

**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  
Button #1  
N/2-NE-SE-NE  
Section 13-19s-13w  
Barton County, Kansas

Page 1

**Dry and Abandoned**

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** June 30, 2017  
**Completed:** July 6, 2017  
**Elevation:** 1892' K.B., 1890' D.F., 1884' G.L.  
**Casing program:** Surface; 8 5/8" @ 757'  
Production, 5 1/2" @ none  
**Sample:** Samples saved and examined 3000' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 3000' 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 Eli Wireline Services, Dual Induction, Compensated Density/Neutron and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	751	+1141
Base Anhydrite	777	+1115
Heebner	3082	-1190
Toronto	3099	-1207
Douglas	3113	-1221
Brown Lime	3190	-1298
Lansing	3203	-1311
Base Kansas City	3441	-1549
Conglomerate	3452	-1560
Arbuckle	3510	-1618
Rotary Total Depth	3555	-1663
Log Total Depth	3554	-1662

(All tops and zones corrected to Electric Log Measurement)

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

**TOPEKA SECTION**

3030-3036 Limestone, gray, tan, fossiliferous in part, sub-oomoldic, chalky, trace poor brown spotty stain, no free oil and no odor in fresh samples.

**TORONTO SECTION**

3099-3110' Limestone, gray, tan, fine and medium crystalline, chalky in part, no shows.

**LANSING SECTION**

3203-3208' Limestone, tan, fossiliferous, chalky in part, poor visible porosity; golden brown stain, no free oil and no odor in fresh samples

3228-3232' Limestone, white, tan, fossiliferous, chalky, poor porosity, poor stain, weak show of free oil and no odor in fresh samples.

3247-3252' Limestone, gray, fossiliferous, scattered vuggy type porosity, gray and black stain; no free oil and questionable odor in samples, broken.

3268-3272' Limestone, gray, oolitic, poor to fair porosity, golden brown stain; show of free oil and faint odor in fresh samples.

**Drill Stem Test #1 3196-3276**

**Times: 30-30-45-60**

**Blow: Strong**

**Recovery: 1736' gas in pipe  
124' oil and gas cut mud  
(20% gas; 15% oil; 65% mud)**

**Pressures: ISIP 355 psi  
FSIP 797 psi  
IFP 18-39 psi  
FFP 46-61 psi  
HSH 1564-1517 psi**

3290-3300' Limestone, tan, oomoldic, fair oomoldic porosity, (barren)

3300-3310' Limestone, as above, good oomoldic porosity, no shows.

3336-3342' Limestone, tan, sub-oomoldic, poor to fair porosity, poor brown stain, weak show of free oil and questionable odor in fresh samples.

3352-3355' Limestone, white, oolitic, chalky; poor porosity, brown spotty stain,, no free oil and no odor in fresh samples.

3367-3371' Limestone, as above, poorly developed porosity, poor spotty brown stain, no show of free oil and no odor in fresh samples.

- 3374-3380' Limestone, white, gray, fossiliferous, chalky, no show.
- 3396-3400' Limestone, white, fine to medium crystalline, fossiliferous, fair brown stain and saturation, show of free oil and faint odor in fresh samples.

**Drill Stem Test #2** **3321-3410**

**Times: 30-30-45-60**

**Blow: Strong**

**Recovery: 1103' gas in pipe  
(20% oil; 80% mud)**

**Pressures: ISIP 367 psi  
FSIP 837 psi  
IFP 17-30 psi  
FFP 31-42 psi  
HSH 1641-1606 psi**

**CONGLOMERATE SECTION**

- 3452-3464' Shale, maroon, blocky, plus orange, red opaque chert; plus white oolitic chert.
- 3464-3480' Chert and shale as above.
- 3480-3500' Chert; as above, plus white, oolitic, chert; and maroon blocky to soft shale.
- 3500-3513' Chert and shale as above.

**ARBUCKLE SECTION**

- 3510-3520' Dolomite, tan, finely crystalline, sucrosic, scattered porosity, no shows.
- 3520-3530' Dolomite, as above, poor visible porosity, no shows.
- 3530-3540' Dolomite, tan, sucrosic, poorly developed porosity, trace white to clear to translucent chert and no shows.
- 3540-3555' Dolomite, white and gray, finely crystalline, sucrosic in part, poor porosity, plus trace white chert; no shows.

