

**JAMES C. MUSGROVE**

Petroleum Geologist, LLC  
212 Main Street  
P.O. Box 215  
Claflin, KS 67525

Office (620) 588-4250

Res. Claflin (620) 587-3444

Mai Oil Operations  
Hammeke B #9  
SE-SW-NE-SW (1500' FSL & 1750' FWL)  
Section 22-21s-12w  
Stafford County, Kansas

Page 1

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

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** March 27, 2015  
**Completed:** April 2, 2015  
**Elevation:** 1848' K.B., 1846' D.F., 1840' G.L.  
**Casing program:** Surface; 8 5/8" @ 635'  
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 four (4) Drill Stem Tests ran by Trilobite Testing Co.  
**Electric Log:** By Nabors, Dual Induction, Compensated Density/Neutron Log and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	632	+1216
Base Anhydrite	653	+1195
Heebner	3102	-1254
Toronto	3112	-1264
Douglas	3137	-1289
Brown Lime	3249	-1401
Lansing	3260	-1412
Base Kansas City	3275	-1427
Viola	3487	-1639
Simpson Shale	3510	-1662
Arbuckle	3563	-1715
Rotary Total Depth	3700	-1852
Log Total Depth	3700	-1852

All tops and zones corrected to Electric Log Measurement

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

**TOPEKA SECTION**

2900-3102' No shows of oil and/or gas was noted (see attached sample log/geologist report)

**TORONTO SECTION**

3112-3120' Limestone, tan, brown, finely crystalline, poor scattered porosity (dense), no shows.

**LANSING SECTION**

3250-3260' Limestone, cream, tan, finely crystalline, fossiliferous, few oolitic, oomoldic in part; scattered vuggy and oomoldic type porosity, chalky in part; trace black stain, no free oil and no odor in fresh samples.

3267-3276' Limestone, cream, white, finely crystalline, scattered vuggy type porosity, chalky in part, golden brown stain, show of free oil and faint odor in fresh samples.

3285-3293' Limestone, cream, tan, finely crystalline, fossiliferous, poor scattered porosity, chalky, dense, no shows and faint odor in fresh samples.

3306-3312' Limestone, cream, tan, fossiliferous, poor visible porosity, highly chalky, black stain, no free oil and questionable odor in fresh samples.

3314-3325' Limestone, cream, tan, finely crystalline, fossiliferous, poor scattered porosity, chalky, no shows, no odor.

3330-3350' Limestone, cream, tan, fossiliferous, poor scattered porosity, highly chalky, poor brown stain and saturation, show of free oil and faint odor in fresh samples.

3350-3360' Limestone, cream, tan, oomoldic, fair oomoldic porosity, brown stain, show of free oil and faint odor in fresh samples.

3376-3384' Limestone, white, cream, oomoldic, fair oomoldic/vuggy type porosity, light golden brown stain, fair stain and saturation, show of free oil and fair odor in fresh samples.

3404-3420' Limestone, white, oomoldic, fair oomoldic porosity, light brown stain, show of free oil and fair odor in fresh samples.

**Drill Stem Test #1** **3356-3420**

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

**Blow:** Strong

**Recovery:** 780' gas in pipe  
63' oil speckled mud

**Pressures:** ISIP 296 psi  
FSIP 308 psi  
IFP 56-55 psi  
FFP 56-66 psi  
HSH 1695-1683 psi

3420-3430' Limestone, cream, tan, finely crystalline, few fossiliferous, poor visible porosity, brown stain, no free oil and faint odor in fresh sample.

- 3432-3438' Limestone, cream, white, oolitic, poor scattered vuggy porosity, chalky, trace black stain.
- 3451-3463' Limestone, cream, white, finely crystalline, dense, poor visible porosity, no shows, no odor.
- 3463-3474' Limestone, cream, oolitic, oomoldic, porosity, chalky, light brown stain, show of free oil and questionable odor in fresh samples.

**VIOLA SECTION**

- 3487-3508' Chert, varied colored, white, tan, cream, fresh, poor visible porosity, light spotty stain, no free oil and faint odor in fresh samples.

