

**JAMES C. MUSGROVE**

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Mai Oil Operations  
Hammeke B #7  
N/2-NW-SW-SE (1230' FSL & 2310' FEL)  
Section 21-21s-12w  
Stafford County, Kansas

Page 1

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

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** March 17, 2015  
**Completed:** March 22, 2015  
**Elevation:** 1854' K.B., 1852' D.F., 1846' G.L.  
**Casing program:** Surface; 8 5/8" @ 645'  
Production, 5 1/2" @ 3699'  
**Sample:** Samples saved and examined 2900' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 2900' 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 Log and Micro and Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	661	+1193
Base Anhydrite	672	+1182
Heebner	3126	-1272
Toronto	3145	-1291
Douglas	3158	-1304
Brown Lime	3260	-1406
Lansing	3274	-1420
Base Kansas City	3494	-1640
Viola	3501	-1647
Simpson Shale	3544	-1690
Arbuckle	3597	-1743
Rotary Total Depth	3700	-1846
Log Total Depth	3704	-1850

All tops and zones corrected to Electric Log Measurement

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

**TOPEKA SECTION**

2839-3126' No shows of oil and/or gas was noted (see attached sample log/geologist report)

**TORONTO SECTION**

3145-3155' Limestone, cream, tan, finely crystalline, cherty in part, few fossiliferous, poor inter-crystalline porosity, no shows, trace black stain and no odor.

**LANSING SECTION**

3274-3284' Limestone, cream, tan, finely crystalline, poor visible porosity, chalky in part, no shows.

3292-3302' Limestone, brown, tan, finely crystalline, chalky, no shows.

3312-3320' Limestone, tan, oolitic, poor scattered porosity, chalky in part, no shows.

3330-3338' Limestone, cream, tan, oolitic, scattered porosity, light brown stain, trace of free oil and no odor in fresh samples.

3340-3360' Limestone, tan, buff, sub-oomoldic, poor visible porosity, chalky, no shows.

3360-3390' Limestone, cream, tan, finely crystalline, fossiliferous, sub-oomoldic, chalky, no shows.

3398-3408' Limestone, cream, tan, finely crystalline, poorly developed porosity, no shows.

3412-3424' Limestone, tan, oomoldic, fair oomoldic porosity, dark black stain, show of free oil and no odor in fresh samples.

3431-3440' Limestone, as above.

3452-3472' Limestone, tan, cream few fossiliferous, poor visible porosity, no shows.

3477-3483' Limestone, tan, finely crystalline, poor scattered vuggy type porosity, brown stain, show of free oil and faint odor in fresh samples.

**VIOLA SECTION**

3501-3520' Chert; white, yellow, tan, boney, scattered porosity, black and brown stain, trace of free oil and faint odor in fresh samples.

3520-3542' Chert, white, opaque, tan, dark black stain, trace of free oil and faint odor in fresh samples.

**ARBUCKLE SECTION**

3596-3608' Dolomite, tan, sucrosic, poorly developed porosity, brown stain, show of free oil and faint odor.

3608-3614' Dolomite, tan, buff, sucrosic, poor scattered porosity, trace stain, show of free oil and strong odor in fresh samples.

3614-3624' Dolomite, tan, finely crystalline, sucrosic, poor visible porosity, brown stain, show of free oil and strong odor in fresh samples.



**Drill Stem Test #1** **3527-3620**  
(Log Measurements 3531-3624)

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

**Blow:** Strong

**Recovery:** 945' gas in pipe  
 90' oil and gas cut mud  
 (20% gas; 9% oil; 71% mud)  
 65' oil and gas cut mud  
 (31% gas; 20% oil; 49% mud)

**Pressures:** ISIP 206 psi  
 FSIP 326 psi  
 IFP 29-56 psi  
 FFP 60-76 psi  
 HSH 1736-1717 psi

3624-3636' Dolomite, tan, finely crystalline, poor visible porosity, trace stain, show of free oil and fair odor in fresh samples.

