

JAMES C. MUSGROVE

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Mai Oil Operations
A.C. Rogg #11
NE-NW-NE (330' FNL & 1650' FEL)
Section 27-14s-11w
Russell County, Kansas

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5 1/2" Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: February 23, 2017
Completed: March 1, 2017
Elevation: 1703' K.B., 1701' D.F., 1695' G.L.
Casing program: Surface; 8 5/8" @ 323'
Production, 5 1/2" @ 3214'
Sample: Samples saved and examined 2100' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 2100' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were four (4) Drill Stem Tests ran by Trilobite Testing Co.
Electric Log: By Eli Wireline Services, Dual Induction, Compensated Density/Neutron Log, Micro and Sonic Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	639	+1064
Base Anhydrite	673	+1030
Grand Haven	2202	-499
1 st Tarkio Sand	2211	-508
Dover	2226	-523
2 nd Tarkio	2235	-532
Tarkio Lime	2272	-569
3 rd Tarkio Lime	2295	-592
Elmont	2340	-637
Howard	2481	-778
Topeka	2548	-845
Heebner	2779	-1076
Toronto	2796	-1093
Lansing	2844	-1141
Base Kansas City	3120	-1417
Conglomerate Chert	3141	-1438
Arbuckle	3155	-1452
Rotary Total Depth	3215	-1512
Log Total Depth	3215	-1512

(All tops and zones corrected to Electric Log Measurement)

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

1st TARKIO SAND

2211-2218' Sand, gray, grayish green; very fine grained; sub-rounded, micaeous, friable in part, poor brown stain, poor show of free oil and no odor in fresh samples.

2nd TARKIO SAND

2235-2249' Sand, gray/grayish green; very fine grained, fair inter-granular porosity, friable; light brown stain, weak show of free oil and no odor in fresh samples.

Drill Stem Test #1 2206-2280

Times: 30-30-45-60

Blow: Good

Recovery: 55' mud, scum of oil

Pressures: ISIP 260 psi
 FSIP 369 psi
 IFP 18-26 psi
 FFP 25-38 psi
 HSH 1051-1004 psi

TOPEKA SECTION

2656-2670' Limestone, gray, tan, sub-oomoldic, few fossiliferous, questionable brown stain, no show of free oil and no odor in fresh samples.

2700-2720' Limestone, white, fossiliferous, chalky, scattered porosity; plus trace gray, cherty limestone, no shows.

2721-2740' Limestone, white and gray, sub-oomoldic, chalky, good porosity; brown and golden brown stain; show of free oil and fair odor in fresh samples.

2741-2760' Limestone, as above, fair porosity, brown stain, trace of free oil and faint odor.

Drill Stem Test #2 22721-2760

Times: 30-30-45-60

Blow: Strong

Recovery: 16' oil cut mud
 (20% oil; 80% mud)
 61' heavily oil and gas cut mud
 (50% gas; 30% oil; 20% mud)

Pressures: ISIP 260 psi
 FSIP 369 psi
 IFP 18-26 psi
 FFP 25-38 psi
 HSH 1051-1004 psi

TORONTO SECTION

2796-2810' Limestone, tan, finely crystalline, slightly chalky, scattered pinpoint porosity, brown and gray stain, no free oil and no odor in fresh samples.

LANSING SECTION

2844-2851' Limestone, gray, fossiliferous, scattered inter-crystalline to fine pinpoint type porosity, gray and brown stain, trace of free oil and questionable odor.

2861-2870' Limestone, gray, white, oolitic oomoldic porosity, brown/golden brown spotty stain, trace of free oil and faint odor in fresh samples.

2878-2892' Limestone, gray, cream, oomoldic, good oomoldic porosity, brown and golden brown stain, show of free oil and good odor in fresh samples.

Drill Stem Test #3 2849-2892

Times: 30-30-45-60

Blow: Good

**Recovery: 61' muddy water, scum of oil on top
(70% water; 30% mud)
63' watery mud
(15% water; 85% mud)**

**Pressures: ISIP 539 psi
FSIP 538 psi
IFP 18-50 psi
FFP 53-72 psi
HSH 1427-1367 psi**

2917-2920' Limestone, gray, white, oolitic in part; chalky, trace poor brown stain, no free oil and no odor in fresh samples.

2922-2928' Limestone gray, oolitic, poor visible porosity, no shows.

2938-2950' Limestone, cream, oomoldic, chalky, fair oomoldic porosity, trace poor brown stain, no free oil and no odor.

2950-2960' Limestone, cream, white, oomoldic, good oomoldic porosity, no shows.

2970-2990' Limestone, white, gray, finely crystalline, few fossiliferous, chalky, no shows.

3000-3010' Limestone, white, gray, fine and medium crystalline, slightly cherty, few chalky, no shows.

3020-3026' Limestone, white, gray, fossiliferous, few sub-oomoldic, poor visible porosity, no shows.

3045-3052' Limestone, white, cream, oolitic, sub-oomoldic, scattered porosity, no shows.

Mai Oil Operations
A.C. Rogg #11
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3070-3086' Limestone, gray, white, chalky (dense)

CONGLOMERATE SECTION

3141-3155' Chert; gray, white, opaque, translucent; plus white chalk.

ARBUCKLE SECTION

3155-3162' Dolomite, white, gray, cream, medium crystalline, few coarse crystalline, good inter-crystalline porosity, golden brown stain and saturation, show of free oil and fair odor in fresh samples.

