

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
Miller Farms #2
N/2-NE-SE-NE (1625' FNL & 330' FEL)
Section 36-16s-14w
Barton County, Kansas

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5 1/2" Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: July 22, 2014
Completed: July 27, 2014
Elevation: 1988' K.B., 1986" D.F., 1980' G.L.
Casing program: Surface; 8 5/8" @ 514'
Production, 5 1/2 @ 3549'
Sample: Samples saved and examined 3000' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 3000 ft. to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were three (3) 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	951	+1037
Base Anhydrite	980	+1008
Heebner	3146	-1158
Toronto	3162	-1174
Brown Lime	3221	-1233
Lansing	3230	-1242
Base Kansas City	3437	-1449
Arbuckle	3453	-1465
Rotary Total Depth	3550	-1562
Log Total Depth	3549	-1561

All tops and zones corrected to Electric Log Measurement.

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

TOPEKA SECTION

- 3093-3106' Limestone, white/gray, fossiliferous, chalky, poor porosity, trace black and brown stain, no free oil and no odor in fresh samples.
- 3106-3126' Limestone, white, cream, finely crystalline, poor visible porosity, dark brown spotty stain, trace of free oil and no odor in fresh samples.

TORONTO SECTION

- 3163-3171' Limestone, cream, finely crystalline, fossiliferous in part, chalky, poor visible porosity, black spotty stain, no free oil and no odor in fresh samples.

LANSING SECTION

- 3203-3236' Limestone, tan, medium crystalline, few fossiliferous, chalky, trace tan chert.
- 3246-3254' Limestone, cream, finely crystalline, few cherty, dense.
- 3257-3264' Limestone, cream, tan, finely crystalline, oolitic, sub-oomoldic, scattered porosity; chalky, trace poor brown stain, no free oil and no odor, plus gray and tan chert.
- 3270-3280' Limestone, white, gray, oolitic, chalky, poorly developed porosity; no shows.
- 3290-3300' Limestone, tan, oolitic, chalky, poor visible porosity, brown spotty stain, no free oil and questionable odor in fresh samples.
- 3306-3326' Limestone, gray, cream oomoldic, good oomoldic porosity, chalky (barren).
- 3359-3367' Limestone, white, cream, oolitic, oomoldic, fair porosity, trace brown and gray stain, show of free oil and faint odor.
- 3381-3387' Limestone, white, gray, oolitic, chalky, scattered porosity, brown stain; show of free oil and faint odor in fresh samples.
- 3395-3400' Limestone, white, cream, sub-oomoldic, oolitic, fair sub-oomoldic porosity, brown stain, trace of free oil and no odor in fresh samples.

Drill Stem Test #1 **3340-3400**

Times: 30-30-45-60
Blow: Weak
Recovery: 160' muddy water
Pressures: ISIP 848 psi
FSIP 832 psi
IFP 31-52 psi
FFP 56-84 psi
HSH 1616-1584 psi

3421-3432' Limestone, white, oolitic, chalky, poor porosity, no shows.

ARBUCKLE SECTION

3453-3460' Dolomite, white, cream, finely crystalline, few cherty, poor porosity, trace brown stain, trace of free oil and faint odor.
3460-3470' Dolomite, cream, white, fine and medium crystalline, scattered inter-crystalline porosity, brown stain and saturation, show of free oil and faint odor in fresh samples.

Drill Stem Test #2 **3407-3470**

Times: 30-30-3030
Blow: Weak
Recovery: 2' mud
2' clean oil
Pressures: ISIP 131 psi
FSIP 53 psi
IFP 16-17 psi
FFP 18-17 psi
HSH 1656-1619 psi

3470-3480' Dolomite, as above, brown stain, show of free oil and odor.
3480-3487' Dolomite, tan, brown, medium crystalline, fair inter-crystalline porosity, brown stain and saturated in part; show of free oil and faint odor, plus tan, oolitic chert.

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Drill Stem Test #3

3407-3487

Times: 30-30-30-45

Blow: Strong

**Recovery: 30' clean oil
30' muddy oil
(25% mud; 75% oil)
320' mud cut watery oil
(60% oil; 10% water; 30% mud)**

**Pressures: ISIP 1085 psi
FSIP 1089 psi
IFP 20-102 psi
FFP 110-174 psi
HSH 1665-1621 psi**

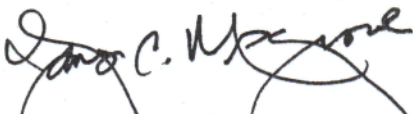
- 3481-3510' Dolomite, as above, plus tan/gray, fine and medium crystalline, dolomite, and white/tan oolitic chert, no shows.
- 3510-3530' Dolomite, tan, gray, finely crystalline, fair to good inter-crystalline and vuggy type porosity, no shows.
- 3530-3550' Dolomite, tan, buff, finely crystalline, few medium crystalline, sucrosic in part, fair porosity, plus white boney chert.