3646-3654' Dolomite, tan, brown, finely crystalline, poor to fair inter-crystalline and vuggy type porosity, brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #2** **3621-3654**  
(Log Measurements 3625-3658)

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

**Blow:** Strong

**Recovery:** 672' gas in pipe  
 80' oil and gas cut muddy water  
 (14% gas; 29% oil; 11% water; 46% mud)  
 65' slightly oil and gas cut muddy water  
 (4% oil; 56% water; 40% mud)

**Pressures:** ISIP 757 psi  
 FSIP 679 psi  
 IFP 51-57 psi  
 FFP 64-87 psi  
 HSH 1811-1777 psi

3660-3670' Dolomite, white, tan, finely crystalline, poor scattered porosity, poor inter-crystalline porosity, light black stain, show of free oil and faint/fair odor in fresh samples.

3670-3680' Dolomite, tan, finely crystalline, poor visible porosity, brown stain, no free oil and no odor in fresh samples

3680-3700' Dolomite, tan, white, finely crystalline, poor scattered porosity, cherty in part, no shows and no odor.

Mai Oil Operations  
Hammeke B #7  
N/2-NW-SW-SE (1230' FSL & 2310' FEL)  
Section 21-21s-12w  
Stafford County, Kansas

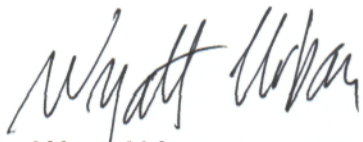
Page 4

**Rotary Total Depth**            **3700**  
**Log Total Depth**            **3704**

**Recommendations:**

The 5 ½" production casing was set and cemented on Mai Oil Operation Inc., Hammeke B #7.

Respectfully yours,



Wyatt Urban  
Petroleum Geologist







**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations Inc.  
 8400 Preston Rd. Ste. 800  
 Dallas TX 75225  
 ATTN: Wyatt Urban

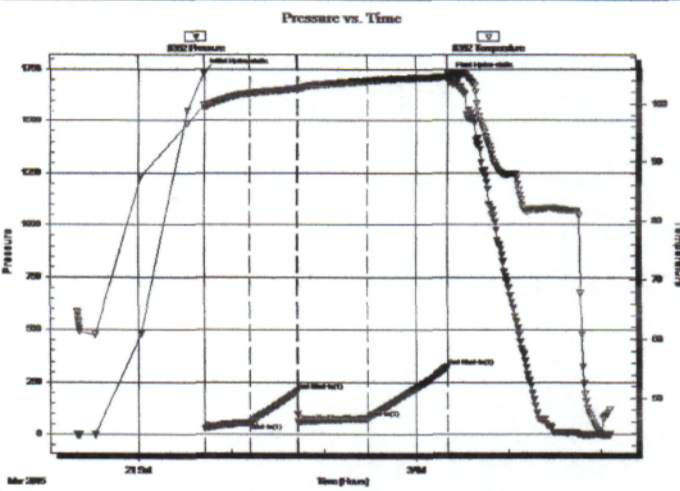
**21-21s-12w Stafford KS**  
**Hammeke B#7**  
 Job Ticket: 59748      **DST#: 1**  
 Test Start: 2015.03.20 @ 23:19:37

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:42:37  
 Time Test Ended: 05:05:37  
 Interval: **3527.00 ft (KB) To 3620.00 ft (KB) (TVD)**  
 Total Depth: 3620.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Gary Pevoteaux  
 Unit No: 80  
 Reference Elevations: 1854.00 ft (KB)  
 1846.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8352**      Outside  
 Press@RunDepth: 75.86 psig @ 3528.00 ft (KB)  
 Start Date: 2015.03.20      End Date: 2015.03.21  
 Start Time: 23:19:42      End Time: 05:05:36  
 Capacity: 8000.00 psig  
 Last Calib.: 2015.03.21  
 Time On Btm: 2015.03.21 @ 00:42:22  
 Time Off Btm: 2015.03.21 @ 03:22:07

**TEST COMMENT:** F:Strong blow . B.O.B. in 7 1/2 mins.  
 IS:No blow .  
 FF:Strong blow . B.O.B. in 25 secs.  
 FS:Weak blow . 1/4 - 1/2".



