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Mai Oil Operations  
Kramer 'A' #10  
N/2-SW-NW-SW (1800'FSL & 330'FWL)  
Section 14-15s-14w  
Russell County, Kansas

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

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** June 2, 2014  
**Completed:** June 8, 2014  
**Elevation:** 1893' K.B., 1891' D.F., 1885' G.L.  
**Casing program:** Surface; 8 5/8" @ 515'  
Production, 5 1/2" @ 3399'  
**Sample:** Samples saved and examined 2300' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 2300 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 Log and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	888	+1005
Base Anhydrite	922	+971
Grand Haven	2447	-554
1 <sup>st</sup> Tarkio Sand	2460	-567
Dover	2471	-578
2 <sup>nd</sup> Tarkio Sand	2475	-582
Tarkio Lime	2517	-624
Willard Sand (3 <sup>rd</sup> Tarkio)	2551	-658
Elmont	2579	-686
Howard	2718	-825
Topeka	2790	-897
Heebner	3017	-1124
Toronto	3031	-1138
Lansing	3079	-1186
Base Kansas City (Mai)	3283	-1390
Arbuckle	3328	-1435
Rotary Total Depth	3400	-1507
Log Total Depth	3401	-1508

All tops and zones corrected to Electric Log Measurement.

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

**1<sup>ST</sup> TARKIO SAND**

2460-2466' Sand, gray; very fine grained 'highly shaley' siltstone, no shows.

**2<sup>nd</sup> TARKIO SAND**

2475-2492' No visible sands, poorly developed siltstone.

**3<sup>rd</sup> TARKIO SAND "WILLARD"**

2531-2566' Sand, white, gray, very fine grained, sub-rounded; few friable; trace brown stain, trace of free oil and no odor.

**TOPEKA SECTION**

2810-2815' Limestone, cream, fossiliferous, fossiliferous in part, questionable stain, no show of free oil and no odor.

2897-2910' Limestone, gray, cream, fossiliferous, chalky, poor visible porosity, trace brown stain, weak show of free oil and no odor.

2950-2960' Limestone, tan, fossiliferous, slightly cherty; scattered vuggy porosity, dark brown stain, no free oil and no odor in fresh samples.

2961-2980' Limestone, white, cream, finely crystalline, fossiliferous in part, chalky, poor brown stain, weak show of free oil and no odor in fresh sample.

**TORONTO SECTION**

3033-3042' Limestone, white/cream, finely crystalline, chalky, poor visible porosity, few scattered pinpoint type porosity, golden brown stain, no free oil and no odor in fresh samples.

**LANSING SECTION**

3080-3086' Limestone, tan, gray, fossiliferous, chalky in part; brown stain, weak show of free oil and good odor in fresh samples.

3100-3105' Limestone, cream, white, finely oolitic, scattered porosity; brown stain, trace of free oil and faint odor in fresh samples.

3112-3130' Limestone, tan, white, oomoldic, good oomoldic porosity; brown and golden brown stain, show of free oil and fair odor in fresh sample.

**Drill Stem Test #1 3082-3140**

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

**Blow: Weak**

**Recovery: 15' mud, with oil spots**

**Pressures: ISIP 330 psi  
FSIP 308 psi  
IFP 2-7 psi  
FFP 8-11 psi  
HSH 1535-1497 psi**

- 3151-3155' Limestone, white, cream, oolitic, chalky; trace of brown stain, weak show of free oil and faint odor in fresh samples.
- 3176-3192' Limestone, white, cream, oomoldic, fair oomoldic porosity, trace brown stain, show of free oil and faint odor in fresh samples.
- 3208-3216' Limestone, gray, white, highly oolitic, dense inter-crystalline porosity.
- 3225-3236' Limestone, white, gray, oolitic, sub-oomoldic, chalky, no stains.
- 3243-3253' Limestone, gray, white, oolitic, sub-oomoldic, chalky, no shows.
- 3259-3276' Limestone, as above, light brown stain/golden brown stain; no free oil and no odor in fresh samples.
- 3295-3302' Limestone, white, gray, finely crystalline, chalky, no shows.

