

**TRILLOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

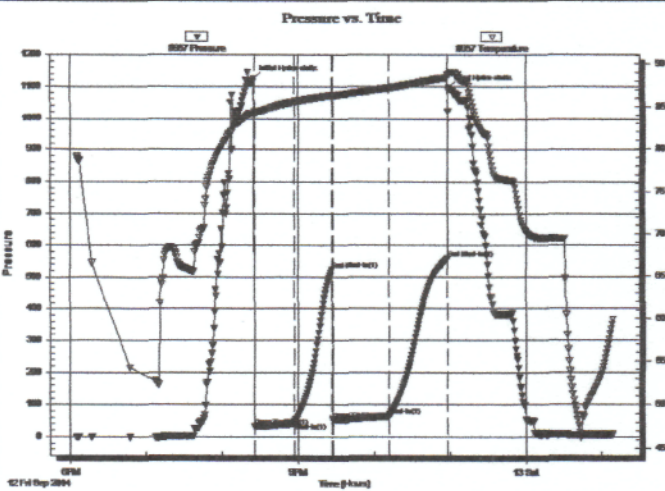
**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
Job Ticket: 53972      **DST#: 1**  
Test Start: 2014.09.12 @ 18:05:00

## GENERAL INFORMATION:

Formation: **Tarkio Sand**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 20:26:00  
Time Test Ended: 01:08:45  
Interval: **2408.00 ft (KB) To 2477.00 ft (KB) (TVD)**  
Total Depth: 2477.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Brett Dickinson  
Unit No: 59  
Reference Elevations: 1860.00 ft (KB)  
1852.00 ft (CF)  
KB to GR/CF: 8.00 ft

**Serial #: 8957      Outside**  
Press@RunDepth: 65.32 psig @ 2437.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.09.12      End Date: 2014.09.13      Last Calib.: 2014.09.13  
Start Time: 18:05:05      End Time: 01:08:44      Time On Btm: 2014.09.12 @ 20:25:15  
Time Off Btm: 2014.09.12 @ 22:59:30

TEST COMMENT: F-BOB in 22 min  
ISI-No blow  
FF-BOB in 3 min  
FSI-No blow



## PRESSURE SUMMARY

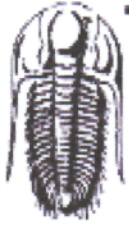
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1122.96	84.38	Initial Hydro-static
1	33.35	84.19	Open To Flow (1)
32	43.91	85.57	Shut-In(1)
62	522.82	86.32	End Shut-In(1)
63	53.31	86.25	Open To Flow (2)
107	65.32	87.20	Shut-In(2)
153	558.56	88.42	End Shut-In(2)
155	1095.49	88.82	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
90.00	GMCO 50%G 30%O 20%M	0.44
30.00	SOCM 15%O 85%M	0.15
0.00	360ft GIP	0.00

## Gas Rates

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



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**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
 Job Ticket: 53973      DST#: 2  
 Test Start: 2014.09.14 @ 04:25:00

## GENERAL INFORMATION:

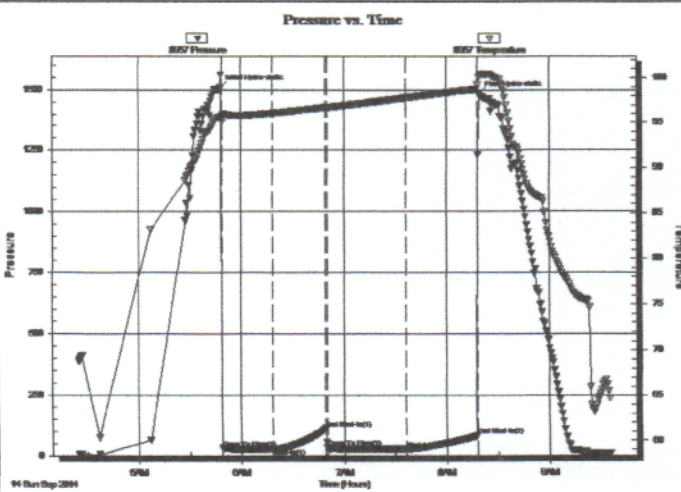
Formation: **KC"A-C"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 05:48:45  
 Time Test Ended: 09:36:00  
 Interval: **3054.00 ft (KB) To 3100.00 ft (KB) (TVD)**  
 Total Depth: 3100.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 1860.00 ft (KB)  
 1852.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8957