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1736.41	99.83	Initial Hydro-static
1	29.37	99.35	Open To Flow (1)
30	56.48	101.79	Shut-In(1)
61	206.24	102.56	End Shut-In(1)
61	60.49	102.51	Open To Flow (2)
106	75.86	103.85	Shut-In(2)
158	326.04	104.57	End Shut-In(2)
160	1717.13	105.34	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (tbl)
0.00	945 ft. of GIP	0.00
90.00	GOCM 20%g 9%o 71%m	1.26
65.00	GOCM 31%g 20%o 49%m	0.91

**Gas Rates**

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations Inc.  
8400 Preston Rd. Ste. 800  
Dallas TX 75225  
ATTN: Wyatt Urban

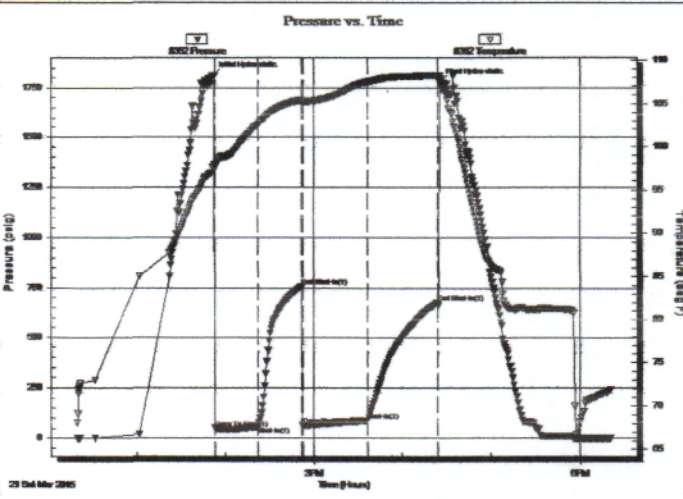
**21-21s-12w Stafford KS**  
**Hammeke B#7**  
Job Ticket: 59749      DST#: 2  
Test Start: 2015.03.21 @ 12:20:07

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 13:53:22  
Time Test Ended: 18:20:52  
Interval: **3621.00 ft (KB) To 3654.00 ft (KB) (TVD)**  
Total Depth: 3654.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Gary Pevoteaux  
Unit No: 80  
Reference Elevations: 1854.00 ft (KB)  
1846.00 ft (CF)  
KB to GR/CF: 8.00 ft

Serial #: **8352** Outside  
Press@RunDepth: 86.69 psig @ 3622.00 ft (KB)  
Start Date: 2015.03.21 End Date: 2015.03.21  
Start Time: 12:20:12 End Time: 18:20:51  
Capacity: 8000.00 psig  
Last Calib.: 2015.03.21  
Time On Btm: 2015.03.21 @ 13:51:37  
Time Off Btm: 2015.03.21 @ 16:25:37

TEST COMMENT: IF: Strong blow . B.O.B. in 7 mins.  
IS: No blow .  
FF: Fair to strong blow . B.O.B. in 14 mins.  
FS: Weak blow . 1/2 - 3".



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1811.16	97.51	Initial Hydro-static
2	50.50	97.81	Open To Flow (1)
31	57.41	102.58	Shut-In(1)
61	757.33	105.38	End Shut-In(1)
62	64.17	105.19	Open To Flow (2)
105	86.69	107.47	Shut-In(2)
153	678.98	108.24	End Shut-In(2)
154	1777.43	107.86	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	672 ft.of GIP	0.00
80.00	GOCMM 14%g 29%o 11%w 46%m	1.12
65.00	OCMM 4%o 40%m 56%w	0.91

\* Recovery from multiple tests

## Gas Rates

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



# 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. 1097

Date	2-17-15	Sec.	21	Twp.	21	Range	12	County	STAFFORD	State	KANSAS	On Location		Finish	5:30PM
								Location							
								DARTMOUTH KS. S. TO RD. 170 2 1/2 E							

