



## DRILL STEM TEST REPORT

Prepared For: **Charter Energy, Inc.**

P.O. Box 252  
Great Bend KS 67530-0252

ATTN: Jake Eastes

### **Mermis #1**

#### **13-20s-16w Pawnee,KS**

Start Date: 2014.08.03 @ 22:45:00

End Date: 2014.08.04 @ 06:49:30

Job Ticket #: 60326                      DST #: 1

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

Printed: 2014.08.07 @ 10:42:30



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

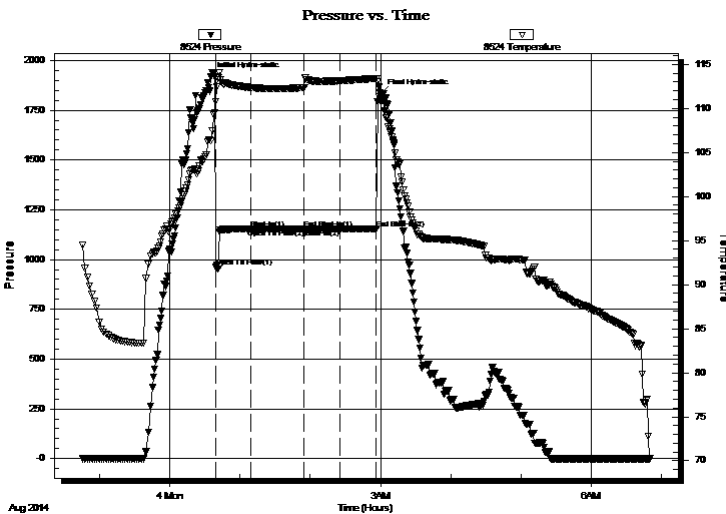
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
Job Ticket: 60326 **DST#: 1**  
Test Start: 2014.08.03 @ 22:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 00:39:30  
Time Test Ended: 06:49:30  
Interval: **3740.00 ft (KB) To 3810.00 ft (KB) (TVD)**  
Total Depth: 3810.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Reference Elevations: 2100.00 ft (KB)  
2093.00 ft (CF)  
KB to GR/CF: 7.00 ft

**Serial #: 8524 Inside**  
Press@RunDepth: 1152.51 psig @ 3806.52 ft (KB) Capacity: 5000.00 psig  
Start Date: 2014.08.03 End Date: 2014.08.04 Last Calib.: 2014.08.04  
Start Time: 22:46:00 End Time: 06:49:30 Time On Btm: 2014.08.04 @ 00:35:30  
Time Off Btm: 2014.08.04 @ 03:00:00

**TEST COMMENT:** 1st Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 30 seconds. At ten minutes allowed blow to rebuild. Blow rebuilt to total of 2 inches into bucket of water for remainder of time.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. Weak surface blow that died at 1 minute. Did not flush tool per Geo.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1919.34	106.34	Initial Hydro-static
4	961.38	110.77	Open To Flow (1)
34	1152.70	112.38	Shut-In(1)
79	1153.02	112.36	End Shut-In(1)
80	1151.60	112.36	Open To Flow (2)
110	1152.51	113.14	Shut-In(2)
141	1152.74	113.41	End Shut-In(2)
145	1831.11	110.94	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1809.00	100% Mud	25.38
0.00	Attempted to reverse fluid out.	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

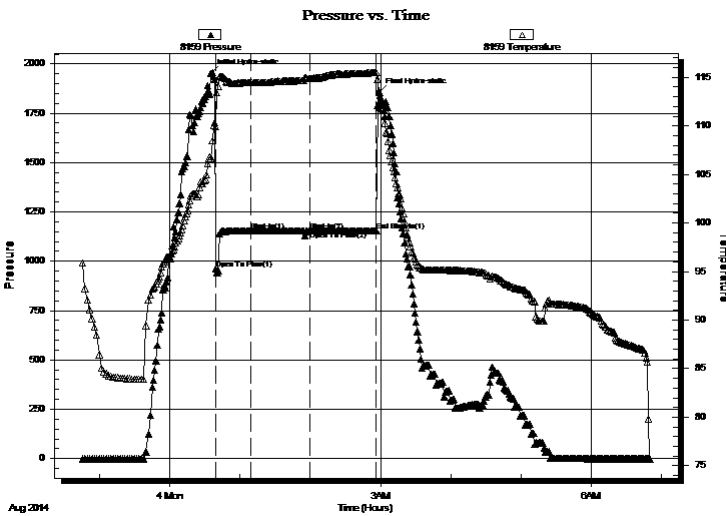
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
Job Ticket: 60326 **DST#: 1**  
Test Start: 2014.08.03 @ 22:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 00:39:30  
Time Test Ended: 06:49:30  
Interval: **3740.00 ft (KB) To 3810.00 ft (KB) (TVD)**  
Total Depth: 3810.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Reference Elevations: 2100.00 ft (KB)  
2093.00 ft (CF)  
KB to GR/CF: 7.00 ft

**Serial #: 8159 Outside**  
Press@RunDepth: 1153.85 psig @ 3807.52 ft (KB) Capacity: 5000.00 psig  
Start Date: 2014.08.03 End Date: 2014.08.04 Last Calib.: 2014.08.04  
Start Time: 22:46:00 End Time: 06:50:00 Time On Btm: 2014.08.04 @ 00:35:30  
Time Off Btm: 2014.08.04 @ 02:59:00

**TEST COMMENT:** 1st Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 30 seconds. At ten minutes allowed blow to rebuild. Blow rebuilt to total of 2 inches into bucket of water for remainder of time.  
1st Shut In/ 45 Minutes. No blow back.  
2nd Open/ 30 Minutes. Weak surface blow that died at 1 minute. Did not flush tool per Geo.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1950.62	106.67	Initial Hydro-static
4	959.91	109.91	Open To Flow (1)
34	1152.41	114.46	Shut-In(1)
84	1153.48	114.88	Shut-In(2)
85	1153.55	114.86	Open To Flow (2)
141	1153.85	115.52	End Shut-In(1)
144	1855.98	112.06	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1809.00	100% Mud	25.38
0.00	Attempted to reverse fluid out.	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee,KS**  
**Mermis #1**  
Job Ticket: 60326      **DST#: 1**  
Test Start: 2014.08.03 @ 22:45:00

**Tool Information**

Drill Pipe:	Length: 3727.00 ft	Diameter: 3.80 inches	Volume: 52.28 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:	64000.00 lb
			<u>Total Volume: 52.28 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	3740.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	70.52 ft				
Tool Length:	90.52 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut-In Tool	5.00			3725.00	
Hydraulic tool	5.00			3730.00	
Packer	5.00			3735.00	20.00      Bottom Of Top Packer
Packer	5.00			3740.00	
Anchor	5.00			3745.00	
Change Over Sub	0.75			3745.75	
Drill Pipe	31.02			3776.77	
Change Over Sub	0.75			3777.52	
Anchor	28.00			3805.52	
Recorder	1.00	8524	Inside	3806.52	
Recorder	1.00	8159	Outside	3807.52	
Bull Plug	3.00			3810.52	70.52      Bottom Packers & Anchor