**ARBUCKLE SECTION**

- 3562-3572' Dolomite, tan, finely crystalline, poor visible porosity, light brown stain, show of free oil and strong odor in fresh samples.
- 3582-3592' Dolomite, tan, scattered vuggy type porosity, poor to fair inter-crystalline porosity, brown stain, show of free oil and strong odor in fresh sample.
- 3592-3600' Dolomite, tan, finely crystalline, poorly developed vuggy porosity, chalky luster, trace stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #2** **3500-3600**

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

**Blow:** Strong

**Recovery:** 693' gas in pipe  
190' oil and gas cut mud  
(70% gas; 25% oil; 5% mud)  
125' oil and gas cut mud  
(55% gas; 25% oil; 20% mud)  
65' heavily oil and gas cut mud  
(25% gas; 40% oil; 35% mud)

**Pressures:** ISIP 635 psi  
FSIP 561 psi  
IFP 153-147 psi  
FFP 155-189 psi  
HSH 1833-1690 psi

- 3605-3618' Dolomite, white, cream, fine and medium crystalline, good vuggy type porosity, brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #3** **3598-3618'**

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

**Blow:** Strong

**Recovery:** 252' gas in pipe  
 212' clean gassy oil  
 63' oil and gas cut mud  
 (65% gas; 15% oil; 20% mud)

**Pressures:** ISIP 820 psi  
 FSIP 694 psi  
 IFP 40-62 psi  
 FFP 69-114 psi  
 HSH 1840-1731 psi

3618-3633' Dolomite, tan, white, finely crystalline, scattered porosity, brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #3** **3618-3633**

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

**Blow:** Strong

**Recovery:** 5' clean oil  
 610' water

**Pressures:** ISIP 818 psi  
 FSIP 747 psi  
 IFP 59-167 psi  
 FFP 177-290 psi  
 HSH 1853-1702 psi

3633-3640' Dolomite, tan, finely crystalline, poorly developed porosity, dense, light brown stain, no free oil and faint odor in fresh samples.

3640-3660' Dolomite, tan, finely crystalline, dense, poor porosity, light brown stain, no free oil and faint odor in fresh samples.

3660-3680' Dolomite, tan, finely crystalline, cherty, dense, trace brown stain, no free oil and faint odor in fresh samples.

3680-3700' Dolomite, tan, finely crystalline, poor scattered porosity, plus white boney cherts, no shows.

Mai Oil Operations  
Hammeke B #9  
SE-SW-NE-SW (1500' FSL & 1750' FWL)  
Section 22-21s-12w  
Stafford County, Kansas

Page 5

<b>Rotary Total Depth</b>	<b>3700</b>
<b>Log Total Depth</b>	<b>3700</b>

**Recommendations:**

The 5 ½" production casing was set and cemented on Mai Oil Operation Inc., Hammeke B #9.

Respectfully yours,



Wyatt Urban  
Petroleum Geologist



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Mai Oil Operations  
8411 Preston RD STE 800  
Dallas TX 75225  
ATTN: Wyatt Urban

**22-21-12w Stafford**  
**Hammeke M #9**  
Job Ticket: 62877      DST#: 1  
Test Start: 2015.03.31 @ 08:40:00

## GENERAL INFORMATION:

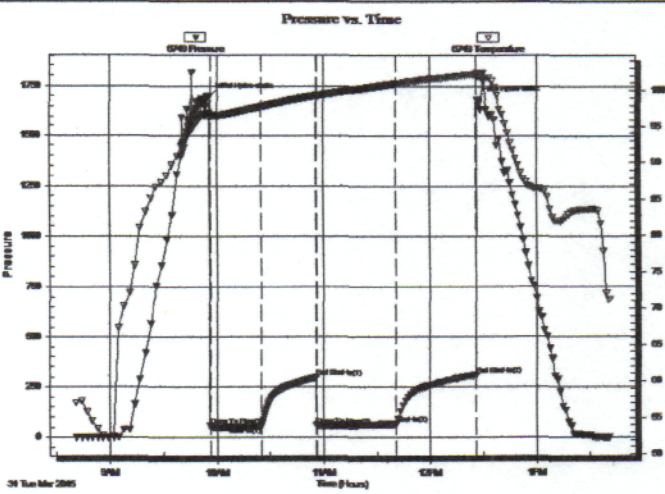
Formation: **LKC G-H**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 09:56:20  
Time Test Ended: 13:40:30  
Interval: **3356.00 ft (KB) To 3420.00 ft (KB) (TVD)**  
Total Depth: 3420.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Dustin Ellis  
Unit No: 59  
Reference Elevations: 1848.00 ft (KB)  
1840.00 ft (CF)  
KB to GR/CF: 8.00 ft