**ARBUCKLE SECTION**

- 3328-3330' Dolomite, cream, white, finely crystalline, slightly cherty, trace iron pyrite, brown stain, show of free oil and faint odor.
- 3330-3334' Dolomite, cream, white, light gray, fine and medium crystalline, scattered inter-crystalline to fair vuggy porosity, brown stain, show of free oil and fair odor in fresh samples.

**Drill Stem Test #2 3305-3373  
(3306-3334) Log measurements**

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

**Blow: Strong**

**Recovery: 63' gas in pipe  
 83' gassy slightly mud cut oil  
 (55% gas; 40% oil; 5% mud)  
 63' slightly mud cut gassy oil  
 Trace of water  
 (20% gas; 65% oil; 10% water; 5% mud)  
 126' oil and gas cut watery mud  
 (45% gas; 30% oil; 20% water; 5% mud)  
 315' slightly oil cut muddy water  
 (5% oil; 75% water; 20% mud)**

**Pressures: ISIP 1084 psi  
 FSIP 1082 psi  
 IFP 20-142 psi  
 FFP 146-245 psi  
 HSH 1695-1632 psi**

- 3335-3350' Dolomite, cream, white, fine and medium crystalline, fair to good inter-crystalline and vuggy type porosity; brown stain and saturation, fair to good show of free oil and good odor in fresh samples.

Mai Oil Operations  
Kramer 'A' #10  
N/2-SW-NW-SW (1800'FSL & 330'FWL)  
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Russell County, Kansas

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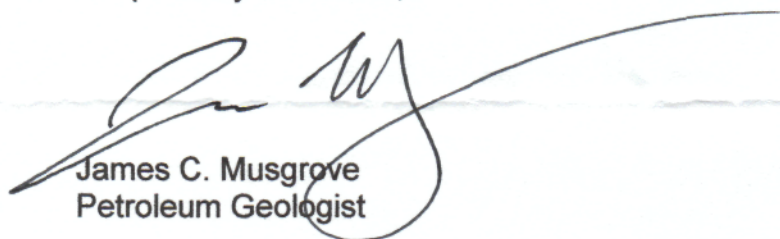
3350-3360'	Dolomite as above.
3360-3370'	Dolomite, white, gray, medium and coarse crystalline, good stain and saturation, good show of free oil and good odor in fresh samples.
3370-3380'	Dolomite, as above, good stain/saturation, good show of free oil and good odor in fresh samples.
3380-3400'	Dolomite, white, finely crystalline, sandy, fair porosity, black and gray to brown stain, show of free oil and fair odor, plus white chert.

<b>Rotary Total Depth</b>	<b>3400</b>
<b>Log Total Depth</b>	<b>3401</b>

**Recommendations:**

5 1/2" production casing was set and cemented on the Kramer 'A' #10.

Respectfully submitted;



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

**14-15s-14w Russell,KS**  
**Kramer "A" #10**  
 Job Ticket: 59376 **DST#: 1**  
 Test Start: 2014.06.06 @ 22:45:00

**GENERAL INFORMATION:**

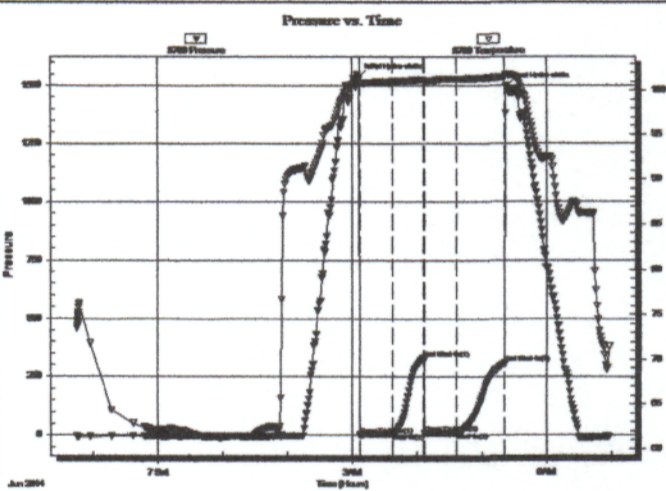
Formation: **LKC "A-C"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:06:30  
 Time Test Ended: 06:57:30  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Phillip Gage  
 Unit No: 70  
 Interval: **3082.00 ft (KB) To 3140.00 ft (KB) (TVD)**  
 Total Depth: 3140.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Reference Elevations: 1893.00 ft (KB)  
 1885.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8700**

