



## DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr.  
Phillipsburg, KS 67661

ATTN: Cliff Otaway

### **Harms #3**

#### **1-14s-32w Logan,KS**

Start Date: 2016.09.03 @ 16:20:00

End Date: 2016.09.03 @ 21:22:15

Job Ticket #: 65557                      DST #: 1

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.09.07 @ 11:41:35



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**

**Harms #3**

Job Ticket: 65557

**DST#: 1**

Test Start: 2016.09.03 @ 16:20:00

## GENERAL INFORMATION:

Formation: **LKC - I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:31:45

Time Test Ended: 21:22:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Bradley Walter

Unit No: 78

**Interval: 4150.00 ft (KB) To 4184.00 ft (KB) (TVD)**

Reference Elevations: 2923.00 ft (KB)

Total Depth: 4184.00 ft (KB) (TVD)

2918.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8845 Outside**

Press@RunDepth: 13.45 psig @ 4151.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.09.03

End Date:

2016.09.03

Last Calib.:

2016.09.03

Start Time:

16:20:05

End Time:

21:22:14

Time On Btm:

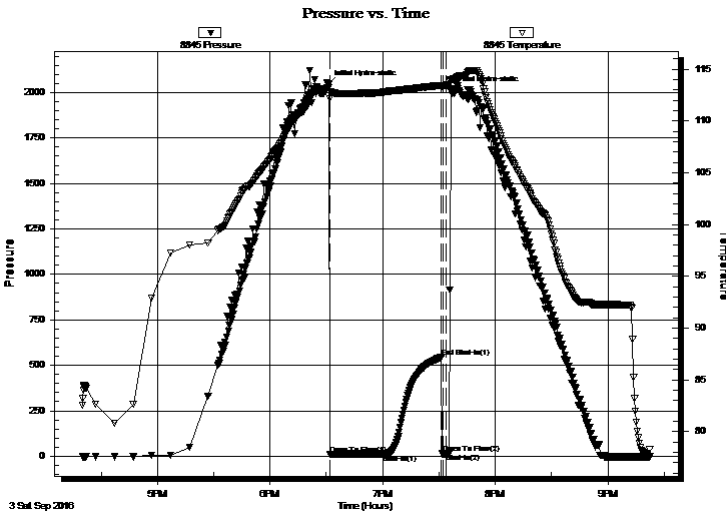
2016.09.03 @ 18:31:00

Time Off Btm:

2016.09.03 @ 19:36:15

**TEST COMMENT:** IF: Surface blow, died @ 5 minutes.  
IS: No return.  
FF: No blow. pulled test.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2044.21	113.24	Initial Hydro-static
1	11.13	112.19	Open To Flow (1)
29	13.45	112.77	Shut-In(1)
61	543.48	113.45	End Shut-In(1)
62	14.14	113.44	Open To Flow (2)
63	14.25	113.46	Shut-In(2)
66	2007.94	113.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil specs)	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan, KS**

**Harms #3**

Job Ticket: 65557

**DST#: 1**

Test Start: 2016.09.03 @ 16:20:00

## GENERAL INFORMATION:

Formation: **LKC - I**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 18:31:45  
 Tester: Bradley Walter  
 Time Test Ended: 21:22:15  
 Unit No: 78  
**Interval: 4150.00 ft (KB) To 4184.00 ft (KB) (TVD)**  
 Reference Elevations: 2923.00 ft (KB)  
 Total Depth: 4184.00 ft (KB) (TVD)  
 2918.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 5.00 ft

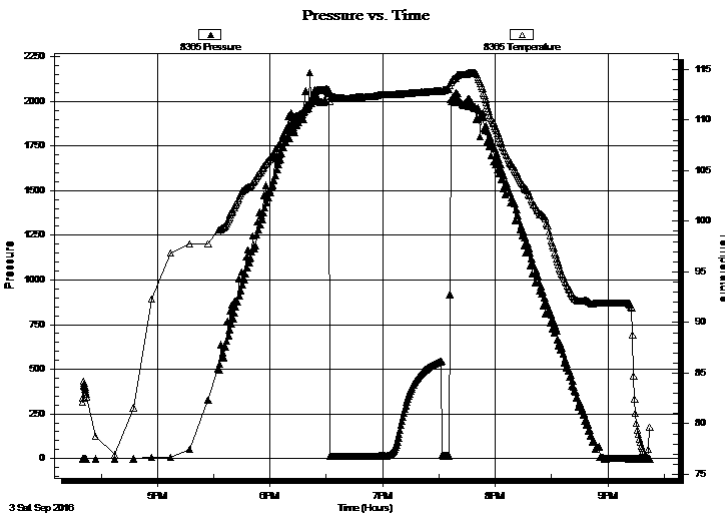
**Serial #: 8365**

**Inside**

Press@RunDepth: psig @ 4151.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.09.03 End Date: 2016.09.03 Last Calib.: 2016.09.03  
 Start Time: 16:20:05 End Time: 21:22:14 Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF: Surface blow, died @ 5 minutes.  
 IS: No return.  
 FF: No blow. pulled test.

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil specs)	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65557      **DST#: 1**  
Test Start: 2016.09.03 @ 16:20:00

**Tool Information**

Drill Pipe:	Length: 4041.00 ft	Diameter: 3.80 inches	Volume: 56.68 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 57.27 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	4150.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	34.00 ft				
Tool Length:	54.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4131.00	
Shut In Tool	5.00			4136.00	
Hydraulic tool	5.00			4141.00	
Packer	5.00			4146.00	20.00      Bottom Of Top Packer
Packer	4.00			4150.00	
Stubb	1.00			4151.00	
Recorder	0.00	8365	Inside	4151.00	
Recorder	0.00	8845	Outside	4151.00	
Perforations	30.00			4181.00	
Bullnose	3.00			4184.00	34.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>54.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65557      **DST#: 1**  
Test Start: 2016.09.03 @ 16:20:00

