



## DRILL STEM TEST REPORT

Prepared For: **Messenger Petroleum Inc.**

525 S. Main  
Kingman KS 67068

ATTN: Jon Messenger

### **Merven #1**

### **15-29s-9w Kingman,KS**

Start Date: 2015.01.02 @ 13:20:41

End Date: 2015.01.02 @ 20:34:41

Job Ticket #: 59733                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.01.09 @ 09:17:58



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59733

**DST#: 1**

ATTN: Jon Messenger

Test Start: 2015.01.02 @ 13:20:41

## GENERAL INFORMATION:

Formation: **Douglas**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:11:41

Time Test Ended: 20:34:41

Test Type: Conventional Bottom Hole (Initial)

Tester: Gary Pevoteaux

Unit No: 80

**Interval: 3390.00 ft (KB) To 3471.00 ft (KB) (TVD)**

Reference Elevations: 1700.00 ft (KB)

Total Depth: 3471.00 ft (KB) (TVD)

1691.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

**Serial #: 8352 Outside**

Press@RunDepth: 590.76 psig @ 3391.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.01.02

End Date:

2015.01.02

Last Calib.:

2015.01.02

Start Time: 13:20:46

End Time:

20:34:40

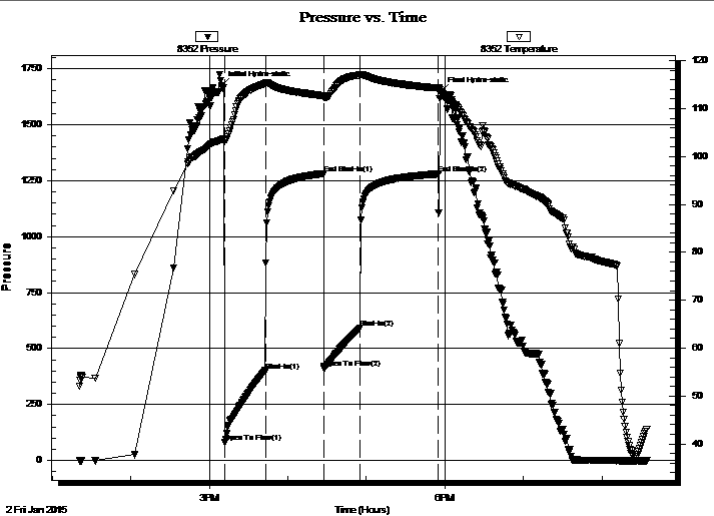
Time On Btm:

2015.01.02 @ 15:09:26

Time Off Btm:

2015.01.02 @ 17:56:41

**TEST COMMENT:** IF:Strong blow . B.O.B. in 3 mins.  
IS:No blow .  
FF:Strong blow . B.O.B. in 2 mins.  
FS:No blow .



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1672.88	103.56	Initial Hydro-static
3	78.96	103.37	Open To Flow (1)
34	401.15	115.19	Shut-In(1)
78	1281.61	112.66	End Shut-In(1)
79	413.54	112.42	Open To Flow (2)
106	590.76	117.02	Shut-In(2)
166	1280.45	114.26	End Shut-In(2)
168	1646.09	113.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
320.00	SW	2.51
570.00	GCMW / w o specs 8%g 17%m 75%w	8.00
255.00	SO&GC,MW 1%o 4%g 38%m 57%w	3.58
70.00	Drilg.mud	0.98

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59733

**DST#: 1**

ATTN: Jon Messenger

Test Start: 2015.01.02 @ 13:20:41

## Tool Information

Drill Pipe:	Length: 3160.00 ft	Diameter: 3.80 inches	Volume: 44.33 bbl	Tool Weight:	2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 217.00 ft	Diameter: 2.25 inches	Volume: 1.07 bbl	Weight to Pull Loose:	79000.00 lb
			<u>Total Volume: 45.40 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	3390.00 ft			Final	69500.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	81.00 ft				
Tool Length:	109.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3363.00	
Shut In Tool	5.00			3368.00	
Hydraulic tool	5.00			3373.00	
Jars	5.00			3378.00	
Safety Joint	3.00			3381.00	
Packer	4.00			3385.00	28.00 Bottom Of Top Packer
Packer	5.00			3390.00	
Stubb	1.00			3391.00	
Recorder	0.00	8352	Outside	3391.00	
Recorder	0.00	8370	Inside	3391.00	
Perforations	6.00			3397.00	
Blank Spacing	63.00			3460.00	
Perforations	6.00			3466.00	
Bullnose	5.00			3471.00	81.00 Bottom Packers & Anchor