**Outside**

Press@RunDepth: 11.86 psig @ 3105.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.06.06 End Date: 2014.06.07 Last Calib.: 2014.06.07  
 Start Time: 22:45:05 End Time: 06:57:29 Time On Btm: 2014.06.07 @ 03:06:00  
 Time Off Btm: 2014.06.07 @ 05:22:00

**TEST COMMENT:** 30-IF-Built to 1 1/8"  
 30-ISI-No Return.  
 30-FF-No Blow.  
 45-FSI-No Return.



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1535.35	101.18	Initial Hydro-static
1	2.54	100.85	Open To Flow (1)
32	7.84	101.01	Shut-In(1)
60	330.71	101.17	End Shut-In(1)
61	8.54	101.10	Open To Flow (2)
91	11.86	101.28	Shut-In(2)
135	308.15	101.49	End Shut-In(2)
136	1497.09	101.79	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
15.00	M, w with oil spots, 100% m	0.21

**Gas Rates**

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



**TRIBOLITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

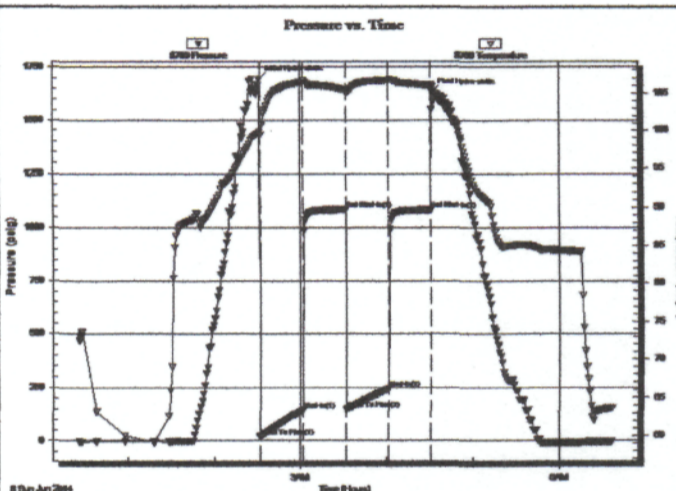
**14-15s-14w Russell,KS**  
**Kramer "A" #10**  
Job Ticket: 59377      DST#: 2  
Test Start: 2014.06.08 @ 00:26:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 02:32:00  
Time Test Ended: 06:37:00  
Interval: **3305.00 ft (KB) To 3333.00 ft (KB) (TVD)**  
Total Depth: 3333.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Phillip Gage  
Unit No: 70  
Reference Elevations: 1893.00 ft (KB)  
1885.00 ft (CF)  
KB to GRV/CF: 8.00 ft

**Serial #: 8700      Outside**  
Press@RunDepth: 245.09 psig @ 3306.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.06.08      End Date: 2014.06.08      Last Calib.: 2014.06.08  
Start Time: 00:26:05      End Time: 06:36:59      Time On Btmr: 2014.06.08 @ 02:31:30  
Time Off Btmr: 2014.06.08 @ 04:32:00

TEST COMMENT: 30-IF-BOB in 5 mins.  
30-ISI-1 1/4" Return  
30-FF-BOB in 10 mins.  
30-FSI-1 3/4" Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1695.15	99.69	Initial Hydro-static
1	20.47	99.36	Open To Flow (1)
30	142.17	106.41	Shut-In(1)
60	1084.14	105.39	End Shut-In(1)
61	146.41	105.08	Open To Flow (2)
90	245.09	106.66	Shut-In(2)
120	1082.97	105.90	End Shut-In(2)
121	1632.90	105.97	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (tbl)
315.00	V SOMCW, 5%o, 20%m, 75%o	4.42
126.00	V SMMOCG, 5%m, 20%w, 30%o, 45%g	1.77
63.00	V SMMGCO, 5%m, 10%w, 20%g, 65%o	0.88
83.00	V SMOCG, 5%m, 40%o, 55%g	1.16
0.00	GIP 63'	0.00

\* 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. 137

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-3-14	14	15	14	Russell	Ks.		10:30 PM

Location: Russell, KS 8 1/2 S 1/2 W INTO 4S.