### Mud and Cushion Information

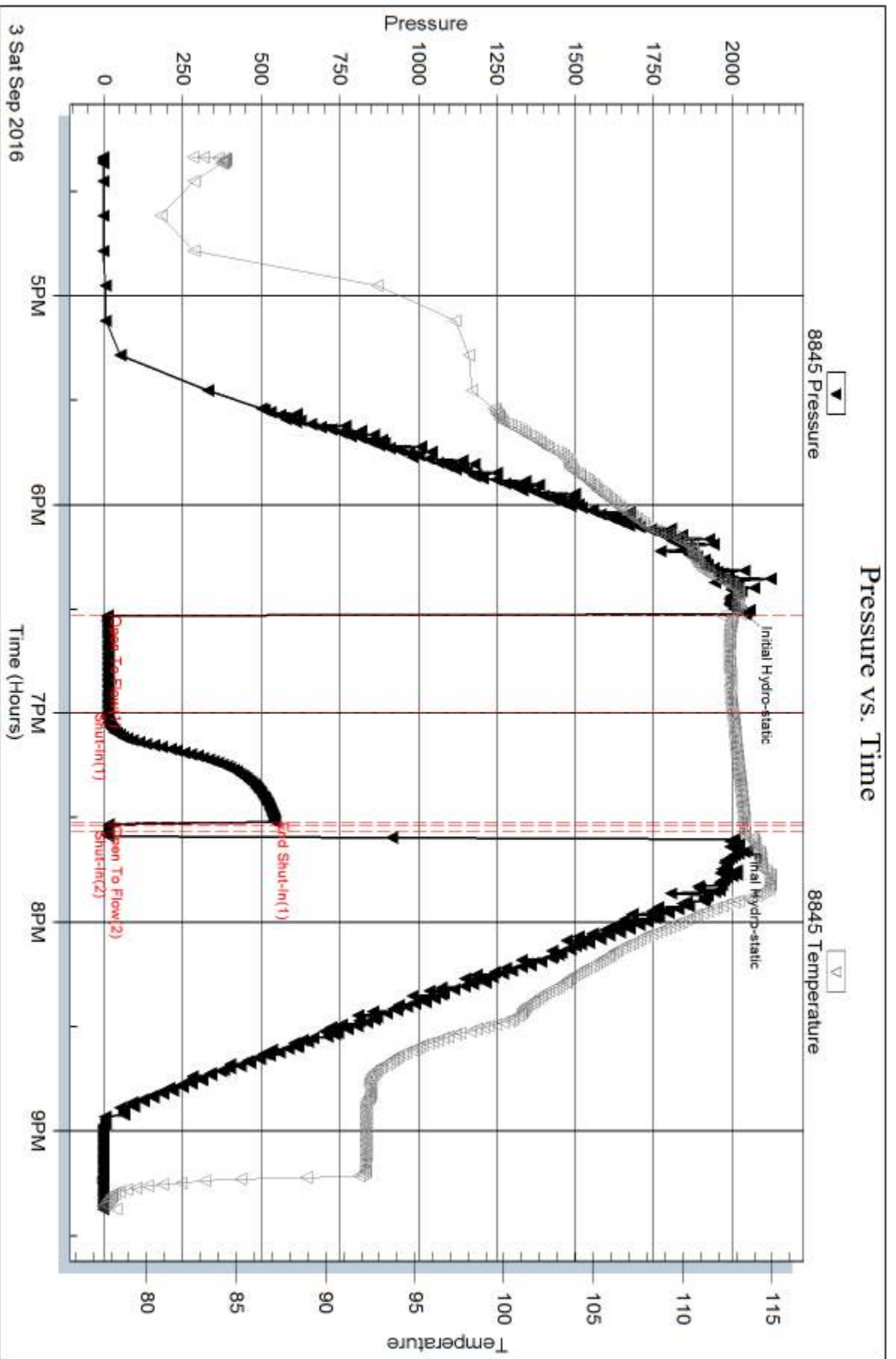
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2500.00 ppm			
Filter Cake: 1.00 inches			

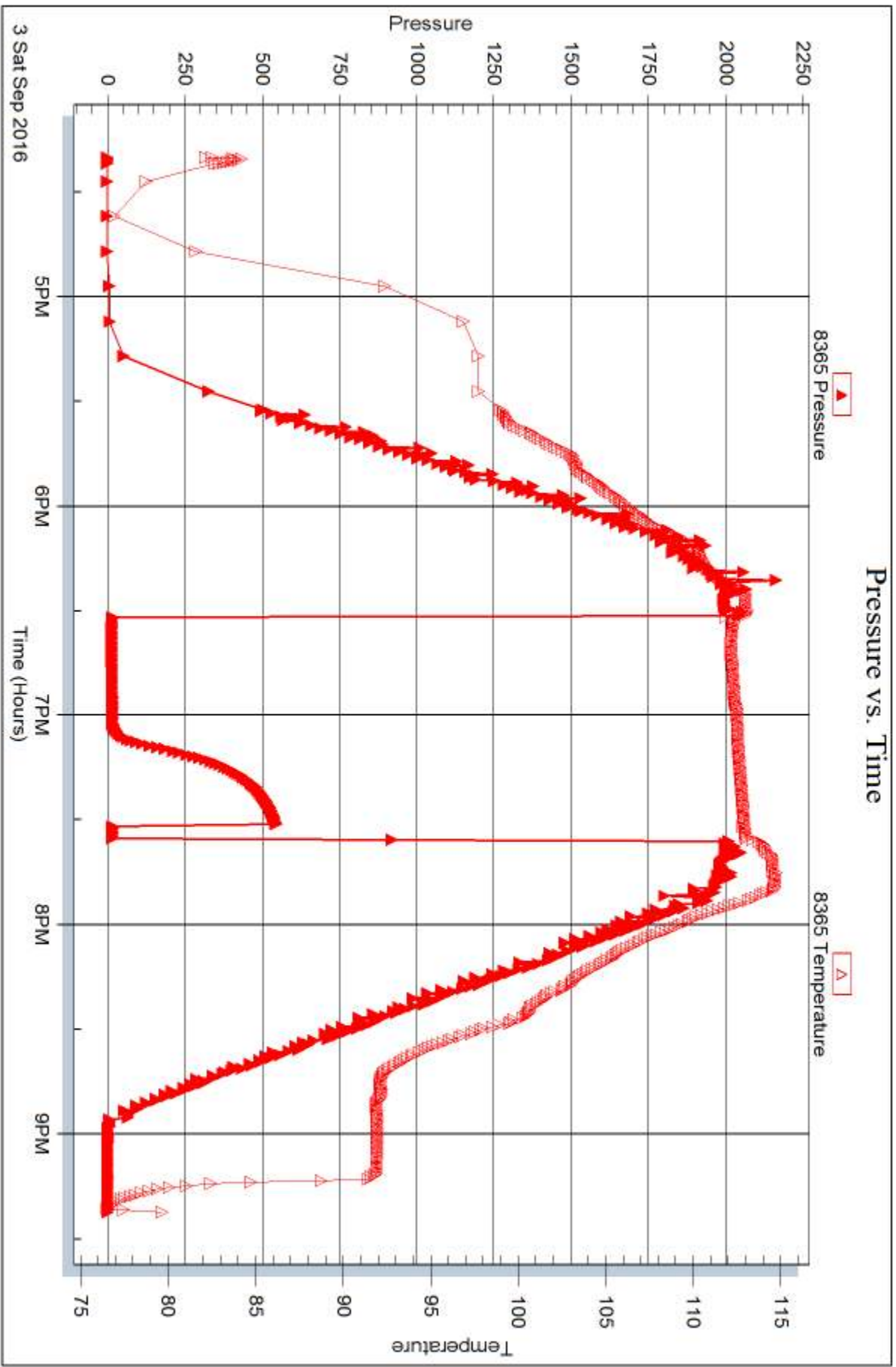
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m (oil specs)	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr.  
Phillipsburg, KS 67661

ATTN: Cliff Otaway

### **Harms #3**

#### **1-14s-32w Logan,KS**

Start Date: 2016.09.05 @ 01:11:00

End Date: 2016.09.05 @ 06:59:45

Job Ticket #: 65558                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.09.07 @ 11:40:02





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Pioneer Resources  
 80 Windmill Dr.  
 Phillipsburg, KS 67661  
 ATTN: Cliff Otaway