**Rotary Total Depth 3555**

**Log Total Depth 3554**

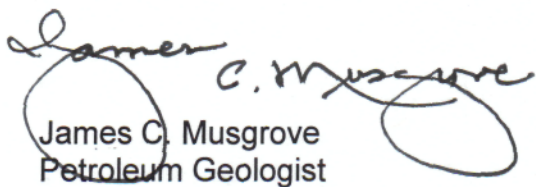
Mai Oil Operations  
Button #1  
N/2-NE-SE-NE  
Section 13-19s-13w  
Barton County, Kansas

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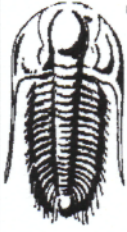
**Recommendations:**

The Button #1 was plugged and abandoned at the Rotary Total Depth 3555

Respectfully yours,

  
James C. Musgrove  
Petroleum Geologist





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Mai Oil Operations Incorporated  
8411 Preston Road Suite 800  
Dallas TX 75225+5520  
ATTN: Jim Musgrove

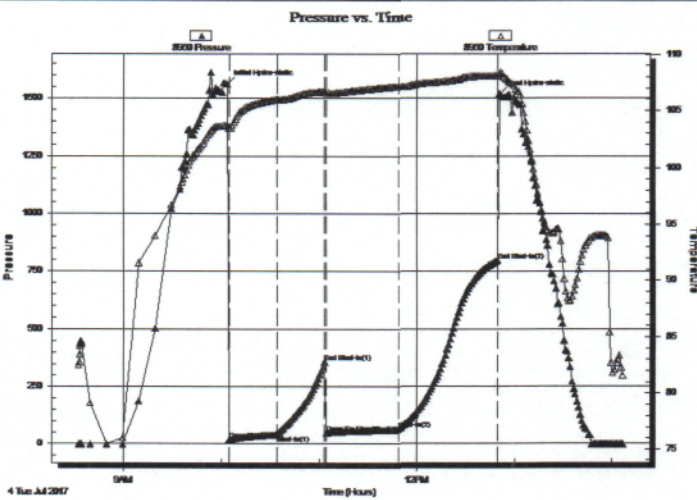
**13-19S-13W Barton,KS**  
**Button #1**  
Job Ticket: 64799      **DST#: 1**  
Test Start: 2017.07.04 @ 08:32:00

### GENERAL INFORMATION:

Formation: **LKC A-F**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 10:04:30  
Time Test Ended: 14:06:30  
Interval: **3196.00 ft (KB) To 3276.00 ft (KB) (TVD)**  
Total Depth: 3276.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Ken Sw inney  
Unit No: 72  
Reference Elevations: 1892.00 ft (KB)  
1884.00 ft (CF)  
KB to GR/CF: 8.00 ft

**Serial #: 8960**      **Outside**  
Press@RunDepth: 797.64 psig @ 3198.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2017.07.04      End Date: 2017.07.04      Last Calib.: 2017.07.04  
Start Time: 08:32:05      End Time: 14:06:29      Time On Btm: 2017.07.04 @ 10:03:30  
Time Off Btm: 2017.07.04 @ 12:50:30

**TEST COMMENT:** IFP 30 Mintues Blow built to BOB in 7 minutes  
ISI 30 Mintues No blow back  
FFP 45 Mintues Blow built to BOB in 20 seconds  
FSI 60 Minutes 1 inch blow back in 5 minutes then died in 15 minutes



### PRESSURE SUMMARY

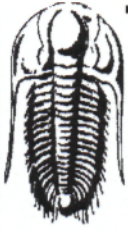
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1563.36	103.75	Initial Hydro-static
1	18.22	103.47	Open To Flow (1)
31	39.88	106.00	Shut-In(1)
60	356.30	106.71	End Shut-In(1)
61	46.18	106.60	Open To Flow (2)
105	61.95	107.16	Shut-In(2)
166	797.64	108.12	End Shut-In(2)
167	1517.84	108.34	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
124.00	GOCM Oil 15% Gas 20% Mud 65%	1.74
0.00	1736' GIP	0.00