Drill Stem Test #4 3140-3162

Times: 30-30-30-45

Blow: Strong

Recovery: 361' clean gassy oil
188' heavily oil cut mud
(25% oil; 75% mud)

Pressures: ISIP 1038 psi
FSIP 1015 psi
IFP 26-125 psi
FFP 133-219 psi
HSH 1607-1549 psi

3162-3177' Dolomite, as above, sandy, poor visible porosity, trace brown stain, trace free oil and faint odor in fresh samples.

3180-3192' Dolomite, white, tan, highly sandy, scattered porosity, no shows.

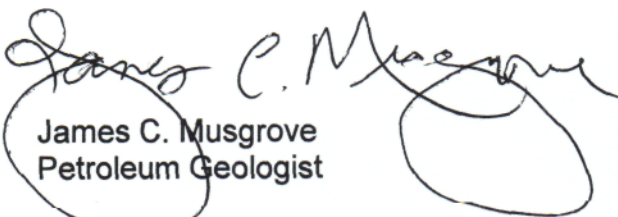
3192-3215' Dolomite, as above, plus white, cherty; dolomitic, trace white chalk and loose unconsolidated sand grains.

Rotary Total Depth 3215 (-1512)
Log Total Depth 3215 (-1512)

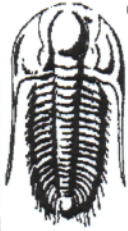
Recommendations:

The 5 1/2" production casing was set and cemented on Mai Oil Operations Inc., A.C. Rogg #11.

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

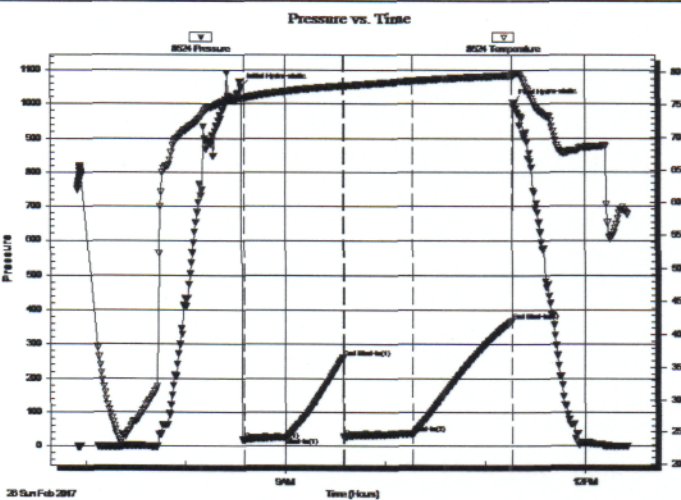
27-14S-13W Russell,KS
A C Rogg #11
 Job Ticket: 58111 **DST#: 1**
 Test Start: 2017.02.26 @ 06:55:08

GENERAL INFORMATION:

Formation: **Tarkio**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:34:54
 Time Test Ended: 12:25:54
 Interval: **2206.00 ft (KB) To 2280.00 ft (KB) (TVD)**
 Total Depth: 2280.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 1713.00 ft (KB)
 1705.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8524 Outside
 Press@RunDepth: 37.62 psig @ 2207.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.02.26 End Date: 2017.02.26 Last Calib.: 2017.02.26
 Start Time: 06:55:09 End Time: 12:25:54 Time On Btm: 2017.02.26 @ 08:33:39
 Time Off Btm: 2017.02.26 @ 11:16:39

TEST COMMENT: 30- IF- BOB 24 mins
 30- IS- No blow
 45- FF- 6" initial surge BOB 16 mins
 60- FS- No blow



PRESSURE SUMMARY

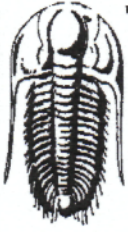
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1050.85	76.10	Initial Hydro-static
2	18.43	75.99	Open To Flow (1)
27	26.17	77.06	Shut-In(1)
61	259.83	77.91	End Shut-In(1)
62	25.06	77.88	Open To Flow (2)
103	37.62	78.69	Shut-In(2)
163	368.89	79.56	End Shut-In(2)
163	1004.16	79.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
55.00	M	0.27

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

27-14S-13W Russell,KS
A C Rogg #11
Job Ticket: 58111 **DST#: 1**
Test Start: 2017.02.26 @ 06:55:08

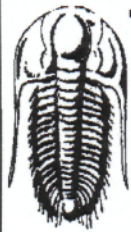
Tool Information

Drill Pipe:	Length: 2074.00 ft	Diameter: 3.82 inches	Volume: 29.40 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 36000.00 lb
Depth to Top Packer:	2206.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	94.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2187.00	
Shut In Tool	5.00			2192.00	
Hydraulic tool	5.00			2197.00	
Packer	5.00			2202.00	20.00 Bottom Of Top Packer
Packer	4.00			2206.00	
Stubb	1.00			2207.00	
Recorder	0.00	6838	Inside	2207.00	
Recorder	0.00	8524	Outside	2207.00	
Perforations	5.00			2212.00	
Change Over Sub	1.00			2213.00	
Drill Pipe	63.00			2276.00	
Change Over Sub	1.00			2277.00	
Bullnose	3.00			2280.00	74.00 Bottom Packers & Anchor

Total Tool Length: 94.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

27-14S-13W Russell,KS
A C Rogg #11
Job Ticket: 58111 **DST#: 1**
Test Start: 2017.02.26 @ 06:55:08

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 28.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 88000.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
55.00	M	0.270