Outside

Press@RunDepth: 28.10 psig @ 3059.00 ft (KB)  
 Start Date: 2014.09.14      End Date: 2014.09.14  
 Start Time: 04:25:05      End Time: 09:35:59  
 Capacity: 8000.00 psig  
 Last Calib.: 2014.09.14  
 Time On Btm: 2014.09.14 @ 05:48:00  
 Time Off Btm: 2014.09.14 @ 08:19:00

TEST COMMENT: F-1" blow  
 IS- No blow  
 FF-1/4" blow  
 FS- No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1508.10	95.59	Initial Hydro-static
1	31.93	95.05	Open To Flow (1)
31	28.60	96.08	Shut-In(1)
62	113.13	96.72	End Shut-In(1)
62	33.64	96.70	Open To Flow (2)
109	28.10	97.78	Shut-In(2)
150	82.45	98.74	End Shut-In(2)
151	1481.17	100.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	SOQM 5%O 95%M	0.14

\* Recovery from multiple tests

## Gas Rates

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



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**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
 Job Ticket: 53974      DST#: 3  
 Test Start: 2014.09.14 @ 16:55:00

## GENERAL INFORMATION:

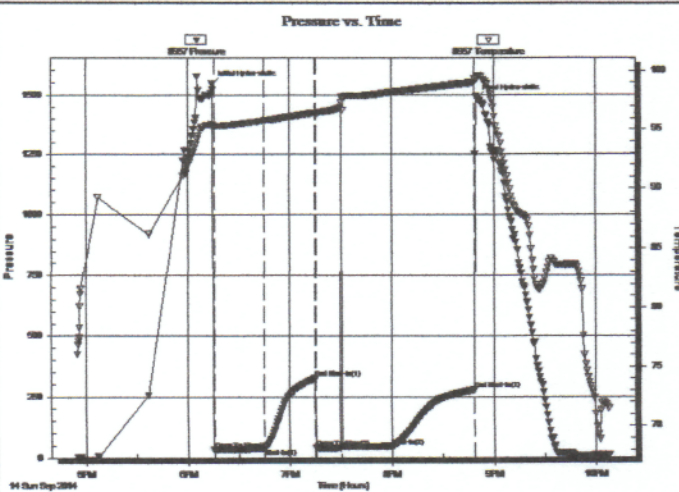
Formation: **KC"B-G"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:15:30  
 Time Test Ended: 22:07:45  
 Interval: **3062.00 ft (KB) To 3147.00 ft (KB) (TVD)**  
 Total Depth: 3147.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 1860.00 ft (KB)  
 1852.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8957

Outside

Press@RunDepth: 47.67 psig @ 3075.00 ft (KB)  
 Start Date: 2014.09.14 End Date: 2014.09.14  
 Start Time: 16:55:05 End Time: 22:07:44  
 Capacity: 8000.00 psig  
 Last Calib.: 2014.09.14  
 Time On Btm: 2014.09.14 @ 18:14:15  
 Time Off Btm: 2014.09.14 @ 20:50:15

TEST COMMENT: F-1 3/4" blow  
 IS- No blow  
 FF- No blow flush tool Weak surface blow  
 FS- No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1543.34	95.48	Initial Hydro-static
2	33.09	95.30	Open To Flow (1)
31	38.12	95.78	Shut-In(1)
61	325.26	96.49	End Shut-In(1)
62	40.88	96.32	Open To Flow (2)
106	47.67	98.21	Shut-In(2)
155	278.09	99.02	End Shut-In(2)
156	1484.29	99.38	Final Hydro-static

