



DRILL STEM TEST REPORT

Prepared For: **Phillips Exploration**

1601 Sagebrush
Wichita Ks. 67230

ATTN: Jim Phillips

18-11s-23w Trego,Ks

Moden #1-18

Start Date: 2010.09.02 @ 20:30:00

End Date: 2010.09.03 @ 02:34:00

Job Ticket #: 37993 DST #: 1

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

Printed: 2014.06.12 @ 10:21:19



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Phillips Exploration
1601 Sagebrush
Wichita Ks. 67230
ATTN: Jim Phillips

Moden #1-18
18-11s-23w Trego, Ks
Job Ticket: 37993 **DST#: 1**
Test Start: 2010.09.02 @ 20:30:00

GENERAL INFORMATION:

Formation: **LKC-B-C**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:21:00
 Time Test Ended: 02:34:00
 Interval: **3710.00 ft (KB) To 3755.00 ft (KB) (TVD)**
 Total Depth: 3755.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Chuck Kreuzer Jr.
 Unit No: 36
 Reference Elevations: 2322.00 ft (KB)
 2317.00 ft (CF)
 KB to GR/CF: 5.00 ft

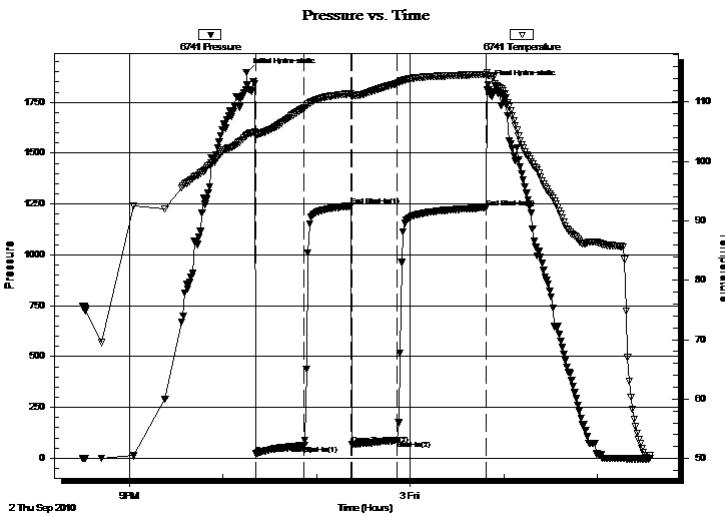
Serial #: 6741

Inside

Press@RunDepth: 87.15 psig @ 3715.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2010.09.02 End Date: 2010.09.03 Last Calib.: 2010.09.03
 Start Time: 20:30:01 End Time: 02:34:00 Time On Btm: 2010.09.02 @ 22:15:00
 Time Off Btm: 2010.09.03 @ 00:50:00

TEST COMMENT: IF: 1/2 in. weak blow built to 2 1/4 in.
 IS: No blow back
 FF: Weak blow built to 1/2 in.
 FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1897.29	104.34	Initial Hydro-static
6	21.56	104.33	Open To Flow (1)
37	63.72	109.01	Shut-In(1)
67	1240.32	111.41	End Shut-In(1)
68	68.08	110.87	Open To Flow (2)
97	87.15	113.10	Shut-In(2)
154	1231.90	114.64	End Shut-In(2)
155	1836.60	114.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
125.00	mcw -20% m80% w	1.22
1.00	oil	0.01

Gas Rates

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



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1601 Sagebrush
Wichita Ks. 67230
ATTN: Jim Phillips

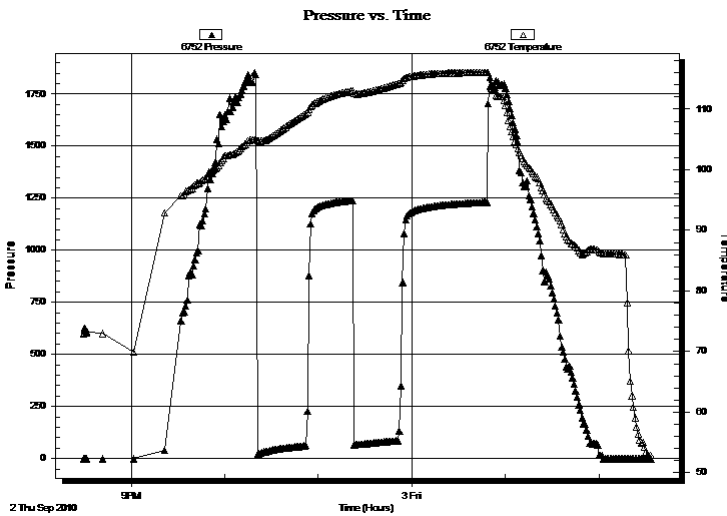
Moden #1-18
18-11s-23w Trego, Ks
Job Ticket: 37993 **DST#: 1**
Test Start: 2010.09.02 @ 20:30:00

GENERAL INFORMATION:

Formation: LKC-B-C			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)	
Time Tool Opened: 22:21:00		Tester: Chuck Kreuzer Jr.	
Time Test Ended: 02:34:00		Unit No: 36	
Interval: 3710.00 ft (KB) To 3755.00 ft (KB) (TVD)		Reference Elevations: 2322.00 ft (KB)	
Total Depth: 3755.00 ft (KB) (TVD)		2317.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Good	KB to GR/CF: 5.00 ft	

Serial #: 6752	Inside				
Press@RunDepth: psig @	3715.00 ft (KB)	Capacity:	8000.00 psig		
Start Date: 2010.09.02	End Date: 2010.09.03	Last Calib.:	2010.09.03		
Start Time: 20:29:35	End Time: 02:33:29	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: IF: 1/2 in. weak blow built to 2 1/4 in.
IS: No blow back
FF: Weak blow built to 1/2 in.
FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
125.00	mcw -20% m80% w	1.22
1.00	oil	0.01

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

ATTN: Jim Phillips

Job Ticket: 37993

DST#: 1

Test Start: 2010.09.02 @ 20:30:00

Tool Information

Drill Pipe:	Length: 3645.00 ft	Diameter: 3.80 inches	Volume: 51.13 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 59.00 ft	Diameter: 2.25 inches	Volume: 0.29 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 51.42 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3710.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	68.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3692.00	
Hydraulic tool	5.00			3697.00	
Safety Joint	3.00			3700.00	
Packer	5.00			3705.00	23.00 Bottom Of Top Packer
Packer	5.00			3710.00	
Stubb	1.00			3711.00	
Perforations	3.00			3714.00	
Change Over Sub	1.00			3715.00	
Recorder	0.00	6752	Inside	3715.00	
Recorder	0.00	6741	Inside	3715.00	
Blank Spacing	31.00			3746.00	
Change Over Sub	1.00			3747.00	
Perforations	5.00			3752.00	
Bullnose	3.00			3755.00	45.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

Job Ticket: 37993

DST#: 1

ATTN: Jim Phillips

Test Start: 2010.09.02 @ 20:30:00

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:

23000 ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.37 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
125.00	mcw -20%m80%w	1.216
1.00	oil	0.014

Total Length: 126.00 ft

Total Volume: 1.230 bbl

Num Fluid Samples: 0

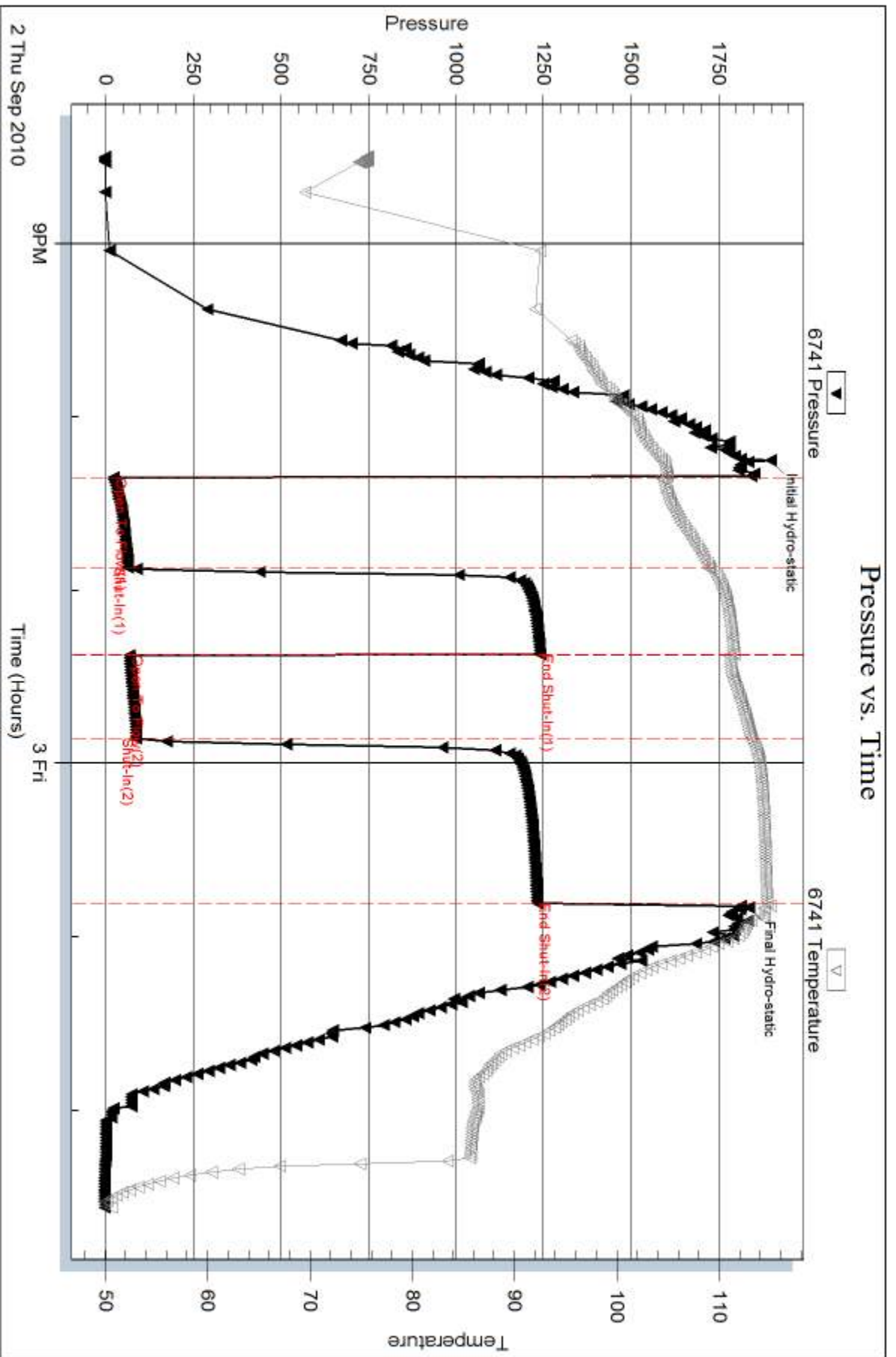
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



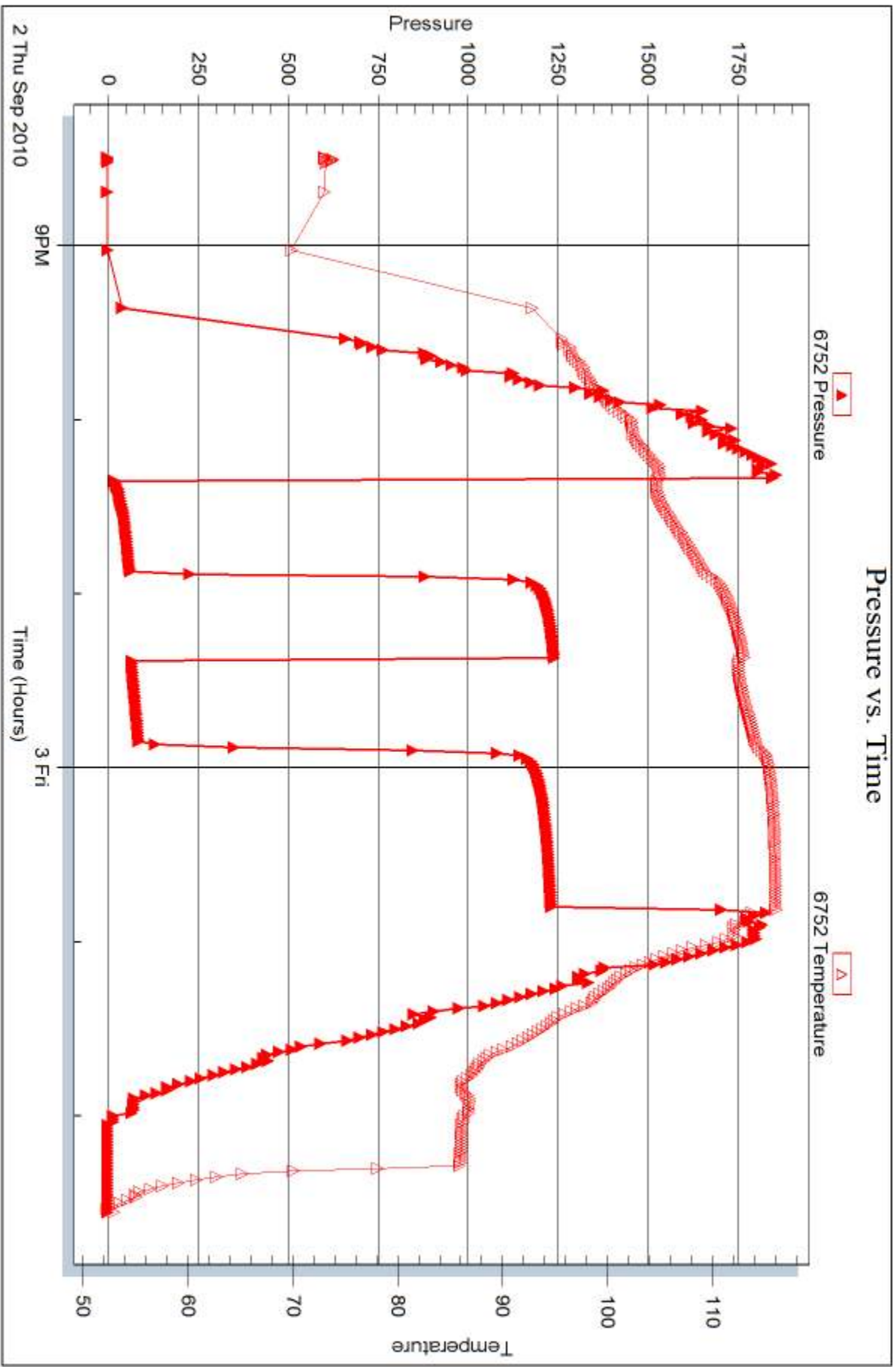
Serial #: 6752

Inside

Phillips Exploration

18-11s-23w Trego,Ks

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 37993

Printed: 2014.06.12 @ 10:21:20



DRILL STEM TEST REPORT

Prepared For: **Phillips Exploration**

1601 Sagebrush
Wichita Ks. 67230

ATTN: Jim Phillips

18-11s-23w Trego,Ks

Moden #1-18

Start Date: 2010.09.03 @ 14:25:00

End Date: 2010.09.03 @ 19:23:30

Job Ticket #: 37994 DST #: 2

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

Printed: 2014.06.12 @ 10:20:27



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DRILL STEM TEST REPORT

Phillips Exploration
1601 Sagebrush
Wichita Ks. 67230
ATTN: Jim Phillips

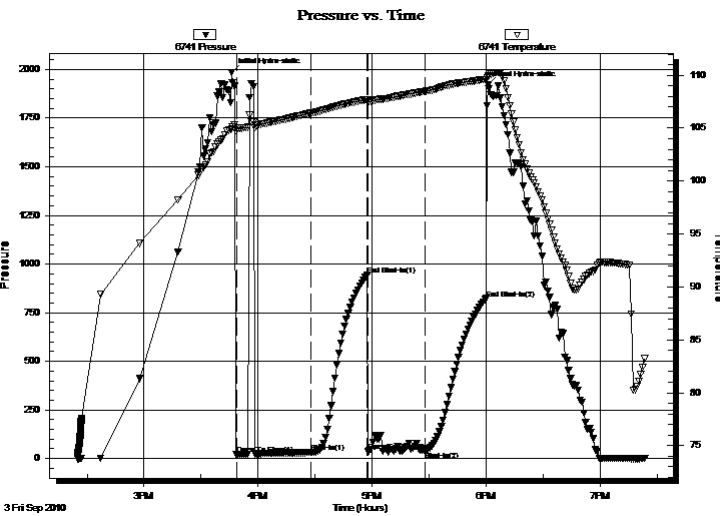
Moden #1-18
18-11s-23w Trego, Ks
Job Ticket: 37994 **DST#: 2**
Test Start: 2010.09.03 @ 14:25:00

GENERAL INFORMATION:

Formation: **LKC- I-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:48:30
Time Test Ended: 19:23:30
Interval: **3842.00 ft (KB) To 3882.00 ft (KB) (TVD)**
Total Depth: 3882.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Kreuzer Jr.
Unit No: 36
Reference Elevations: 2322.00 ft (KB)
2317.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6741 Inside
Press@RunDepth: 36.73 psig @ 3847.60 ft (KB) Capacity: 8000.00 psig
Start Date: 2010.09.03 End Date: 2010.09.03 Last Calib.: 2010.09.03
Start Time: 14:25:01 End Time: 19:23:30 Time On Btm: 2010.09.03 @ 15:46:00
Time Off Btm: 2010.09.03 @ 18:01:00

TEST COMMENT: IF: Weak blow , Died in 5 mins. Flushed tool. Weak blow , Died in 5 mins.
IS: No blow back
FF: No blow over
FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1985.27	104.97	Initial Hydro-static
3	19.40	104.75	Open To Flow (1)
42	31.18	106.41	Shut-In(1)
72	944.57	107.72	End Shut-In(1)
72	36.10	107.39	Open To Flow (2)
102	36.73	108.48	Shut-In(2)
134	822.69	109.61	End Shut-In(2)
135	1919.75	109.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego,Ks

Job Ticket: 37994

DST#: 2

ATTN: Jim Phillips

Test Start: 2010.09.03 @ 14:25:00

GENERAL INFORMATION:

Formation: **LKC- I-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:48:30

Time Test Ended: 19:23:30

Interval: 3842.00 ft (KB) To 3882.00 ft (KB) (TVD)

Total Depth: 3882.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreuzer Jr.

Unit No: 36

Reference Elevations: 2322.00 ft (KB)

2317.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6752 Inside

Press@RunDepth: psig @ 3847.60 ft (KB)

Start Date: 2010.09.03

End Date:

2010.09.03

Capacity: 8000.00 psig

Last Calib.:

2010.09.03

Start Time: 14:24:35

End Time:

19:22:59

Time On Btm:

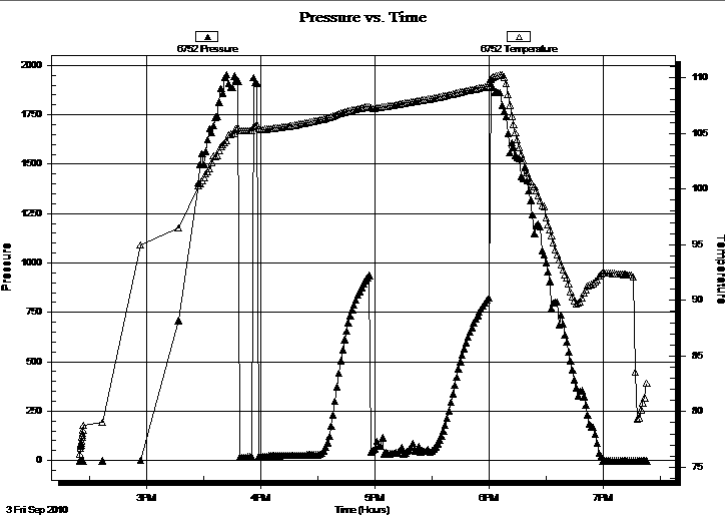
Time Off Btm:

TEST COMMENT: IF: Weak blow , Died in 5 mins. Flushed tool. Weak blow , Died in 5 mins.

IS: No blow back

FF: No blow over

FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

ATTN: Jim Phillips

Job Ticket: 37994

DST#: 2

Test Start: 2010.09.03 @ 14:25:00

Tool Information

Drill Pipe:	Length: 3778.00 ft	Diameter: 3.80 inches	Volume: 53.00 bbl	Tool Weight:	1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	28000.00 lb
Drill Collar:	Length: 59.00 ft	Diameter: 2.25 inches	Volume: 0.29 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 53.29 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3842.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	40.20 ft				
Tool Length:	63.20 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3824.00	
Hydraulic tool	5.00			3829.00	
Safety Joint	3.00			3832.00	
Packer	5.00			3837.00	23.00 Bottom Of Top Packer
Packer	5.00			3842.00	
Stubb	1.00			3843.00	
Perforations	4.00			3847.00	
Change Over Sub	0.60			3847.60	
Recorder	0.00	6752	Inside	3847.60	
Recorder	0.00	6741	Inside	3847.60	
Blank Spacing	31.00			3878.60	
Change Over Sub	0.60			3879.20	
Bullnose	3.00			3882.20	40.20 Bottom Packers & Anchor

Total Tool Length: 63.20



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DRILL STEM TEST REPORT

FLUID SUMMARY

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

Job Ticket: 37994

DST#: 2

ATTN: Jim Phillips

Test Start: 2010.09.03 @ 14:25:00

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: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl

Total Length: ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

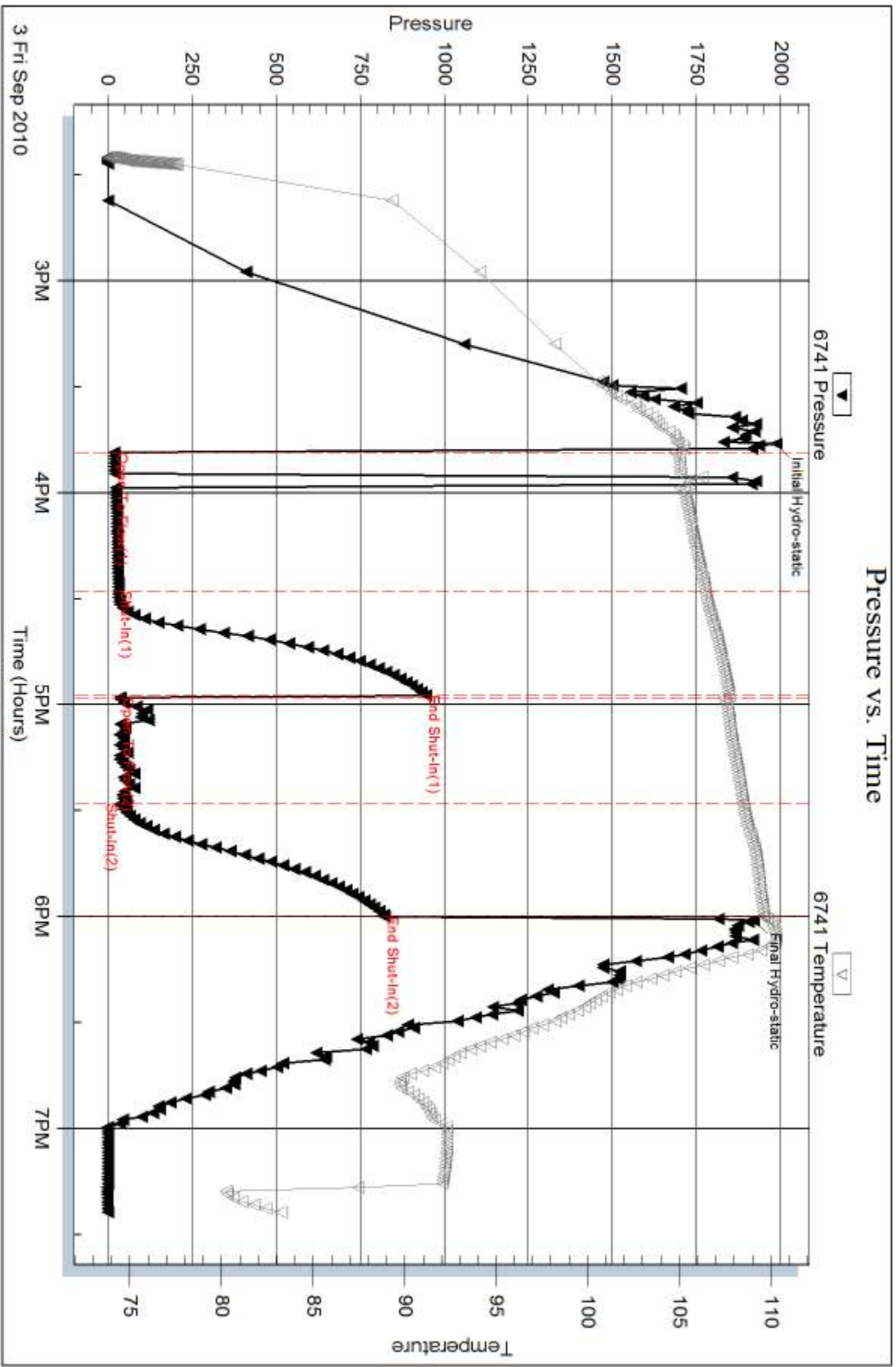
Num Gas Bombs: 0

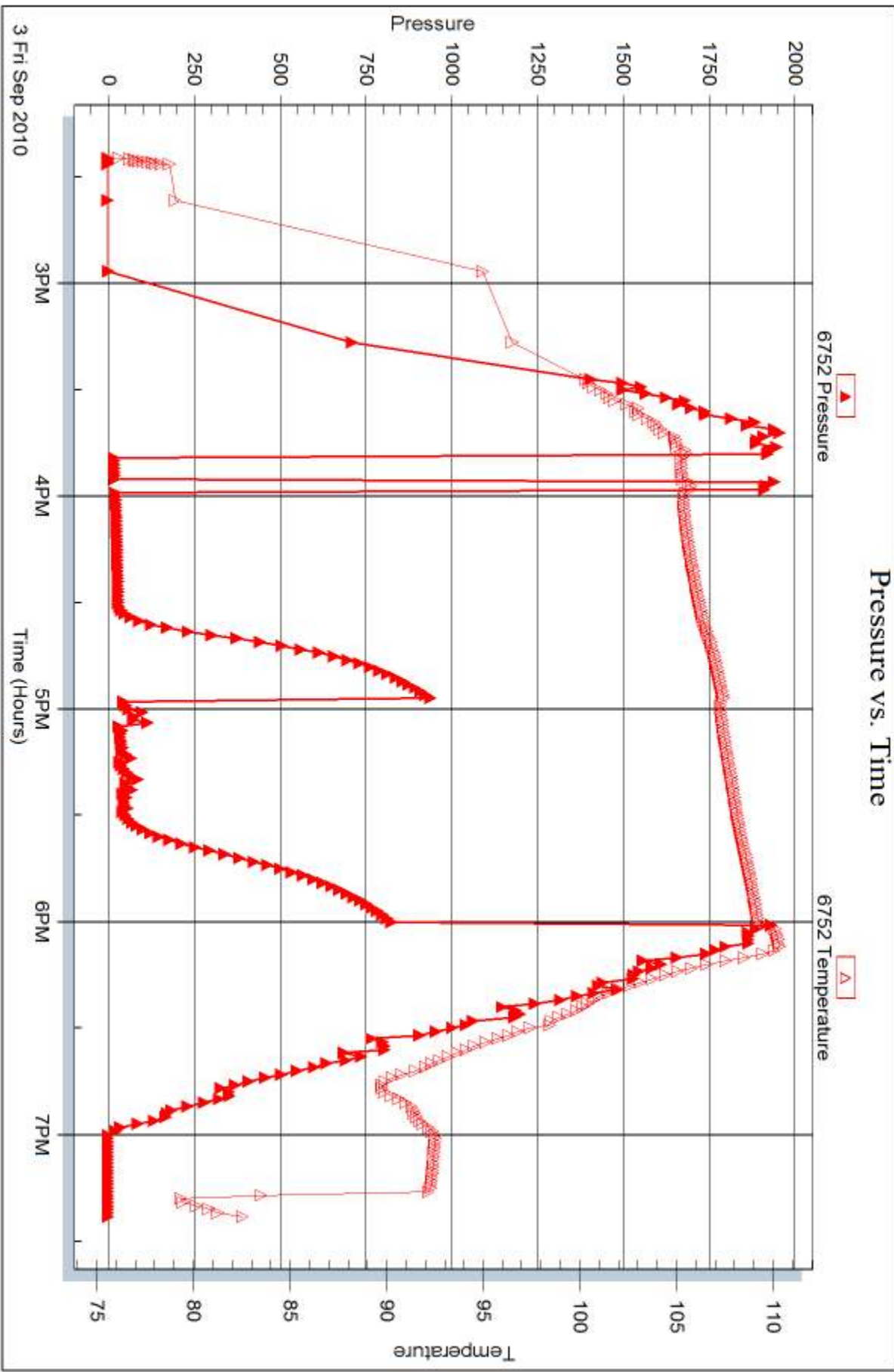
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Phillips Exploration**

1601 Sagebrush
Wichita Ks. 67230

ATTN: Jim Phillips

18-11s-23w Trego,Ks

Moden #1-18

Start Date: 2010.09.04 @ 03:10:00

End Date: 2010.09.04 @ 08:39:00

Job Ticket #: 37995 DST #: 3

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

Printed: 2014.06.12 @ 10:19:38



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Phillips Exploration
 1601 Sagebrush
 Wichita Ks. 67230
 ATTN: Jim Phillips

Moden #1-18
18-11s-23w Trego, Ks
 Job Ticket: 37995 **DST#: 3**
 Test Start: 2010.09.04 @ 03:10:00

GENERAL INFORMATION:

Formation: **LKC-K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:49:30
 Time Test Ended: 08:39:00
 Interval: **3883.00 ft (KB) To 3909.00 ft (KB) (TVD)**
 Total Depth: 3909.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 36
 Reference Elevations: 2322.00 ft (KB)
 2317.00 ft (CF)
 KB to GR/CF: 5.00 ft

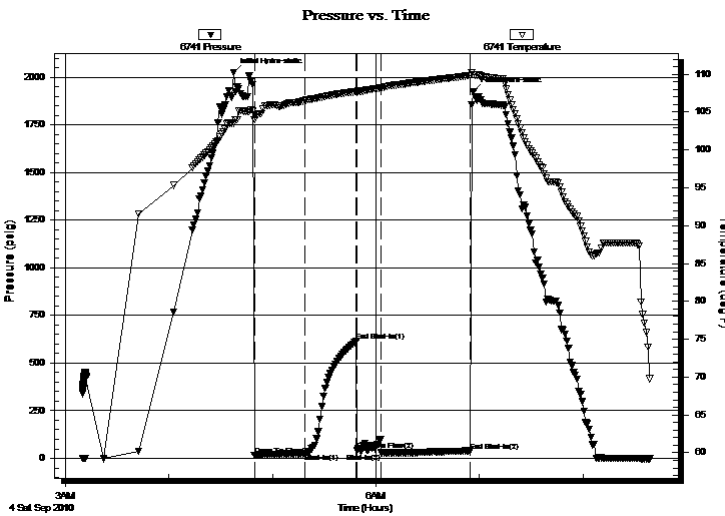
Serial #: 6741

Inside

Press@RunDepth: 28.17 psig @ 3886.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2010.09.04 End Date: 2010.09.04 Last Calib.: 2010.09.04
 Start Time: 03:10:01 End Time: 08:39:00 Time On Btm: 2010.09.04 @ 04:37:30
 Time Off Btm: 2010.09.04 @ 06:56:30

TEST COMMENT: IF: Weak surface blow, Died in 4 mins.
 IS: No blow back over 30 mins.
 FF: No blow over 30 mins.
 FS: No back blow over 30 mins.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2025.26	103.56	Initial Hydro-static
12	16.15	103.98	Open To Flow (1)
41	23.97	106.53	Shut-In(1)
71	614.71	107.72	End Shut-In(1)
72	40.01	107.61	Open To Flow (2)
86	28.17	108.24	Shut-In(2)
137	38.84	109.85	End Shut-In(2)
139	1925.50	109.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

ATTN: Jim Phillips

Job Ticket: 37995 **DST#: 3**

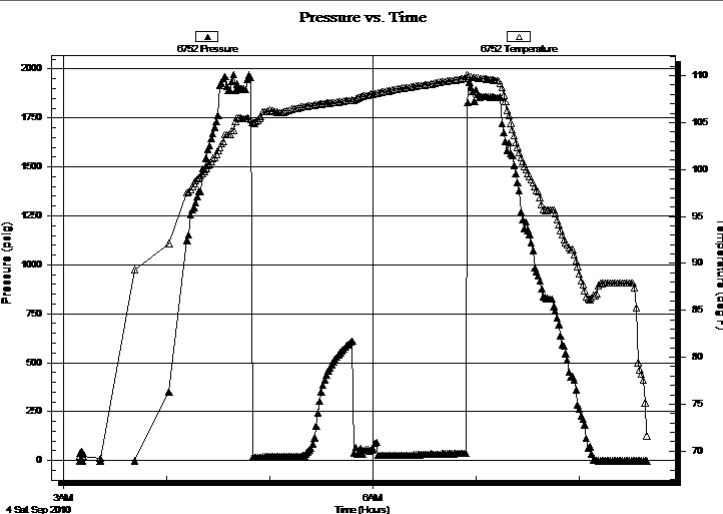
Test Start: 2010.09.04 @ 03:10:00

GENERAL INFORMATION:

Formation: **LKC-K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:49:30
 Time Test Ended: 08:39:00
Interval: 3883.00 ft (KB) To 3909.00 ft (KB) (TVD)
 Total Depth: 3909.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 36
 Reference Elevations: 2322.00 ft (KB)
 2317.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6752 Inside
 Press@RunDepth: psig @ 3886.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2010.09.04 End Date: 2010.09.04 Last Calib.: 2010.09.04
 Start Time: 03:09:35 End Time: 08:39:29 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Weak surface blow, Died in 4 mins.
 IS: No blow back over 30 mins.
 FF: No blow over 30 mins.
 FS: No back blow over 30 mins.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Phillips Exploration

Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

ATTN: Jim Phillips

Job Ticket: 37995

DST#: 3

Test Start: 2010.09.04 @ 03:10:00

Tool Information

Drill Pipe:	Length: 3806.00 ft	Diameter: 3.80 inches	Volume: 53.39 bbl	Tool Weight:	1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	28000.00 lb
Drill Collar:	Length: 59.00 ft	Diameter: 2.25 inches	Volume: 0.29 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 53.68 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3883.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	49.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3865.00	
Hydraulic tool	5.00			3870.00	
Safety Joint	3.00			3873.00	
Packer	5.00			3878.00	23.00 Bottom Of Top Packer
Packer	5.00			3883.00	
Stubb	1.00			3884.00	
Perforations	2.00			3886.00	
Recorder	0.00	6752	Inside	3886.00	
Recorder	0.00	6741	Inside	3886.00	
Perforations	20.00			3906.00	
Bullnose	3.00			3909.00	26.00 Bottom Packers & Anchor

Total Tool Length: 49.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

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Moden #1-18

1601 Sagebrush
Wichita Ks. 67230

18-11s-23w Trego, Ks

Job Ticket: 37995

DST#: 3

ATTN: Jim Phillips

Test Start: 2010.09.04 @ 03:10:00

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: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl

Total Length: ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