**Total Tool Length: 109.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59733

**DST#: 1**

ATTN: Jon Messenger

Test Start: 2015.01.02 @ 13:20:41

## 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:

79000 ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.20 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
320.00	SW	2.512
570.00	GCMW / w o specs 8%g 17%m 75%w	7.996
255.00	SO&GC,MW 1%o 4%g 38%m 57%w	3.577
70.00	Drig.mud	0.982

Total Length: 1215.00 ft      Total Volume: 15.067 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

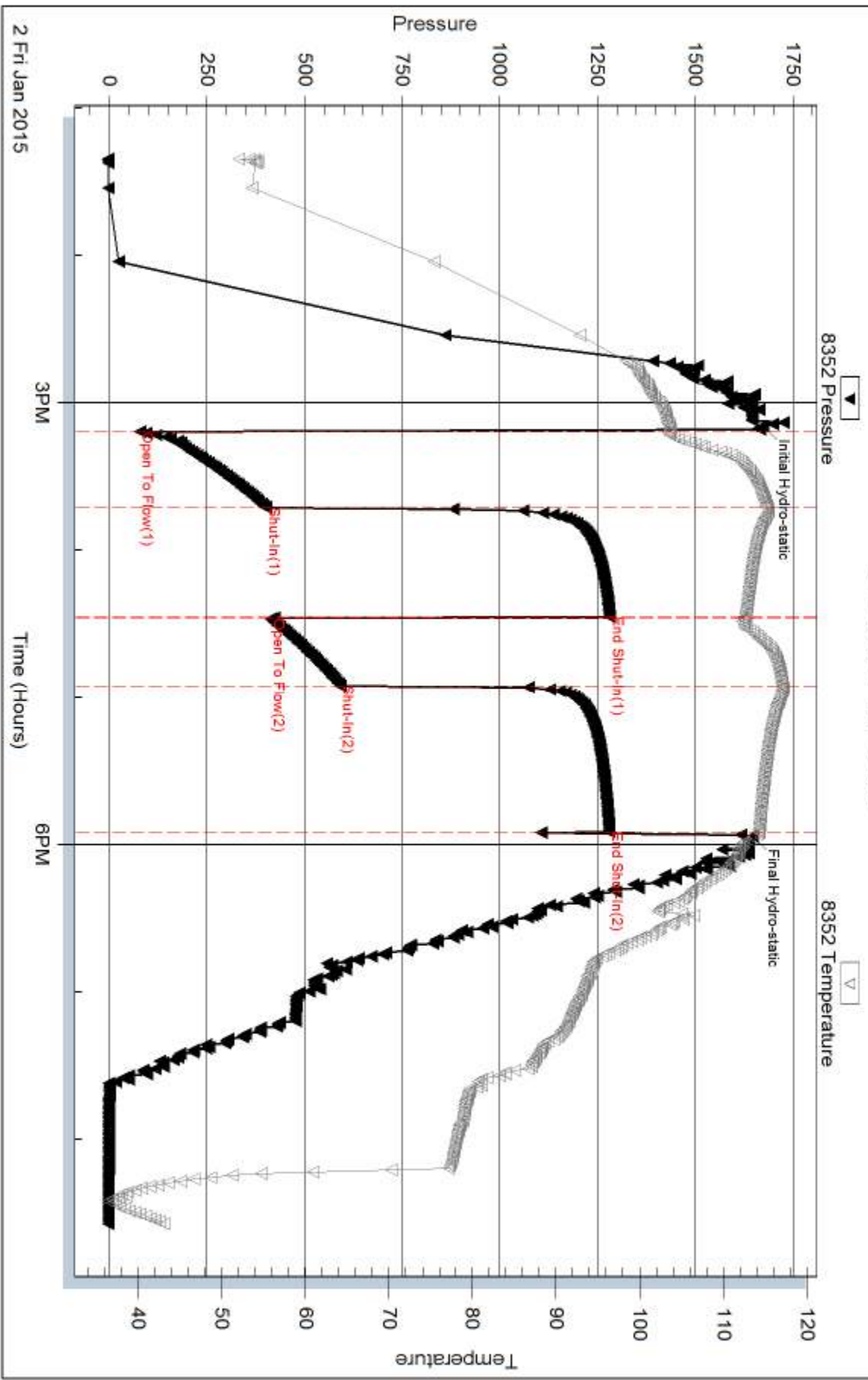
Serial #: none

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw .18ohms@39 deg

### Pressure vs. Time



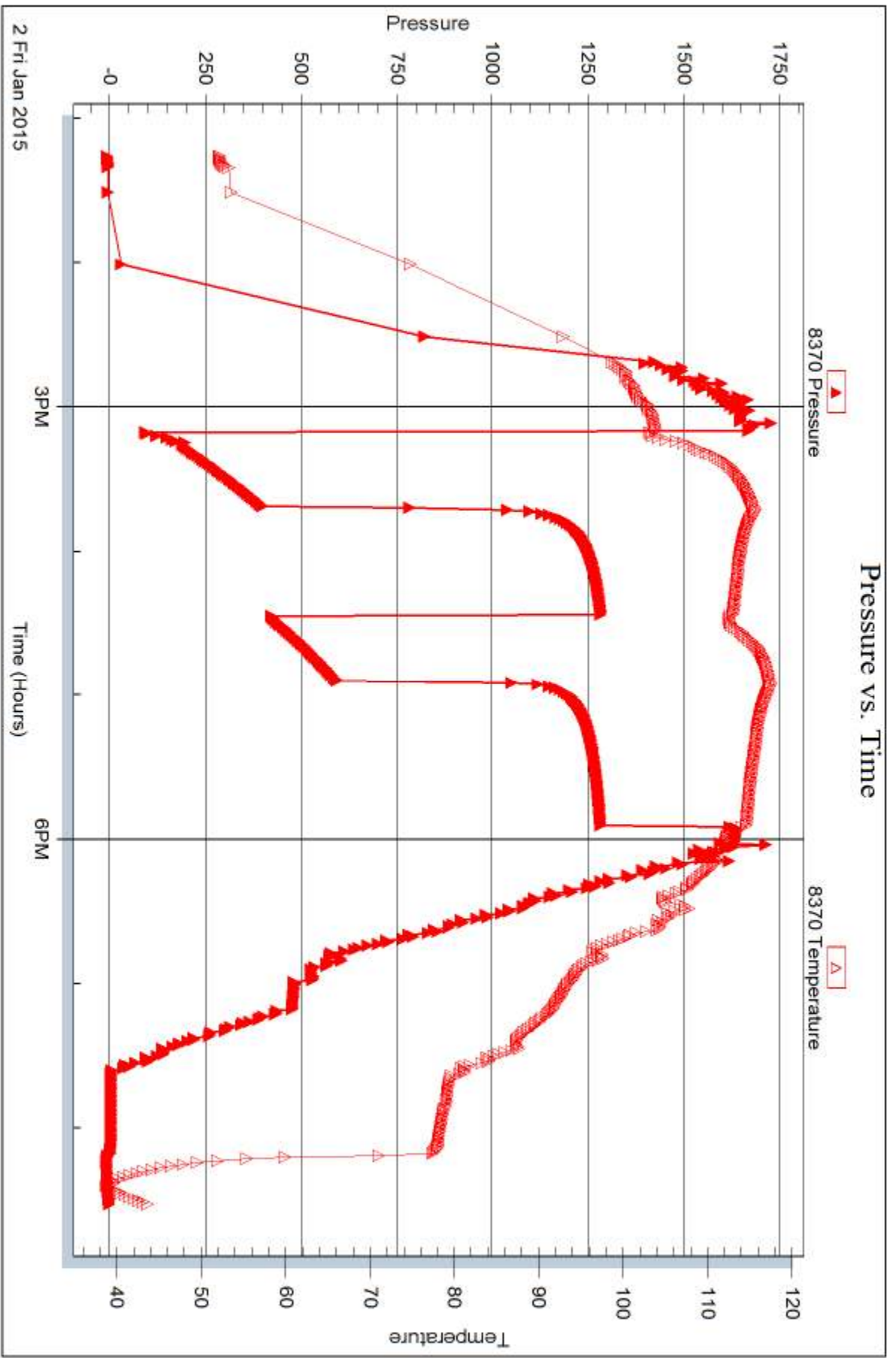
Serial #: 8370

Inside

Messenger Petroleum Inc.