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations Incorporated  
8411 Preston Road Suite 800  
Dallas TX 75225+5520  
ATTN: Jim Musgrove

**13-19S-13W Barton,KS**  
**Button #1**  
Job Ticket: 64799      **DST#: 1**  
Test Start: 2017.07.04 @ 08:32:00

**Tool Information**

Drill Pipe:	Length: 3205.00 ft	Diameter: 3.80 inches	Volume: 44.96 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume: 44.96 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial	37000.00 lb
Depth to Top Packer:	3196.00 ft			Final	37000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	79.70 ft				
Tool Length:	99.70 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3181.00	
Hydraulic tool	5.00			3186.00	
Top Packer	5.00			3191.00	
Packer	5.00			3196.00	20.00      Bottom Of Top Packer
Recorder	1.00	8354	Inside	3197.00	
Recorder	1.00	8960	Outside	3198.00	
Anchor	10.00			3208.00	
Change Over Sub	1.00			3209.00	
Drill Pipe	62.70			3271.70	
Change Over Sub	1.00			3272.70	
Bullnose	3.00			3275.70	79.70      Anchor Tool

**Total Tool Length: 99.70**



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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations Incorporated  
8411 Preston Road Suite 800  
Dallas TX 75225+5520  
ATTN: Jim Musgrove

**13-19S-13W Barton,KS**  
**Button #1**  
Job Ticket: 64799      **DST#: 1**  
Test Start: 2017.07.04 @ 08:32:00

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 68.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.78 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 2.00 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
124.00	GOCM Oil 15%Gas20%Mud 65%	1.739
0.00	1736' GIP	0.000

Total Length: 124.00 ft      Total Volume: 1.739 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