**Total Tool Length: 90.52**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee,KS**  
**Mermis #1**  
Job Ticket: 60326      **DST#: 1**  
Test Start: 2014.08.03 @ 22:45:00

## 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: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.75 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 11000.00 ppm			
Filter Cake: 1.00 inches			

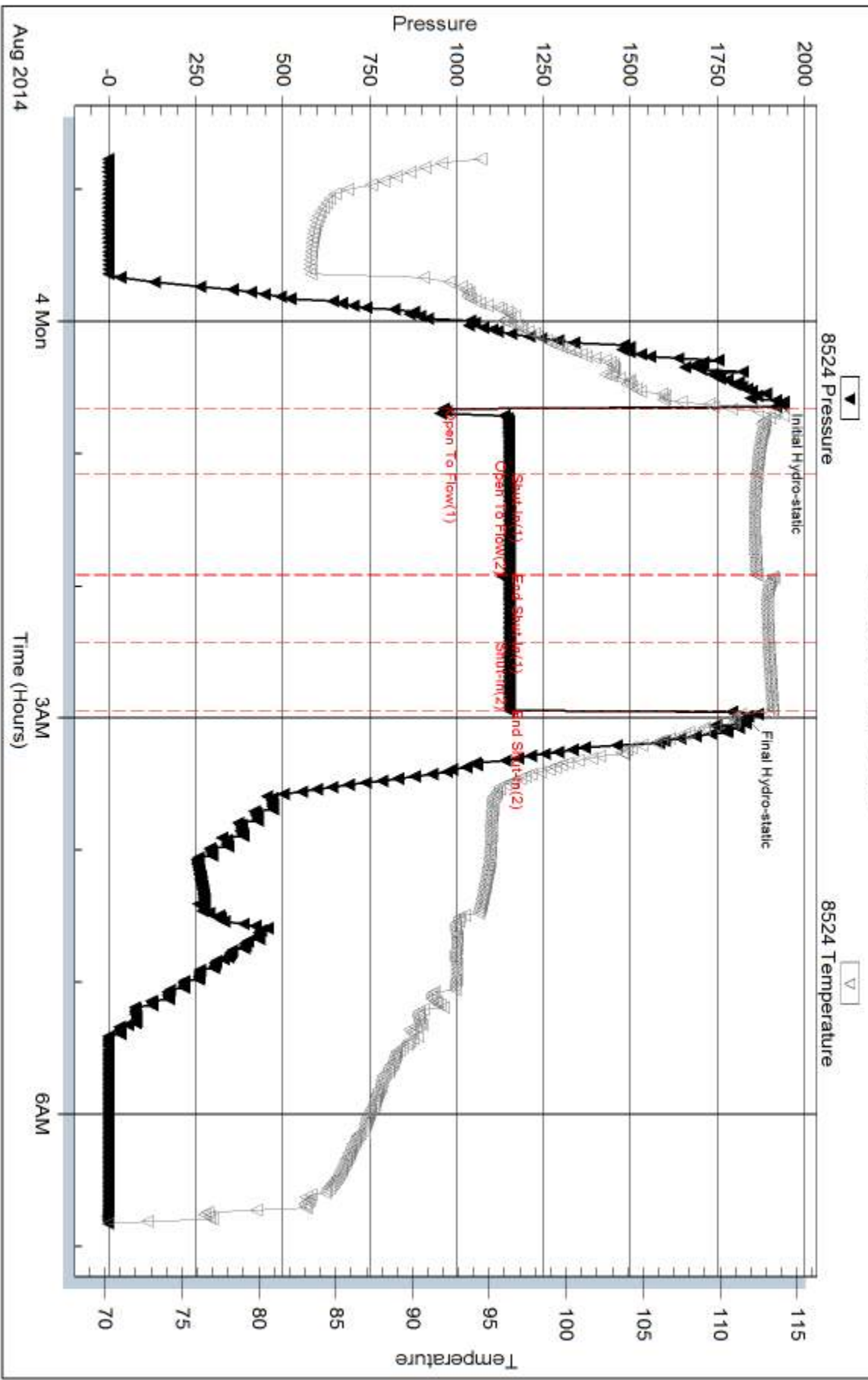
## Recovery Information

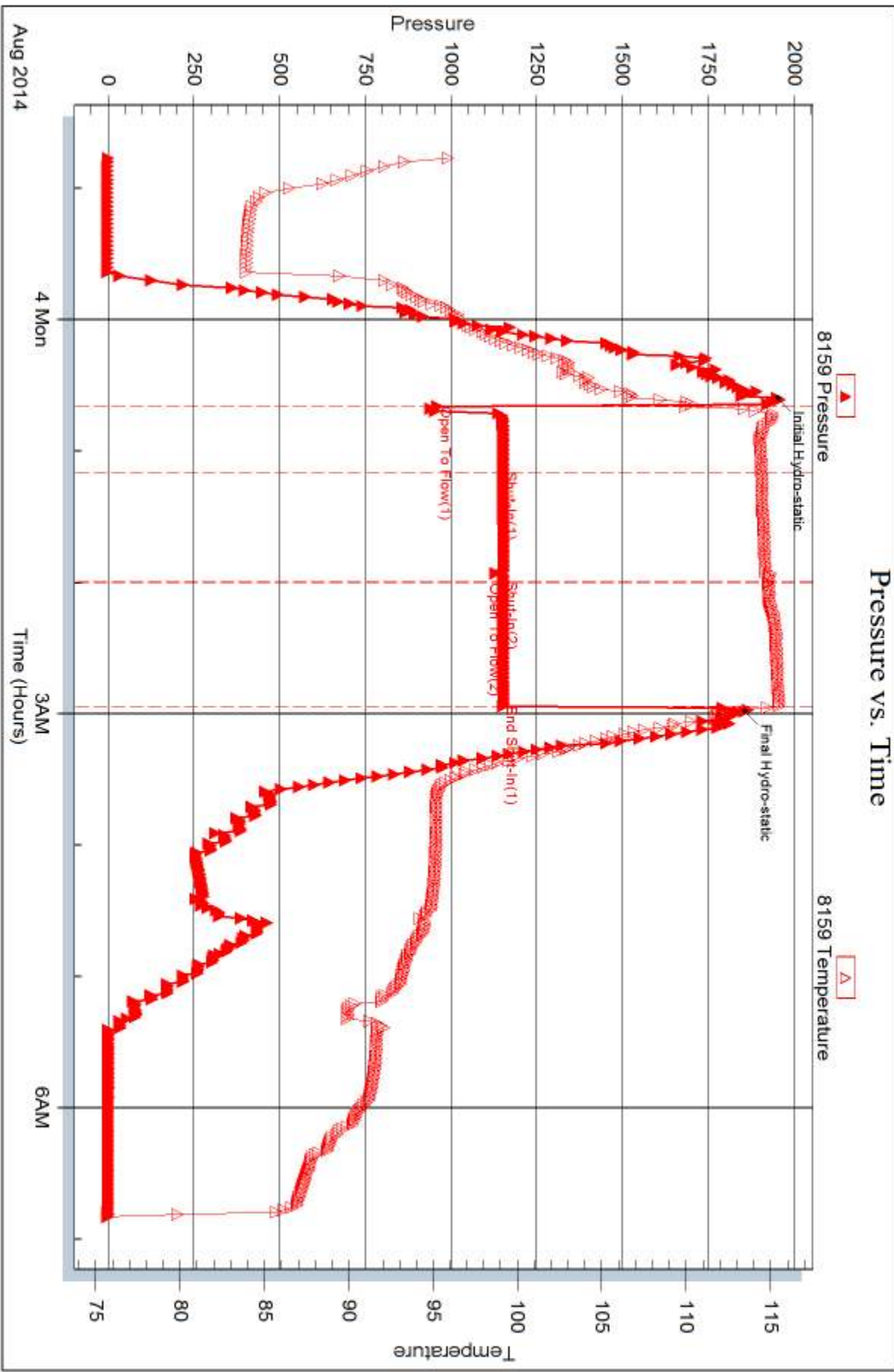
Recovery Table

Length ft	Description	Volume bbl
1809.00	100% Mud	25.376
0.00	Attempted to reverse fluid out.	0.000

Total Length: 1809.00 ft      Total Volume: 25.376 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments: Found hole in drill pipe

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Charter Energy, Inc.**

P.O. Box 252  
Great Bend KS 67530-0252

ATTN: Jake Eastes

### **Mermis #1**

#### **13-20s-16w Pawnee,KS**

Start Date: 2014.08.04 @ 10:45:00

End Date: 2014.08.04 @ 18:23:30

Job Ticket #: 60327                      DST #: 2

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

Printed: 2014.08.07 @ 10:42:10





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# DRILL STEM TEST REPORT

Charter Energy, Inc.  
 P.O. Box 252  
 Great Bend KS 67530-0252  
 ATTN: Jake Eastes

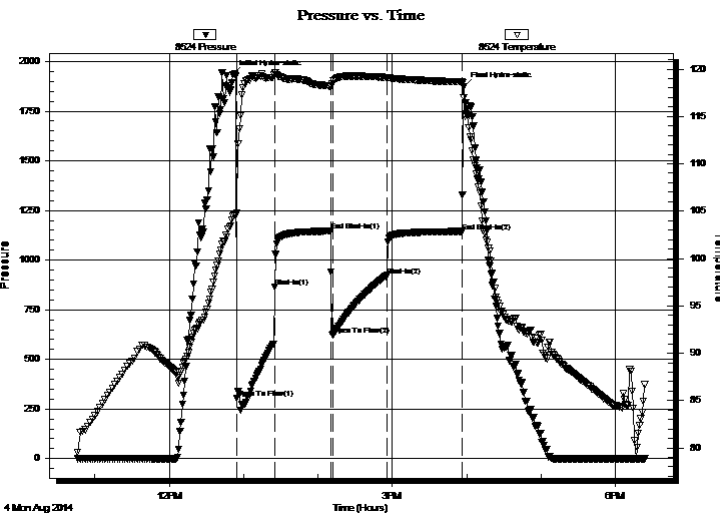
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
 Job Ticket: 60327 **DST#: 2**  
 Test Start: 2014.08.04 @ 10:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:54:30  
 Time Test Ended: 18:23:30  
 Interval: **3740.00 ft (KB) To 3810.00 ft (KB) (TVD)**  
 Total Depth: 3810.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3  
 Reference Elevations: 2100.00 ft (KB)  
 2093.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8524 Inside**  
 Press@RunDepth: 922.29 psig @ 3806.56 ft (KB) Capacity: 5000.00 psig  
 Start Date: 2014.08.04 End Date: 2014.08.04 Last Calib.: 2014.08.04  