Merven #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 59733

Printed: 2015.01.09 @ 09:17:59



## DRILL STEM TEST REPORT

Prepared For: **Messenger Petroleum Inc.**

525 S. Main  
Kingman KS 67068

ATTN: Jon Messenger

### **Merven #1**

### **15-29s-9w Kingman,KS**

Start Date: 2015.01.05 @ 08:13:12

End Date: 2015.01.05 @ 16:54:57

Job Ticket #: 59734                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.01.09 @ 09:16:53





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59734

**DST#: 2**

ATTN: Jon Messenger

Test Start: 2015.01.05 @ 08:13:12

## GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:51:42

Time Test Ended: 16:54:57

Test Type: Conventional Bottom Hole (Reset)

Tester: Gary Pevoteaux

Unit No: 80

**Interval: 4204.00 ft (KB) To 4218.00 ft (KB) (TVD)**

Reference Elevations: 1700.00 ft (KB)

Total Depth: 4218.00 ft (KB) (TVD)

1691.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

**Serial #: 8352 Outside**

Press@RunDepth: 99.85 psig @ 4205.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.01.05

End Date:

2015.01.05

Last Calib.:

2015.01.05

Start Time:

08:13:17

End Time:

16:54:57

Time On Btm:

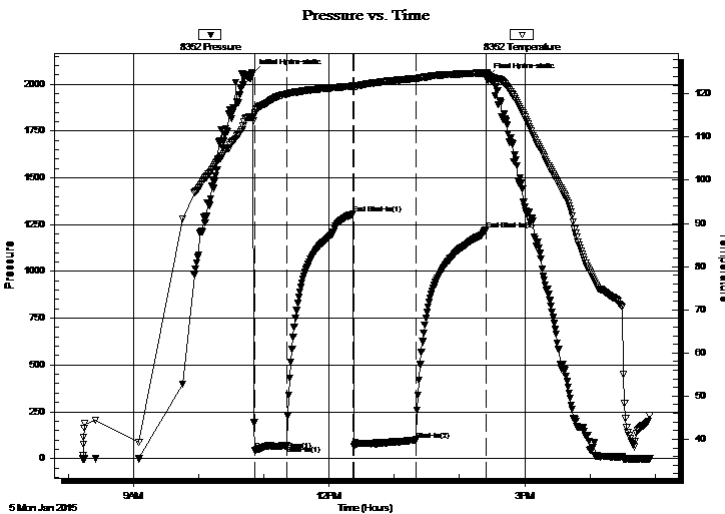
2015.01.05 @ 10:49:42

Time Off Btm:

2015.01.05 @ 14:25:12

**TEST COMMENT:** IF:Strong blow . B.O.B. in 20 secs.  
IS:Fair to strong blow . GTS in 50 mins.  
FF:Strong blow . (see gas flow report)  
FS:Strong blow . B.O.B.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2057.91	114.64	Initial Hydro-static
2	44.20	115.19	Open To Flow (1)
32	69.09	119.95	Shut-In(1)
93	1305.70	121.78	End Shut-In(1)
94	63.06	121.55	Open To Flow (2)
151	99.85	123.56	Shut-In(2)
215	1223.02	124.87	End Shut-In(2)
216	2034.72	124.70	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	GOCMW 8%g 3%o 13%m 76%w	0.61
125.00	GOCWM 22%g 4%o 22%w 52%m	0.92
50.00	GOCM 10%g 12%o 78%m	0.70

\* Recovery from multiple tests

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	3.00	27.74
Last Gas Rate	0.25	2.00	26.14
Max. Gas Rate	0.25	3.00	27.74



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59734

**DST#: 2**

ATTN: Jon Messenger

Test Start: 2015.01.05 @ 08:13:12

### GENERAL INFORMATION:

Formation: **Mississippi**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 10:51:42  
Time Test Ended: 16:54:57  
Interval: **4204.00 ft (KB) To 4218.00 ft (KB) (TVD)**  
Total Depth: 4218.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Gary Pevoteaux  
Unit No: 80  
Reference Elevations: 1700.00 ft (KB)  
1691.00 ft (CF)  
KB to GR/CF: 9.00 ft