Lease	Well No.	Owner	
KRAMER "A"	10	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	Type Job	Charge To	
SOUTHWIND DRILLING RIG #3	LONG SURFACE	MAI OIL OPERATIONS	
Hole Size	T.D.	Street	
12 1/4	515		
Csg.	Depth	City	
8 5/8 New	515	State	
Tbg. Size	Depth	The above was done to satisfaction and supervision of owner agent or contractor.	
23# csg			
Tool	Depth	Cement Amount Ordered	
		250 sx 60	
Cement Left in Csg.	Shoe Joint	270 GAL 390 CC	
20'			

**EQUIPMENT**

Pumptrk	No.	Cementer	Helper	Common
10		GLENN G.	CODY B.	Poz. Mix
Bulktrk	No.	Driver	Driver	Gel.
1		LONGMIRE M.		Calcium
Bulktrk	No.	Driver	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**

Ran 12 New JOINTS OF 23# 8 5/8 Csg. Set @ 515, received CIRCULATION, + Cement SURFACE w/ 250 SX 60/40 270 GAL + 390 CC Release T.R.P. + Displaced 31 1/2 BBL H <sub>2</sub> O + SHUT IN @ 400 #. Cement DID CIRCULATE TO SURFACE.	Guide Shoe Centralizer Baskets AFU Inserts Float Shoe Latch Down Solid Rubber plug Pumptrk Charge Mileage
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	Tax	
	Discount	
X Signature: [Signature]	Total Charge	

# 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. 447

Date	6-8-14	Sec.	14	Twp.	15	Range	14	County	Russell	State	KS	On Location	9:45pm	Finish	1:00AM
Lease								Location		Russell 5-to Rive 15 Winto					
Kramer "A"								Well No.		10					
Contractor								3		Owner					
Southard										To Quality Oilwell Cementing, Inc.					
Type Job										You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.					
Long Stair															
Hole Size								T.D.		Charge To					
7 1/4								3400		Ma. Oil					
Csg.								Depth		Street					
5 1/2								3398		City					
Tbg. Size								Depth		State					
Tool								Depth		The above was done to satisfaction and supervision of owner agent or contractor.					
Cement Left in Csg.								Shoe Joint		Cement Amount Ordered					
1894								1894		160 60/40					
Meas Line								Displace		10% Salt + 2% gel X-flow					
14H								82.57							
<b>EQUIPMENT</b>															
Pumptrk		No.		Cementer		Helper									
20				Tott											
Bulktrk		No.		Driver		Driver									
1				Nick											
Bulktrk		No.		Driver		Driver									
pu				Lonnie											
<b>JOB SERVICES &amp; REMARKS</b>															
Remarks:												Hulls			
Rat Hole												Salt			
30 S/S												Flowseal			
Mouse Hole												Kol-Seal			
Centralizers												Mud CLR 48			
1-7 9-11												1000 g			
Baskets												CFL-117 or CD110 CAF 38			
D/V or Port Collar												Sand			
Dropped Ball Circutated												Handling			
US man - Ran mud fish												Mileage			
plug bot hole mud												5H			
30 S/S down hole												<b>FLOAT EQUIPMENT</b>			
Dis placed with water												Guide Shoe			
Lift 200 PSI												Centralizer Turbo 10			
Level 1500 PSI												Baskets			
												AFU Inserts			
												Float Shoe 4			
												Latch Down 1			
												Pumptrk Charge			
												Mileage			
												Tax			
												Discount			
X Signature												Total Charge			
Burt Horner															