 Start Time: 10:46:00 End Time: 18:23:30 Time On Btm: 2014.08.04 @ 12:51:30  
 Time Off Btm: 2014.08.04 @ 15:57:30

**TEST COMMENT:** 1st Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 45 seconds.  
 1st Shut In/ 45 Minutes. Blow back built to 2 inches into water.  
 2nd Open/ 45 Minutes. Good blow built to bottom of 5 gallon bucket in 3 minutes.  
 2nd Shut In/ 60 Minutes. No blow back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1934.68	104.50	Initial Hydro-static
3	303.76	104.75	Open To Flow (1)
34	866.38	119.61	Shut-In(1)
79	1146.31	118.20	End Shut-In(1)
80	621.07	118.47	Open To Flow (2)
125	922.29	119.12	Shut-In(2)
185	1144.33	118.64	End Shut-In(2)
186	1873.76	116.98	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
126.00	100% Mud	1.77
378.00	50% mud, 50% Water	5.30
252.00	muddy w ater 35% Mud, 65% Water	3.53
315.00	muddy w ater 20% Mud, 80% Water	4.42
252.00	muddy w ater 10% Mud, 90% w ater	3.53
189.00	muddy w ater 5% w ater, 95% w ater	2.65

## Gas Rates

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



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# DRILL STEM TEST REPORT

Charter Energy, Inc.  
 P.O. Box 252  
 Great Bend KS 67530-0252  
 ATTN: Jake Eastes

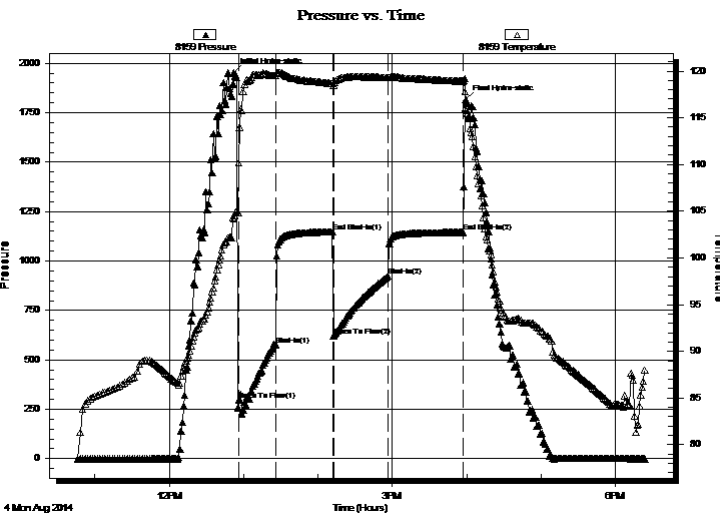
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
 Job Ticket: 60327 **DST#: 2**  
 Test Start: 2014.08.04 @ 10:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:54:30  
 Time Test Ended: 18:23:30  
 Interval: **3740.00 ft (KB) To 3810.00 ft (KB) (TVD)**  
 Total Depth: 3810.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3  
 Reference Elevations: 2100.00 ft (KB)  
 2093.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8159 Outside**  
 Press@RunDepth: 1145.32 psig @ 3807.56 ft (KB) Capacity: 5000.00 psig  
 Start Date: 2014.08.04 End Date: 2014.08.04 Last Calib.: 2014.08.04  
 Start Time: 10:46:00 End Time: 18:24:00 Time On Btm: 2014.08.04 @ 12:52:00  
 Time Off Btm: 2014.08.04 @ 15:59:00