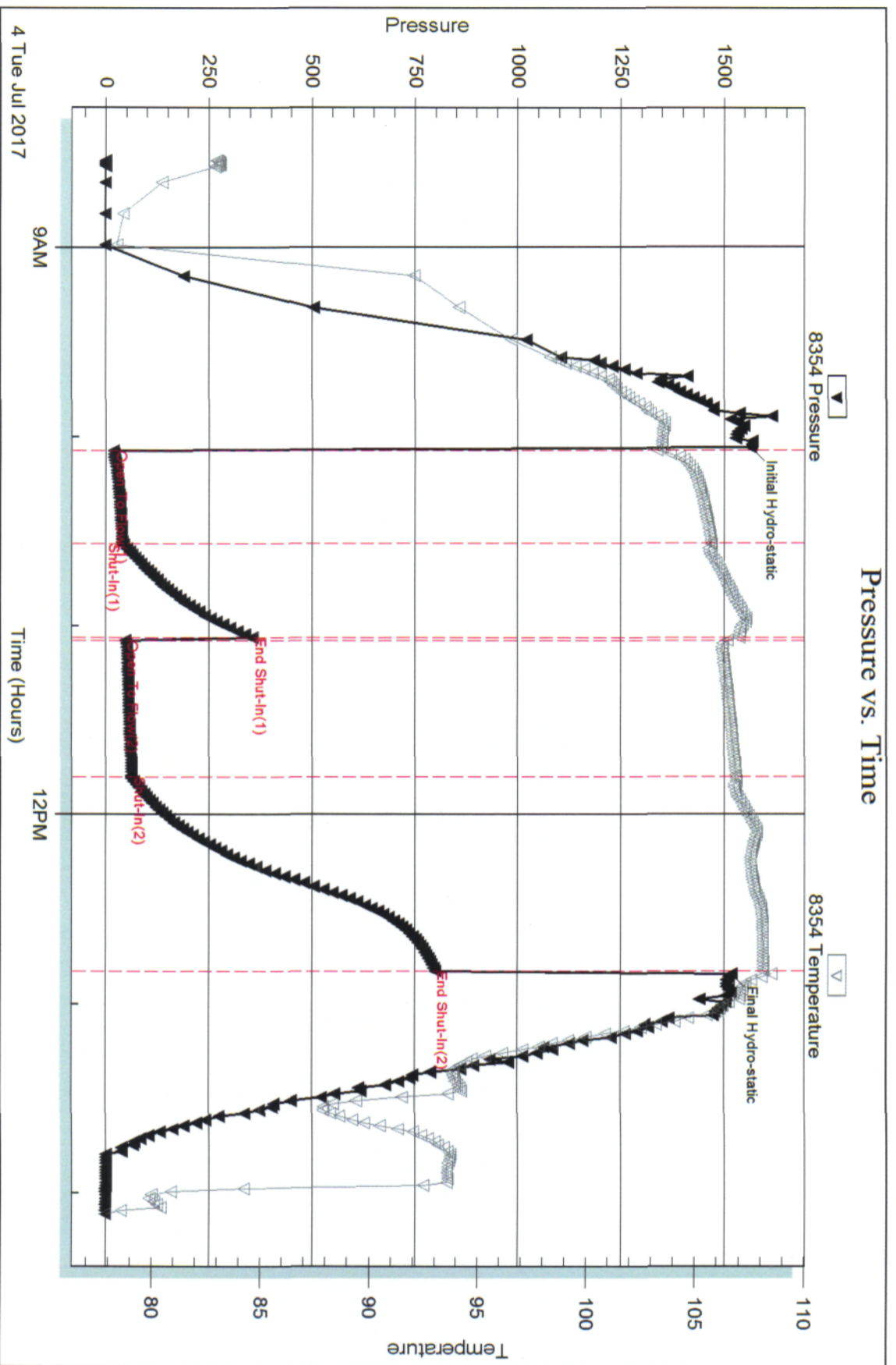
Serial #: 8354

Inside

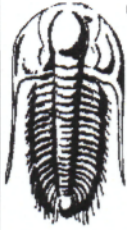
Mai Oil Operations Incorporated

Burton #1

DST Test Number: 1







**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations Incorporated  
 8411 Preston Road Suite 800  
 Dallas TX 75225+5520  
 ATTN: Jim Musgrove

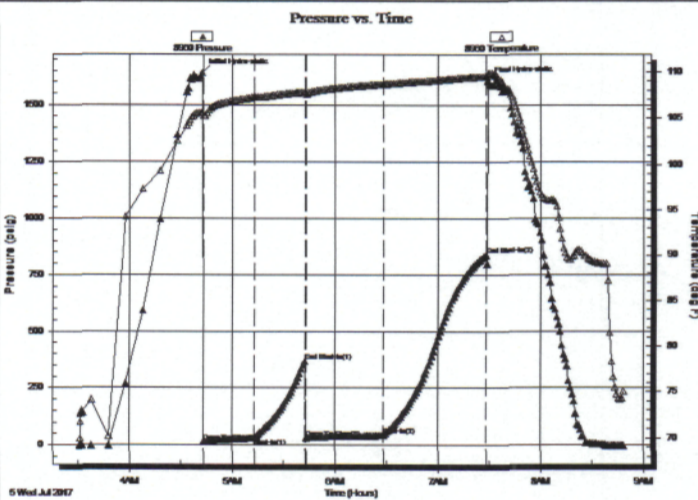
**13-19S-13W Barton,KS**  
**Button #1**  
 Job Ticket: 64800      **DST#: 2**  
 Test Start: 2017.07.05 @ 03:31:00

**GENERAL INFORMATION:**

Formation: **LKC H-K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:43:30  
 Time Test Ended: 08:49:00  
 Interval: **3321.00 ft (KB) To 3410.00 ft (KB) (TVD)**  
 Total Depth: 3410.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 1892.00 ft (KB)  
 1884.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8960**      **Outside**  
 Press@RunDepth: 837.24 psig @ 3323.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2017.07.05      End Date: 2017.07.05      Last Calib.: 2017.07.05  
 Start Time: 03:31:05      End Time: 08:48:59      Time On Btm: 2017.07.05 @ 04:42:30  
 Time Off Btm: 2017.07.05 @ 07:29:00

**TEST COMMENT:** IFP 30 Minutes Blow built to BOB in 6 1/2 minutes  
 ISI 30 Minutes No blow back  
 FFP 45 Minutes Blow built to BOB in 15 seconds  
 FSI 60 Minutes Surface blow back died in 5 minutes