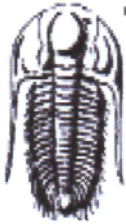
## Recovery

Length (ft)	Description	Volume (bbl)
45.00	VSOOM 2%O 98%M	0.63

\* Recovery from multiple tests

## Gas Rates

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



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**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
 Job Ticket: 53975      **DST#: 4**  
 Test Start: 2014.09.15 @ 08:49:00

**GENERAL INFORMATION:**

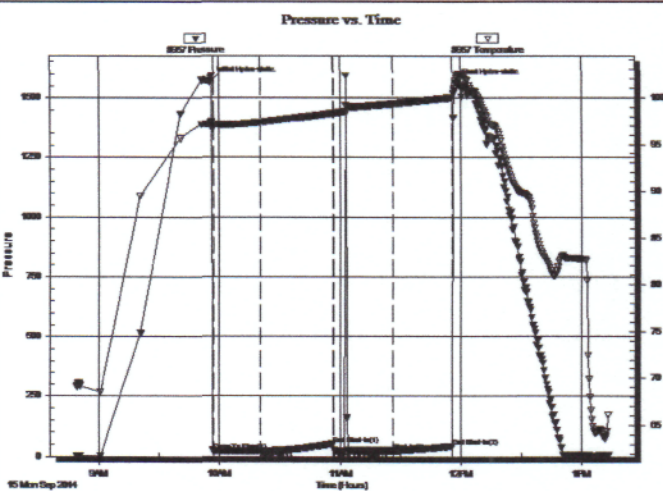
Formation: **KC "H-J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:57:15  
 Time Test Ended: 13:13:15  
 Interval: **3186.00 ft (KB) To 3260.00 ft (KB) (TVD)**  
 Total Depth: 3260.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 1860.00 ft (KB)  
 1852.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8957**

**Outside**

Press@RunDepth: 24.20 psig @ 3191.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.09.15      End Date: 2014.09.15      Last Calib.: 2014.09.15  
 Start Time: 08:49:05      End Time: 13:13:14      Time On Btm: 2014.09.15 @ 09:56:00  
 Time Off Btm: 2014.09.15 @ 11:57:30

**TEST COMMENT:** F-1/4" blow Died back to Very Weak surface blow  
 IS-No blow  
 FF-No blow Flush Tool  
 FSI-No blow



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1571.60	97.34	Initial Hydro-static
2	23.45	97.19	Open To Flow (1)
25	23.43	97.37	Shut-In(1)
61	52.64	98.36	End Shut-In(1)
61	24.53	98.36	Open To Flow (2)
91	24.20	99.35	Shut-In(2)
120	43.32	100.01	End Shut-In(2)
122	1565.15	102.10	Final Hydro-static

