <i>1,103</i>	Charge To <i>Maid Oil</i>
Csg. <i>8 5/8</i>	Depth <i>1,103</i>	Street
Tbg. Size	Depth	City State
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg.	Shoe Joint <i>20</i>	Cement Amount Ordered <i>450 sx 60/40, 3%cc, 2%gel</i>
Meas Line	Displace <i>68 1/2 bbl</i>	

**EQUIPMENT**

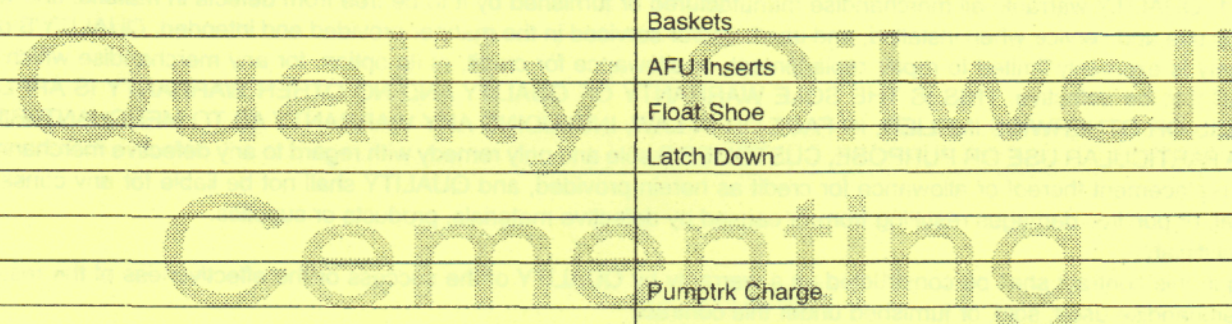
Pumptrk <i>5</i>	No.	Cementer Helper <i>Lonniew.</i>	Common
Bulktrk <i>19</i>	No.	Driver <i>Lonniew.</i>	Poz. Mix
Bulktrk <i>P4</i>	No.	Driver <i>Travis</i>	Gel.
			Calcium

**JOB SERVICES & REMARKS**

Remarks: <i>cement did circulate</i>	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
	Sand
	Handling
	Mileage

**FLOAT EQUIPMENT**

	Guide Shoe
	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down



Pumptrk Charge

Mileage

Tax

Discount

Total Charge

X Signature *Kent*



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 7200

Date	Sec.	Twp.	Range	County	State	On Location	Finish
4-21-14	31	16	19	Rush	Ks		9:30 PM

Location Leebenthal Ks - 15, W to 160 Rd

Lease	T+P Miller	Well No.	1	Owner	1/2 S, E1 T10
Contractor	Southwind	#3		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.	
Type Job	Production			Charge To	Major oil operations
Hole Size	7 7/8"	T.D.	3899'		
Csg.	14# 5 1/2" New	Depth	3899'	Street	
Tbg. Size		Depth	3894'	City	State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	18.81'	Shoe Joint	18.81'	Cement Amount Ordered	60140 40% Salt 26 Gal
Meas Line		Displace	94 1/2 Bcs	1/4 # Fl. seal	1000 gal mud clear 48

**EQUIPMENT**

Pumptrk	16	No.	Cementer	Billie	Common
			Helper		
Bulktrk	14	No.	Driver	Clayton	Poz. Mix
			Driver		
Bulktrk	p.u.	No.	Driver	Rick	Gel.
			Driver		

**JOB SERVICES & REMARKS**

Remarks:		Hulls
Rat Hole		Salt
Mouse Hole		Flowseal
Centralizers		Kol-Seal
Baskets	pipe on bottom break Circulator	Mud CLR 48
D/V or Port Collar	pump 500 gal Mud Clear 48	CFL-117 or CD110 CAF 38
plug	Bottom cut 300, Hook to 5 1/2"	Sand
Casing	mix 1200 Cement	Handling
Shut down	wash pump lines Release	Mileage
plug + Displaced	with 94 1/2 Bcs	<b>FLOAT EQUIPMENT</b>
lot water	Released + held	Guide Shoe
Lift pressure	600 #	Centralizer
Land plug to	1500 #	10 turbo's
		Baskets
		AFU Inserts
		Float Shoe
		Latch Down

		Pumptrk Charge
		Mileage
		Tax
		Discount
		Total Charge

X Signature *Butt Thomas*

