

JAMES C. MUSGROVE

Petroleum Geologist, LLC
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Mai Oil Operations
Appleton #5
NE-SW-SE-NW (2240' FNL & 1810' FWL)
Section 14-19s-10w
Rice County, Kansas

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5 1/2" Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: August 19, 2015
Completed: August 26, 2015
Elevation: 1757' K.B., 1755' D.F., 1749' G.L.
Casing program: Surface; 8 5/8" @ 303'
Production, 5 1/2" @ 3342'
Sample: Samples saved and examined 2500' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 2500' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were six (6) Drill Stem Tests ran by Trilobite Testing Co.
Electric Log: By Nabors, Dual Induction, Compensated Density/Neutron, Micro and Sonic.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	417	+1340
Base Anhydrite	438	+1319
Heebner	2801	-1044
Toronto	2823	-1066
Douglas	2837	-1080
Douglas Sand	2851	-1094
Brown Lime	2921	-1164
Lansing	2952	-1195
Base Kansas City	3197	-1440
Conglomerate	3253	-1496
Arbuckle	3270	-1513
Rotary Total Depth	3345	-1588
Log Total Depth	3345	-1588

All tops and zones corrected to Electric Log Measurement

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

TOPEKA SECTION

- 2725-2740' Limestone, white, gray, fossiliferous in part, trace black to questionable brown stain, no free oil and no odor in fresh samples.
- 2746-2766' Limestone, gray, finely crystalline, slightly fossiliferous, sub-oomoldic, scattered porosity, black stain, no free oil and no odor in fresh samples.

DOUGLAS SECTION

- 2851-2873' Sand, gray, dark gray, fine to medium grained, micaeous in part, shaley in part, fair inter-granular porosity; good brown and black stain and saturation, show of free oil and fair odor in fresh samples.

Drill Stem Test #1 **2830-2870**

Times: 30-30-45-60

Blow: Strong

Recovery: 60' gas in pipe
60' very slightly oil cut mud
(5% oil; 95% mud)

Pressures: ISIP 268 psi
FSIP 424 psi
IFP 83-70 psi
FFP 76-86 psi
HSH 1364-1317 psi

LANSING SECTION

- 2952-2966' Limestone, gray, yellow, finely crystalline, fossiliferous, poor visible porosity, no shows.
- 2972-2976' Limestone, white, tan, sub-oomoldic, chalky, few cherty, poor visible porosity.
- 2994-3004' Limestone, tan, white sub-oomoldic, chalky, few cherty, poorly developed porosity, few with fair porosity, brown stain no free oil and no odor in fresh samples (gas zone in surrounding offsets).
- 3019-3031' Limestone, tan, oolitic, chalky, trace brown stain, no free oil and faint odor in fresh samples.
- 3033-3041' Limestone, tan, gray, oomoldic, fair oomoldic porosity, brown stain, trace of free oil and faint odor in fresh samples.

Drill Stem Test #2 **3029-3041**

----Misrun, plugged tool----

Drill Stem Test #3 **3029-3041**

----Misrun, plugged tool----

- 3041-3060' Limestone, as above, spotty stain, no free oil and questionable odor in fresh samples.
- 3097-3101' Limestone, white, gray oomoldic, good oomoldic porosity, no shows.
- 3112-3121' Limestone, tan, fossiliferous, chalky, trace brown stain, trace free oil and questionable odor in fresh samples.
- 3134-3142' Limestone, tan, oomoldic, scattered oomoldic porosity, brown stain, trace free oil and faint odor in fresh samples.
- 3159-3170' Limestone, white, gray, finely crystalline, few oolitic, oomoldic in part, fair porosity, trace stain show of free oil and faint odor in fresh samples.
- 3180-3190' Limestone, white, oolitic, chalky, poor visible porosity, no shows.