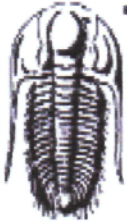
**Recovery**

Length (ft)	Description	Volume (bbl)
10.00	Mud	0.14

\* Recovery from multiple tests

**Gas Rates**

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



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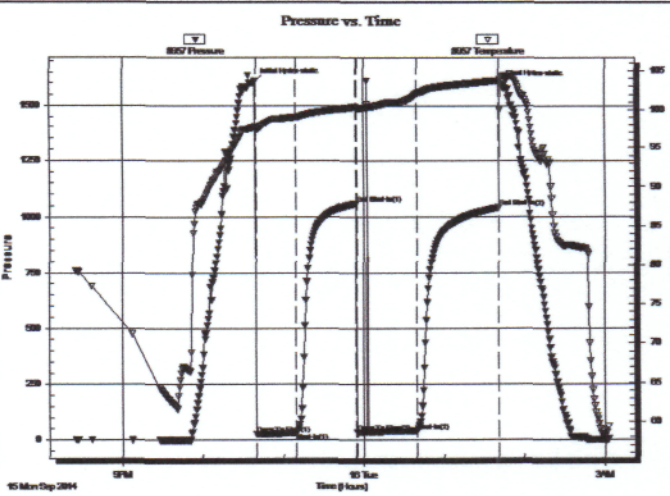
**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
 Job Ticket: 60926 **DST#: 5**  
 Test Start: 2014.09.15 @ 20:25:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:40:00  
 Time Test Ended: 03:03:00  
 Interval: **3266.00 ft (KB) To 3308.00 ft (KB) (TVD)**  
 Total Depth: 3308.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 1860.00 ft (KB)  
 1852.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8957 Outside**  
 Press@RunDepth: 41.44 psig @ 3270.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.09.15 End Date: 2014.09.16 Last Calib.: 2014.09.16  
 Start Time: 20:25:05 End Time: 03:02:59 Time On Btm: 2014.09.15 @ 22:39:15  
 Time Off Btm: 2014.09.16 @ 01:42:15

**TEST COMMENT:** F-2" blow  
 IS-No blow  
 FF-No blow Flush tool 1" blow



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1607.23	97.63	Initial Hydro-static
1	26.14	97.16	Open To Flow (1)
30	31.25	99.03	Shut-In(1)
75	1058.67	100.37	End Shut-In(1)
76	33.38	100.06	Open To Flow (2)
121	41.44	102.02	Shut-In(2)
182	1040.10	103.69	End Shut-In(2)
183	1597.89	103.91	Final Hydro-static

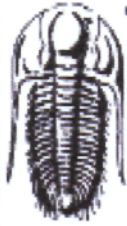
**Recovery**

Length (ft)	Description	Volume (bbl)
45.00	VSGOCM 5%G 15%O 80%M	0.63

\* Recovery from multiple tests

**Gas Rates**

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



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**Mighell-Weeks Trust Unit #1**  
**18-15-13w Russell,KS**  
 Job Ticket: 58743      **DST#: 6**  
 Test Start: 2014.09.16 @ 07:09:00

**GENERAL INFORMATION:**

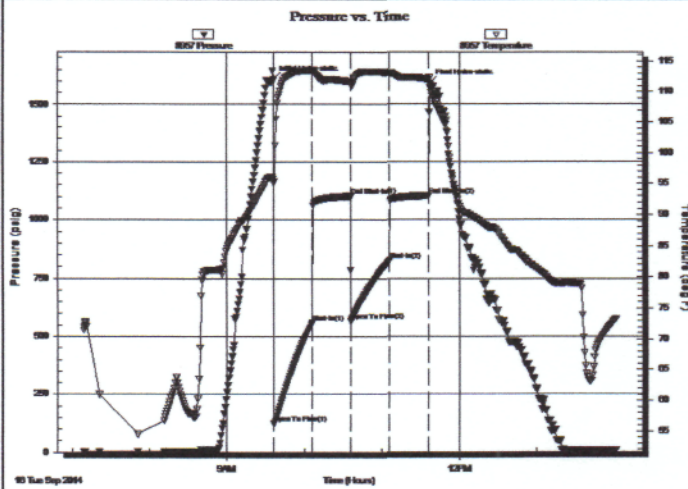
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:36:15  
 Time Test Ended: 14:01:30  
 Interval: **3266.00 ft (KB) To 3315.00 ft (KB) (TVD)**  
 Total Depth: 3315.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Phillip Gage  
 Unit No: 59  
 Reference Elevations: 1860.00 ft (KB)  
 1852.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8957**

**Outside**

Press@RunDepth: 825.05 psig @ 3272.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.09.16      End Date: 2014.09.16      Last Calib.: 2014.09.16  
 Start Time: 07:09:05      End Time: 14:01:29      Time On Btm: 2014.09.16 @ 09:36:00  
 Time Off Btm: 2014.09.16 @ 11:37:15

TEST COMMENT: 30-IF-BOB in 1 min.  
 30-ISI-1/4" Return  
 30-FF-BOB in 2 mins.  
 30-FSI-1/2" Return



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1606.27	95.86	Initial Hydro-static
1	123.74	95.18	Open To Flow (1)
30	559.42	113.51	Shut-In(1)
60	1101.35	111.69	End Shut-In(1)
61	568.00	111.34	Open To Flow (2)
90	825.05	113.10	Shut-In(2)
121	1102.71	112.06	End Shut-In(2)
122	1592.97	111.33	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
63.00	SOGCW, 10%o, 10%g, 80%w	0.88
315.00	VSWOCG, 5%w, 15%o, 80%g	4.42
315.00	VSMOGCW, 5%m, 15%o, 20%g, 60%w	4.42
630.00	VSMWOCG, 5%m, 10%w, 20%o, 65%g	8.84
441.00	MWOCG, 20%m, 20%w, 20%o, 40%g	6.19
156.00	SMGOCW, 10%m, 20%g, 30%o, 40%w	2.19

\* 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. **632**

Date	9-10-14	Sec.	18	Twp.	15	Range	13	County	Russell	State	KS	On Location	Finish	7:00 PM
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Location *Russell KS S to winter set Rd 2 1/2 E 3/4 W into*

Lease <i>Migbell weeks trust unit</i>	Well No.	1	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 <i>Faithward 3</i>				Charge To <i>mai oil operation</i>
Type Job <i>Surface</i>				
Hole Size <i>12 1/4</i>	T.D.	<i>514</i>		
Csg. <i>8 5/8</i>	Depth	<i>514</i>		
Tbg. Size	Depth			
Tool	Depth			
Cement Left in Csg. <i>15</i>	Shoe Joint	<i>15</i>	Cement Amount Ordered <i>250 60/40 3%CC 2%gel</i>	
Meas Line	Displace	<i>31 3/4</i>		

**EQUIPMENT**

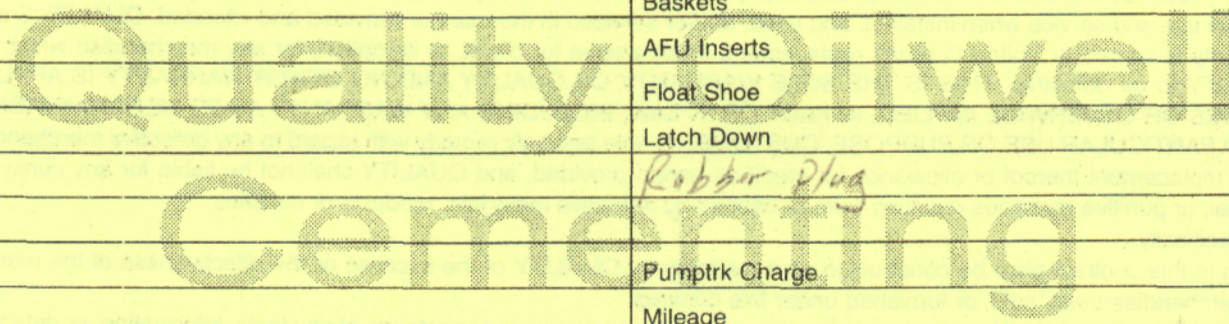
Pumptrk	No.	Cementer	Rick	Common
		Helper		Poz. Mix
Bulktrk	No.	Driver	Billy	Gel.
Bulktrk	No.	Driver	Doug	Calcium

**JOB SERVICES & REMARKS**

Remarks: <i>Cement did circulate</i>	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	
<i>Robber Plug</i>	
Pumptrk Charge	
Mileage	



X Signature *Jay Johnson*

Tax	
Discount	
Total Charge	