## Serial #: 6749

Outside

Press@RunDepth: 66.09 psig @ 3415.20 ft (KB)  
Start Date: 2015.03.31      End Date: 2015.03.31  
Start Time: 08:41:00      End Time: 13:40:30  
Capacity: 5000.00 psig  
Last Calib.: 2015.03.31  
Time On Btm: 2015.03.31 @ 09:56:10  
Time Off Btm: 2015.03.31 @ 12:26:30

TEST COMMENT: IFF 30 min BOB in 3 min.  
ISI 30 min No blow back  
FFP 45 min BOB in 50 sec.  
FSI 45 min Yes blow back



## PRESSURE SUMMARY

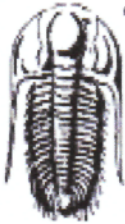
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1695.92	96.92	Initial Hydro-static
1	56.69	96.25	Open To Flow (1)
29	55.05	97.75	Shut-In(1)
60	296.89	99.29	End Shut-In(1)
60	56.68	99.20	Open To Flow (2)
105	66.09	100.88	Shut-In(2)
150	308.37	102.18	End Shut-In(2)
151	1683.01	102.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	Very lightly oil spotted mud 100% Mud	0.88
0.00	780 GIP	0.00

## Gas Rates

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



**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
 8411 Preston RD STE 800  
 Dallas TX 75225  
 ATTN: Wyatt Urban

**22-21-12w Stafford**  
**Hammeke M #9**  
 Job Ticket: 62878      **DST#: 2**  
 Test Start: 2015.04.01 @ 05:01:00

**GENERAL INFORMATION:**

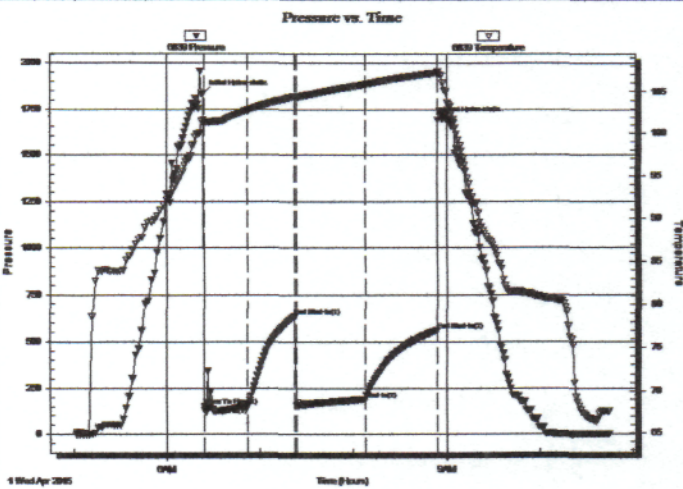
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 06:24:00  
 Time Test Ended: 10:45:00  
 Interval: **3500.00 ft (KB) To 3600.00 ft (KB) (TVD)**  
 Total Depth: 3600.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Dustin Ellis  
 Unit No: 59  
 Reference Elevations: 1848.00 ft (KB)  
 1840.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6839**

**Inside**

Press@RunDepth: 189.81 psig @ 3595.97 ft (KB)  
 Start Date: 2015.04.01 End Date: 2015.04.01  
 Start Time: 05:02:00 End Time: 10:45:00  
 Capacity: 5000.00 psig  
 Last Calib.: 2015.04.01  
 Time On Btm: 2015.04.01 @ 06:23:30  
 Time Off Btm: 2015.04.01 @ 08:54:30

**TEST COMMENT:** FFP 30 min BOB in 6 min.  
 ISI 30 min No blow back  
 FFP 45 min BOB in 5 min.  
 FSI 45 min No blow back