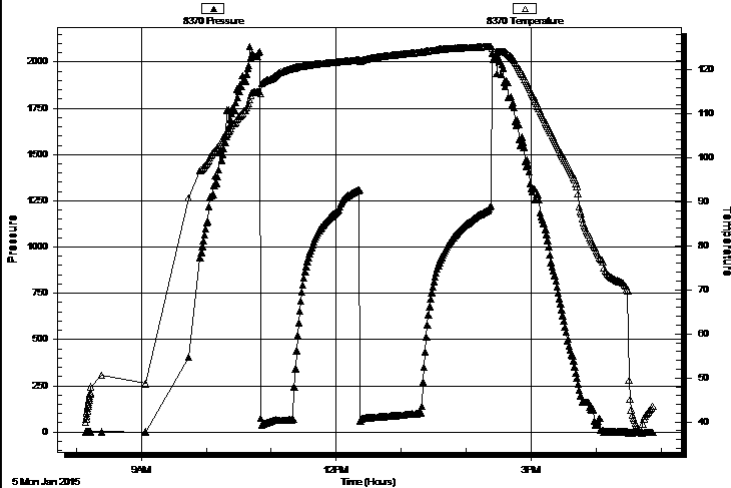
### Serial #: 8370

Inside

Press@RunDepth: psig @ 4205.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2015.01.05 End Date: 2015.01.05 Last Calib.: 2015.01.05  
Start Time: 08:08:32 End Time: 16:52:12 Time On Btm:  
Time Off Btm:

TEST COMMENT: IF:Strong blow . B.O.B. in 20 secs.  
IS:Fair to strong blow . GTS in 50 mins.  
FF:Strong blow . (see gas flow report)  
FS:Strong blow . B.O.B.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

### Recovery

Length (ft)	Description	Volume (bbl)
125.00	GOCMW 8%g 3%o 13%m 76%w	0.61
125.00	GOCWM 22%g 4%o 22%w 52%m	0.92
50.00	GOCM 10%g 12%o 78%m	0.70

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	3.00	27.74
Last Gas Rate	0.25	2.00	26.14
Max. Gas Rate	0.25	3.00	27.74

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59734

**DST#: 2**

ATTN: Jon Messenger

Test Start: 2015.01.05 @ 08:13:12

## Tool Information

Drill Pipe:	Length: 3986.00 ft	Diameter: 3.80 inches	Volume: 55.91 bbl	Tool Weight:	2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 217.00 ft	Diameter: 2.25 inches	Volume: 1.07 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 56.98 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial	70000.00 lb
Depth to Top Packer:	4204.00 ft			Final	73000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	14.00 ft				
Tool Length:	42.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4177.00	
Shut In Tool	5.00			4182.00	
Hydraulic tool	5.00			4187.00	
Jars	5.00			4192.00	
Safety Joint	3.00			4195.00	
Packer	4.00			4199.00	28.00 Bottom Of Top Packer
Packer	5.00			4204.00	
Stubb	1.00			4205.00	
Recorder	0.00	8352	Outside	4205.00	
Recorder	0.00	8370	Inside	4205.00	
Perforations	8.00			4213.00	
Bullnose	5.00			4218.00	14.00 Bottom Packers & Anchor

**Total Tool Length: 42.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59734

**DST#: 2**

ATTN: Jon Messenger

Test Start: 2015.01.05 @ 08:13:12

## 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:

94000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 0.20 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
125.00	GOCMW 8%g 3%o 13%m 76%w	0.615
125.00	GOCWM 22%g 4%o 22%w 52%m	0.915
50.00	GOCM 10%g 12%o 78%m	0.701

Total Length: 300.00 ft      Total Volume: 2.231 bbl

Num Fluid Samples: 0

Num Gas Bombs: 1

Serial #: gp-2

Laboratory Name: Caraway

Laboratory Location: Liberal, KS

Recovery Comments: Rw .19 ohms@33 deg.



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**GAS RATES**

Messenger Petroleum Inc.