Drill Stem Test #4 **3121-3200**

Times: 30-30-30-45

Blow: Strong

Recovery: 1430' gas in pipe
 60' muddy oil
 (50% oil; 50% mud)
 70' gassy mud

Pressures: ISIP 279 psi
 FSIP 368 psi
 IFP 68-70 psi
 FFP 98-92 psi
 HSH 1559-1526 psi

- 3204-3212' Limestone, tan, finely crystalline, few medium crystalline, chalky, glauconitic, poor visible porosity, brown stain, no free oil and no odor in fresh samples.

ARBUCKLE SECTION

- 3270-3280' Dolomite, gray and white, fine and medium crystalline poor visible porosity, trace black stain, no show of free oil and faint odor in fresh samples.
- 3282-3293' Dolomite, tan finely crystalline, sucrosic, fair slightly cherty, fair pinpoint to fine inter-crystalline porosity, poor to fair stain, show of free oil and good odor in fresh samples.

Drill Stem Test #5 **3204-3290**

----Misrun, plugged tool----

Mai Oil Operations
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Rice County, Kansas

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Drill Stem Test #6 **3204-3293**

Times: 30-30-30-45

Blow: Strong

**Recovery: 480' gas in pipe
660' oil and gas cut muddy water
(10% oil; 10% gas; 60% water; 20% mud)**

**Pressures: ISIP 884 psi
FSIP 897 psi
IFP 157-232 psi
FFP 284-331 psi
HSH 1670-1502 psi**

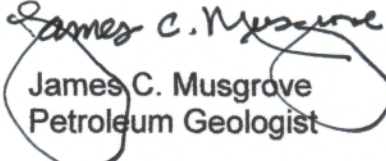
- 3293-3310' Dolomite, tan; sucrosic, fair pinpoint porosity, fair stain and saturation, show of free oil and good odor in fresh samples, plus white/gray, oolitic chert.
- 3310-3330' Dolomite, gray fine and medium crystalline, scattered porosity, gray and black stain, no free oil and fair odor in fresh samples.
- 3330-3345' Dolomite as above, plus gray chert, no shows.

Rotary Total Depth 3345
Log Total Depth 3345

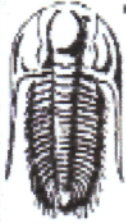
Recommendations:

The 5 1/2" production casing was set and cemented on Mai Oil Operations Inc., Appleton #5.

Respectfully yours,


James C. Musgrove
Petroleum Geologist





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston RD Ste 800
 Dallas TX 75225+5520
 ATTN: Jim Musgrove

14-19s-10w Rice,KS
Appleton #5
 Job Ticket: 62935 **DST#: 1**
 Test Start: 2015.08.22 @ 14:10:00

GENERAL INFORMATION:

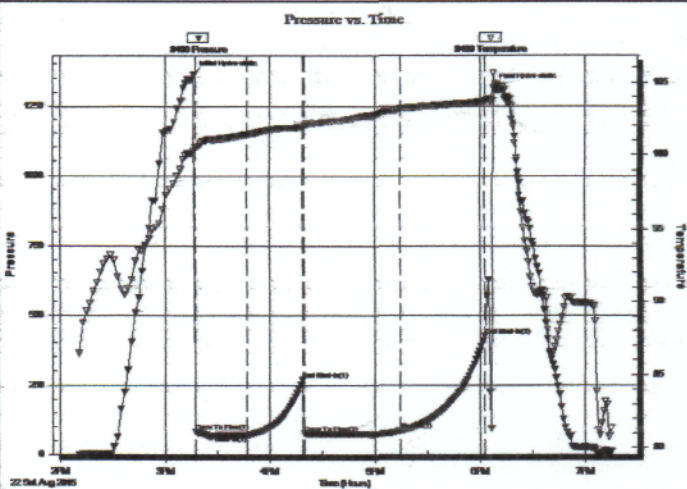
Formation: **Douglas Sand**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:17:30
 Time Test Ended: 19:15:00
 Interval: **2830.00 ft (KB) To 2870.00 ft (KB) (TVD)**
 Total Depth: 2870.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jared Scheck
 Unit No: 55
 Reference Elevations: 1757.00 ft (KB)
 1749.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8400

Inside

Press@RunDepth: 86.28 psig @ 2831.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.08.22 End Date: 2015.08.22 Last Calib.: 2015.08.22
 Start Time: 14:11:00 End Time: 19:15:00 Time On Btm: 2015.08.22 @ 15:16:30
 Time Off Btm: 2015.08.22 @ 18:07:30

TEST COMMENT: FFP-30 Minutes-Fair blow built 10"
 FSIP-30 Minutes-No blow back
 FFP-45 Minutes-BOB in 20 minutes
 FSIP-60 Minutes-No blow back



PRESSURE SUMMARY

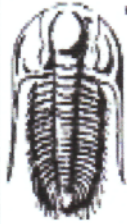
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1364.67	100.28	Initial Hydro-static
1	83.56	100.54	Open To Flow (1)
31	70.60	101.38	Shut-in(1)
62	268.22	101.90	End Shut-in(1)
63	76.27	102.03	Open To Flow (2)
118	86.28	103.24	Shut-in(2)
166	424.01	103.74	End Shut-in(2)
171	1317.39	105.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
65.00	OCM 5%O 95%M	0.91
0.00	60' 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+5520
 ATTN: Jim Musgrove

14-19s-10w Rice,KS
Appleton #5
 Job Ticket: 62936 **DST#: 2**
 Test Start: 2015.08.23 @ 10:07:00

GENERAL INFORMATION:

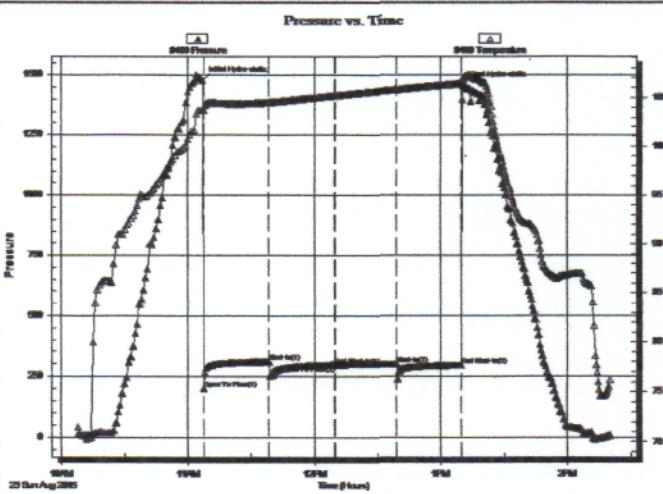
Formation: **LKC G**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:07:00
 Time Test Ended: 14:20:30
 Interval: **3029.00 ft (KB) To 3041.00 ft (KB) (TVD)**
 Total Depth: 3041.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jared Scheck
 Unit No: 55
 Reference Elevations: 1757.00 ft (KB)
 1749.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8400

Inside

Press@RunDepth: 292.88 psig @ 3030.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.08.23 End Date: 2015.08.23 Last Calib.: 2015.08.23
 Start Time: 10:08:00 End Time: 14:20:00 Time On Btm: 2015.08.23 @ 11:07:00
 Time Off Btm: 2015.08.23 @ 13:10:30

TEST COMMENT: FFP-30 Minutes-Weak surface blow 1/4"
 ISIP-30 Minutes-No blow back
 FFP-30 Minutes-Very weak surge did not build
 FSIP-30 Minutes-No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1476.94	103.80	Initial Hydro-static
1	201.44	103.77	Open To Flow (1)
32	308.25	104.53	Shut-In(1)
63	295.14	105.18	End Shut-In(1)
63	294.10	105.19	Open To Flow (2)
92	297.99	105.81	Shut-In(2)
123	292.88	106.40	End Shut-In(2)
124	1456.88	106.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	VSOOM 1%O 99%M	0.01

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+5520
 ATTN: Jim Musgrove

14-19s-10w Rice,KS
Appleton #5
 Job Ticket: 62937 **DST#: 3**
 Test Start: 2015.08.23 @ 18:12:00

GENERAL INFORMATION:

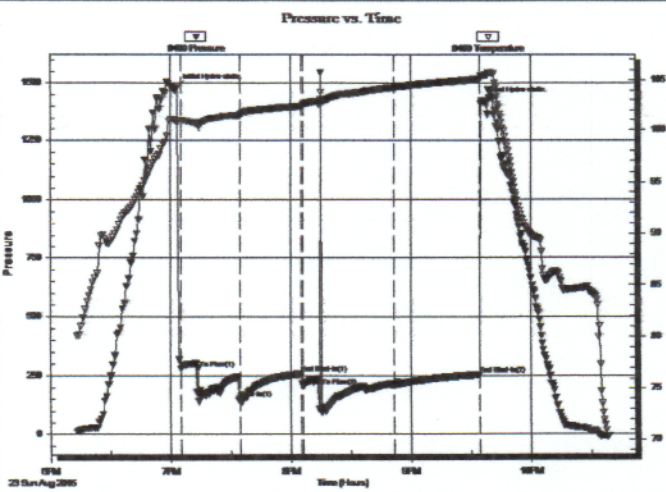
Formation: **LKC G**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:05:00
 Time Test Ended: 22:38:30
 Interval: **3029.00 ft (KB) To 3041.00 ft (KB) (TVD)**
 Total Depth: 3041.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jared Scheck
 Unit No: 55
 Reference Elevations: 1757.00 ft (KB)
 1749.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8400

Inside

Press@RunDepth: 213.13 psig @ 3030.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.08.23 End Date: 2015.08.23 Last Calib.: 2015.08.23
 Start Time: 18:13:00 End Time: 22:38:30 Time On Btrm: 2015.08.23 @ 19:03:00
 Time Off Btrm: 2015.08.23 @ 21:35:30

TEST COMMENT: FP-30 Minutes-Weak surface blow flushed tool blow built 2 1/2" flushed again blow built 3" total
 ISIP-30 Minutes-No blow back
 FFP-45 Minutes-Very weak surface blow flushed tool blow built 3"
 FSIP 45 Minutes-No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1481.21	100.71	Initial Hydro-static
2	280.93	101.02	Open To Flow (1)
32	155.97	101.53	Shut-In(1)
62	259.23	102.42	End Shut-In(1)
63	207.43	102.57	Open To Flow (2)
109	213.13	104.26	Shut-In(2)
151	255.87	105.05	End Shut-In(2)
153	1424.00	105.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud	0.28

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. 1809
8-20-15

Date	8-19-15	Sec.	14	Twp.	19	Range	10	County	Rice	State	Ks	On Location		Finish	1:00 AM
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Location Clatlin, Ks - E to 4th Rd, S to I Rd

Lease	Appleton		Well No.	5	Owner	1/4 S, E 1/4 T40	
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						
Hole Size	12 1/4"		T.D.	303'	Charge To	Main oil	
Csg.	8 5/8"		Depth	303'	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'		Shoe Joint	15'	Cement Amount Ordered 180 @ 60/40 3 1/2 CC 2 1/2 bel		
Meas Line	Displace		18 1/4 BU				

EQUIPMENT

Pumptrk	18	No.	Cementer		Common
			Helper	Traub	
Bulktrk	3	No.	Driver	Nick	Poz. Mix
			Driver		Gel.
Bulktrk	p.u.	No.	Driver	Rock	Calcium
			Driver		

JOB SERVICES & REMARKS

Remarks:	Cement did Circulate	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

FLOAT EQUIPMENT

	Guide Shoe
	Centralizer
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Pumptrk Charge