**PRESSURE SUMMARY**

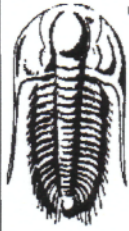
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1640.16	105.61	Initial Hydro-static
1	14.84	105.30	Open To Flow (1)
31	30.00	107.24	Shut-In(1)
60	367.20	107.82	End Shut-In(1)
61	29.93	107.58	Open To Flow (2)
106	41.98	108.65	Shut-In(2)
166	837.24	109.53	End Shut-In(2)
167	1606.00	109.82	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
75.00	OCM Oil 20% Mud 80%	1.05
0.00	1103' GIP	0.00

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations Incorporated  
8411 Preston Road Suite 800  
Dallas TX 75225+5520  
ATTN: Jim Musgrove

**13-19S-13W Barton,KS**  
**Button #1**  
Job Ticket: 64800      **DST#: 2**  
Test Start: 2017.07.05 @ 03:31:00

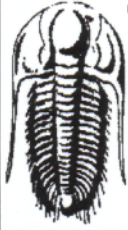
**Tool Information**

Drill Pipe:	Length: 3330.00 ft	Diameter: 3.80 inches	Volume: 46.71 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	38000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3321.00 ft			Final	36000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	88.70 ft				
Tool Length:	108.70 ft				
Number of Packers:	2	Diameter:	6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3306.00	
Hydraulic tool	5.00			3311.00	
Top Packer	5.00			3316.00	
Packer	5.00			3321.00	20.00      Bottom Of Top Packer
Recorder	1.00	8354	Inside	3322.00	
Recorder	1.00	8960	Outside	3323.00	
Anchor	19.00			3342.00	
Change Over Sub	1.00			3343.00	
Drill Pipe	62.70			3405.70	
Change Over Sub	1.00			3406.70	
Bullnose	3.00			3409.70	88.70      Anchor Tool

**Total Tool Length: 108.70**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations Incorporated  
8411 Preston Road Suite 800  
Dallas TX 75225+5520  
ATTN: Jim Musgrove

**13-19S-13W Barton,KS**  
**Button #1**  
Job Ticket: 64800      DST#: 2  
Test Start: 2017.07.05 @ 03:31:00

**Mud and Cushion Information**

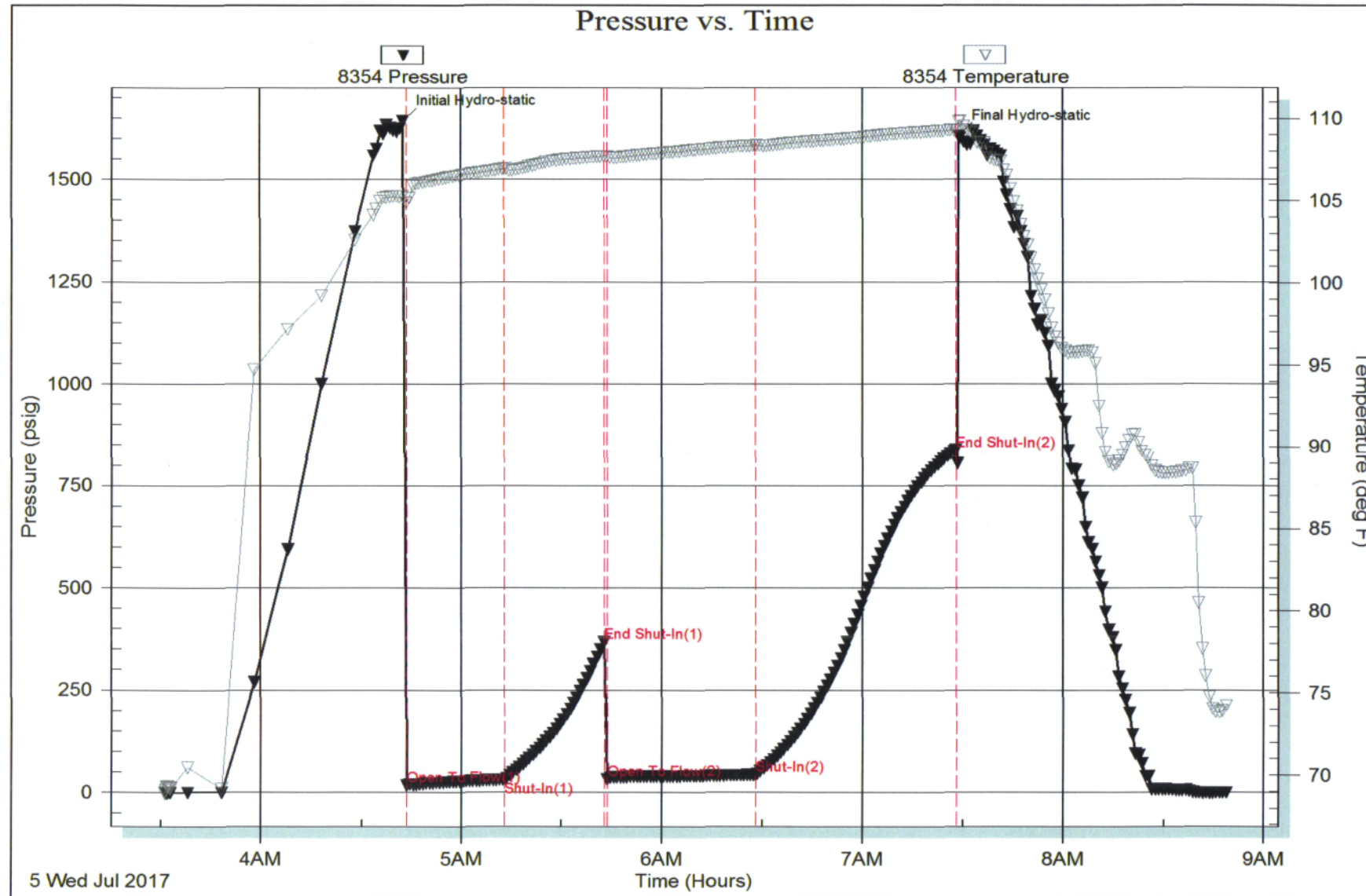
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 68.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 2.00 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
75.00	OCM Oil 20% Mud 80%	1.052
0.00	1103' GIP	0.000