Lease	Hammeke "B"	Well No.	#7	Owner	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.
Contractor	SOUTHWIND DRILLING	Rig #	3		
Type Job	LONG SURFACE				
Hole Size	12 1/4	T.D.	645'	Charge To	MAT OIL OPERATIONS
Csg.	8 5/8 New	Depth	645'	Street	
Tbg. Size	23 # csg	Depth		City	State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	20'	Shoe Joint		Cement Amount Ordered	400 sx 60/40 1/4" Flow Seal
Meas Line		Displace	39.80/bbl		2% Gel 3% CC

**EQUIPMENT**

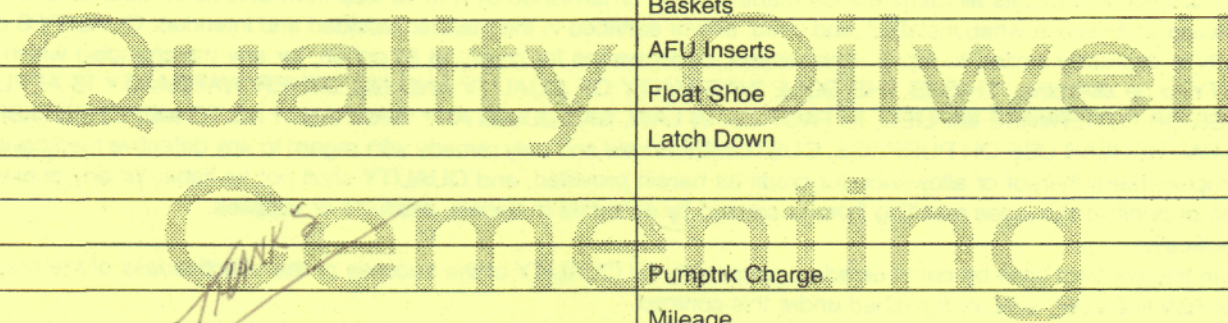
Pumptrk	18	No.	Cementer	Glenn G.	Common
			Helper	CODY B.	Poz. Mix
Bulktrk	19	No.	Driver	CHAD M.	Gel.
			Driver		
Bulktrk		No.	Driver		Calcium
			Driver		

**JOB SERVICES & REMARKS**

Remarks:		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 *Gary Hovrin*



# 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. 931

Date	3-22-15	Sec.	21	Twp.	21	Range	12	County	Stafford	State	KS	On Location		Finish	4:15 PM
Lease								Hammeke "B"		Well No.		#7			
Contractor								Southwind #3		Owner					
Type Job								Production String		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cement and helper to assist owner or contractor to do work as listed.					
Hole Size				7 7/8		T.D.		3700				Charge To		Mat 0:1	
Csg.				5 1/2		Depth		3703				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.				15.13		Shoe Joint		15.13		Cement Amount Ordered		160 60/40 10% Salt 2% Gel 1/4%			
Meas Line						Displace		90 bbl							
<b>EQUIPMENT</b>												Common			
Pumptrk		18		No.		Cementer		Helper		Cray		Poz. Mix			
Bulktrk		3		No.		Driver		Driver		Chad		Gel.			
Bulktrk		Pu		No.		Driver		Driver		Brett		Calcium			
<b>JOB SERVICES &amp; REMARKS</b>												Hulls			
Remarks:												Salt			
Rat Hole				30 1/2		Flowseal									
Mouse Hole						Kol-Seal									
Centralizers				- 1-3, 5-11, 13-15		Mud CLR 48				1000 Gal Mud Flush					
Baskets						CFL-117 or CD110 CAF 38									
D/V or Port Collar						Sand									
Run				3703' 5 1/2" 14 lb casing + 1st cr		Handling									
Mix				1000 Gal Mud Flush		Mileage				5 1/2					
Plug				Rat hole		<b>FLOAT EQUIPMENT</b>									
Mix				130 sz 60/40 down 5 1/2"		Guide Shoe									
Displace				90 bbl		Centralizer				- 13					
Lift pressure				@ 600 lbs		Baskets									
Landed Plug				@ 1500 lbs		AFU Inserts									
						Float Shoe				- 1					
						Latch Down				- 1					
						Pumptrk Charge									
						Mileage									
						Tax									
						Discount									
						Total Charge									
X Signature		[Signature]													