**PRESSURE SUMMARY**

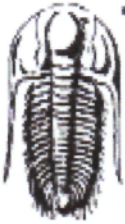
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1833.46	101.59	Initial Hydro-static
1	153.85	101.27	Open To Flow (1)
29	147.59	102.76	Shut-In(1)
59	635.57	104.41	End Shut-In(1)
60	155.46	104.33	Open To Flow (2)
104	189.81	105.86	Shut-In(2)
151	561.04	107.21	End Shut-In(2)
151	1690.91	107.39	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
190.00	V/GMCO 25%Oil 5% Mud 70%Gas	2.67
125.00	V/GMCO 25% Oil 20%Mud 55%Gas	1.75
65.00	GMCO 40%Oil25% Gas 35%Mud	0.91
0.00	693' GIP	0.00

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
8411 Preston RD STE 800  
Dallas TX 75225  
ATTN: Wyatt Urban

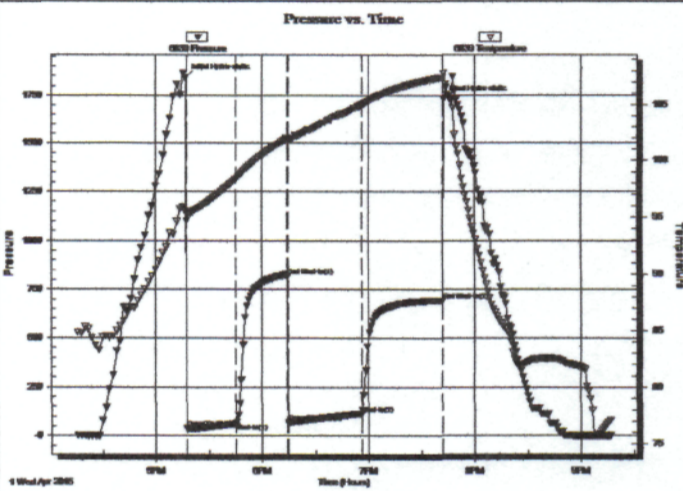
**22-21-12w Stafford**  
**Hammeke M #9**  
Job Ticket: 62879      **DST#: 3**  
Test Start: 2015.04.01 @ 16:15:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 17:17:30  
Time Test Ended: 21:16:30  
Interval: **3598.00 ft (KB) To 3618.00 ft (KB) (TVD)**  
Total Depth: 3618.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Dustin Ellis  
Unit No: 59  
Reference Elevations: 1848.00 ft (KB)  
1840.00 ft (CF)  
KB to GR/CF: 8.00 ft

**Serial #: 6839**      **Outside**  
Press@RunDepth: 114.25 psig @ 3613.00 ft (KB)      Capacity: 5000.00 psig  
Start Date: 2015.04.01      End Date: 2015.04.01      Last Calib.: 2015.04.01  
Start Time: 16:16:00      End Time: 21:16:30      Time On Btm: 2015.04.01 @ 17:17:00  
Time Off Btm: 2015.04.01 @ 19:42:30

**TEST COMMENT:** IFF 30 min BOB in 4 min  
ISI 30 min Yes blow back  
FFP 45 min BOB in 5 min.  
FSI 45 min Yes blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1840.27	95.52	Initial Hydro-static
1	40.62	94.68	Open To Flow (1)
28	62.58	98.36	Shut-In(1)
58	820.56	101.98	End Shut-In(1)
58	69.32	101.86	Open To Flow (2)
99	114.25	105.00	Shut-In(2)
145	694.91	107.45	End Shut-In(2)
146	1731.97	107.86	Final Hydro-static

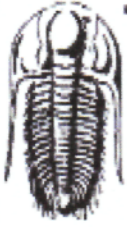
**Recovery**

Length (ft)	Description	Volume (bbl)
212.00	Clean gassy oil 100%	2.97
63.00	VGOCM Gas 65% Mud 20% Oil 15%	0.88

**Gas Rates**

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





**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Mai Oil Operations  
 8411 Preston RD STE 800  
 Dallas TX 75225  
 ATTN: Wyatt Urban