Mileage

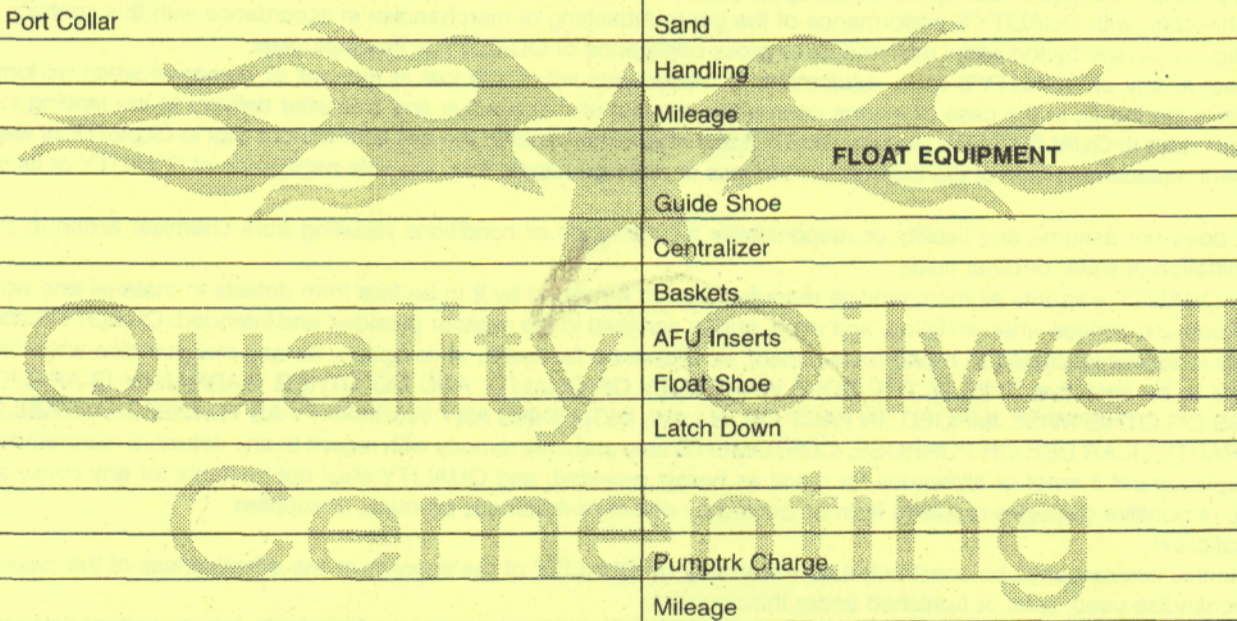
Tax

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. 1610

Date	8-26-15	Sec.	14	Twp.	19	Range	10	County	Rice	State	Ks	On Location		Finish	10:45AM	
Lease	Appleton							Well No.	5	Location Clifton, Ks - E to 4th Rd, S to I Rd						
Contractor	Southwind 3							Owner	TE 1/4 S E15							
Type Job	Longstring							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.								
Hole Size	7 7/8"		T.D.	3345'		Charge To	mai oil									
Csg.	5 1/2" New 14#		Depth	3342'		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.	20.56'		Shoe Joint	20.56'		Cement Amount Ordered	160 60/40 10% Salt 2% Gel 1/4# Flt									
Meas Line			Displace	81 BCS		1000 gal mud Clear 48										
EQUIPMENT						Common										
Pumptrk	18	No.	Cementer	Travis		Poz. Mix										
			Helper													
Bulktrk	3	No.	Driver	Doug		Gel.										
			Driver													
Bulktrk	p.u.	No.	Driver	Rick		Calcium										
			Driver													
JOB SERVICES & REMARKS						Hulls										
Remarks:											Salt					
Rat Hole											Flowseal					
Mouse Hole											Kol-Seal					
Centralizers	1-12		14		Mud CLR 48											
Baskets	pipe on bottom, break Circulation										CFL-117 or CD110 CAF 38					
D/V or Port Collar	pump 1000 gal mud Clear 48										Sand					
plug Rathole w/ 30 sx Hook to casing + pump 1305x Cement						Handling										
shut down, released plug + Displaced w/ 81 BCS of water.						Mileage										
Released + hold						FLOAT EQUIPMENT										
Lift pressure 700 #						Guide Shoe										
Land plug to 1500 #						Centralizer 13										
						Baskets										
						AFU Inserts										
						Float Shoe										
						Latch Down										
						Pumptrk Charge										
						Mileage										
											Tax					
											Discount					
											Total Charge					
X Signature	[Signature]															