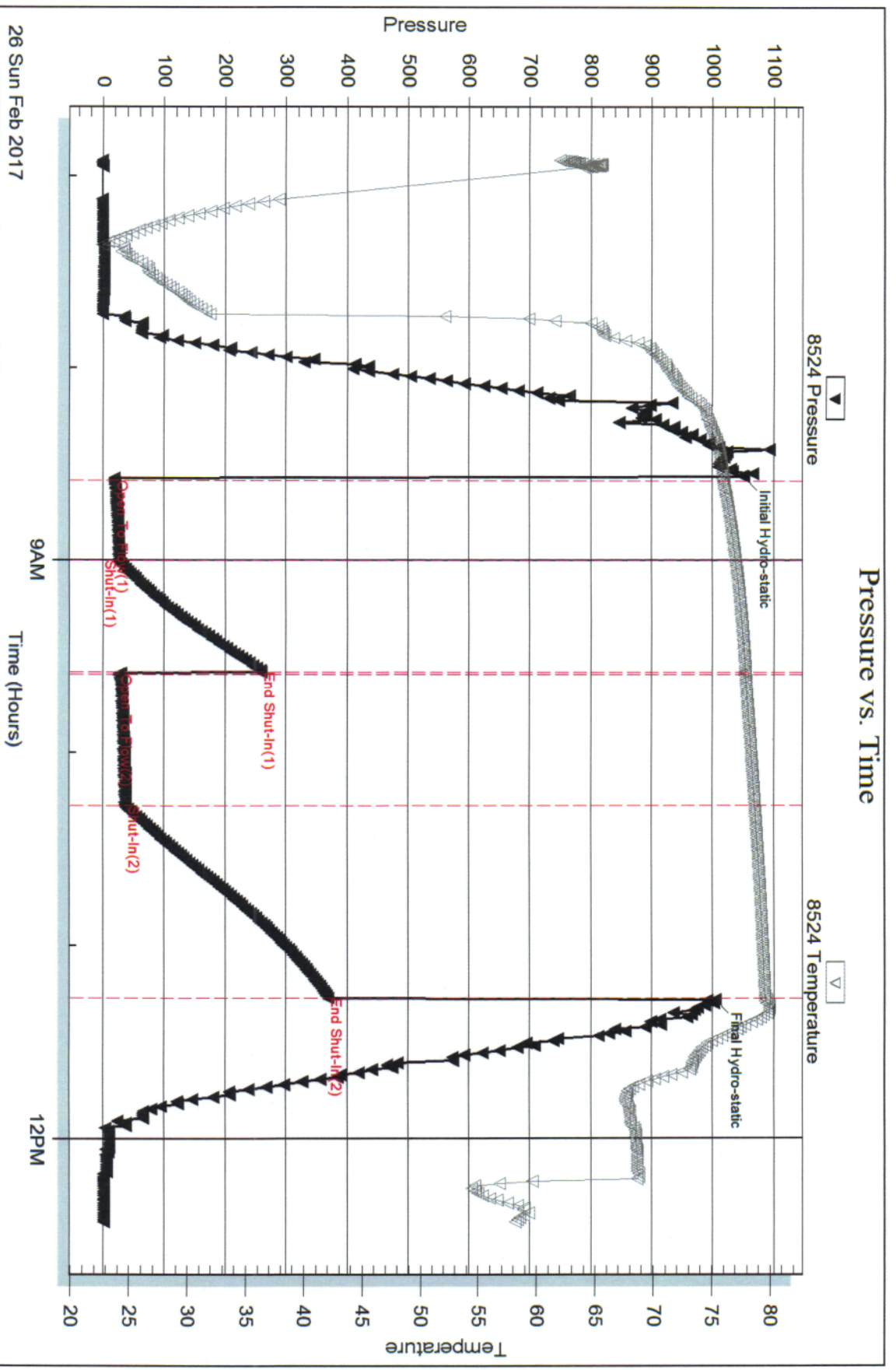
Total Length: 55.00 ft Total Volume: 0.270 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

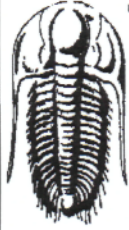
Serial #: 8524

Outside Mai Oil Operations, Inc.

A C Rogg #11

DST Test Number: 1





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

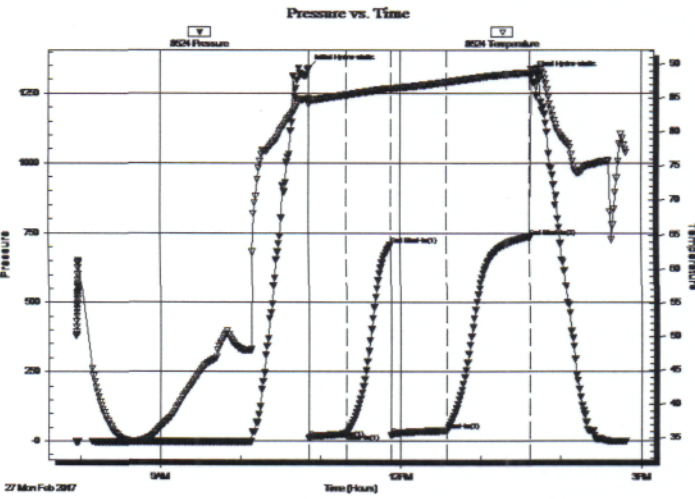
27-14S-13W Russell,KS
A C Rogg #11
 Job Ticket: 58112 **DST#: 2**
 Test Start: 2017.02.27 @ 07:56:55

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:51:41 Tester: Brannan Lonsdale
 Time Test Ended: 14:49:41 Unit No: 73
 Interval: **2721.00 ft (KB) To 2760.00 ft (KB) (TVD)** Reference Elevations: 1713.00 ft (KB)
 Total Depth: 2760.00 ft (KB) (TVD) 1705.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 8524 Outside
 Press@RunDepth: 38.01 psig @ 2722.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.02.27 End Date: 2017.02.27 Last Calib.: 2017.02.27
 Start Time: 07:56:56 End Time: 14:49:41 Time On Btm: 2017.02.27 @ 10:51:26
 Time Off Btm: 2017.02.27 @ 13:37:41

TEST COMMENT: 30- IF- BOB 26 mins
 30- IS- No blow
 45- FF- 8" initial surge BOB 4 mins
 60- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1338.48	84.93	Initial Hydro-static
1	11.65	84.19	Open To Flow (1)
28	27.05	85.48	Shut-In(1)
61	705.61	86.47	End Shut-In(1)
62	22.32	86.35	Open To Flow (2)
103	38.01	87.36	Shut-In(2)
166	736.34	88.75	End Shut-In(2)
167	1314.28	89.18	Final Hydro-static

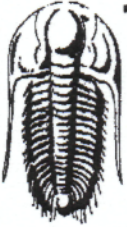
Recovery

Length (ft)	Description	Volume (bbl)
61.00	GMCO, 50%G 20%M 30%O	0.30
16.00	OCM, 20%O 80%M	0.23
0.00	110' GIP	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.

27-14S-13W Russell,KS

8411 Preston Rd. Ste. 800
Dallas, TX 75225

A C Rogg #11

Job Ticket: 58112

DST#: 2

ATTN: Jim Musgrove

Test Start: 2017.02.27 @ 07:56:55

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
61.00	GMCO, 50%G 20%M 30%O	0.300
16.00	OCM, 20%O 80%M	0.227
0.00	110' GIP	0.000

Total Length: 77.00 ft Total Volume: 0.527 bbl

Num Fluid Samples: 0

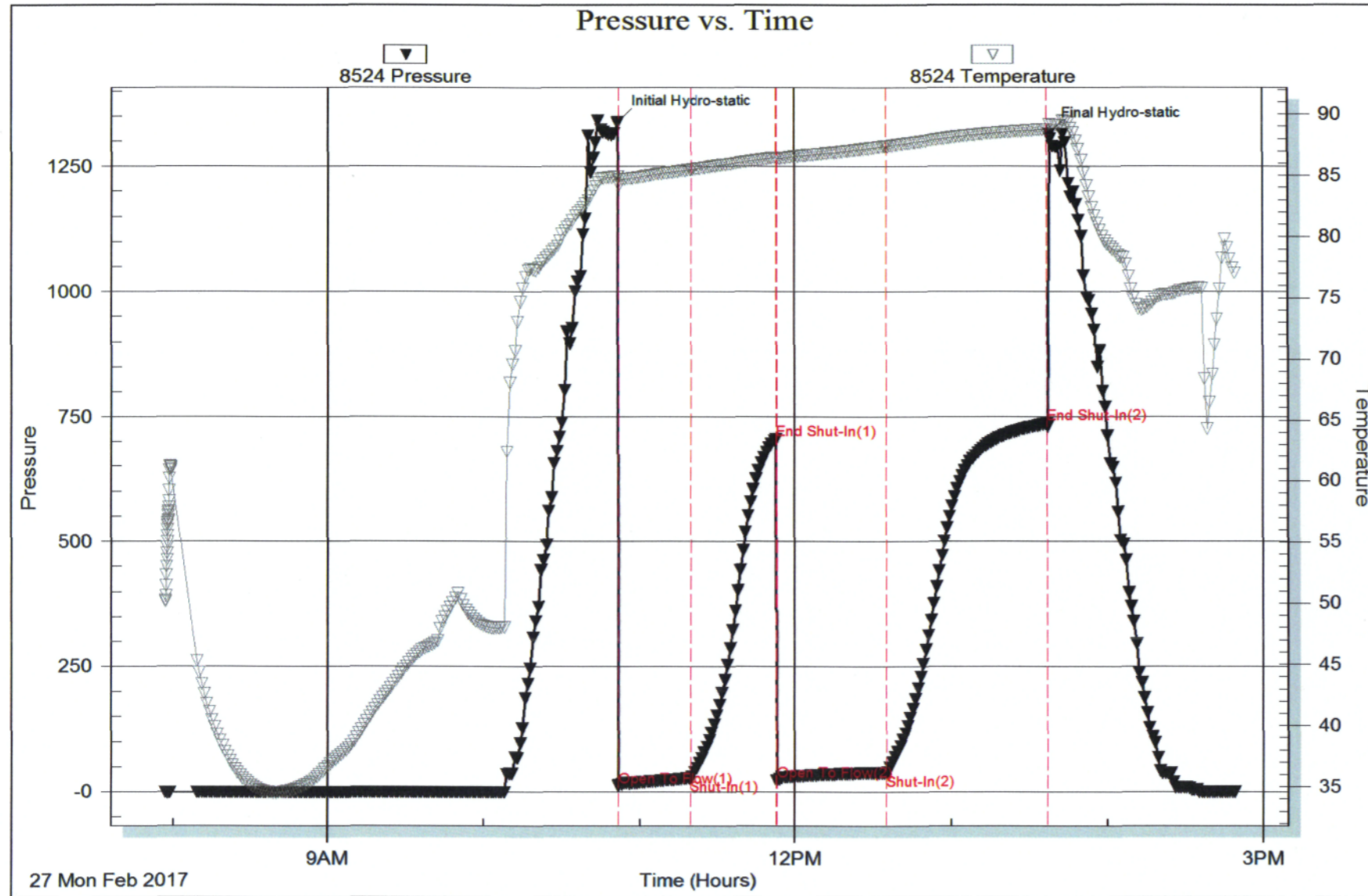
Num Gas Bombs: 0

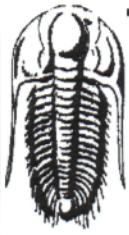
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

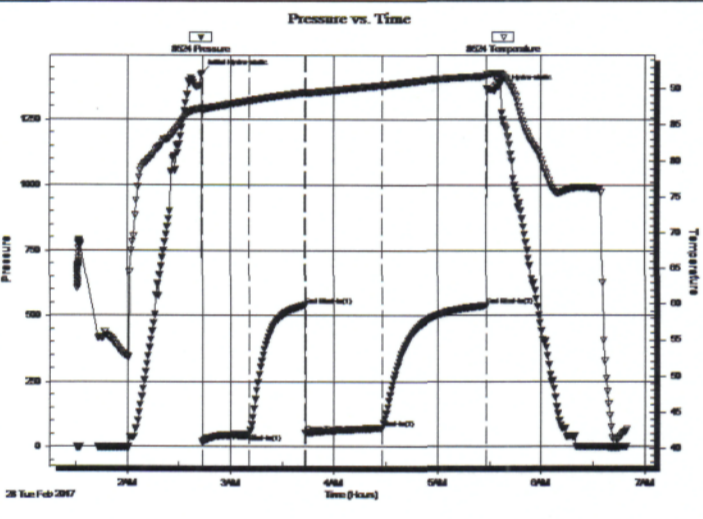
27-14S-13W Russell, KS
A C Rogg #11
 Job Ticket: 58113 **DST#: 3**
 Test Start: 2017.02.28 @ 01:30:50

GENERAL INFORMATION:

Formation: **LKC "A-C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:43:36
 Time Test Ended: 06:49:51
 Interval: **2847.00 ft (KB) To 2892.00 ft (KB) (TVD)**
 Total Depth: 2892.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 1713.00 ft (KB)
 1705.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8524 Outside
 Press@RunDepth: 72.17 psig @ 2848.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.02.28 End Date: 2017.02.28 Last Calib.: 2017.02.28
 Start Time: 01:30:51 End Time: 06:49:51 Time On Btm: 2017.02.28 @ 02:43:21
 Time Off Btm: 2017.02.28 @ 05:28:21

TEST COMMENT: 30- IF- Slow ly built to 7"
 30- IS- No blow
 45- FF- Slow ly built to 8"
 60- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1427.01	87.22	Initial Hydro-static
1	17.87	86.89	Open To Flow (1)
28	49.64	88.27	Shut-In(1)
60	539.23	89.42	End Shut-In(1)
60	53.41	89.35	Open To Flow (2)
105	72.17	90.42	Shut-In(2)
165	537.59	91.74	End Shut-In(2)
165	1367.34	91.96	Final Hydro-static

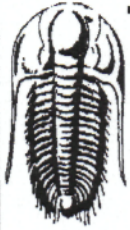
Recovery

Length (ft)	Description	Volume (bbl)
61.00	MW w / scum of oil on top, 30%M 70%W	0.30
63.00	WM w / oil scum on top, 15%W 85%M	0.89

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.

27-14S-13W Russell,KS

8411 Preston Rd. Ste. 800
Dallas, TX 75225

A C Rogg #11

Job Ticket: 58113

DST#: 3

ATTN: Jim Musgrove

Test Start: 2017.02.28 @ 01:30:50

Tool Information

Drill Pipe:	Length: 2769.00 ft	Diameter: 3.82 inches	Volume: 39.25 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 61.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 38000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 34000.00 lb
Depth to Top Packer:	2847.00 ft			Final 35000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2828.00	
Shut In Tool	5.00			2833.00	
Hydraulic tool	5.00			2838.00	
Packer	5.00			2843.00	20.00 Bottom Of Top Packer
Packer	4.00			2847.00	
Stubb	1.00			2848.00	
Recorder	0.00	6838	Inside	2848.00	
Recorder	0.00	8524	Outside	2848.00	
Perforations	8.00			2856.00	
Change Over Sub	1.00			2857.00	
Drill Pipe	31.00			2888.00	
Change Over Sub	1.00			2889.00	
Bullnose	3.00			2892.00	45.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.

27-14S-13W Russell,KS

8411 Preston Rd. Ste. 800
Dallas, TX 75225

A C Rogg #11

Job Ticket: 58113

DST#: 3

ATTN: Jim Musgrove

Test Start: 2017.02.28 @ 01:30:50

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:

75000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
61.00	MW w / scum of oil on top, 30%M 70%W	0.300
63.00	WM w / oil scum on top, 15%W 85%M	0.893

Total Length: 124.00 ft Total Volume: 1.193 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .17@43deg

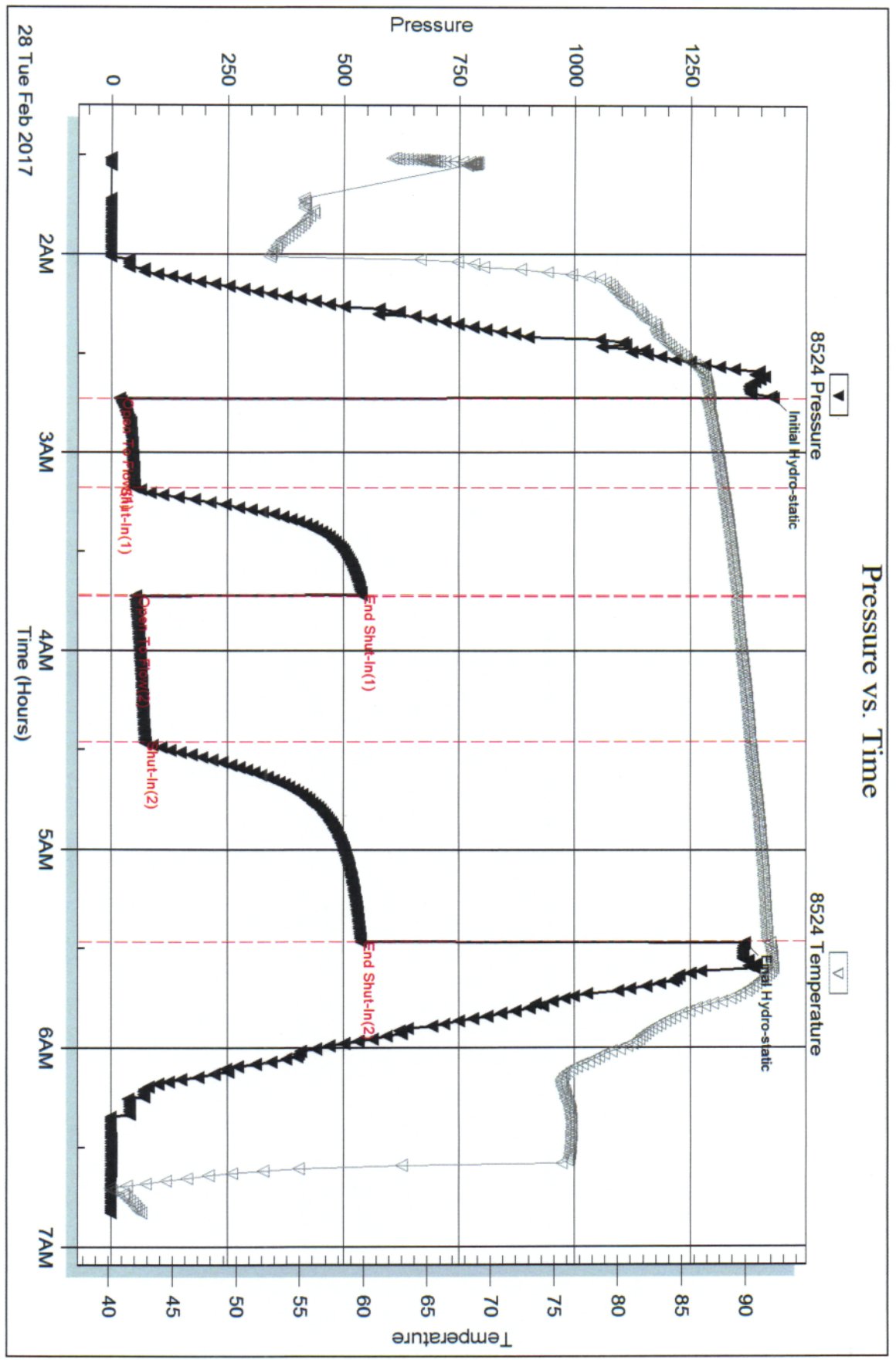
Serial #: 8524

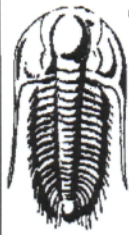
Outside Mai Oil Operations, Inc.

A C Rogg #11

DST Test Number: 3

Pressure vs. Time





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

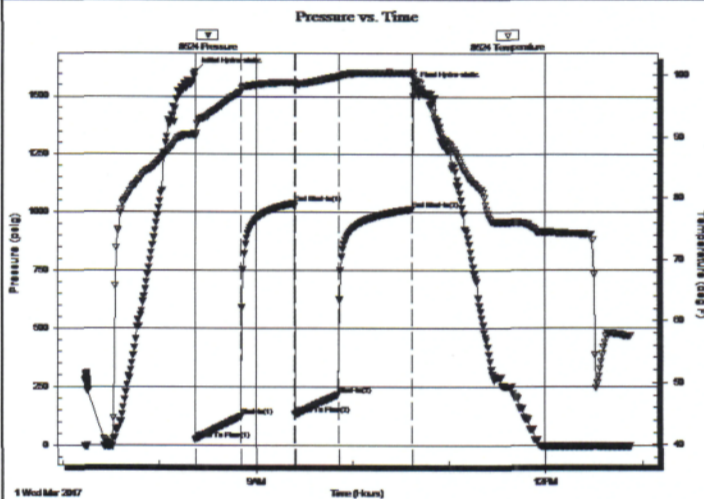
27-14S-13W Russell, KS
A C Rogg #11
 Job Ticket: 58114 **DST#: 4**
 Test Start: 2017.03.01 @ 07:13:40