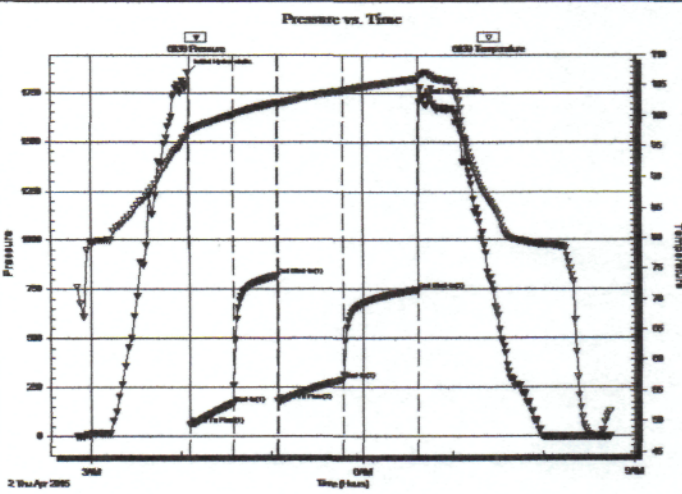
**22-21-12w Stafford**  
**Hammeke M #9**  
 Job Ticket: 62880      **DST#: 4**  
 Test Start: 2015.04.02 @ 02:50:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock:                      ft (KB)  
 Time Tool Opened: 04:05:30  
 Time Test Ended: 08:43:30  
 Interval: **3618.00 ft (KB) To 3633.00 ft (KB) (TVD)**  
 Total Depth: 3633.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Dustin Ellis  
 Unit No: 59  
 Reference Elevations: 1848.00 ft (KB)  
 1840.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6839      Outside**  
 Press@RunDepth: 290.78 psig @ 3628.00 ft (KB)      Capacity: 5000.00 psig  
 Start Date: 2015.04.02      End Date: 2015.04.02      Last Calib.: 2015.04.02  
 Start Time: 02:51:00      End Time: 08:43:30      Time On Btrr: 2015.04.02 @ 04:05:00  
 Time Off Btrr: 2015.04.02 @ 06:37:30

**TEST COMMENT:** IFP 30 min BOB in 6 min  
 ISI 30 min Yes blow back  
 FFP 45 min BOB in 8 min  
 FSI 45 min Yes blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1853.06	97.59	Initial Hydro-static
1	59.69	97.31	Open To Flow (1)
30	167.33	100.06	Shut-in(1)
59	818.75	102.11	End Shut-in(1)
59	177.78	101.93	Open To Flow (2)
102	290.78	104.07	Shut-in(2)
152	747.10	105.99	End Shut-in(2)
153	1702.71	106.40	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	Clean oil 100%	0.07
610.00	Water 100%	8.56

**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. 1142

Date	3-27-15	Sec.	22	Twp.	21	Range	12	County	Stafford	State	Ks	On Location	Finish	9:15 PM
------	---------	------	----	------	----	-------	----	--------	----------	-------	----	-------------	--------	---------

Location Dactmouth, Ks - 115 to 170 Rd, 35

Lease	Hammeke "m"	Well No.	9	Owner	2 1/2 E, N into
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	Surface			Charge To	Maio oil operations
Hole Size	12 1/4"	T.D.	637'	Street	
Csg.	8 5/8"	Depth	635'	City	
Tbg. Size		Depth		State	
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	15'	Shoe Joint	15'	Cement Amount Ordered	400 60/40 3% CC 2% Gel
Meas Line		Displace	39 1/2 BLS		1/2 # Flowseal