**15-29s-9w Kingman,KS**

525 S. Main  
Kingman KS 67068

**Merven #1**

Job Ticket: 59734

**DST#: 2**

ATTN: Jon Messenger

Test Start: 2015.01.05 @ 08:13:12

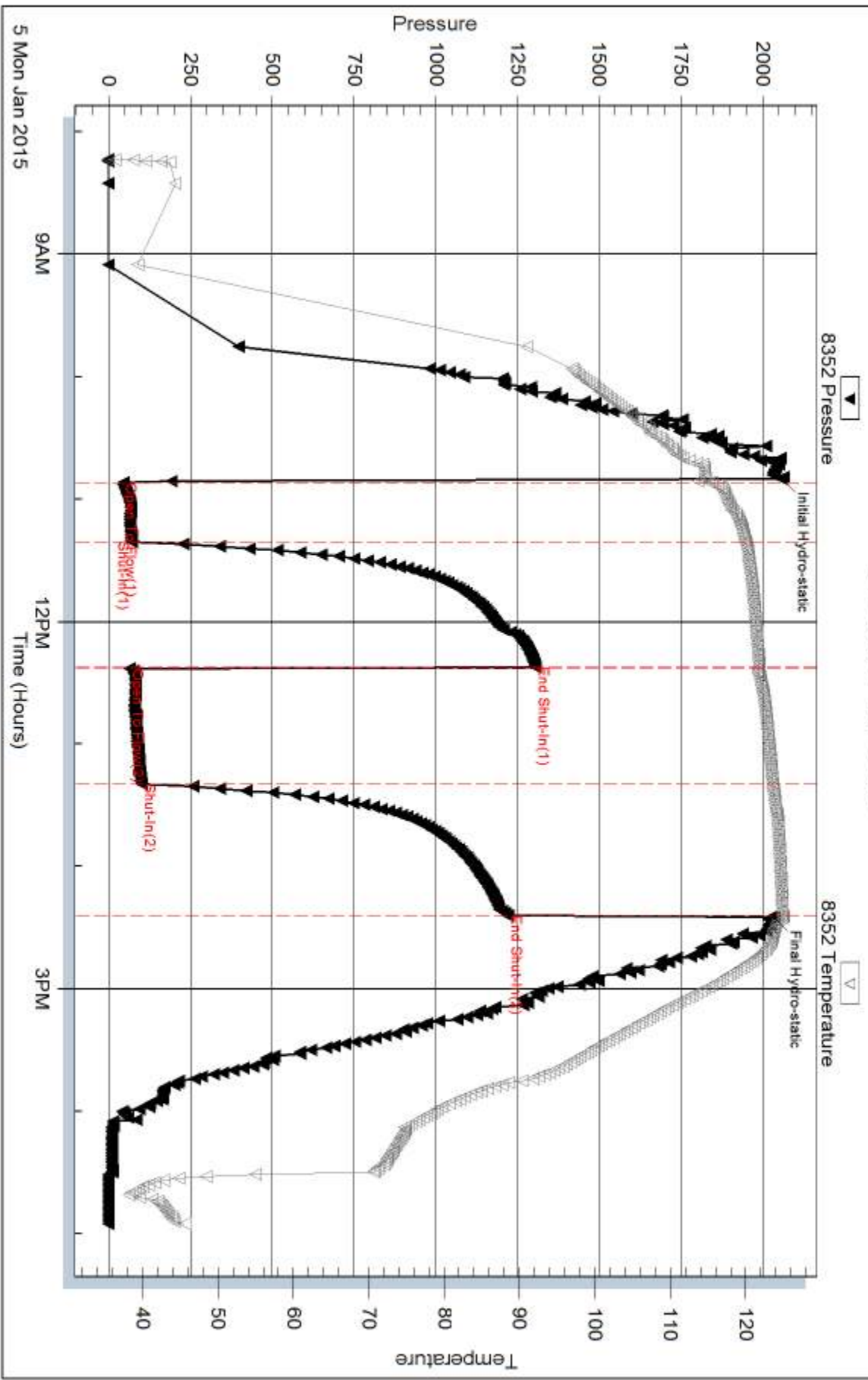
### Gas Rates Information

Temperature: 54 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
2	10	0.25	3.00	27.74
2	20	0.25	3.00	27.74
2	30	0.25	3.00	27.74
2	40	0.25	3.00	27.74
2	50	0.25	3.00	27.74
2	60	0.25	2.00	26.14