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:22:26
 Time Test Ended: 12:53:11
 Interval: **3140.00 ft (KB) To 3162.00 ft (KB) (TVD)**
 Total Depth: 3162.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 1713.00 ft (KB)
 1705.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8524 **Outside**
 Press@RunDepth: 218.57 psig @ 3141.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.03.01 End Date: 2017.03.01 Last Calib.: 2017.03.01
 Start Time: 07:13:41 End Time: 12:53:11 Time On Btm: 2017.03.01 @ 08:22:11
 Time Off Btm: 2017.03.01 @ 10:38:11

TEST COMMENT: 30- IF- BOB 6 mins
 30- IS- No blow
 30- FF- BOB 8 mins
 45- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1606.88	90.46	Initial Hydro-static
1	26.05	90.06	Open To Flow (1)
29	124.88	97.29	Shut-In(1)
62	1038.39	98.84	End Shut-In(1)
63	133.24	98.59	Open To Flow (2)
90	218.57	99.80	Shut-In(2)
135	1014.54	100.41	End Shut-In(2)
136	1549.23	100.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
188.00	OCM, 25%O 75%M	2.66
361.00	CGO, 15%G 85%O	5.12
0.00	16' GIP	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.

27-14S-13W Russell,KS

8411 Preston Rd. Ste. 800
Dallas, TX 75225

A C Rogg #11

Job Ticket: 58114

DST#: 4

ATTN: Jim Musgrove

Test Start: 2017.03.01 @ 07:13:40

Tool Information

Drill Pipe:	Length: 3145.00 ft	Diameter: 3.82 inches	Volume: 44.58 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:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume: 44.58 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial	35000.00 lb
Depth to Top Packer:	3140.00 ft			Final	38000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	22.00 ft				
Tool Length:	42.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3121.00	
Shut In Tool	5.00			3126.00	
Hydraulic tool	5.00			3131.00	
Packer	5.00			3136.00	20.00 Bottom Of Top Packer
Packer	4.00			3140.00	
Stubb	1.00			3141.00	
Recorder	0.00	6838	Inside	3141.00	
Recorder	0.00	8524	Outside	3141.00	
Perforations	18.00			3159.00	
Bullnose	3.00			3162.00	22.00 Bottom Packers & Anchor
Total Tool Length:	42.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.

27-14S-13W Russell,KS

8411 Preston Rd. Ste. 800
Dallas, TX 75225

A C Rogg #11

Job Ticket: 58114

DST#: 4

ATTN: Jim Musgrove

Test Start: 2017.03.01 @ 07:13:40

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6300.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
188.00	OCM, 25%O 75%M	2.665
361.00	CGO, 15%G 85%O	5.117
0.00	16' GIP	0.000