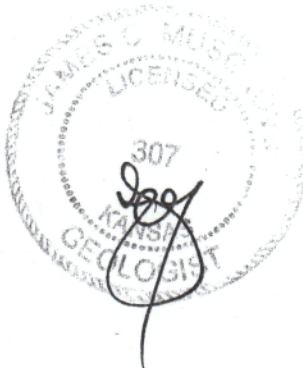
**Rotary Total Depth 3550
Log Total Depth 3549**

Recommendations:

5 1/2" production casing set and cemented on the Mai Oil Operations Inc., Miller Farms #2.

Respectfully yours,


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

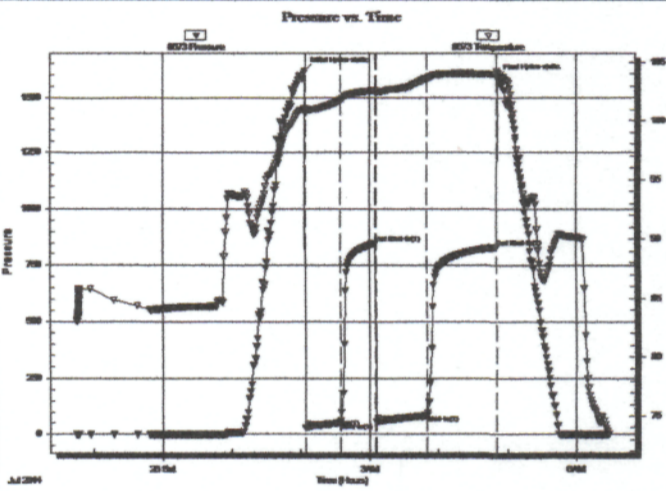
36-16s-14w Barton,KS
Miller Farms #2
 Job Ticket: 58382 **DST#: 1**
 Test Start: 2014.07.25 @ 22:45:18

GENERAL INFORMATION:

Formation: _____
 Deviated: No Whipstock: _____ ft (KB)
 Time Tool Opened: 02:04:48
 Time Test Ended: 06:28:18
 Interval: **3340.00 ft (KB) To 3400.00 ft (KB) (TVD)**
 Total Depth: 3400.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Pbor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 62
 Reference Elevations: 1988.00 ft (KB)
 1980.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8673 **Inside**
 Press@RunDepth: 84.29 psig @ 3341.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.07.25 End Date: 2014.07.26 Last Calib.: 2014.07.26
 Start Time: 22:45:19 End Time: 06:28:18 Time On Btm: 2014.07.26 @ 02:03:48
 Time Off Btm: 2014.07.26 @ 04:50:48

TEST COMMENT: 30- IF- Built very quickly to 2" in 1 min then slowly an additional 2 1/2" during remainder of period
 30- IS- No blow
 45- FF- Built very slowly to 2 1/2"
 60- FS- No blow



PRESSURE SUMMARY

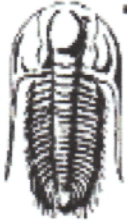
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1615.85	101.15	Initial Hydro-static
1	30.72	100.74	Open To Flow (1)
31	52.03	101.80	Shut-in(1)
61	847.75	102.65	End Shut-in(1)
62	55.73	102.45	Open To Flow (2)
107	84.29	103.63	Shut-in(2)
167	832.35	104.03	End Shut-in(2)
167	1584.26	104.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
160.00	MW, 35%M 65%W	2.19

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

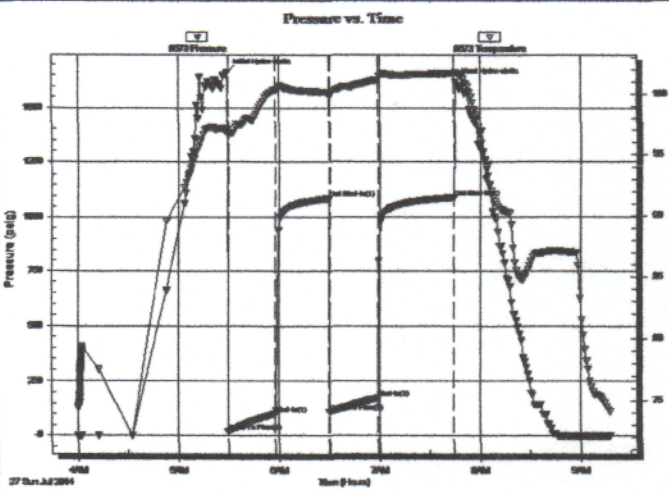
36-16s-14w Barton,KS
Miller Farms #2
 Job Ticket: 58384 DST#: 3
 Test Start: 2014.07.27 @ 04:00:07

GENERAL INFORMATION:

Formation: _____
 Deviated: No Whipstock: _____ ft (KB)
 Time Tool Opened: 05:29:37
 Time Test Ended: 09:17:37
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 62
 Interval: **3407.00 ft (KB) To 3487.00 ft (KB) (TVD)**
 Total Depth: 3487.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 1988.00 ft (KB)
 1980.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8673 **Outside**
 Press@RunDepth: 174.47 psig @ 3408.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.07.27 End Date: 2014.07.27 Last Calib.: 2014.07.27
 Start Time: 04:00:08 End Time: 09:17:37 Time On Btm: 2014.07.27 @ 05:29:07
 Time Off Btm: 2014.07.27 @ 07:45:37

TEST COMMENT: 30- IF- BOB 13 mins
 30- IS- No blow
 30- FF- BOB 13 mins
 45- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1665.30	97.03	Initial Hydro-static
1	19.68	96.53	Open To Flow (1)
29	102.09	100.33	Shut-in(1)
61	1084.69	100.17	End Shut-in(1)
61	109.59	99.79	Open To Flow (2)
90	174.47	101.17	Shut-in(2)
136	1089.25	101.67	End Shut-in(2)
137	1621.30	101.78	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MCO, 25%M 75%O	0.82
320.00	SWMCO, 10%W 30%M 60%O	4.37

* 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. 098

Date	7-22-14	Sec.	36	Twp.	16	Range	14	County	Barton	State	Ks	On Location		Finish	10:15 PM
Lease	Miller Farms		Well No.	2		Location									
Contractor		Southwind		3		Owner									
Type Job		Surface		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	12 1/4"	T.D.	514'		Charge To										
Csg.	8 5/8"	Depth	514'		Mai oil operations										
Tbg. Size		Depth			Street										
Tool		Depth			City										
Cement Left in Csg.	20'	Shoe Joint	20'		State										
Meas Line		Displace	31 1/2 BLS		The above was done to satisfaction and supervision of owner agent or contractor.										
EQUIPMENT													Common		
Pumptrk	16	No.	Cementer	Billy		Poz. Mix									
			Helper												
Bulktrk	9	No.	Driver	Chad		Gel.									
			Driver												
Bulktrk	p.u.	No.	Driver	Rick		Calcium									
			Driver												
JOB SERVICES & REMARKS													Hulls		
Remarks:	Cement did		Circulate		Salt										
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													Handling		
FLOAT EQUIPMENT													Mileage		
FLOAT EQUIPMENT													Guide Shoe		
FLOAT EQUIPMENT													Centralizer		
FLOAT EQUIPMENT													Baskets		
FLOAT EQUIPMENT													AFU Inserts		
FLOAT EQUIPMENT													Float Shoe		
FLOAT EQUIPMENT													Latch Down		
FLOAT EQUIPMENT													Pumptrk Charge		
FLOAT EQUIPMENT													Mileage		
FLOAT EQUIPMENT													Tax		
FLOAT EQUIPMENT													Discount		
FLOAT EQUIPMENT													Total Charge		
X Signature	Joy Krien														

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. 322

Date	7-28-14	Sec.	36	Twp.	16	Range	14	County	Benton	State	KS	On Location	12:45 AM	Finish	4:30 AM
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Lease Miller farms
Well No. 2
Location Stickney Elevator 1 E 1/2 S

Contractor	See Hildred	3	Owner	Witte	
Type Job	Long String		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.	3550	Charge To	
Csg.	5 1/2	Depth	3546	Street	
Tbg. Size		Depth		City	
Tool		Depth		State	
Cement Left in Csg.	19.57ft	Shoe Joint	19.57ft	The above was done to satisfaction and supervision of owner agent or contractor.	
Meas Line	141ft	Displace	86. B/B	Cement Amount Ordered	160 60/40
				10% salt	2% gel ya flow

EQUIPMENT

Pumptrk	18	No.	Cementor		Common
			Helper	Witte	
Bulktrk	2	No.	Driver	Cody	Poz. Mix
			Driver		Gel.
Bulktrk	pu	No.	Driver	Doug	Calcium
			Driver		

JOB SERVICES & REMARKS

Remarks:		Hulls
Rat Hole	3054s	Salt
Mouse Hole		Flowseal
Centralizers	1-8 10-11	Kol-Seal
Baskets		Mud CLR 48 1000 gal
D/V or Port Collar		CFL-117 or CD110 CAF 38
Dropped Bull Centralizer		Sand
45 min Run 100 g		Handling
and high plug but		Mileage
hole 3054s mixed		5/10
13054 down hole		FLOAT EQUIPMENT
displaced with Witte		Guide Shoe
86 B/B		Centralizer turbos 10
		Baskets
		AFU Inserts
		Float Shoe
		Latch Down
Lift 100 PSI		
Land 1500 PSI		
		Pumptrk Charge
		Mileage
		Tax
		Discount
		Total Charge

X Signature *Butt Horner*