### Pressure vs. Time



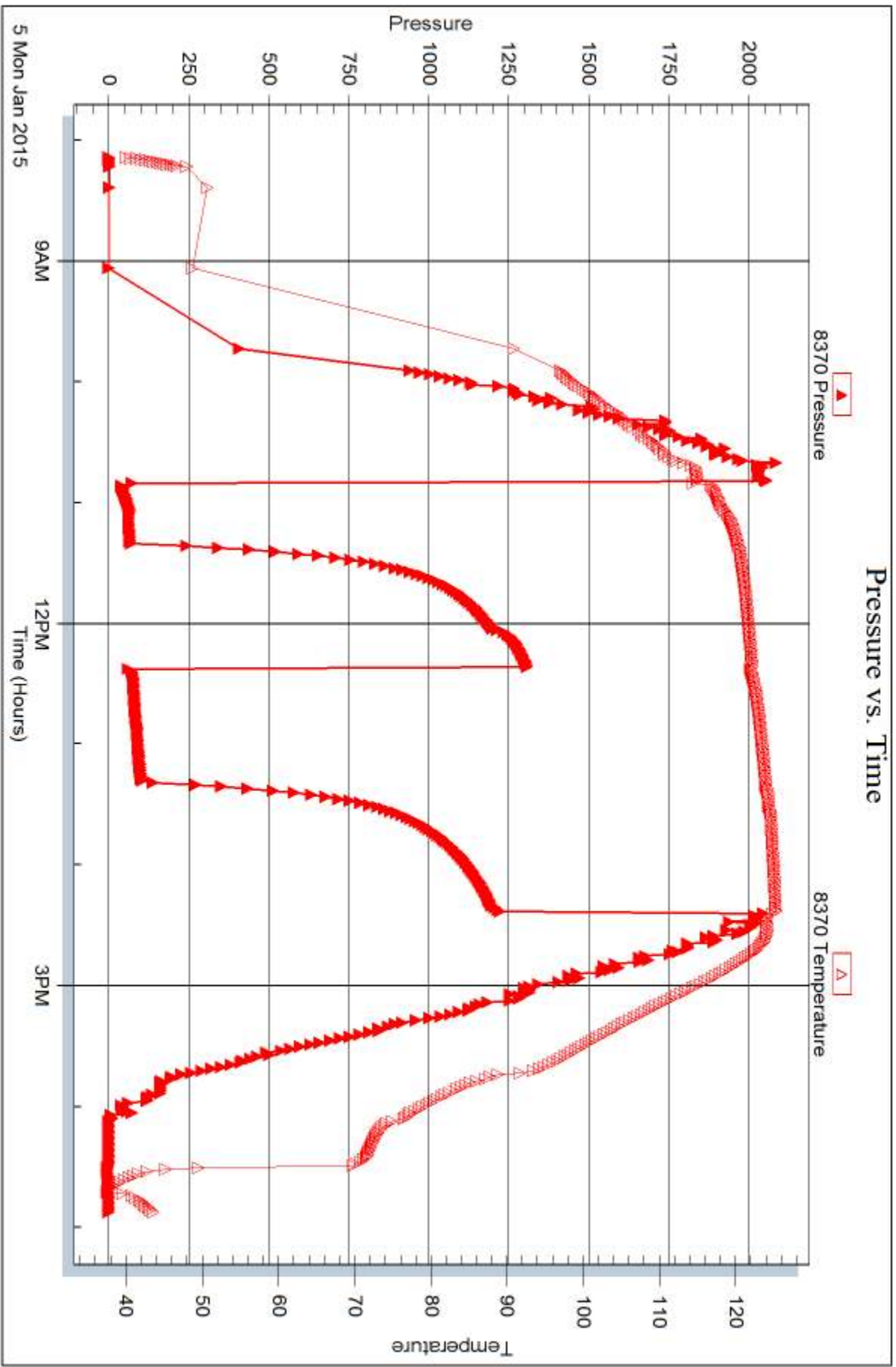
Serial #: 8370

Inside

Messenger Petroleum Inc.

Merven #1

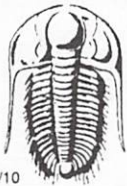
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 59734

Printed: 2015.01.09 @ 09:16:55



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59733

4/10

Well Name & No. MERVEN #1 Test No. 1 Date 1-2-15  
 Company MESSENGER PETROLEUM INC. Elevation 1700 KB 1691 GL  
 Address 525 S. MAIN, KINGMAN KS. 67068  
 Co. Rep / Geo. SON MESSENGER Rig STERLING DRILG. #4  
 Location: Sec. 15 Twp. 29S Rge. 9W Co. KINGMAN State KS.

Interval Tested 3390 - 3471' Zone Tested Douglas  
 Anchor Length 81' Drill Pipe Run 3160 Mud Wt. 9.2  
 Top Packer Depth 3385' Drill Collars Run 217' Vis 46  
 Bottom Packer Depth 3390' Wt. Pipe Run 0 WL 10.0cc  
 Total Depth 3471' Chlorides 3,000 ppm System LCM 0  
 Blow Description IF: Strong blow B.O.B. in 3 mins. ISI: No blow.

FF: Strong blow B.O.B. in 2 mins. FSI: No blow.