Total Length: 549.00 ft

Total Volume: 7.782 bbl

Num Fluid Samples: 0

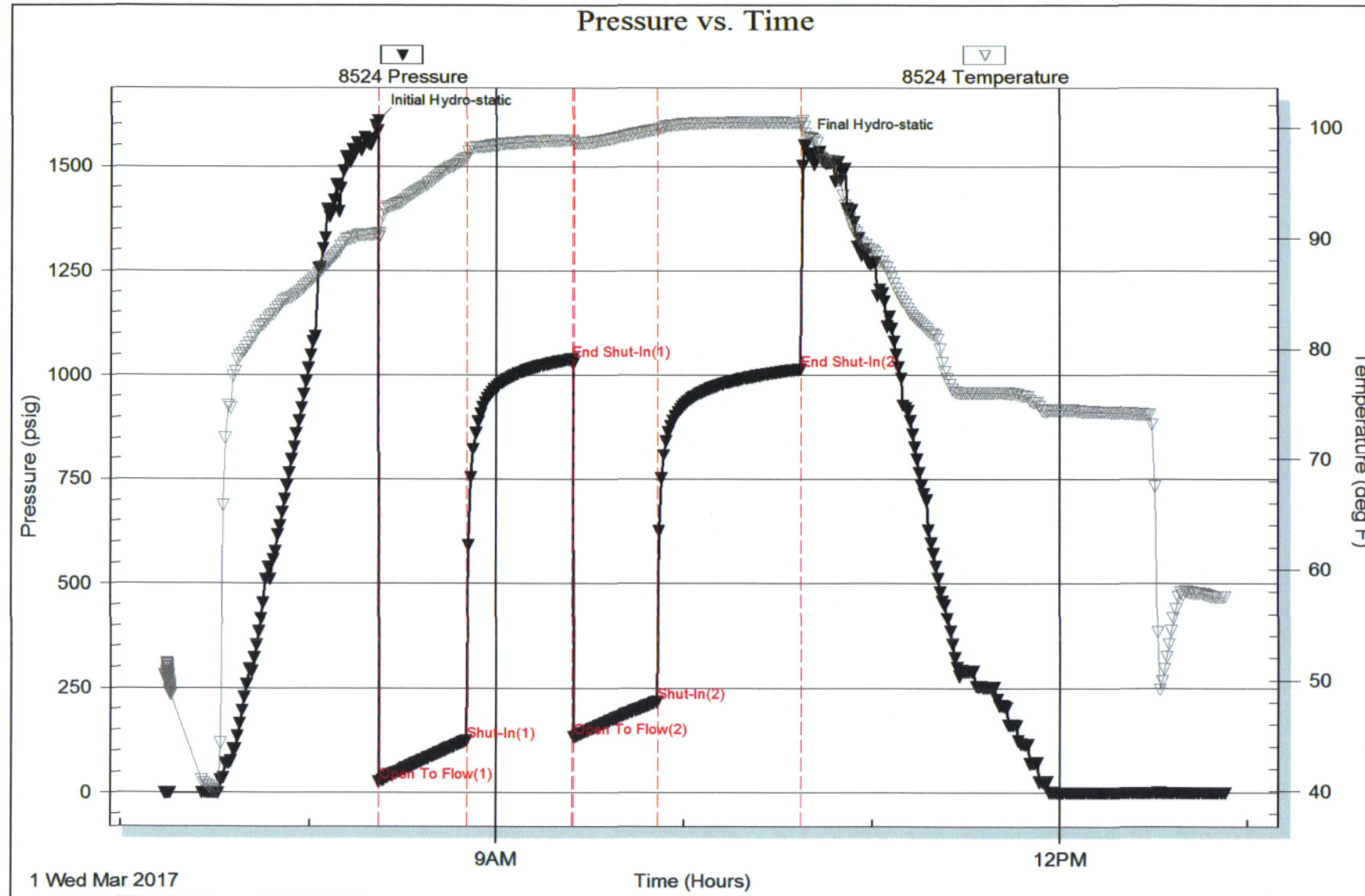
Num Gas Bombs: 0

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. 3149
2-24-17

Date	2-23-17	Sec.	27	Twp.	14	Range	13	County	Russell	State	Ks	On Location		Finish	10:00 AM
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Lease AC Rogg Well No. 11 Location Russell S to 4 Corners Rd, 5 1/2 E

Contractor Southwind #3 Owner S/I nfo

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. 323' Charge To main oil operations

Csg. 8 5/8" Depth 323' 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 60/40 5% CC 2% Gel

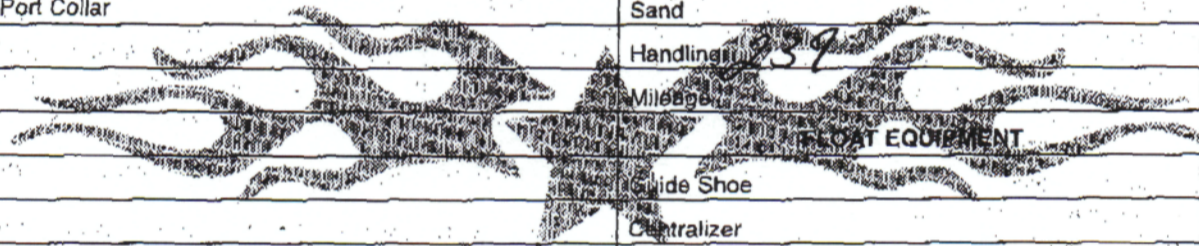
Meas Line Displace 19 1/2 Bbl 225 sks 100

EQUIPMENT

Pumptrk 20 No.	Cementer	Helper	Travis	Nick	Common	135
Bulktrk 15 No.	Driver	Driver	Jason	Donny	Poz. Mix	90
Buttrk p.u. No.	Driver	Driver	Rick		Gel.	4
					Calcium	10

JOB SERVICES & REMARKS

Remarks:	Cement did Circulate	Hulls
Rat Hole		Salt
Mouse Hole		Flowseal
Centralizers		Kot-Seal
Baskets		Mud CLR 48
D/V or Port Collar		CFL-117 or CD110 CAF 38



Quality Oilwell

Cementing

Pumptrk Charge	to Surface	Tax
Mileage	15 (min)	Discount
Signature	<i>[Signature]</i>	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. 1665

Date	3-2-17	Sec.	27	Twp.	14	Range	13	County	Russell	State	Ks	On Location		Finish	8:30AM	
Lease	A.C. Rogg							Well No.	11	Location 281 + 4 Corners Rd, 5 1/2 E S14						
Contractor	Southwind #3							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.								
Type Job	Long string							Charge To Mai oil operations								
Hole Size	7 7/8"		T.D.		3215'		Street									
Csg.	14# 5 1/2"		Depth		3213'		City State									
Tbg. Size			Depth				The above was done to satisfaction and supervision of owner agent or contractor.									
Tool			Depth				Cement Amount Ordered 100 60/40 18% Salt 2% Gel 1/4# Flo									
Cement Left in Csg.	20.85'		Shoe Joint		20.35'		100 60/40 10% Salt 2% Gel 1/4# Flo seal									
Meas Line			Displace		77 3/4 BCS		Common 120									
EQUIPMENT							Poz. Mix 50									
Pumptrk	18	No.	Cementer	Kawis		Rick		Gel. 4								
Bulktrk	9	No.	Driver	Doug				Calcium								
Bulktrk	15	No.	Driver	David				Hulls								
JOB SERVICES & REMARKS							Remarks: pipe set @ 32056'									
Rat Hole							Salt 31									
Mouse Hole							Flowseal 40 #									
Centralizers							Kol-Seal									
Baskets							Mud CLR 48 1000 gal									
D/V or Port Collar							CFL-117 or CD110 CAF 38									
Circulation							Sand									
Clear 48							Handling 236									
Cement 52							Mileage									
18% Salt 2% Gel							FLOAT EQUIPMENT									
10% Salt 2% Gel 1/4# Flo seal							Guide Shoe									
wash pump + tires							Centralizer 9									
with 17 1/4 BCS							Baskets 1 Caged									
Lift pressure 650 #							AFU inserts									
Land plug to 1500 #							Float Shoe									
							Latch Down 1									
							Pumptrk Charge prod string									
							Mileage 15									
							Tax									
							Discount									
							Total Charge									
Signature							Jay Lewis									