**TEST COMMENT:** 1st Open/ 30 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 45 seconds.  
 1st Shut In/ 45 Minutes. Blow back built to 2 inches into water.  
 2nd Open/ 45 Minutes. Good blow built to bottom of 5 gallon bucket in 3 minutes.  
 2nd Shut In/ 60 Minutes. No blow back.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1953.99	104.23	Initial Hydro-static
4	296.97	110.17	Open To Flow (1)
34	576.33	119.52	Shut-In(1)
80	1146.26	118.67	End Shut-In(1)
81	622.33	118.50	Open To Flow (2)
125	923.40	119.29	Shut-In(2)
185	1145.32	118.93	End Shut-In(2)
187	1815.72	115.99	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
126.00	100% Mud	1.77
378.00	50% mud, 50% Water	5.30
252.00	muddy water 35% Mud, 65% Water	3.53
315.00	muddy water 20% Mud, 80% Water	4.42
252.00	muddy water 10% Mud, 90% water	3.53
189.00	muddy water 5% water, 95% water	2.65

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee,KS**  
**Mermis #1**  
Job Ticket: 60327      **DST#: 2**  
Test Start: 2014.08.04 @ 10:45:00

**Tool Information**

Drill Pipe:	Length: 3727.00 ft	Diameter: 3.80 inches	Volume: 52.28 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: 68000.00 lb
			<u>Total Volume: 52.28 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3740.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.56 ft			
Tool Length:	90.56 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut-In Tool	5.00			3725.00	
Hydraulic tool	5.00			3730.00	
Packer	5.00			3735.00	20.00      Bottom Of Top Packer
Packer	5.00			3740.00	
Anchor	5.00			3745.00	
Change Over Sub	0.75			3745.75	
Drill Pipe	31.06			3776.81	
Change Over Sub	0.75			3777.56	
Anchor	28.00			3805.56	
Recorder	1.00	8524	Inside	3806.56	
Recorder	1.00	8159	Outside	3807.56	
Bull Plug	3.00			3810.56	70.56      Bottom Packers & Anchor

**Total Tool Length: 90.56**



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TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee,KS**  
**Mermis #1**  
Job Ticket: 60327      **DST#: 2**  
Test Start: 2014.08.04 @ 10:45:00

## Mud and Cushion Information

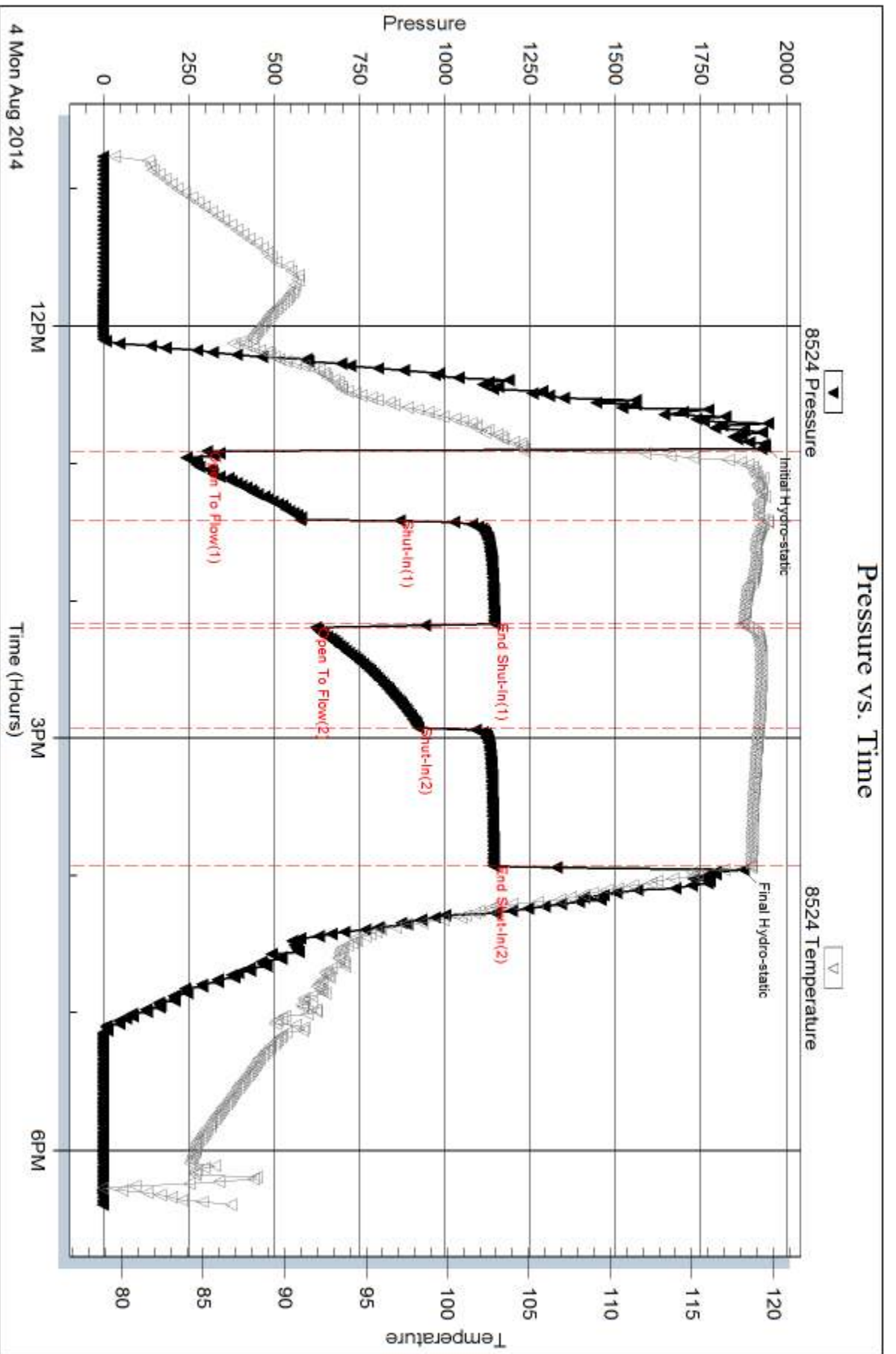
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	34000 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.78 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 11000.00 ppm			
Filter Cake: 1.00 inches			

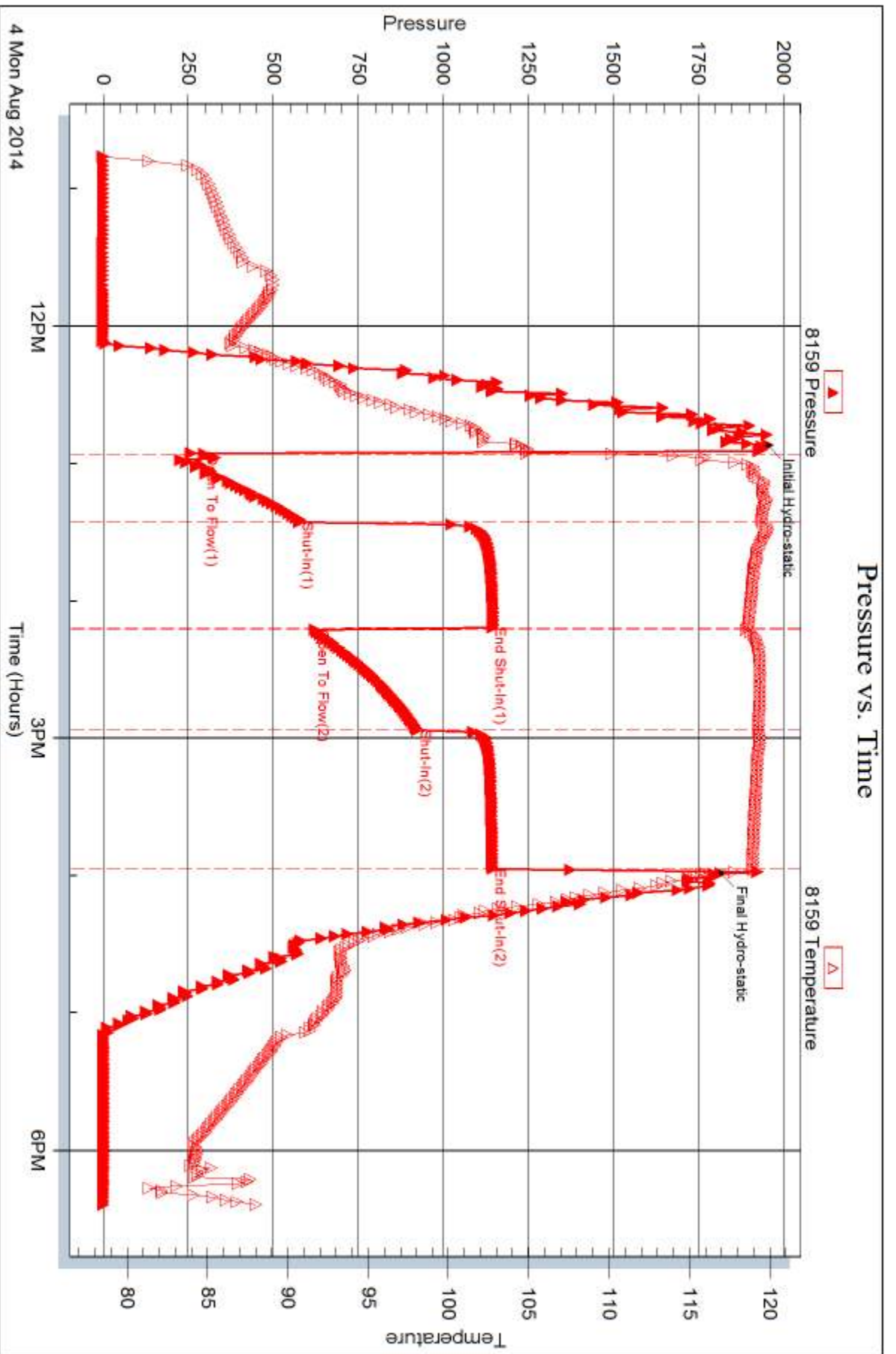
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
126.00	100% Mud	1.767
378.00	50% mud, 50% Water	5.302
252.00	muddy w ater 35% Mud, 65% Water	3.535
315.00	muddy w ater 20% Mud, 80% Water	4.419
252.00	muddy w ater 10% Mud, 90% w ater	3.535
189.00	muddy w ater 5% w ater, 95% w ater	2.651
348.00	100% w ater	4.882

Total Length: 1860.00 ft      Total Volume: 26.091 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: resist recov, .22 ohms at 50 degrees







## DRILL STEM TEST REPORT

Prepared For: **Charter Energy, Inc.**

P.O. Box 252  
Great Bend KS 67530-0252

ATTN: Jake Eastes

### **Mermis #1**

#### **13-20s-16w Pawnee,KS**

Start Date: 2014.08.05 @ 01:45:00

End Date: 2014.08.05 @ 09:14:30

Job Ticket #: 60328                      DST #: 3

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

Printed: 2014.08.07 @ 10:40:31



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy, Inc.  
 P.O. Box 252  
 Great Bend KS 67530-0252  
 ATTN: Jake Eastes

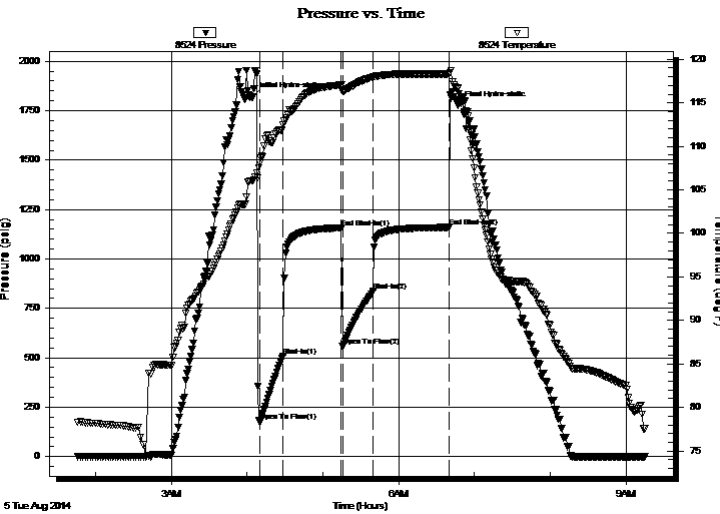
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
 Job Ticket: 60328 **DST#: 3**  
 Test Start: 2014.08.05 @ 01:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:10:00  
 Time Test Ended: 09:14:30  
 Interval: **3816.00 ft (KB) To 3835.00 ft (KB) (TVD)**  
 Total Depth: 3835.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3/36/Great Bend  
 Reference Elevations: 2100.00 ft (KB)  
 2093.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8524 Inside**  
 Press@RunDepth: 836.21 psig @ 3831.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.05 End Date: 2014.08.05 Last Calib.: 2014.08.05  
 Start Time: 01:46:00 End Time: 09:14:30 Time On Btm: 2014.08.05 @ 04:04:30  
 Time Off Btm: 2014.08.05 @ 06:47:00

**TEST COMMENT:** 1st Open/ 20 Minutes. Strong blow built to bottom of 5 gallon bucket in 40 seconds.  
 1st Shut In/ 45 Minutes. Blow back built to 6 inches into water.  
 2nd Open/ 25 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 50 seconds.  
 2nd Shut In/ 60 Minutes. Blow back built to 3 inches into water.



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1819.52	106.07	Initial Hydro-static
6	179.31	108.05	Open To Flow (1)
24	510.08	112.51	Shut-In(1)
70	1157.57	117.04	End Shut-In(1)
71	557.06	116.27	Open To Flow (2)
96	836.21	117.95	Shut-In(2)
155	1159.90	118.28	End Shut-In(2)
163	1777.15	116.64	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
63.00	Watery mud 35% Water, 65% Mud	0.88
126.00	muddy water 50% water, 50% Mud	1.77
252.00	Muddy water 40% mud, 60% water	3.53
378.00	muddy water 25% mud, 75% water	5.30
1076.00	100% water	15.09

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy, Inc.  
 P.O. Box 252  
 Great Bend KS 67530-0252  
 ATTN: Jake Eastes

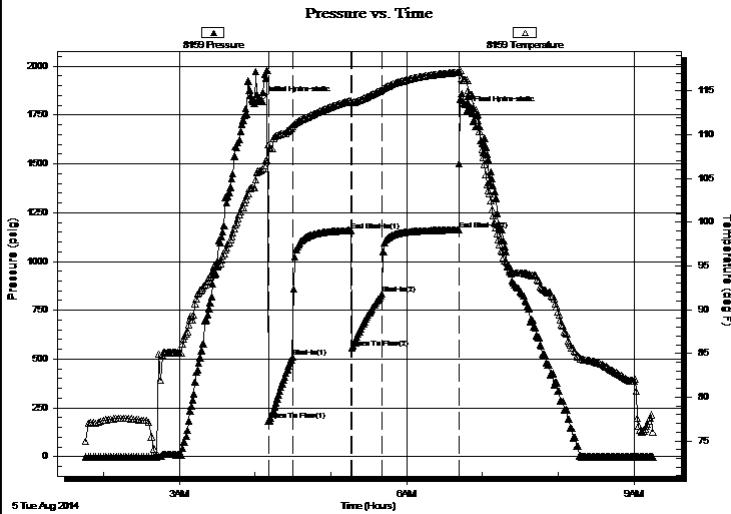
**13-20s-16w Pawnee, KS**  
**Mermis #1**  
 Job Ticket: 60328 **DST#: 3**  
 Test Start: 2014.08.05 @ 01:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:10:00  
 Time Test Ended: 09:14:30  
 Interval: **3816.00 ft (KB) To 3835.00 ft (KB) (TVD)**  
 Total Depth: 3835.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3/36/Great Bend  
 Reference Elevations: 2100.00 ft (KB)  
 2093.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8159 Outside**  
 Press@RunDepth: 1161.15 psig @ 3832.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.05 End Date: 2014.08.05 Last Calib.: 2014.08.05  
 Start Time: 01:46:00 End Time: 09:15:00 Time On Btm: 2014.08.05 @ 04:05:30  
 Time Off Btm: 2014.08.05 @ 06:48:00

**TEST COMMENT:** 1st Open/ 20 Minutes. Strong blow built to bottom of 5 gallon bucket in 40 seconds.  
 1st Shut In/ 45 Minutes. Blow back built to 6 inches into water.  
 2nd Open/ 25 Minutes. Good blow built to bottom of 5 gallon bucket in 1 minute and 50 seconds.  
 2nd Shut In/ 60 Minutes. Blow back built to 3 inches into water.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1821.55	105.95	Initial Hydro-static
5	184.07	108.84	Open To Flow (1)
24	509.88	110.89	Shut-In(1)
70	1158.75	113.88	End Shut-In(1)
71	558.00	113.70	Open To Flow (2)
95	832.24	115.12	Shut-In(2)
156	1161.15	117.11	End Shut-In(2)
163	1770.96	116.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	Watery mud 35% Water, 65% Mud	0.88
126.00	muddy water 50% water, 50% Mud	1.77
252.00	Muddy water 40% mud, 60% water	3.53
378.00	muddy water 25% mud, 75% water	5.30
1076.00	100% water	15.09

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee, KS**  
**Mermis #1**  
Job Ticket: 60328      **DST#: 3**  
Test Start: 2014.08.05 @ 01:45:00

**Tool Information**

Drill Pipe:	Length: 3822.00 ft	Diameter: 3.80 inches	Volume: 53.61 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:	70000.00 lb
			<u>Total Volume: 53.61 bbl</u>	Tool Chased	1.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3816.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	19.00 ft				
Tool Length:	39.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
Shut-In Tool	5.00			3801.00	
Hydraulic tool	5.00			3806.00	
Top Packer	5.00			3811.00	
Packer	5.00			3816.00	20.00      Bottom Of Top Packer
Anchor	14.00			3830.00	
Recorder	1.00	8524	Inside	3831.00	
Recorder	1.00	8159	Outside	3832.00	
Bull Plug	3.00			3835.00	19.00      Anchor Tool

**Total Tool Length: 39.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy, Inc.  
P.O. Box 252  
Great Bend KS 67530-0252  
ATTN: Jake Eastes

**13-20s-16w Pawnee,KS**  
**Mermis #1**  
Job Ticket: 60328      **DST#: 3**  
Test Start: 2014.08.05 @ 01:45:00

## Mud and Cushion Information

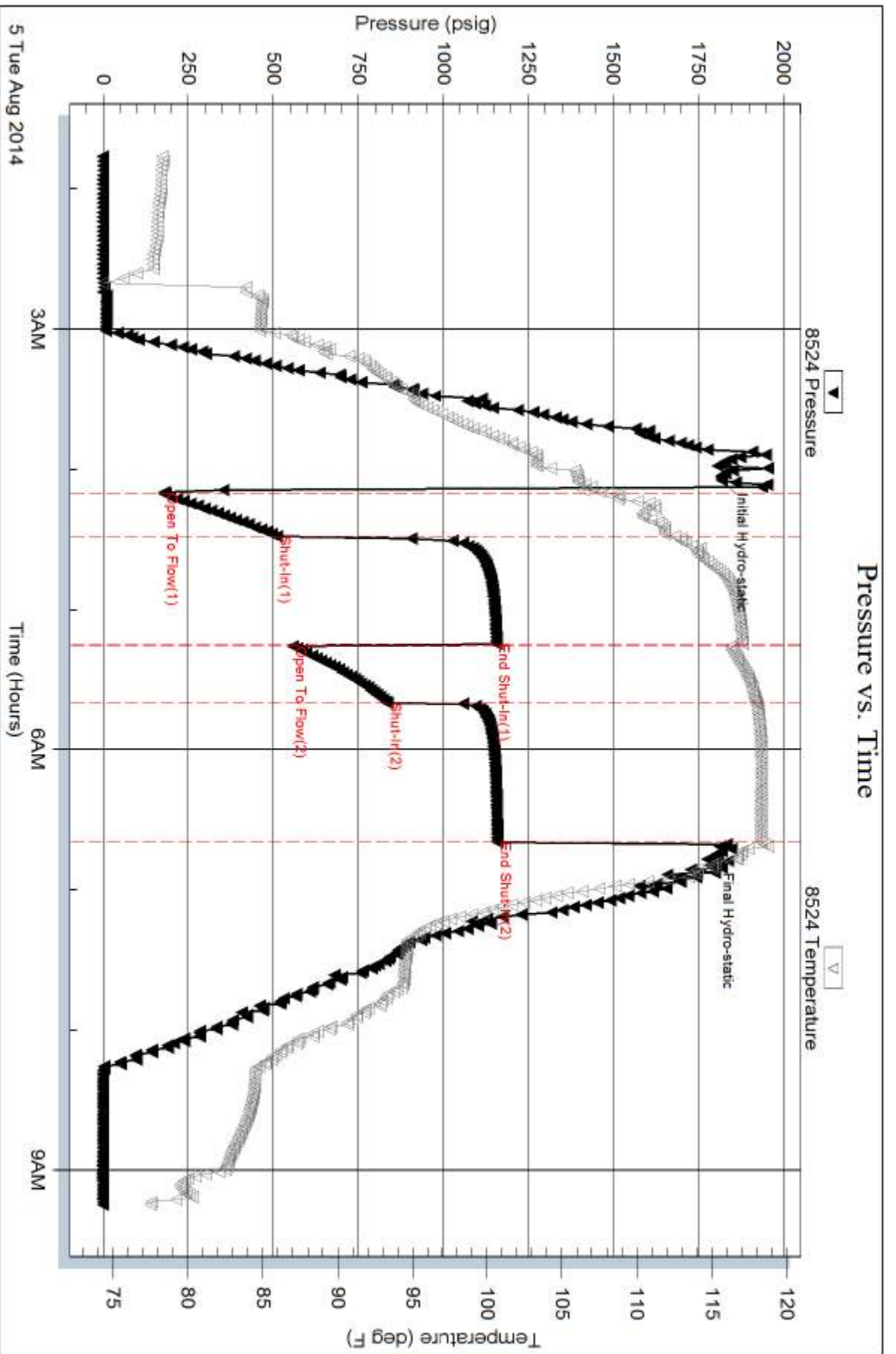
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	28000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.78 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 14000.00 ppm			
Filter Cake: 2.00 inches			

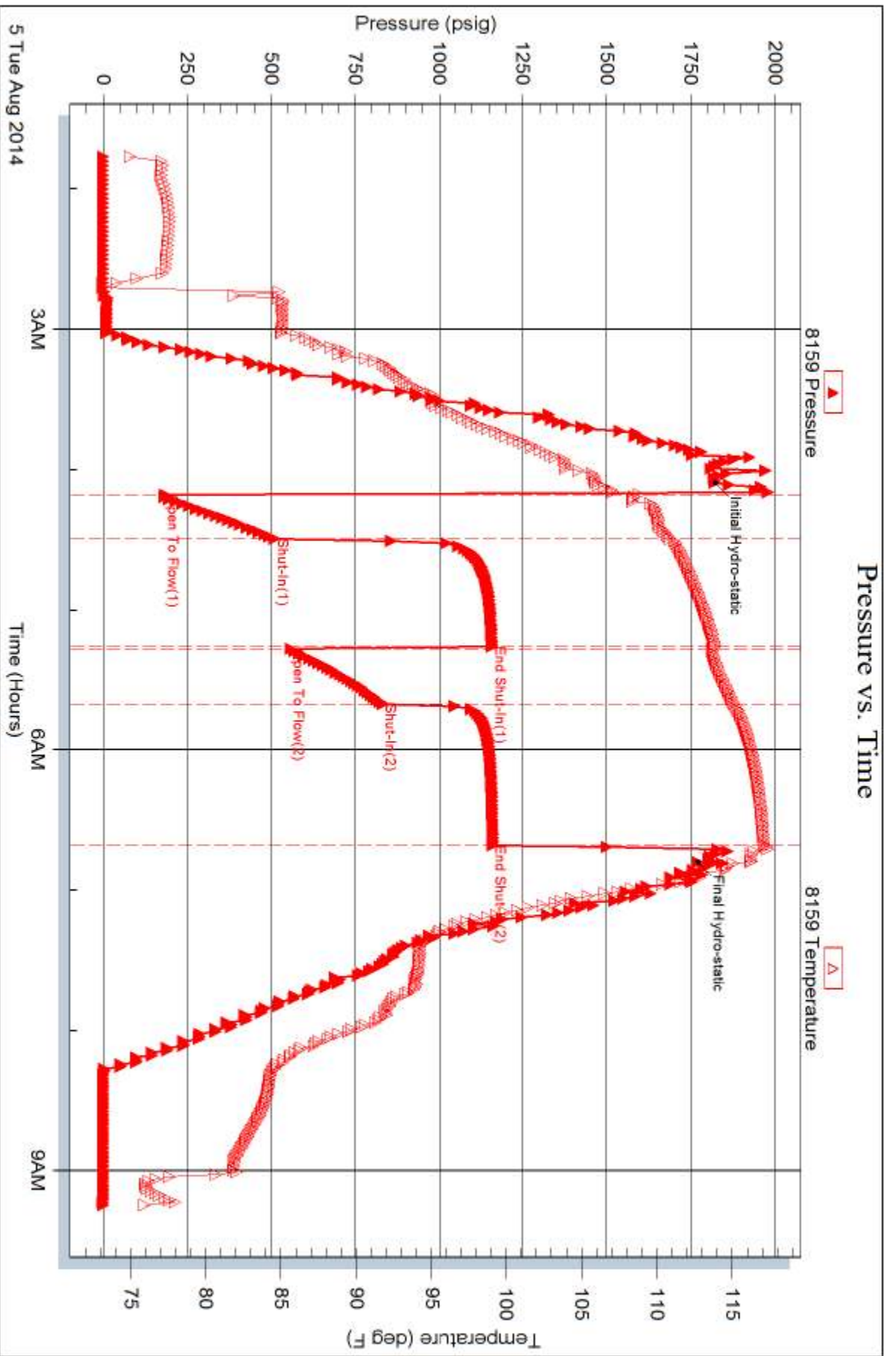
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	Watery mud 35% Water, 65% Mud	0.884
126.00	muddy w ater 50% w ater, 50% Mud	1.767
252.00	Muddy w ater 40% mud, 60% w ater	3.535
378.00	muddy w ater 25% mud, 75% w ater	5.302
1076.00	100% w ater	15.093

Total Length: 1895.00 ft      Total Volume: 26.581 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: resist recov .22 at 50 degrees







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60326

Well Name & No. Mermis #1 Test No. 1 Date 8-3-14  
 Company Charter Energy, Inc. Elevation 2093 KB 2100 GL  
 Address P.O. Box 252 Great Bend KS 67530-0252  
 Co. Rep / Geo. Jake Eastes Rig Royal #2  
 Location: Sec. 13 Twp. 20 S Rge. 16 W Co. Pawnee State KS

Interval Tested 3740-3810 Zone Tested Arbuckle  
 Anchor Length 70 Drill Pipe Run 3727 Mud Wt. 9.3  
 Top Packer Depth 3735 Drill Collars Run 0 Vis 52  
 Bottom Packer Depth 3740 Wt. Pipe Run 0 WL 10.8  
 Total Depth 3810 Chlorides 11,000 ppm System LCM 1/2#

Blow Description 1<sup>st</sup> Open 30 min - Blow built to B.O.B in 1m 30s. At 10m Blow rebuilt to 2 inches and stayed at 2 in for remainder of time. 1<sup>st</sup> SI - 45 min. No blow back. 2<sup>nd</sup> Open - 30 min - <sup>weak blow at surface</sup> ~~blow~~ did not flow blow died at 1 min. 2<sup>nd</sup> SI - 30 min. No blow back.

Rec	Feet of	%gas	%oil	%water	%mud
<u>1809</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1809 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1919  Test Bottom Hole 1150 T-On Location 22:00  
 (B) First Initial Flow 961  Jars \_\_\_\_\_ T-Started 22:45  
 (C) First Final Flow 1152  Safety Joint \_\_\_\_\_ T-Open 00:45  
 (D) Initial Shut-In 1153  Circ Sub Not used 50 T-Pulled 03:00  
 (E) Second Initial Flow 1151  Hourly Standby \_\_\_\_\_ T-Out 06:30  
 (F) Second Final Flow 1152  Mileage 36 miles Great Bend Comments \_\_\_\_\_  
 (G) Final Shut-In 1152  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1831  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1255.80

Initial Open \_\_\_\_\_  
 Initial Shut-In \_\_\_\_\_  
 Final Flow \_\_\_\_\_  
 Final Shut-In \_\_\_\_\_  
 Total 1255.80  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ 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. **60327**

Well Name & No. Mermis #1 Test No. 2 Date 8-4-14  
 Company Charter Energy, Inc. Elevation 2093 KB 2100 GL  
 Address P.O. Box 252 Great Bend KS 67530-0252  
 Co. Rep / Geo. Jake Easter Rig Royal #2  
 Location: Sec. 13 Twp. 20 S Rge. 16 W Co. Pawnee State KS

Interval Tested 3740 - 3810 Zone Tested Arbuckle  
 Anchor Length 70 Drill Pipe Run 3727 Mud Wt. 9.3  
 Top Packer Depth 3735 Drill Collars Run Ø Vis 52  
 Bottom Packer Depth 3740 Wt. Pipe Run Ø WL 10.8  
 Total Depth 3810 Chlorides 11000 ppm System LCM 1/2

Blow Description 1<sup>st</sup> Open - 30 min. Good blow built to bottom of 5 gallon bucket in 1m. 45s. 1<sup>st</sup> shut in - 45 min. Blow back built to 2 inches into water. 2<sup>nd</sup> Open - 45 min. Good blow built to bottom of 5 gallon bucket in in 3 min. 2<sup>nd</sup> shut in - 60 min.

Rec	Feet of	%gas	%oil	%water	%mud
126	mud			100	
378	muddy water		50	50	
252	muddy water		65	<del>35</del> 35	
315	muddy water		80	20	
252	muddy water		90	10	
189	muddy water		95	5	
Rec Total <u>1860</u>	BHT <u>water</u>	Gravity	API RW <u>.22 @ 50</u>	°F Chlorides <u>34000</u>	ppm

(A) Initial Hydrostatic 1934  Test Bottom Hole 1150 T-On Location 10:00  
 (B) First Initial Flow 303  Jars \_\_\_\_\_ T-Started 11:00  
 (C) First Final Flow 866  Safety Joint \_\_\_\_\_ T-Open 12:55  
 (D) Initial Shut-In 1146  Circ Sub No T-Pulled 15:55  
 (E) Second Initial Flow 621  Hourly Standby \_\_\_\_\_ T-Out \_\_\_\_\_  
 (F) Second Final Flow 922  Mileage 36 stand Great Bend Comments \_\_\_\_\_  
 (G) Final Shut-In 1144  Sampler 55.80 \_\_\_\_\_  
 (H) Final Hydrostatic 1873  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open \_\_\_\_\_  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In \_\_\_\_\_  Day Standby \_\_\_\_\_ Total 1205.80  
 Final Flow \_\_\_\_\_  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In \_\_\_\_\_ Sub Total 1205.80

Approved By \_\_\_\_\_

Our Representative Jake Easter

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60328

Well Name & No. Mermis #1 Test No. 3 Date 8-5-14  
 Company Charter Energy, Inc Elevation 2093 KB 2100 GL  
 Address P.O. Box 252 Great Bend KS 67530  
 Co. Rep / Geo. Jake Easter Rig Royal #2  
 Location: Sec. 13 Twp. 20S Rge. 16W Co. Pawnee State KS

Interval Tested 3816 - 3835 Zone Tested Arbuckle  
 Anchor Length 19 Drill Pipe Run 3822 Mud Wt. 9.4  
 Top Packer Depth 3811 Drill Collars Run 0 Vis 54  
 Bottom Packer Depth 3816 Wt. Pipe Run 0 WL 10.8  
 Total Depth 3835 Chlorides 14000 ppm System LCM trc

Blow Description 1<sup>st</sup> open - strong blow built to bottom of 5 gallon bucket in 40 sec. 1<sup>st</sup> shut in built to 6 inches into water. 2<sup>nd</sup> open built to bottom of 5 gallon bucket in 1 min. 50 sec. 2<sup>nd</sup> shut in blow back built to 3 inches.

Rec	Feet of	%gas	%oil	%water	%mud
<u>63</u>	<u>watery mud</u>		<u>35</u>	<u>65</u>	
<u>126</u>	<u>muddy water</u>		<u>50</u>	<u>50</u>	
<u>252</u>	<u>muddy water</u>		<u>60</u>	<u>40</u>	
<u>378</u>	<u>muddy water</u>		<u>75</u>	<u>25</u>	
<u>1076</u>	<u>water</u>		<u>100</u>		

Rec Total 1895 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW .22 @ 50 ° F Chlorides 28000 ppm

(A) Initial Hydrostatic 1819  Test Bottom Hole 1150 T-On Location 0130  
 (B) First Initial Flow 179  Jars \_\_\_\_\_ T-Started 0300  
 (C) First Final Flow 510  Safety Joint \_\_\_\_\_ T-Open 0415  
 (D) Initial Shut-In 1157  Circ Sub no used T-Pulled 0645  
 (E) Second Initial Flow 557  Hourly Standby \_\_\_\_\_ T-Out 0910  
 (F) Second Final Flow 836  Mileage 36 Great Bend Comments \_\_\_\_\_  
 (G) Final Shut-In 1159  Sampler 55.80 \_\_\_\_\_  
 (H) Final Hydrostatic 1777  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 20 min.  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 45 min.  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 25 min.  Day Standby \_\_\_\_\_ Total 1205.80  
 Final Shut-In 60 min.  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1205.80

Approved By [Signature] Our Representative [Signature]

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