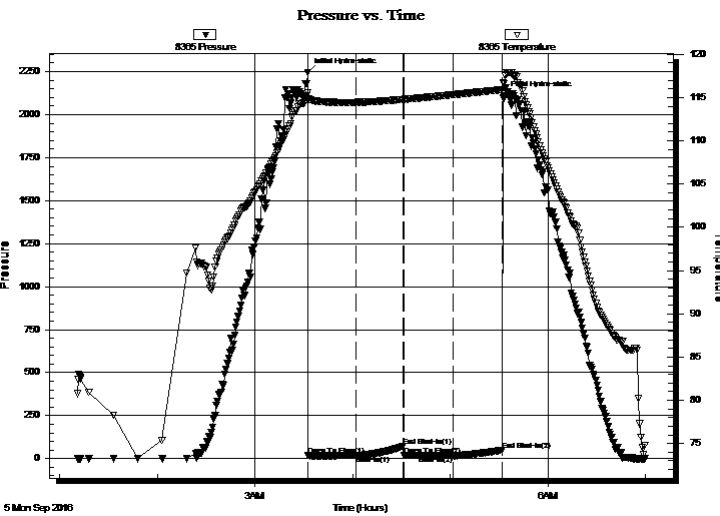
**1-14s-32w Logan,KS**  
**Harms #3**  
 Job Ticket: 65558 **DST#: 2**  
 Test Start: 2016.09.05 @ 01:11:00

## GENERAL INFORMATION:

Formation: **Myrick Station**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:32:45  
 Time Test Ended: 06:59:45  
 Interval: **4424.00 ft (KB) To 4450.00 ft (KB) (TVD)**  
 Total Depth: 4450.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 2923.00 ft (KB)  
 2918.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8365 Inside**  
 Press@RunDepth: 17.51 psig @ 4425.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.09.05 End Date: 2016.09.05 Last Calib.: 2016.09.05  
 Start Time: 01:11:05 End Time: 06:59:44 Time On Btm: 2016.09.05 @ 03:32:30  
 Time Off Btm: 2016.09.05 @ 05:33:00

TEST COMMENT: IF: Surface blow , died @ 17 min.  
 IS: No return.  
 FF: No blow .  
 FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2245.56	115.60	Initial Hydro-static
1	17.13	114.62	Open To Flow (1)
30	18.25	114.45	Shut-In(1)
59	72.00	114.78	End Shut-In(1)
59	17.17	114.79	Open To Flow (2)
90	17.51	115.34	Shut-In(2)
120	47.62	115.92	End Shut-In(2)
121	2110.39	116.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100m (oil spots)	0.05

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan, KS**  
**Harms #3**  
Job Ticket: 65558      **DST#: 2**  
Test Start: 2016.09.05 @ 01:11:00

**Tool Information**

Drill Pipe:	Length: 4297.00 ft	Diameter: 3.80 inches	Volume: 60.28 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 85000.00 lb
		Total Volume: 60.87 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4424.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	26.00 ft			
Tool Length:	46.00 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			4405.00	
Shut In Tool	5.00			4410.00	
Hydraulic tool	5.00			4415.00	
Packer	5.00			4420.00	20.00      Bottom Of Top Packer
Packer	4.00			4424.00	
Stubb	1.00			4425.00	
Recorder	0.00	8365	Inside	4425.00	
Recorder	0.00	8845	Outside	4425.00	
Perforations	22.00			4447.00	
Bullnose	3.00			4450.00	26.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>46.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65558      **DST#: 2**  
Test Start: 2016.09.05 @ 01:11:00

## Mud and Cushion Information

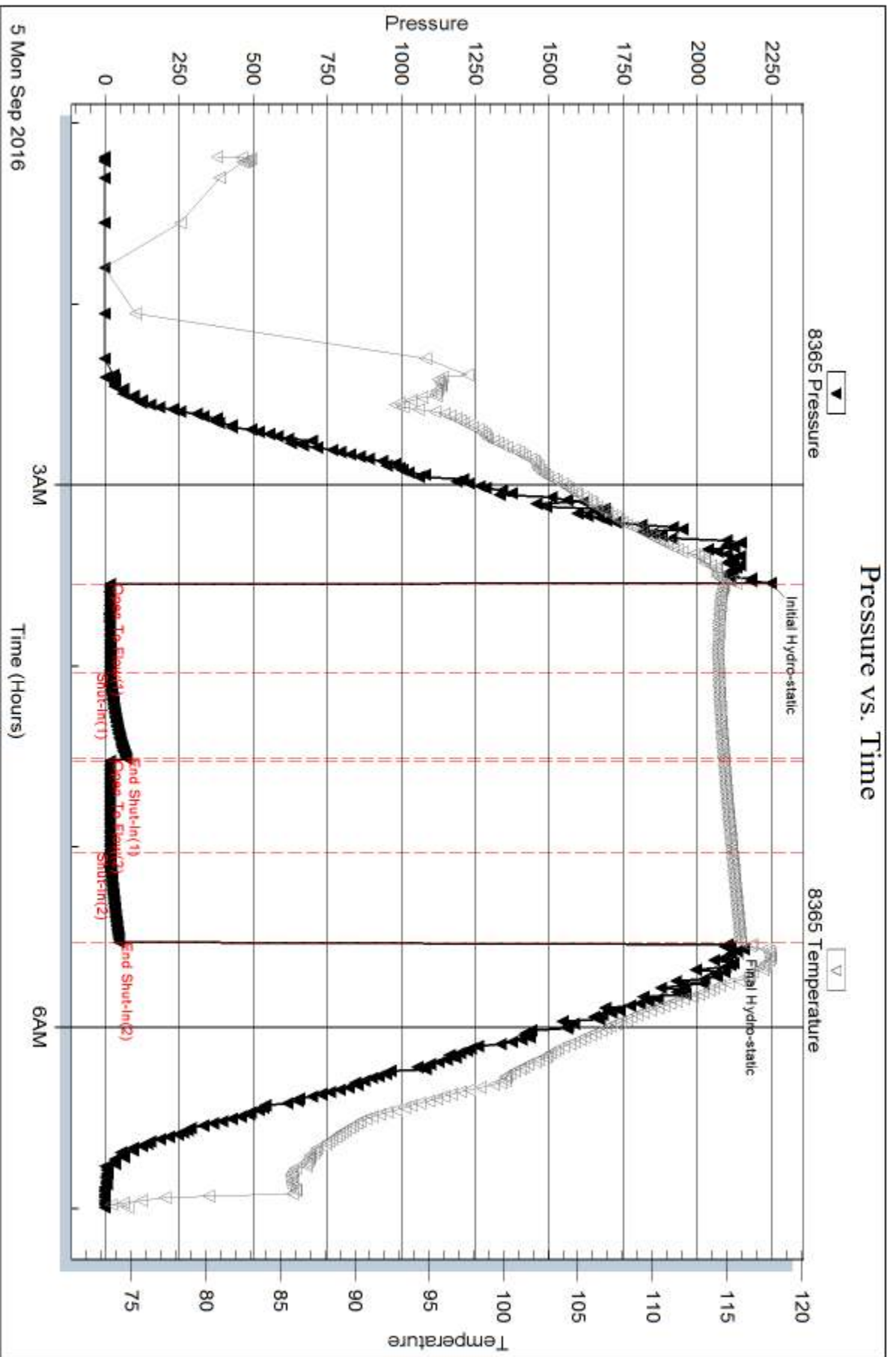
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 49.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.59 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 1.00 inches			

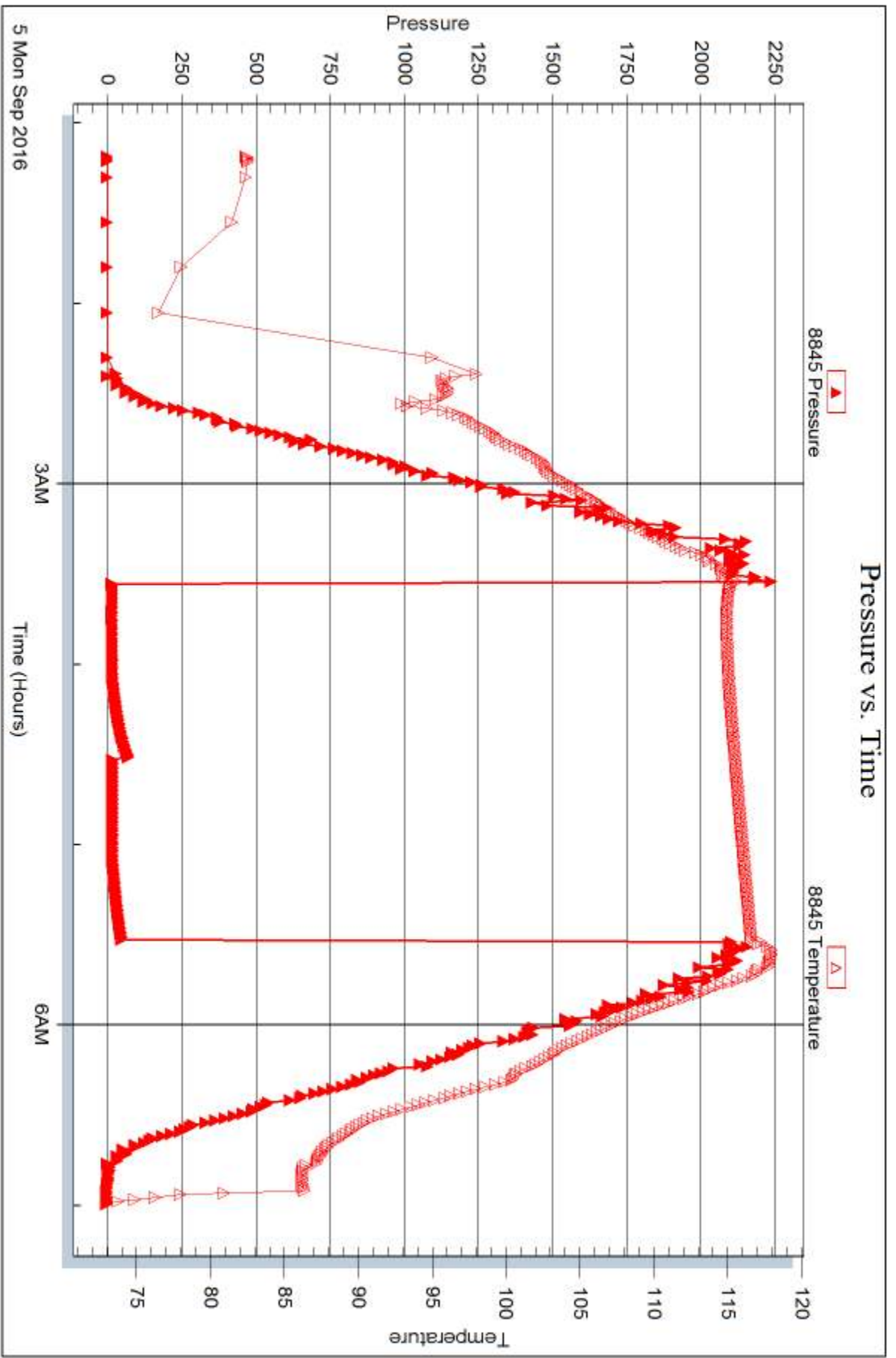
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud 100m (oil spots)	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr.  
Phillipsburg, KS 67661

ATTN: Cliff Otaway

### **Harms #3**

#### **1-14s-32w Logan,KS**

Start Date: 2016.09.05 @ 20:30:00

End Date: 2016.09.06 @ 03:23:45

Job Ticket #: 65559                      DST #: 3

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.09.07 @ 11:39:33



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**

**Harms #3**

Job Ticket: 65559

**DST#: 3**

Test Start: 2016.09.05 @ 20:30:00

## GENERAL INFORMATION:

Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:22:45  
 Time Test Ended: 03:23:45  
 Interval: **4506.00 ft (KB) To 4556.00 ft (KB) (TVD)**  
 Total Depth: 4556.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 2923.00 ft (KB)  
 2918.00 ft (CF)  
 KB to GR/CF: 5.00 ft

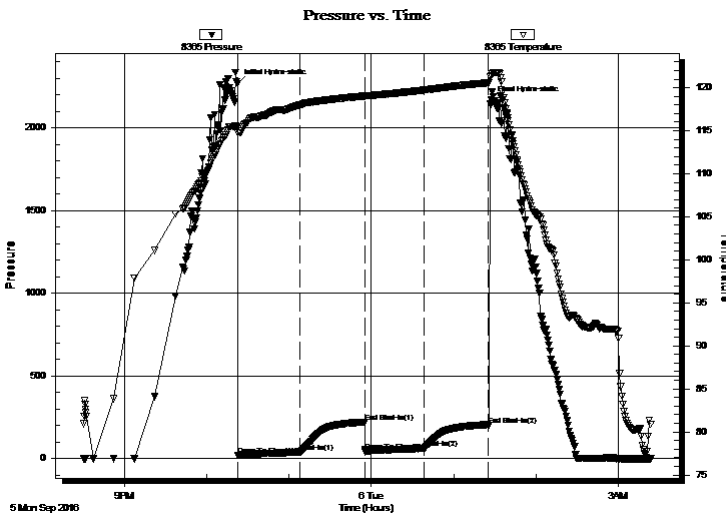
## Serial #: 8365

Inside

Press@RunDepth: 61.11 psig @ 4507.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.09.05 End Date: 2016.09.06 Last Calib.: 2016.09.06  
 Start Time: 20:30:05 End Time: 03:23:44 Time On Btm: 2016.09.05 @ 22:22:15  
 Time Off Btm: 2016.09.06 @ 01:27:15

TEST COMMENT: IF: 4" blow.  
 IS: No return.  
 FF: 2" blow.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2269.12	115.45	Initial Hydro-static
1	18.34	114.80	Open To Flow (1)
46	40.08	118.00	Shut-In(1)
93	221.26	119.03	End Shut-In(1)
94	45.44	119.04	Open To Flow (2)
137	61.11	119.73	Shut-In(2)
184	203.07	120.58	End Shut-In(2)
185	2167.64	121.43	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	gocm 20g 30o 50m	0.34
30.00	free oil	0.15
0.00	80' 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**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65559      **DST#: 3**  
Test Start: 2016.09.05 @ 20:30:00

**Tool Information**

Drill Pipe:	Length: 4390.00 ft	Diameter: 3.80 inches	Volume: 61.58 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 88000.00 lb
			<u>Total Volume: 62.17 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4506.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	70.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4487.00	
Shut In Tool	5.00			4492.00	
Hydraulic tool	5.00			4497.00	
Packer	5.00			4502.00	20.00      Bottom Of Top Packer
Packer	4.00			4506.00	
Stubb	1.00			4507.00	
Recorder	0.00	8365	Inside	4507.00	
Recorder	0.00	8845	Outside	4507.00	
Perforations	13.00			4520.00	
Change Over Sub	1.00			4521.00	
Drill Pipe	31.00			4552.00	
Change Over Sub	1.00			4553.00	
Bullnose	3.00			4556.00	50.00      Bottom Packers & Anchor

**Total Tool Length: 70.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65559      **DST#: 3**  
Test Start: 2016.09.05 @ 20:30:00

### Mud and Cushion Information

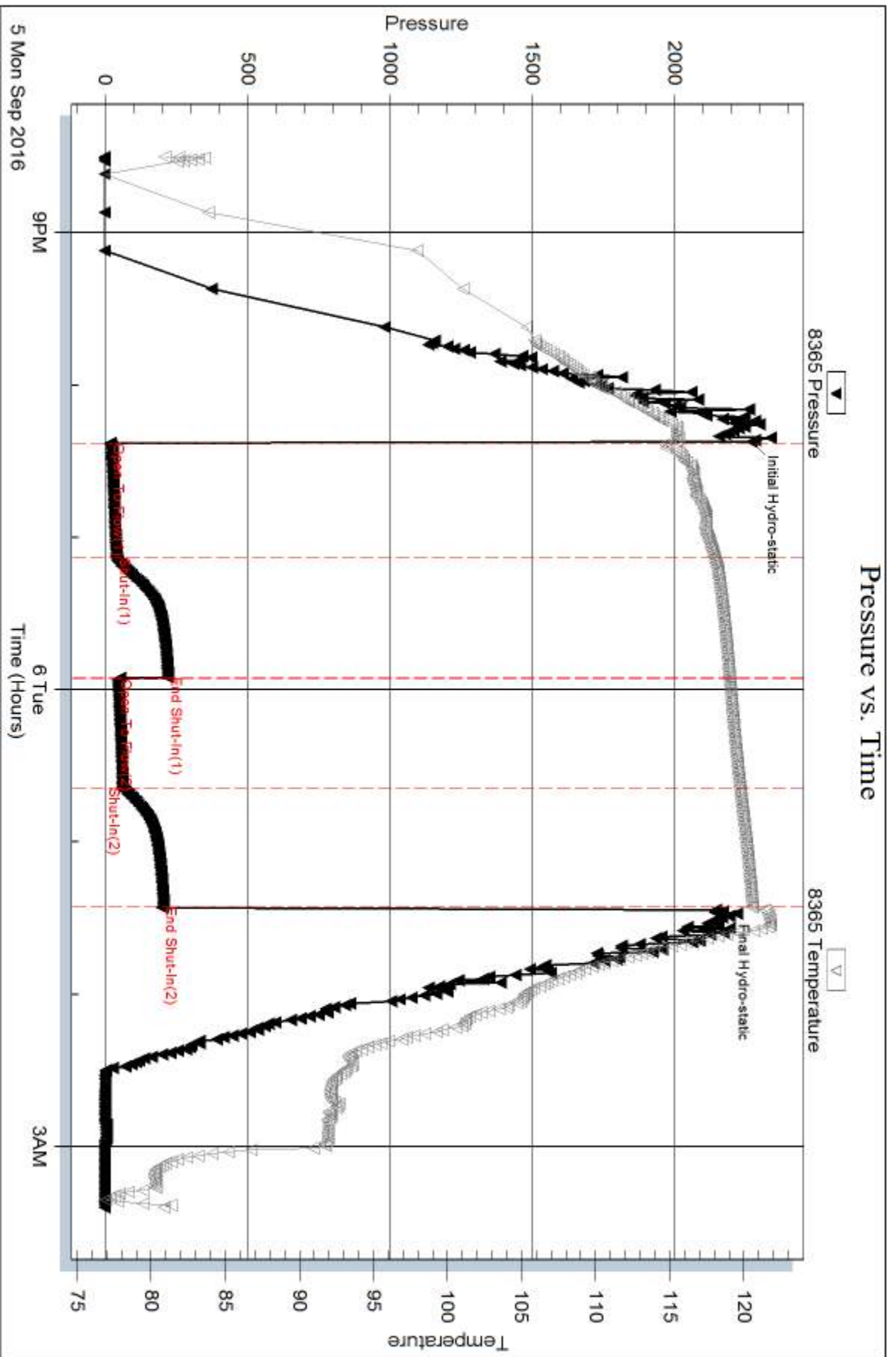
Mud Type: Gel Chem	Cushion Type:	Oil API: 27 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl	
Water Loss: 9.19 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3500.00 ppm		
Filter Cake: 1.00 inches		

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	gocm 20g 30o 50m	0.344
30.00	free oil	0.148
0.00	80' GIP	0.000

Total Length: 100.00 ft      Total Volume: 0.492 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

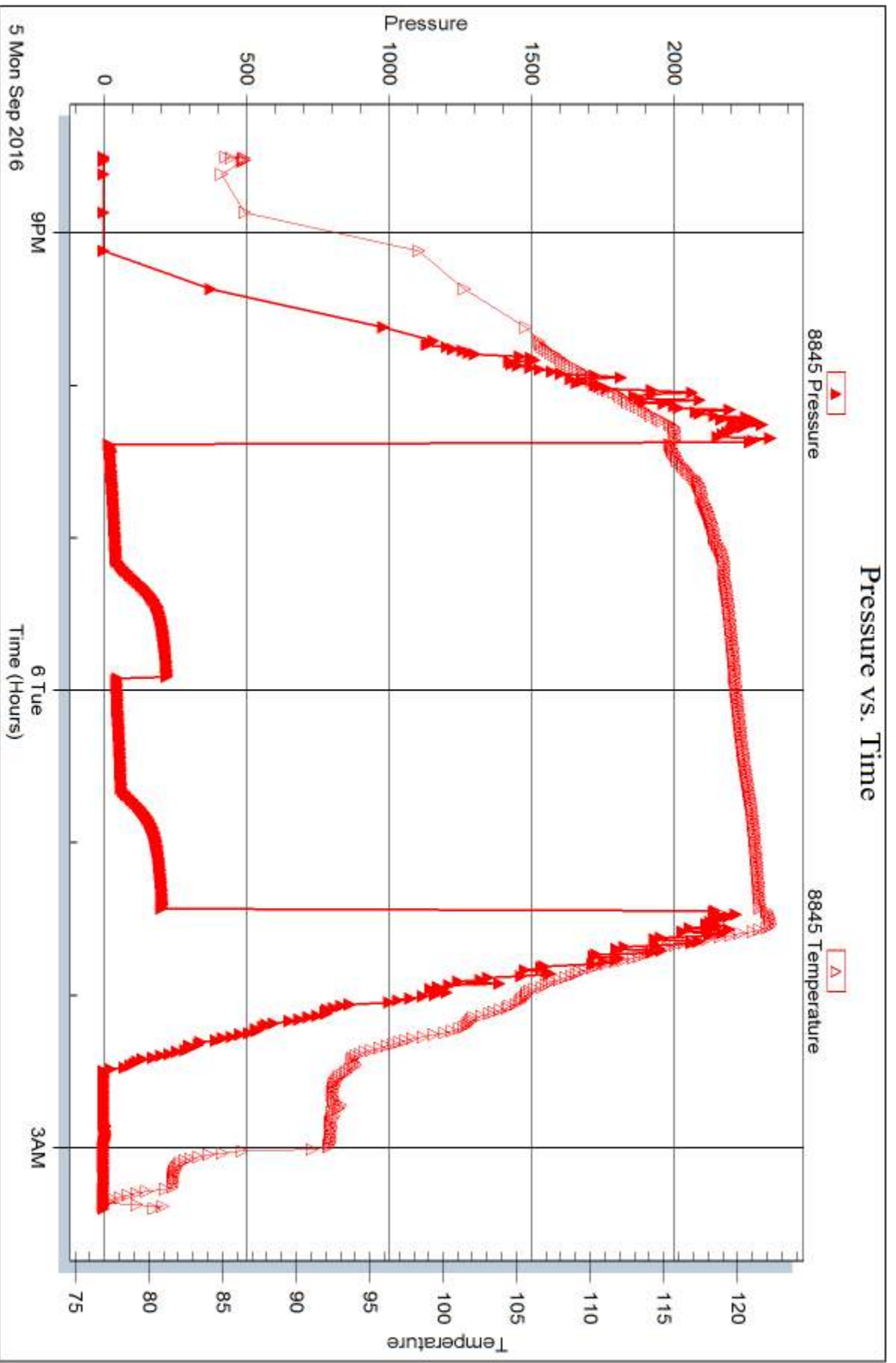


Serial #: 8845

Outside Pioneer Resources

Harms #3

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65559

Printed: 2016.09.07 @ 11:39:38



## DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr.  
Phillipsburg, KS 67661

ATTN: Cliff Otaway

### **Harms #3**

#### **1-14s-32w Logan,KS**

Start Date: 2016.09.06 @ 11:34:00

End Date: 2016.09.06 @ 17:22:30

Job Ticket #: 65560                      DST #: 4

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.09.07 @ 11:39:01



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Pioneer Resources  
 80 Windmill Dr.  
 Phillipsburg, KS 67661  
 ATTN: Cliff Otaway

**1-14s-32w Logan,KS**

**Harms #3**

Job Ticket: 65560

**DST#: 4**

Test Start: 2016.09.06 @ 11:34:00

## GENERAL INFORMATION:

Formation: **Morrow Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:20:00  
 Time Test Ended: 17:22:30  
 Interval: **4554.00 ft (KB) To 4605.00 ft (KB) (TVD)**  
 Total Depth: 4605.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 2923.00 ft (KB)  
 2918.00 ft (CF)  
 KB to GR/CF: 5.00 ft

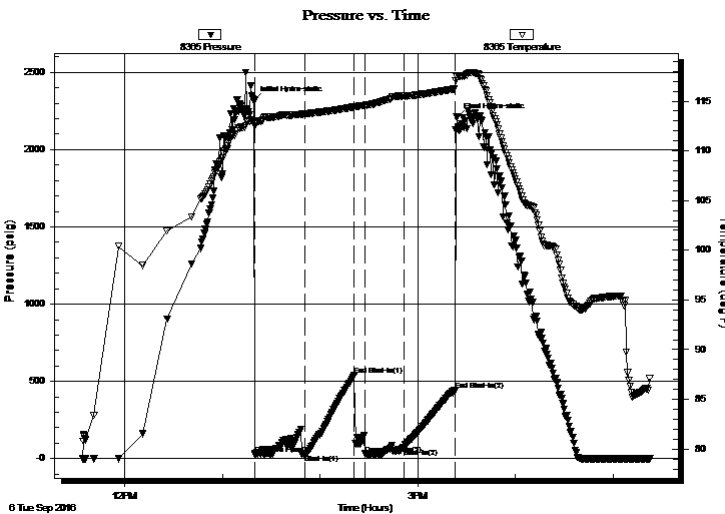
## Serial #: 8365

Inside

Press@RunDepth: 65.21 psig @ 4555.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2016.09.06 End Date: 2016.09.06 Last Calib.: 2016.09.06  
 Start Time: 11:34:05 End Time: 17:22:29 Time On Btm: 2016.09.06 @ 13:19:15  
 Time Off Btm: 2016.09.06 @ 15:24:00

TEST COMMENT: IF 1/2" blow , died @ 15 min.  
 IS: No return.  
 FF: No blow .  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2319.27	113.05	Initial Hydro-static
1	25.87	112.56	Open To Flow (1)
32	29.27	113.72	Shut-In(1)
62	538.62	114.43	End Shut-In(1)
69	30.48	114.58	Open To Flow (2)
93	65.21	115.53	Shut-In(2)
124	439.85	116.23	End Shut-In(2)
125	2209.90	117.44	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud 100m (oil specs)	0.07

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65560      **DST#: 4**  
Test Start: 2016.09.06 @ 11:34:00

**Tool Information**

Drill Pipe:	Length: 4424.00 ft	Diameter: 3.80 inches	Volume: 62.06 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume: 62.65 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4554.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	71.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4535.00	
Shut In Tool	5.00			4540.00	
Hydraulic tool	5.00			4545.00	
Packer	5.00			4550.00	20.00      Bottom Of Top Packer
Packer	4.00			4554.00	
Stubb	1.00			4555.00	
Recorder	0.00	8365	Inside	4555.00	
Recorder	0.00	8845	Outside	4555.00	
Perforations	14.00			4569.00	
Change Over Sub	1.00			4570.00	
Drill Pipe	31.00			4601.00	
Change Over Sub	1.00			4602.00	
Bullnose	3.00			4605.00	51.00      Bottom Packers & Anchor

**Total Tool Length: 71.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Pioneer Resources  
80 Windmill Dr.  
Phillipsburg, KS 67661  
ATTN: Cliff Otaway

**1-14s-32w Logan,KS**  
**Harms #3**  
Job Ticket: 65560      **DST#: 4**  
Test Start: 2016.09.06 @ 11:34:00

## Mud and Cushion Information

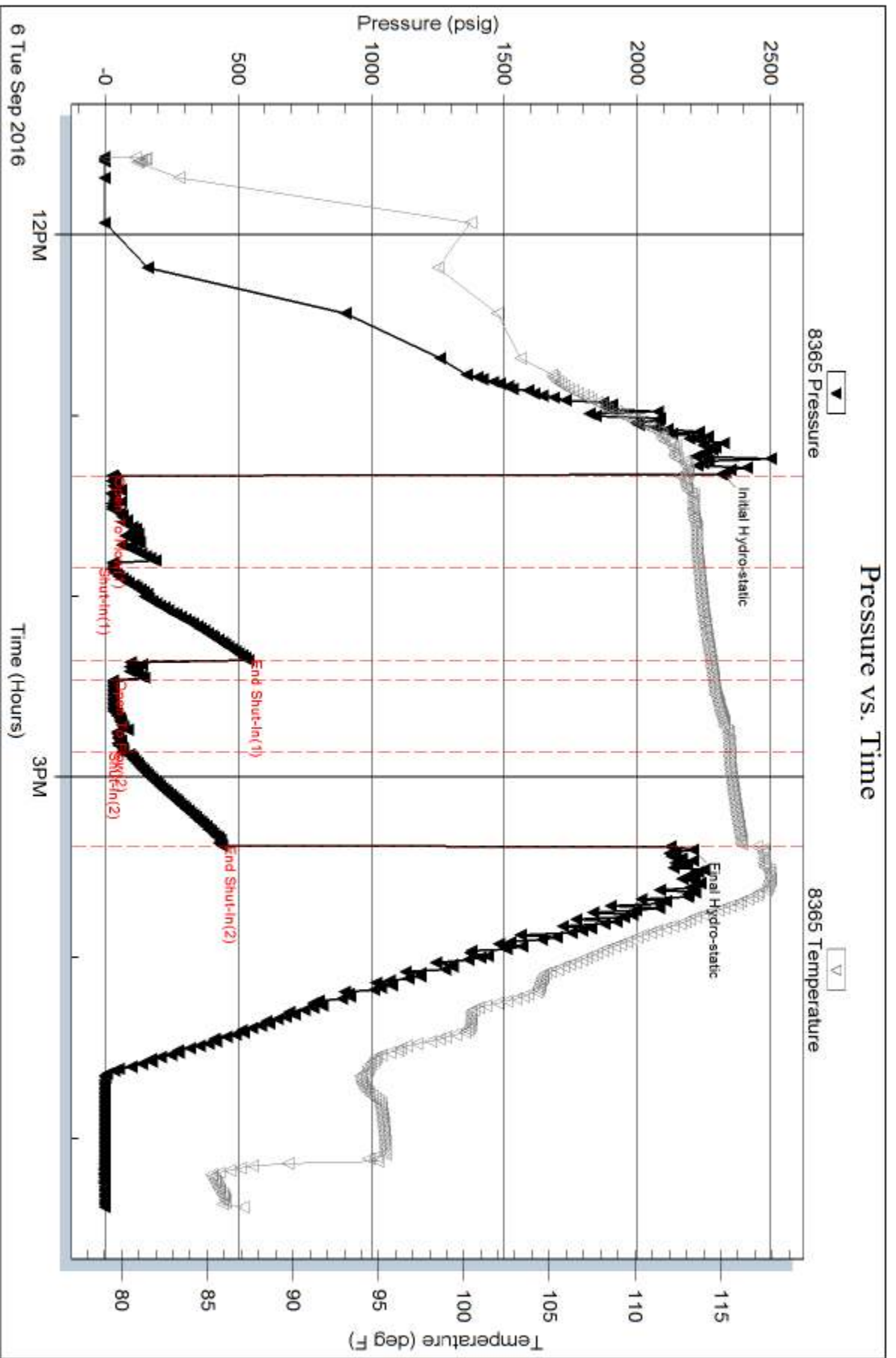
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.59 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: 1.00 inches			

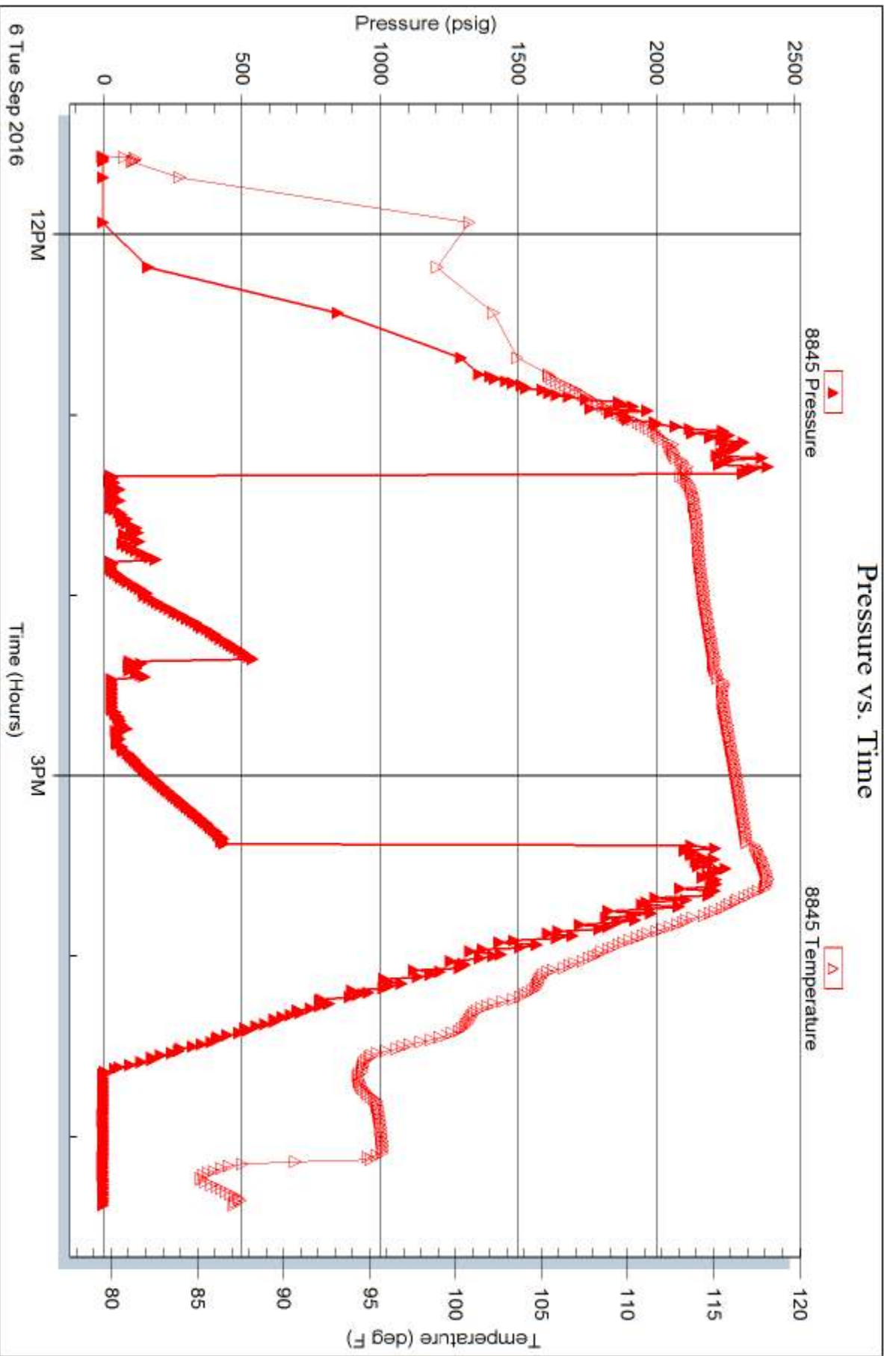
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Mud 100m (oil specs)	0.074

Total Length: 15.00 ft      Total Volume: 0.074 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65557**

Well Name & No. Harms #3 Test No. 1 Date 9/3/2016  
 Company Pioneer Resources Elevation 2923 KB 2918 GL  
 Address 80 Windmill Dr Phillipsburg Es 67661  
 Co. Rep / Geo. Cliff Otaway Rig WW 10  
 Location: Sec. 1 Twp. 14S Rge. 32W Co. Logan State Ks

Interval Tested 4130 4184 Zone Tested LKC I  
 Anchor Length 34 Drill Pipe Run 4041 Mud Wt. 9.1  
 Top Packer Depth 4145 Drill Collars Run 120 Vis 55  
 Bottom Packer Depth 4150 Wt. Pipe Run Ø WL 7.2  
 Total Depth 4184 Chlorides 2500 ppm System LCM 2#  
 Blow Description IF Surface blow died @ 5 min.  
ISF No return.  
PF No flow  
PSI Pulled test

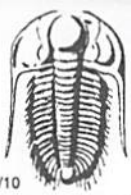
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</u>			<u>100</u>	
	<u>(oil specks)</u>				

Rec Total 5 BHT 114 Gravity — API RW — @ — °F Chlorides — ppm  
 (A) Initial Hydrostatic 2044  Test 1150 T-On Location 1530  
 (B) First Initial Flow 11  Jars \_\_\_\_\_ T-Started 1620  
 (C) First Final Flow 13  Safety Joint \_\_\_\_\_ T-Open 1832  
 (D) Initial Shut-In 543  Circ Sub N/C T-Pulled 1940  
 (E) Second Initial Flow 14  Hourly Standby \_\_\_\_\_ T-Out 2122  
 (F) Second Final Flow 14  Mileage 64 ~~74~~ 48 Comments Loaded 9/7/2016  
 (G) Final Shut-In \_\_\_\_\_  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2008  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1198  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1198

Approved By \_\_\_\_\_ Our Representative

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.

WALT 785 623 1407



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65558**

Well Name & No. Harms #3 Test No. 2 Date 9/5/2016  
 Company Pioneer Resources Elevation 2923 KB 2918 GL  
 Address 80 Windmill dr Phillipsburg, Ks 67661  
 Co. Rep / Geo. Cliff O'away Rig WW 10  
 Location: Sec. 1 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4424-4450 Zone Tested Myric Station  
 Anchor Length 26 Drill Pipe Run 4297 Mud Wt. 9.1  
 Top Packer Depth 4419 Drill Collars Run 120 Vis 49  
 Bottom Packer Depth 4424 Wt. Pipe Run 0 WL 9.6  
 Total Depth 4450 Chlorides 3500 ppm System LCM 2#  
 Blow Description IF: Surface blow dried @ 17 min  
ISI: No return.  
PF: No blow  
FSI: No return.

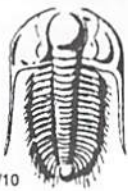
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>MUD</u>			<u>100</u>	
	<u>Oil spots</u>				

Rec Total 15 BHT 119 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2246</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2300</u> <u>9/04</u>
(B) First Initial Flow <u>17</u>	<del>Test</del>	T-Started <u>0111</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint	T-Open <u>0332</u>
(D) Initial Shut-In <u>72</u>	<input checked="" type="checkbox"/> Circ Sub <u>AC</u>	T-Pulled <u>0532</u>
(E) Second Initial Flow <u>17</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0659</u>
(F) Second Final Flow <u>18</u>	<input checked="" type="checkbox"/> Mileage <u>64 RT</u> <u>48</u>	Comments _____
(G) Final Shut-In <u>48</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2110</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1198</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1198</u>	

Approved By \_\_\_\_\_ Our Representative 

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. **65559**

Well Name & No. Harms #3 Test No. 3 Date 9/6/2016  
 Company Pioneer Resources Elevation 2923 KB 2918 GL  
 Address 80 Windmill dr Phillipsburg KS 67061  
 Co. Rep / Geo. Cliff Otaway Rig WW10  
 Location: Sec. 1 Twp. 14S Rge. 32W Co. Logan State KS

Interval Tested 4500 - 4556 Zone Tested Johnson  
 Anchor Length 50 Drill Pipe Run 4390 Mud Wt. 9.1  
 Top Packer Depth 4501 Drill Collars Run 120 Vis 50  
 Bottom Packer Depth 4506 Wt. Pipe Run 0 WL 9.2  
 Total Depth 4556 Chlorides 3500 ppm System LCM 2#  
 Blow Description IF 4" blow  
ISI No return  
FF 2" blow  
FSI No return

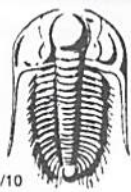
Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>Free O.I.</u>		<u>100%</u>		
<u>70</u>	<u>9' CON</u>	<u>20%</u>	<u>30%</u>	<u>50%</u>	
	<u>80' GIP</u>				

Rec Total 100 BHT 120 Gravity 27 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2269  Test 1150 T-On Location 2000  
 (B) First Initial Flow 18  Jars \_\_\_\_\_ T-Started 2030  
 (C) First Final Flow 40  Safety Joint \_\_\_\_\_ T-Open 2224  
 (D) Initial Shut-In 221  Circ Sub N/C T-Pulled 0124  
 (E) Second Initial Flow 45  Hourly Standby \_\_\_\_\_ T-Out 0323  
 (F) Second Final Flow 61  Mileage 64RT 48 Comments \_\_\_\_\_  
 (G) Final Shut-In 203  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2167  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer 320  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 320  
 Day Standby \_\_\_\_\_ Total 1518  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1198

Approved By \_\_\_\_\_ Our Representative

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. **65560**

Well Name & No. Harms #3 Test No. 4 Date 9/6/2016  
 Company Pioneer Resources Elevation 2923 KB 2918 GL  
 Address 80 Windmill dr. Phillipsburg Ks 67661  
 Co. Rep / Geo. Cliff Otaway Rig \_\_\_\_\_  
 Location: Sec. 1 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4554 - 4605 Zone Tested Morrow Sand  
 Anchor Length 51 Drill Pipe Run 4244 Mud Wt. 9.3  
 Top Packer Depth 4549 Drill Collars Run 120 Vis 60  
 Bottom Packer Depth 4554 Wt. Pipe Run 0 WL 9.6  
 Total Depth 4605 Chlorides 4,000 ppm System LCM 1#  
 Blow Description IF: 1/2" blow dead @ 15 minutes  
ISI: No return.  
FF: No blow  
FSI: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>mud</u>			<u>100</u>	
	<u>OIL SPOTS</u>				

Rec Total 15 BHT 116 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2319</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>1100</u>
(B) First Initial Flow <u>26</u>	<input type="checkbox"/> Jars _____	T-Started <u>1134</u>
(C) First Final Flow <u>29</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>1320</u>
(D) Initial Shut-In <u>539</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>1520</u>
(E) Second Initial Flow <u>30</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>1723</u>
(F) Second Final Flow <u>65</u>	<input checked="" type="checkbox"/> Mileage <u>64 RT x2</u> <u>96</u>	Comments <u>Loaded @</u>
(G) Final Shut-In <u>440</u>	<input type="checkbox"/> Sampler _____	<u>0900 9/7</u>
(H) Final Hydrostatic <u>2210</u>	<input type="checkbox"/> Straddle _____	
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1246</u>
	Sub Total <u>1246</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative

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.