Total Length: 75.00 ft      Total Volume: 1.052 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:



# 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. 254

Date	6-30-17	Sec.	13	Twp.	19	Range	13	County	Barton	State	Ks	On Location		Finish	10:15 PM
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Location: 281 + Juice Rd - 4E to 40th Ave

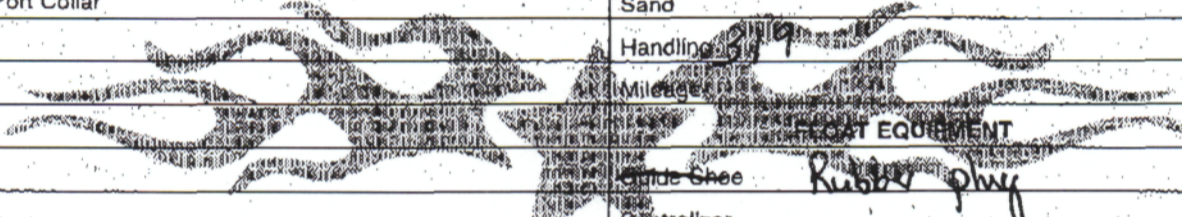
Lease	Button	Well No.	1	Owner	V45 W15
Contractor	Southwind	#3		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor, to do work as listed.	
Type Job	Surface			Charge To	Main oil operations
Hole Size	12 1/4"	T.D.	757'	Street	
Csg.	8 3/8"	Depth	757'	City	
Tbg. Size		Depth		State	
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	20'	Shoe Joint	20'	Cement Amount Ordered	300 60/40 4% CC 3% Gel
Meas Line		Displace	47 BS		

### EQUIPMENT

Pumptrk	16	No.	Cementer	Rick	Common	180
			Helper		Poz. Mix	120
Bulktrk	9	No.	Driver	Dougy	Gel.	6
			Driver		Calcium	13
Bulktrk		No.	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	



### HEAT EQUIPMENT

Float Shoe Rubber plug

Centralizer

Baskets

AFW Inserts

Float Shoe

Latch Down

Pumptrk Charge Long Surface

Mileage 15 min

X Signature *Jay Davis*

Tax	
Discount	
Total Charge	