**EQUIPMENT**

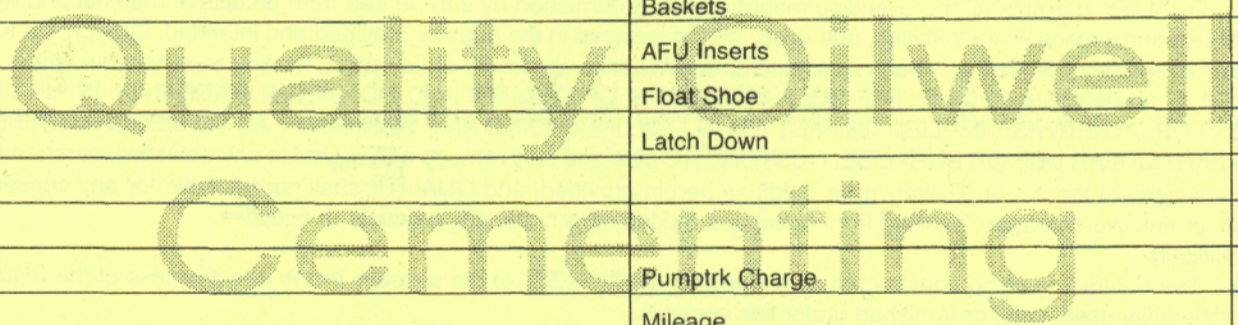
Pumptrk	16	No.	Cementer	Billy	Common
			Helper		
Bulktrk	4	No.	Driver	Nick	Poz. Mix
			Driver		Gel.
Bulktrk	pin	No.	Driver	Rick	Calcium
			Driver		

**JOB SERVICES & REMARKS**

Remarks:	Cement did Circulate
Rat Hole	Flowseal
Mouse Hole	Kol-Seal
Centralizers	Mud CLR 48
Baskets	CFL-117 or CD110 CAF 38
D/V or Port Collar	Sand

**FLOAT EQUIPMENT**

Guide Shoe	Rubber plug
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	



Pumptrk Charge	
Mileage	
	Tax
	Discount
	Total Charge

X Signature Jay Klein

# 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. 1255

MID-NIGHT 4-3-2015

Date	Sec.	Twp.	Range	County	State	On Location	Finish
4-2-2015	22	21	12	STAFFORD	KANSAS		6:30 AM
				Location DARTMOUTH 115 2 1/2 E 1/2 N 1/4 W T120			

Lease	Well No.	Owner	
Hammeke "M"	#9	To Quality Oilwell Cementing, Inc.	
Contractor		You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.	
SOUTH WIND DRIG. Rig #3			
Type Job	Charge To		
PRODUCTION STRING	MAE OIL OPERATION, INC.		
Hole Size	T.D.	Street	
7 7/8	3700'		
Csg.	Depth	City	
5 1/2 used	3698'	State	
Tbg. Size	Depth	The above was done to satisfaction and supervision of owner agent or contractor.	
		Cement Amount Ordered	
Tool	Depth	160 SX 60/40 10% SALT 2% GEL	
LATCH DOWN PLUG	BAFFLE @ 3672	Y4 # F10-892L	
Cement Left in Csg.	Shoe Joint		
25.31	25.31		
Meas Line	Displace		
	89 3/4 / BBL		

**EQUIPMENT**

Pumptrk	No.	Cementer	Helper	Driver	Driver	Driver	Driver	Common
16		Glenn G.	Cody B.	DAVID L.				Poz. Mix
Bulktrk	No.	Driver	Driver	Driver	Driver			Gel.
14								Calcium
Bulktrk	No.	Driver	Driver					

**JOB SERVICES & REMARKS**

Remarks:	Hulls
Rat Hole 30 SX	Salt
Mouse Hole -N2-	Flowseal
Centralizers 1-13, + 15	Kol-Seal
Baskets	Mud CLR 48 1000 GAL
D/V or Port Collar	CFL-117 or CD110 CAF 38
	Sand
	Handling
	Mileage

**FLOAT EQUIPMENT**

Ran 88 used JOINTS OF 14 # csg.	Guide Shoe
Set @ 3698', Receive Circ. Drip AFU BAN	Centralizer
Circulate 45 minutes on bottom.	Baskets
Pump 1000 GAL mud-cld, Plug Rat, +	AFU Inserts
add hole, 30 SX Cement w/ 130 S	Float Shoe
6940 10% SALT 2% GEL, 4 F10 Seal.	Latch Down
Clear-Line, Release LATCH DOWN	
Plug & Displace A TOTAL OF	Pumptrk Charge
1 BBL H <sub>2</sub> O - HAD 600 #	Mileage
LIFT, PRESSURE, LAND Plug @	
Release Pressure + AFU-Plug-(HEAD)	
X Signature	Tax
	Discount
	Total Charge