Rec	Feet of	%gas	%oil	%water	%mud
<u>70</u>	<u>Drilg Mud</u>				
<u>255</u>	<u>50' GCMW</u>	<u>4</u>	<u>1</u>	<u>57</u>	<u>38</u>
<u>570</u>	<u>GCMW/w specs.</u>	<u>8</u>		<u>75</u>	<u>17</u>
<u>320</u>	<u>SW</u>				
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1215 BHT 114 Gravity N/A API RW .18 @ 39° F Chlorides 79,000 ppm  
 (A) Initial Hydrostatic 1673  Test 1050 T-On Location 1211  
 (B) First Initial Flow 79  Jars 250 T-Started 1320  
 (C) First Final Flow 401  Safety Joint 75 T-Open 1511  
 (D) Initial Shut-In 1282  Circ Sub \_\_\_\_\_ T-Pulled 1759  
 (E) Second Initial Flow 414  Hourly Standby \_\_\_\_\_ T-Out 2034  
 (F) Second Final Flow 591  Mileage 76rt 76 Comments \_\_\_\_\_  
 (G) Final Shut-In 1280  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1646  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 45  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 30  Day Standby \_\_\_\_\_ Total 1451  
 Final Shut-In 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1451

Approved By: [Signature] Our Representative: [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59734

4/10

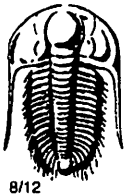
Well Name & No. MERVEN #1 Test No. 2 Date 1-5-15  
 Company MESSINGER PETROLEUM INC. Elevation 1700 KB 1691 GL  
 Address 525 S. MAIN, KINGMAN KS 67068  
 Co. Rep / Geo. TONI MESSINGER Rig STERLING DRILL #4  
 Location: Sec. 13 Twp. 29S Rge. 9W Co. KINGMAN State KS.

Interval Tested 4204-4218' Zone Tested MISS.  
 Anchor Length 14' Drill Pipe Run 3986 Mud Wt. 9.2  
 Top Packer Depth 4799' Drill Collars Run 217 Vis 58  
 Bottom Packer Depth 4204' Wt. Pipe Run 0 WL 10.2cc  
 Total Depth 4218' Chlorides 6500 ppm System LCM 2#  
 Blow Description IF: Strong blow B.O.B. in 20 sec. ISI: Fair to strong blow. GTS in 50 mins.  
FF: Strong blow. (See gas flow report) FSI: Strong blow - B.O.B.

Rec	Feet of	%gas	%oil	%water	%mud
<u>50</u>	<u>GOCM</u>	<u>10</u>	<u>12</u>	<u>78</u>	
<u>125</u>	<u>GOCWM</u>	<u>22</u>	<u>4</u>	<u>22</u>	<u>52</u>
<u>125</u>	<u>GOCMW</u>	<u>8</u>	<u>3</u>	<u>76</u>	<u>13</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 300 FLUIDS BHT 1250 Gravity N/A API RW 19 @ 33 °F Chlorides 94000 ppm  
 (A) Initial Hydrostatic 2058  Test 1150 T-On Location 0604  
 (B) First Initial Flow 44  Jars 250 T-Started 0813  
 (C) First Final Flow 69  Safety Joint 75 T-Open 1051  
 (D) Initial Shut-In 1306  Circ Sub \_\_\_\_\_ T-Pulled 1426  
 (E) Second Initial Flow 63  Hourly Standby \_\_\_\_\_ T-Out 1654  
 (F) Second Final Flow 100  Mileage 152 Comments \_\_\_\_\_  
 (G) Final Shut-In 1223  Sampler \_\_\_\_\_ loaded tools 1/6  
 (H) Final Hydrostatic 2035  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 1116.67  
 Day Standby 2d 9.5h Total 2743.67  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1627

Approved By [Signature] Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Gas Volume Report

MESSENGER PELL, INC.  
Operator

MERVEN #1  
Well Name and No.

2  
DST No.

INITIAL FLOW				FINAL FLOW			
Min.	Ins. of Water PSIG	Orifice Size	M <sup>3</sup> CF/D	Min.	Ins. of Water PSIG	Orifice Size	M <sup>3</sup> CF/D
				10	3	1/4"	28
				20	3	1/4"	28
				30	3	1/4"	28
			GTS 50 MINS INTO	40	3	1/4"	28
			ISIP	50	3	1/4"	28
				60	2	1/4"	26

Remarks: