



DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.10 @ 09:22:00

End Date: 2012.05.10 @ 15:39:09

Job Ticket #: 45877 DST #: 1

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

Printed: 2012.05.17 @ 15:36:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources
 80 Windmill Dr
 Phillipsburg KS 67661
 ATTN: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
 Job Ticket: 45877 **DST#: 1**
 Test Start: 2012.05.10 @ 09:22:00

GENERAL INFORMATION:

Formation: **LKC " E - F "**
 Deviated: No Whipstock: 0.00 ft (KB)
 Time Tool Opened: 11:22:55
 Time Test Ended: 15:39:09
 Interval: **3908.00 ft (KB) To 3940.00 ft (KB) (TVD)**
 Total Depth: 3940.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Will MacLean
 Unit No: 40
 Reference Elevations: 2821.00 ft (KB)
 2816.00 ft (CF)
 KB to GR/CF: 5.00 ft

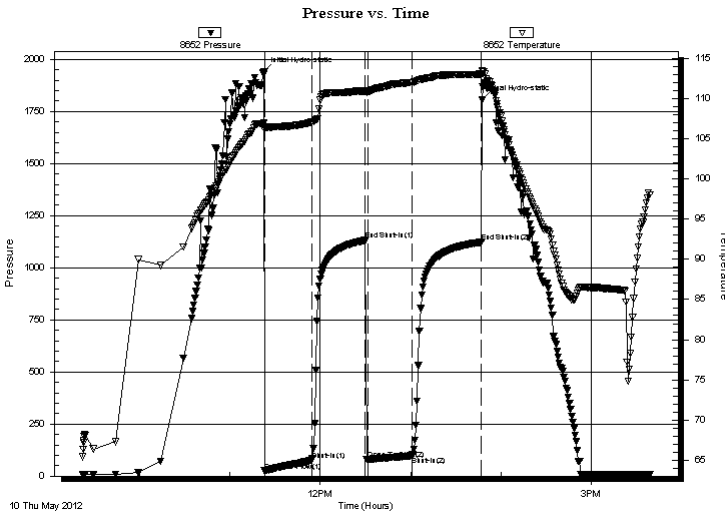
Serial #: 8652

Inside

Press @ Run Depth: 97.55 psig @ 3909.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.05.10 End Date: 2012.05.10 Last Calib.: 2012.05.10
 Start Time: 09:22:00 End Time: 15:39:09 Time On Btm: 2012.05.10 @ 11:22:40
 Time Off Btm: 2012.05.10 @ 13:47:39

TEST COMMENT: IF- Weak Surface Blow Built to 2 1/4"
 IS- No Blow
 FF- Weak Surface Blow Built to 1 1/4"
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1942.86	106.93	Initial Hydro-static
1	25.09	106.17	Open To Flow (1)
32	76.18	107.08	Shut-In(1)
68	1131.85	110.96	End Shut-In(1)
69	80.66	110.88	Open To Flow (2)
99	97.55	112.02	Shut-In(2)
145	1123.19	113.03	End Shut-In(2)
145	1805.04	113.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
61.00	GOWCM 4%g 4%oil 18%w 74%m	0.30
61.00	GWCM 2%g 18%w 80%m	0.30
15.00	WCM 2%w 98%m	0.20
10.00	GMCO 3%g 12%m 85%oil	0.14
0.00	53' of GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45877

DST#: 1

ATTN: Steve Murphy

Test Start: 2012.05.10 @ 09:22:00

Tool Information

Drill Pipe:	Length: 3783.00 ft	Diameter: 3.80 inches	Volume: 53.07 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: 26000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 14000.00 lb
			<u>Total Volume: 53.67 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3908.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	59.00 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			3882.00	
Shut In Tool	5.00			3887.00	
Hydraulic tool	5.00			3892.00	
Jars	5.00			3897.00	
Safety Joint	2.00			3899.00	
Packer	5.00			3904.00	27.00 Bottom Of Top Packer
Packer	4.00			3908.00	
Stubb	1.00			3909.00	
Recorder	0.00	8652	Inside	3909.00	
Recorder	0.00	8322	Outside	3909.00	
Perforations	28.00			3937.00	
Bullnose	3.00			3940.00	32.00 Bottom Packers & Anchor

Total Tool Length: 59.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45877

DST#: 1

ATTN: Steve Murphy

Test Start: 2012.05.10 @ 09:22:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

36000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.27 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
61.00	GOWCM 4%g 4%oil 18%w 74%m	0.300
61.00	GWCM 2%g 18%w 80%m	0.300
15.00	WCM 2%w 98%m	0.201
10.00	GMCO 3%g 12%m 85%oil	0.140
0.00	53' of GIP	0.000

Total Length: 147.00 ft Total Volume: 0.941 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

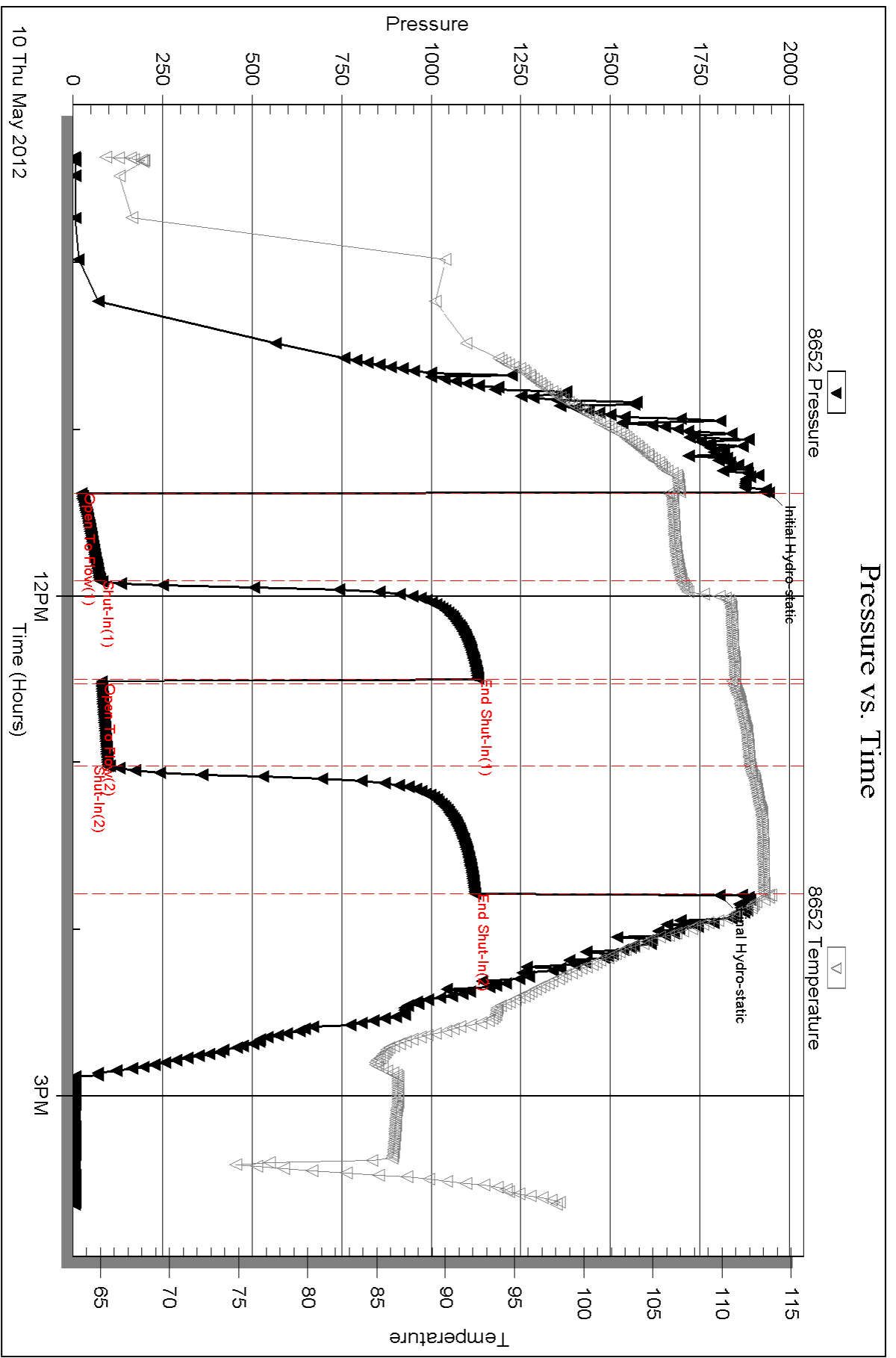
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API is 38 @ 93f = 35

RW is .142 @ 93f = 36000

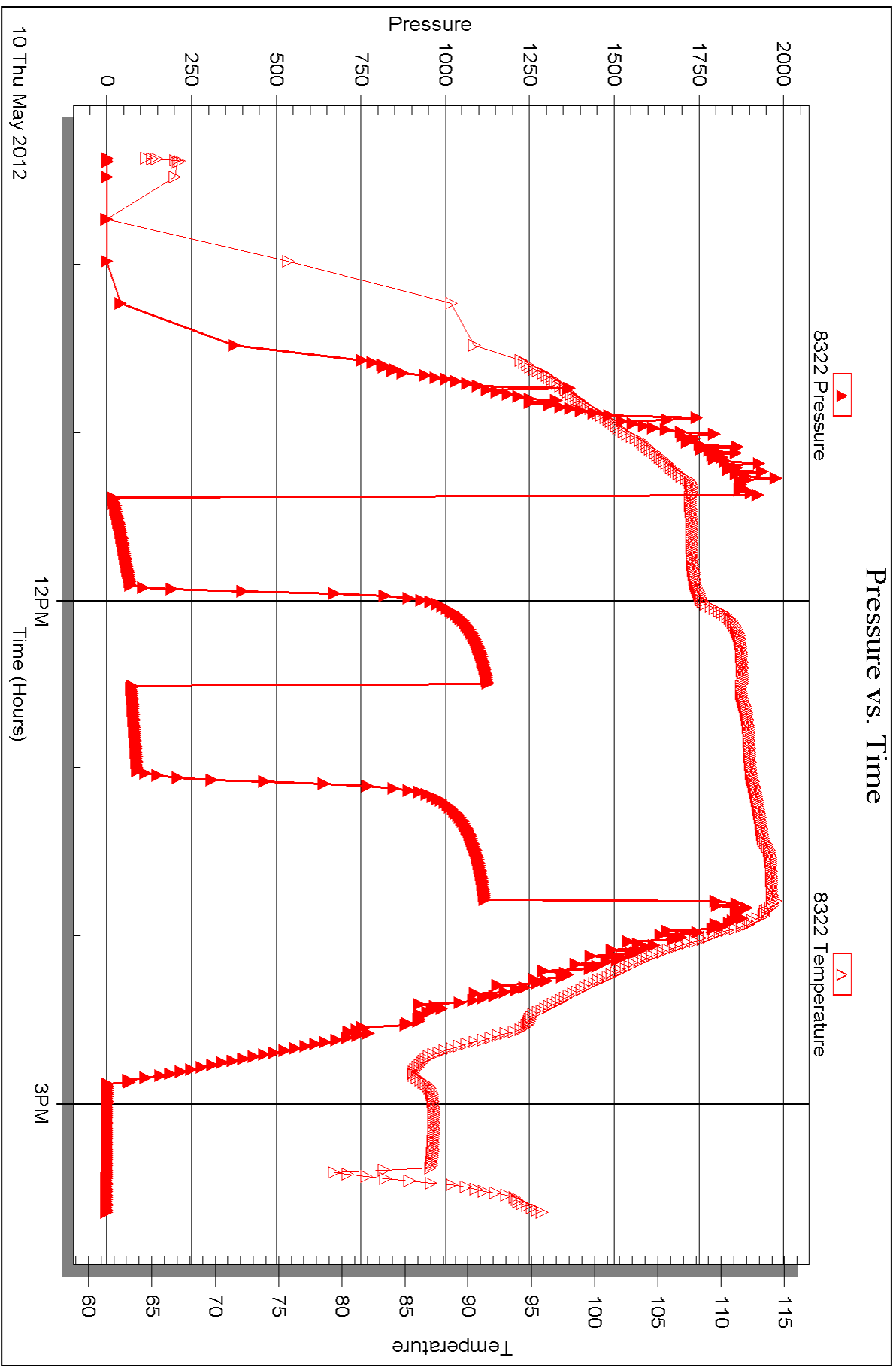


Serial #: 8322

Outside Pioneer Resources

Knopp #4

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.11 @ 04:34:00

End Date: 2012.05.11 @ 10:02:54

Job Ticket #: 45878 DST #: 2

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

Printed: 2012.05.17 @ 15:35:35



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources
 80 Windmill Dr
 Phillipsburg KS 67661
 ATTN: Steve Murphy

13-14s-32w Logan,KS

Knopp #4

Job Ticket: 45878

DST#: 2

Test Start: 2012.05.11 @ 04:34:00

GENERAL INFORMATION:

Formation: **LKC "I"**
 Deviated: No Whipstock: 0.00 ft (KB)
 Time Tool Opened: 06:21:25
 Time Test Ended: 10:02:54
 Interval: **4020.00 ft (KB) To 4052.00 ft (KB) (TVD)**
 Total Depth: 4052.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 40
 Reference Elevations: 2821.00 ft (KB)
 2816.00 ft (CF)
 KB to GR/CF: 5.00 ft

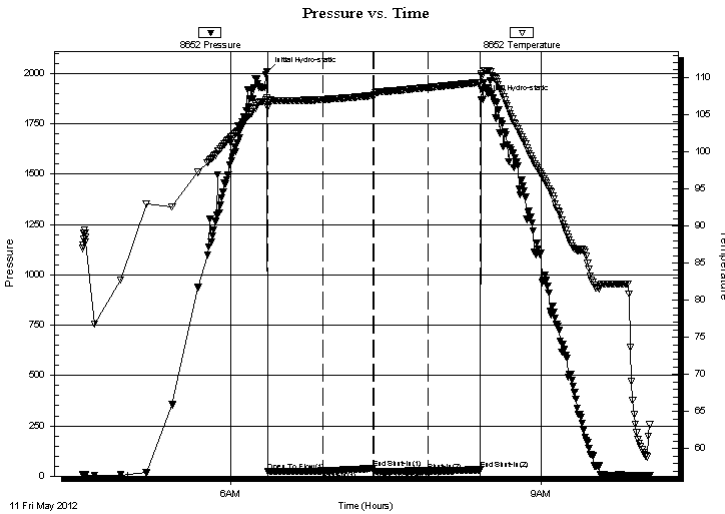
Serial #: 8652

Inside

Press @ Run Depth: 25.68 psig @ 4021.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.05.11 End Date: 2012.05.11 Last Calib.: 2012.05.11
 Start Time: 04:34:00 End Time: 10:02:54 Time On Btm: 2012.05.11 @ 06:21:10
 Time Off Btm: 2012.05.11 @ 08:25:10

TEST COMMENT: IF- 1/4" Blow Died Back to Weak Surface Blow
 IS- No Blow
 FF- No Blow
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2010.78	107.25	Initial Hydro-static
1	21.80	105.93	Open To Flow (1)
32	25.45	107.01	Shut-In(1)
62	38.75	107.57	End Shut-In(1)
62	25.02	107.63	Open To Flow (2)
93	25.68	108.63	Shut-In(2)
124	31.70	109.32	End Shut-In(2)
124	1868.79	110.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 1%oil 99%m	0.02

* 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45878 **DST#: 2**
Test Start: 2012.05.11 @ 04:34:00

Tool Information

Drill Pipe:	Length: 3879.00 ft	Diameter: 3.80 inches	Volume: 54.41 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: 22000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 18000.00 lb
			<u>Total Volume: 55.01 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4020.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3994.00	
Shut In Tool	5.00			3999.00	
Hydraulic tool	5.00			4004.00	
Jars	5.00			4009.00	
Safety Joint	2.00			4011.00	
Packer	5.00			4016.00	27.00 Bottom Of Top Packer
Packer	4.00			4020.00	
Stubb	1.00			4021.00	
Recorder	0.00	8652	Inside	4021.00	
Recorder	0.00	8322	Outside	4021.00	
Perforations	28.00			4049.00	
Bullnose	3.00			4052.00	32.00 Bottom Packers & Anchor

Total Tool Length: 59.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45878

DST#: 2

ATTN: Steve Murphy

Test Start: 2012.05.11 @ 04:34:00

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.24 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OCM 1%oil 99%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

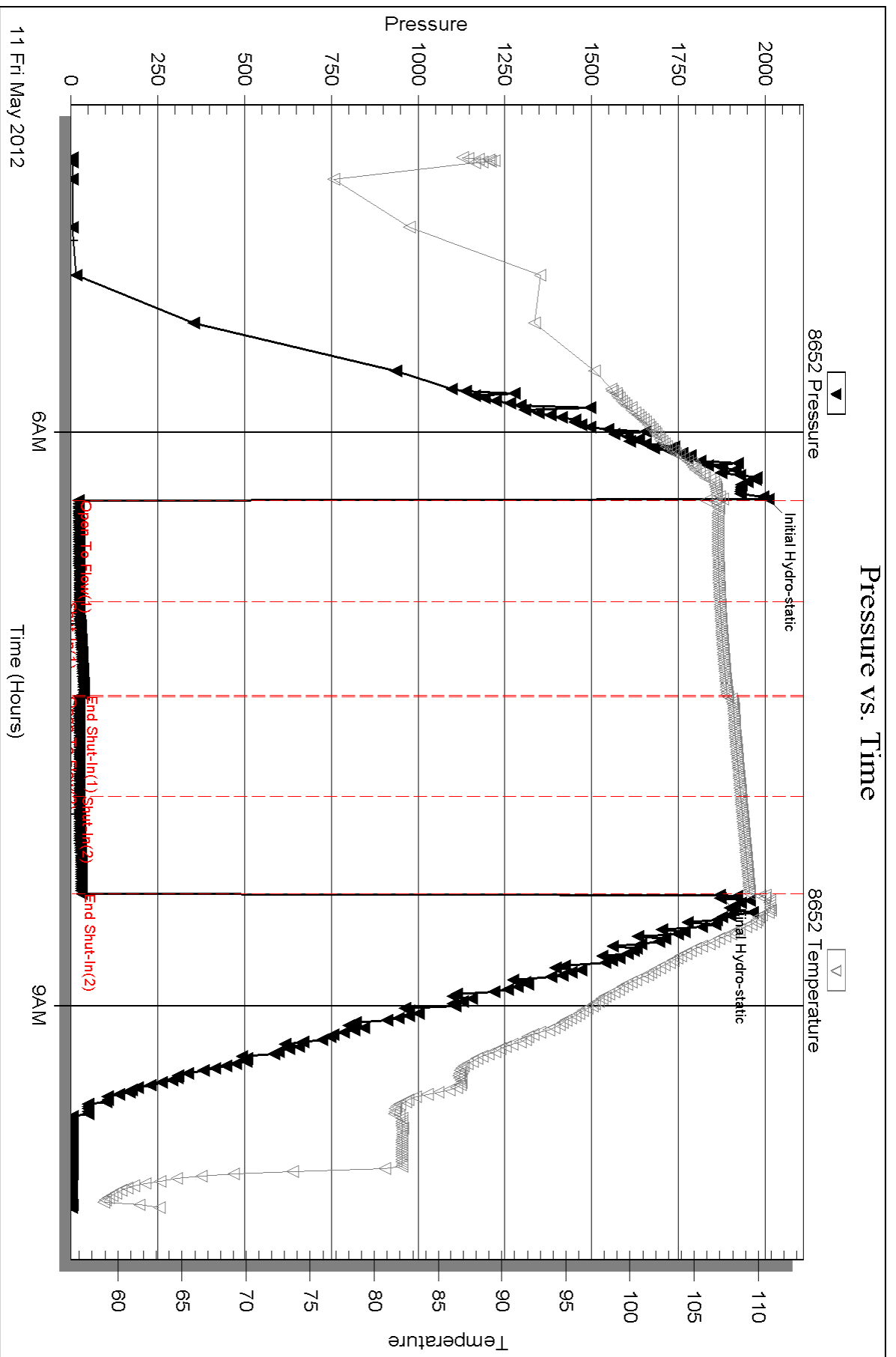
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

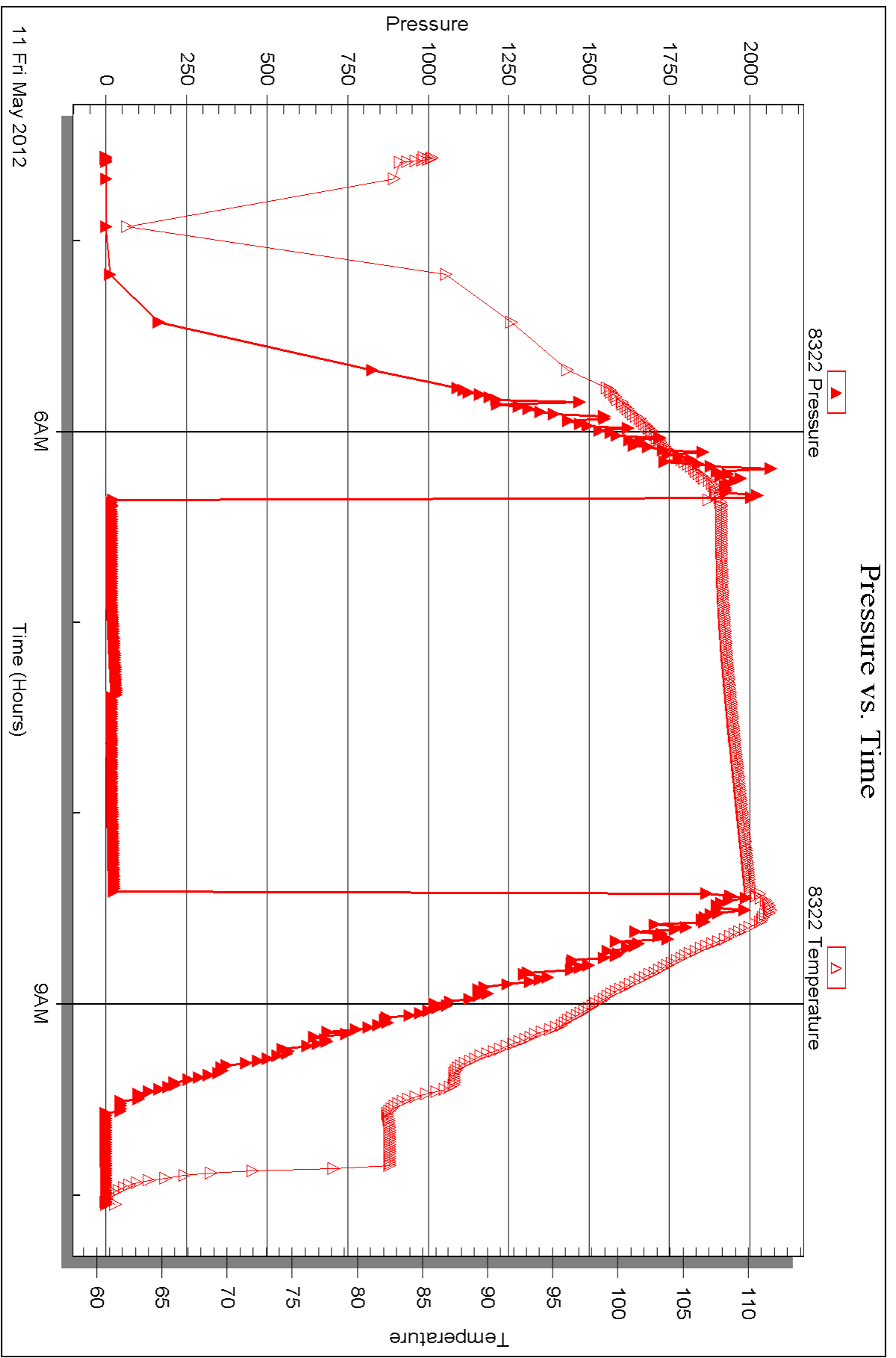


11 Fri May 2012

GAM

Time (Hours)

GAM





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.11 @ 19:04:00

End Date: 2012.05.12 @ 00:36:54

Job Ticket #: 45879 DST #: 3

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

Printed: 2012.05.17 @ 15:34:23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources
 80 Windmill Dr
 Phillipsburg KS 67661
 ATTN: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
 Job Ticket: 45879 **DST#: 3**
 Test Start: 2012.05.11 @ 19:04:00

GENERAL INFORMATION:

Formation: **LKC " K "**
 Deviated: No Whipstock: 0.00 ft (KB)
 Time Tool Opened: 20:40:40
 Time Test Ended: 00:36:54
 Interval: **4084.00 ft (KB) To 4110.00 ft (KB) (TVD)**
 Total Depth: 4110.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 40
 Reference Elevations: 2821.00 ft (KB)
 2816.00 ft (CF)
 KB to GR/CF: 5.00 ft

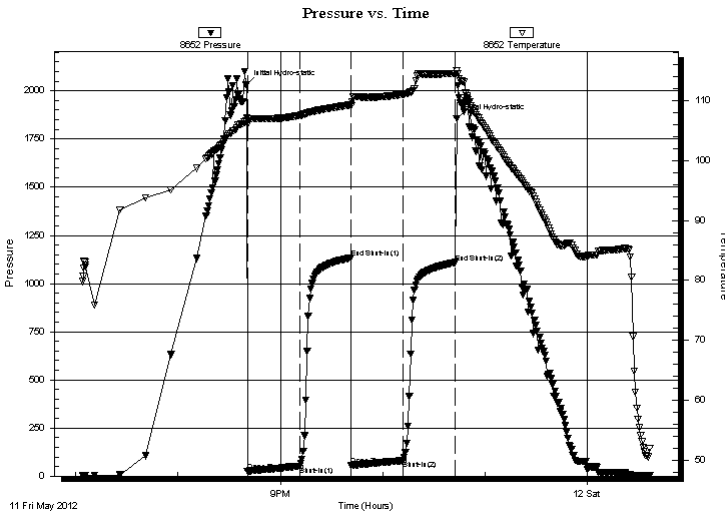
Serial #: 8652

Inside

Press @ Run Depth: 79.73 psig @ 4087.00 ft (KB)
 Start Date: 2012.05.11 End Date: 2012.05.12
 Start Time: 19:04:00 End Time: 00:36:54
 Capacity: 8000.00 psig
 Last Calib.: 2012.05.12
 Time On Btm: 2012.05.11 @ 20:40:25
 Time Off Btm: 2012.05.11 @ 22:43:25

TEST COMMENT: IF- Weak Surface Blow Built to 1"
 IS- No Blow
 FF- Weak Surface Blow
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2031.31	107.09	Initial Hydro-static
1	24.73	106.08	Open To Flow (1)
31	52.24	107.51	Shut-In(1)
61	1132.12	109.30	End Shut-In(1)
62	56.77	109.14	Open To Flow (2)
92	79.73	111.01	Shut-In(2)
123	1109.12	114.51	End Shut-In(2)
123	1855.46	115.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
61.00	WGM 1%w 3%g 96%m Skim of Oil on	0.30
61.00	OGCM 2%oil 3%g 95%m	0.30
1.00	Oil	0.00
0.00	63' of 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45879 **DST#: 3**
Test Start: 2012.05.11 @ 19:04:00

Tool Information

Drill Pipe:	Length: 3944.00 ft	Diameter: 3.80 inches	Volume: 55.32 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:	24000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	4000.00 lb
			<u>Total Volume: 55.92 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4084.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	53.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4058.00	
Shut In Tool	5.00			4063.00	
Hydraulic tool	5.00			4068.00	
Jars	5.00			4073.00	
Safety Joint	2.00			4075.00	
Packer	5.00			4080.00	27.00 Bottom Of Top Packer
Packer	4.00			4084.00	
Stubb	1.00			4085.00	
Perforations	2.00			4087.00	
Recorder	0.00	8652	Inside	4087.00	
Recorder	0.00	8322	Outside	4087.00	
Perforations	20.00			4107.00	
Bullnose	3.00			4110.00	26.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45879

DST#: 3

ATTN: Steve Murphy

Test Start: 2012.05.11 @ 19:04:00

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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.12 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
61.00	WGM 1%w 3%g 96%m Skim of Oil on Top	0.300
61.00	OGCM 2%oil 3%g 95%m	0.300
1.00	Oil	0.005
0.00	63' of GIP	0.000

Total Length: 123.00 ft

Total Volume: 0.605 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

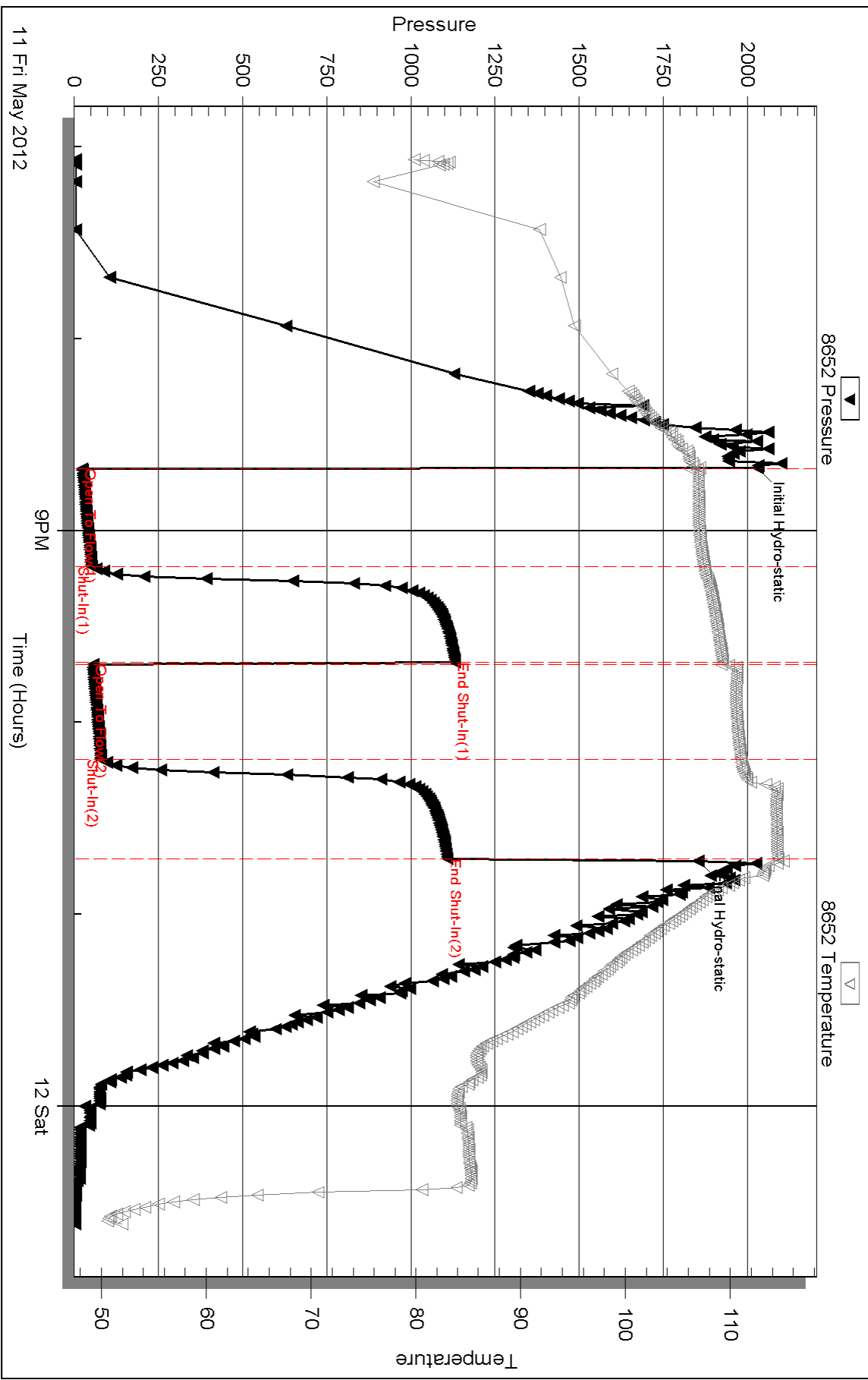
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

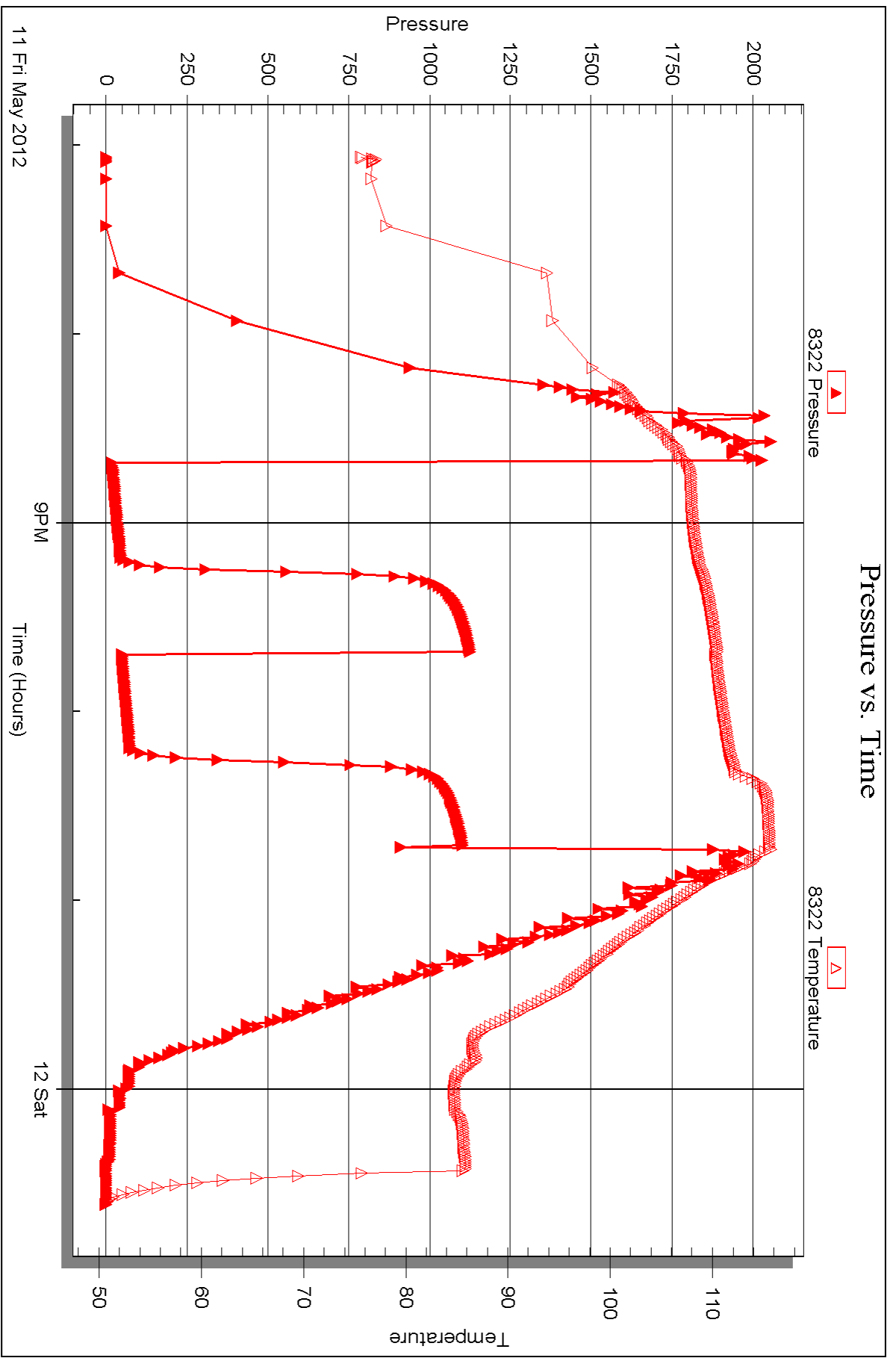


Serial #: 8322

Outside Pioneer Resources

Knopp #4

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.12 @ 17:10:00

End Date: 2012.05.13 @ 00:30:39

Job Ticket #: 45880 DST #: 4

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

Printed: 2012.05.17 @ 15:32:11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources
 80 Windmill Dr
 Phillipsburg KS 67661
 ATTN: Steve Murphy

13-14s-32w Logan,KS

Knopp #4

Job Ticket: 45880

DST#: 4

Test Start: 2012.05.12 @ 17:10:00

GENERAL INFORMATION:

Formation: **Altamont / Pawnee**

Deviated: No Whipstock: 0.00 ft (KB)

Time Tool Opened: 18:57:40

Time Test Ended: 00:30:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 40

Interval: 4252.00 ft (KB) To 4312.00 ft (KB) (TVD)

Total Depth: 4312.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2821.00 ft (KB)

2816.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8652 Inside

Press @ Run Depth: 228.17 psig @ 4253.00 ft (KB)

Start Date: 2012.05.12

End Date:

2012.05.13

Start Time: 17:10:00

End Time:

00:30:39

Capacity: 8000.00 psig

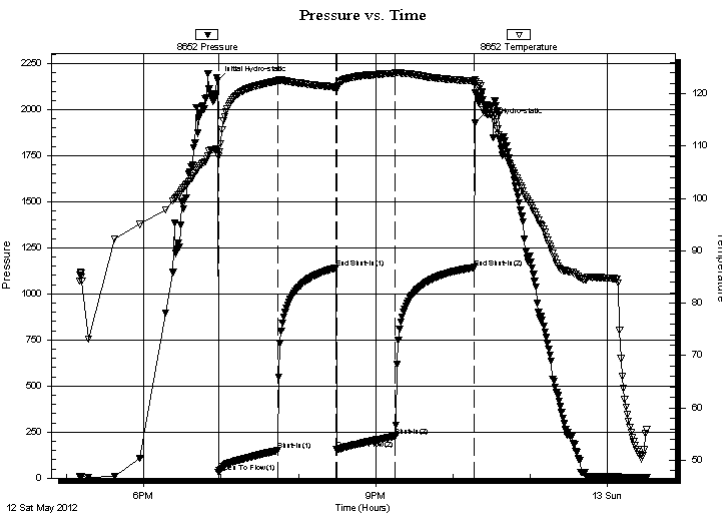
Last Calib.: 2012.05.13

Time On Btm: 2012.05.12 @ 18:57:25

Time Off Btm: 2012.05.12 @ 22:17:24

TEST COMMENT: IF- Surface Blow Built to BOB in 17 1/2 min
 IS- No Blow
 FF- Surface Blow Built to BOB in 35 1/2 min
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2157.73	109.40	Initial Hydro-static
1	31.83	108.04	Open To Flow (1)
47	149.62	122.44	Shut-In(1)
92	1140.07	121.25	End Shut-In(1)
93	154.40	120.91	Open To Flow (2)
138	228.17	123.94	Shut-In(2)
200	1142.82	122.41	End Shut-In(2)
200	1926.85	122.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
123.00	MCW 5%m 95%w	0.60
252.00	MCW 8%m 92%w	3.53
78.00	MCW 33%m 67%w	1.09

* 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45880 **DST#: 4**
Test Start: 2012.05.12 @ 17:10:00

Tool Information

Drill Pipe:	Length: 4128.00 ft	Diameter: 3.80 inches	Volume: 57.90 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: 22000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 12000.00 lb
		Total Volume: 58.50 bbl		Tool Chased ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4252.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	87.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4226.00	
Shut In Tool	5.00			4231.00	
Hydraulic tool	5.00			4236.00	
Jars	5.00			4241.00	
Safety Joint	2.00			4243.00	
Packer	5.00			4248.00	27.00 Bottom Of Top Packer
Packer	4.00			4252.00	
Stubb	1.00			4253.00	
Recorder	0.00	8652	Inside	4253.00	
Recorder	0.00	8322	Outside	4253.00	
Perforations	20.00			4273.00	
Change Over Sub	1.00			4274.00	
Drill Pipe	31.00			4305.00	
Change Over Sub	1.00			4306.00	
Perforations	3.00			4309.00	
Bullnose	3.00			4312.00	60.00 Bottom Packers & Anchor
Total Tool Length:		87.00			



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45880

DST#: 4

ATTN: Steve Murphy

Test Start: 2012.05.12 @ 17:10:00

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:

24000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.30 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2900.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
123.00	MCW 5%m 95%w	0.605
252.00	MCW 8%m 92%w	3.535
78.00	MCW 33%m 67%w	1.094

Total Length: 453.00 ft Total Volume: 5.234 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .346 @ 56f = 24000

Serial #: 8652

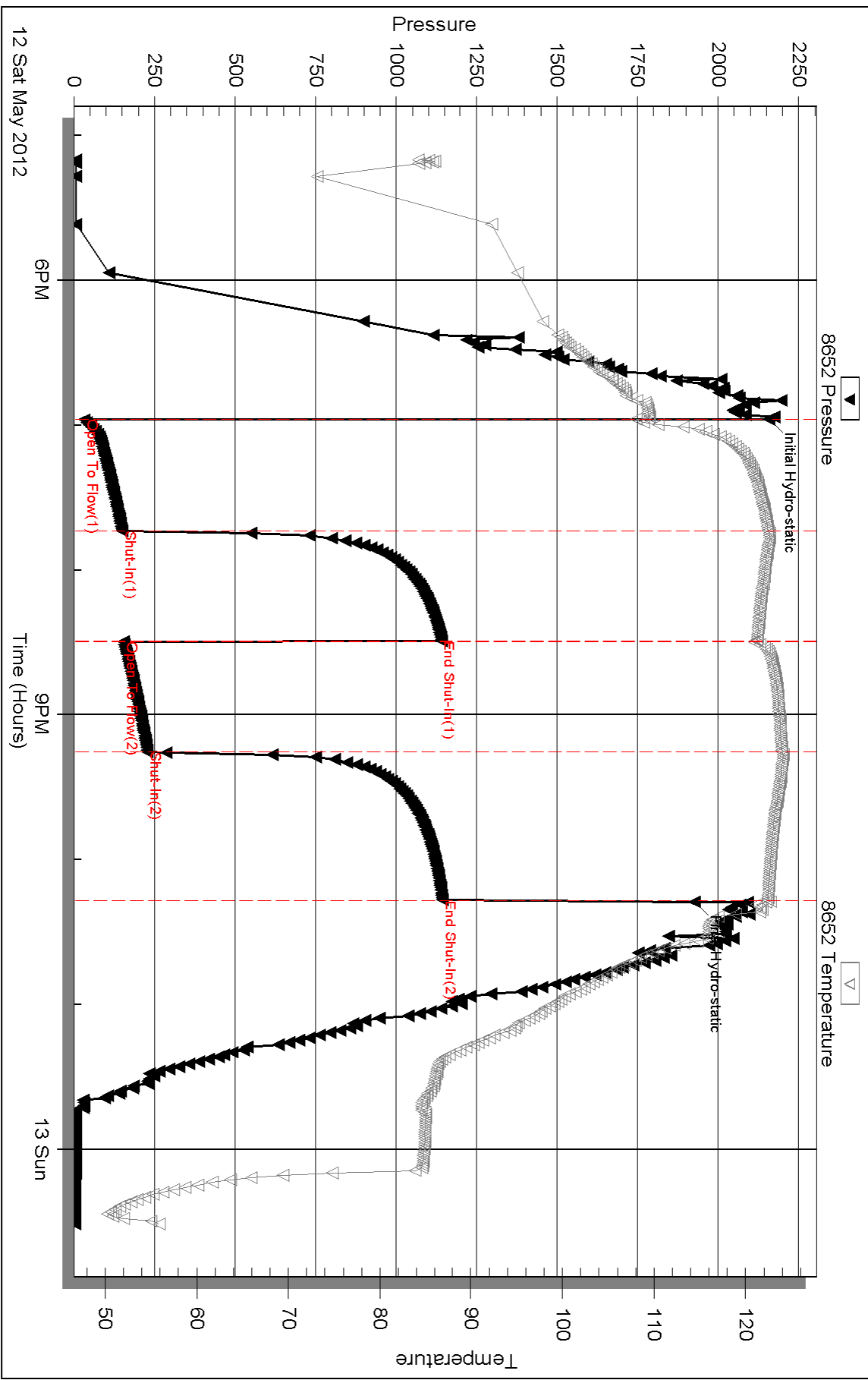
Inside

Pioneer Resources

Knopp #4

DST Test Number: 4

Pressure vs. Time

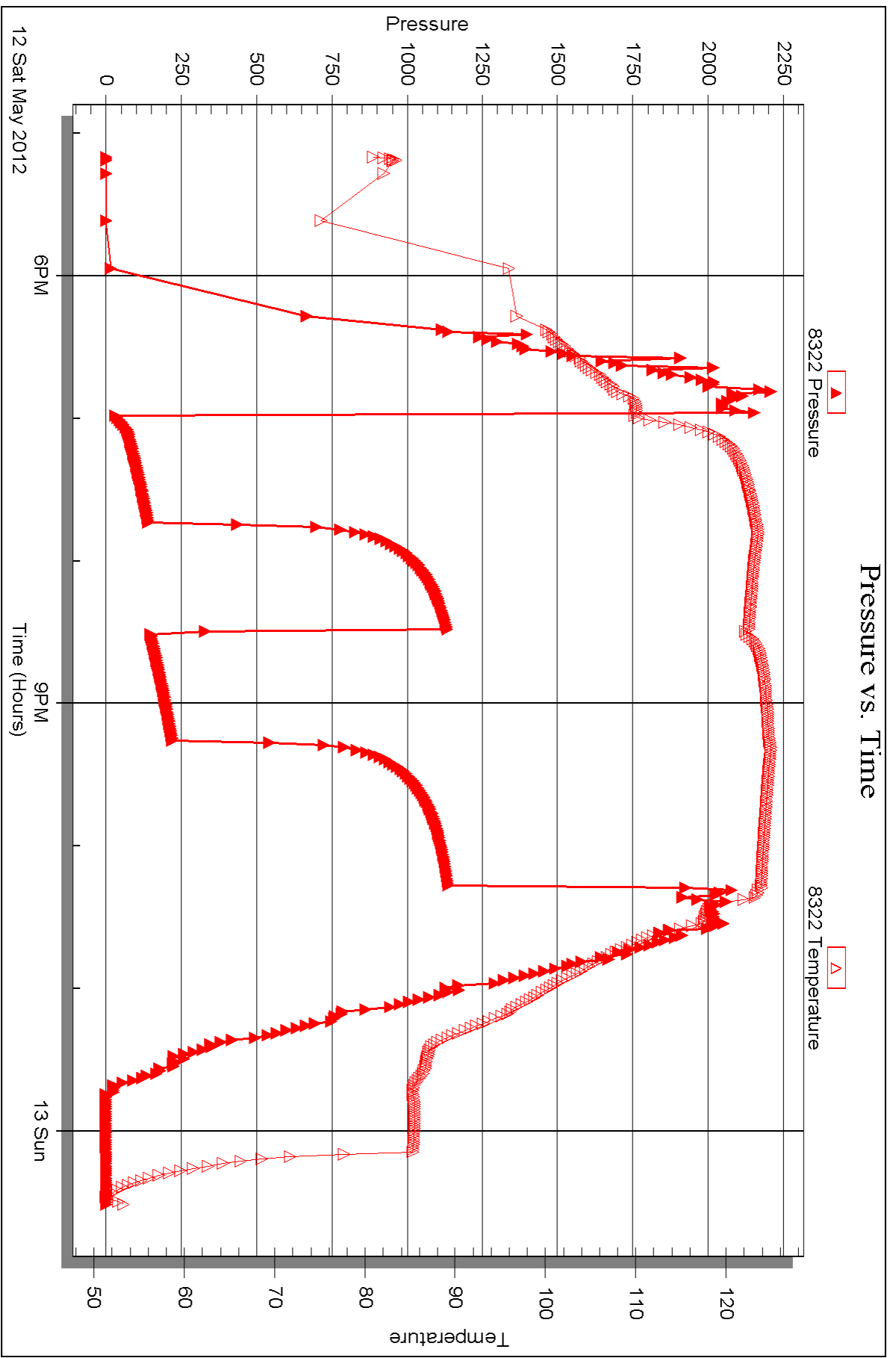


Serial #: 8322

Outside Pioneer Resources

Knopp #4

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.13 @ 08:08:00

End Date: 2012.05.13 @ 13:39:24

Job Ticket #: 45881 DST #: 5

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

Printed: 2012.05.17 @ 15:31:13



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Pioneer Resources
80 Windmill Dr
Phillipsburg KS 67661
ATTN: Steve Murphy

13-14s-32w Logan,KS

Knopp #4

Job Ticket: 45881

DST#: 5

Test Start: 2012.05.13 @ 08:08:00

GENERAL INFORMATION:

Formation: **Myric Station**

Deviated: No Whipstock: 0.00 ft (KB)

Time Tool Opened: 09:51:40

Time Test Ended: 13:39:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 40

Interval: 4320.00 ft (KB) To 4346.00 ft (KB) (TVD)

Total Depth: 4346.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2821.00 ft (KB)

2816.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8652 Inside

Press @ Run Depth: 28.42 psig @ 4323.00 ft (KB)

Start Date: 2012.05.13

End Date: 2012.05.13

Start Time: 08:08:00

End Time: 13:39:24

Capacity: 8000.00 psig

Last Calib.: 2012.05.13

Time On Btm: 2012.05.13 @ 09:51:25

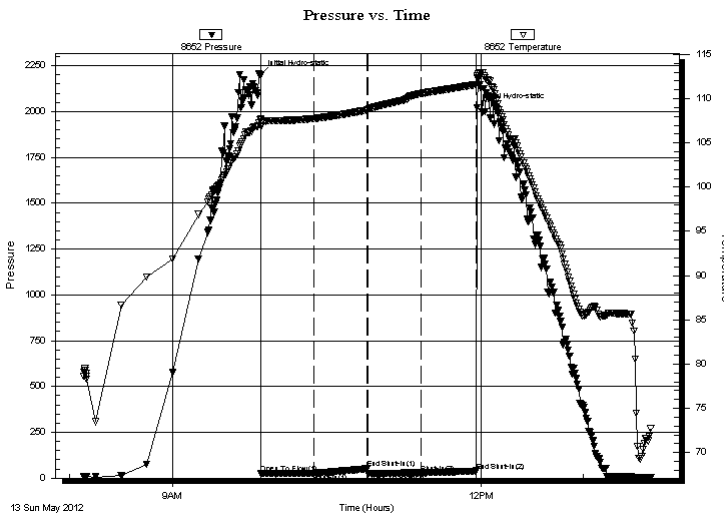
Time Off Btm: 2012.05.13 @ 11:57:40

TEST COMMENT: IF- Weak Surface Blow

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2200.84	107.70	Initial Hydro-static
1	24.09	106.88	Open To Flow (1)
32	27.08	107.76	Shut-In(1)
62	51.29	108.71	End Shut-In(1)
63	26.91	108.78	Open To Flow (2)
94	28.42	110.58	Shut-In(2)
126	39.06	111.61	End Shut-In(2)
127	2021.61	112.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OCM 2%oil 98%m	0.02

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Pioneer Resources
80 Windmill Dr
Phillipsburg KS 67661
ATTN: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45881 **DST#: 5**
Test Start: 2012.05.13 @ 08:08:00

Tool Information

Drill Pipe:	Length: 4191.00 ft	Diameter: 3.80 inches	Volume: 58.79 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:	24000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	6000.00 lb
			<u>Total Volume: 59.39 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial	54000.00 lb
Depth to Top Packer:	4320.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	53.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4294.00	
Shut In Tool	5.00			4299.00	
Hydraulic tool	5.00			4304.00	
Jars	5.00			4309.00	
Safety Joint	2.00			4311.00	
Packer	5.00			4316.00	27.00 Bottom Of Top Packer
Packer	4.00			4320.00	
Stubb	1.00			4321.00	
Perforations	2.00			4323.00	
Recorder	0.00	8652	Inside	4323.00	
Recorder	0.00	8322	Outside	4323.00	
Perforations	20.00			4343.00	
Bullnose	3.00			4346.00	26.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45881

DST#: 5

ATTN: Steve Murphy

Test Start: 2012.05.13 @ 08:08:00

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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.31 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2900.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OCM 2%oil 98%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

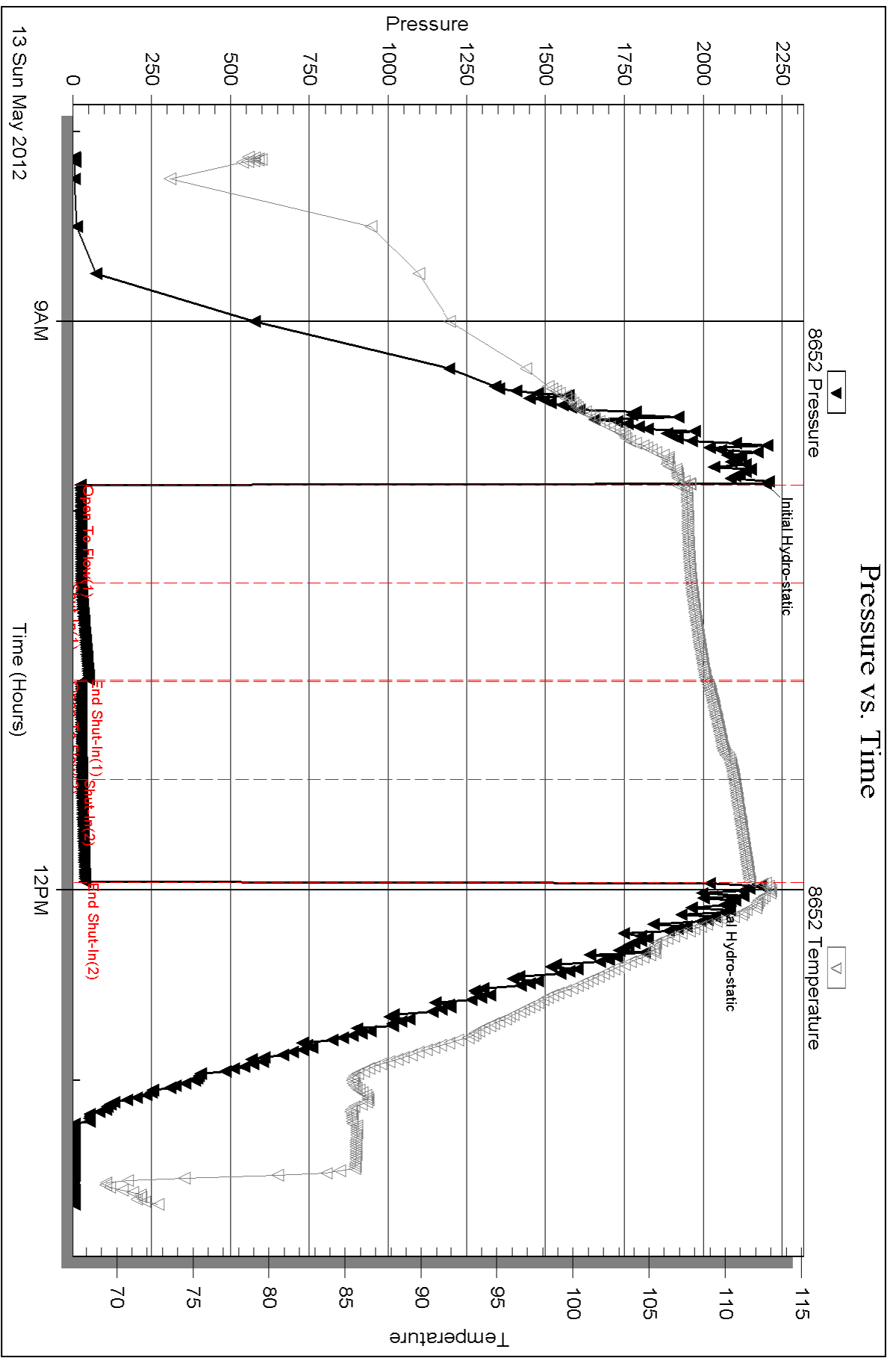
Num Gas Bombs: 0

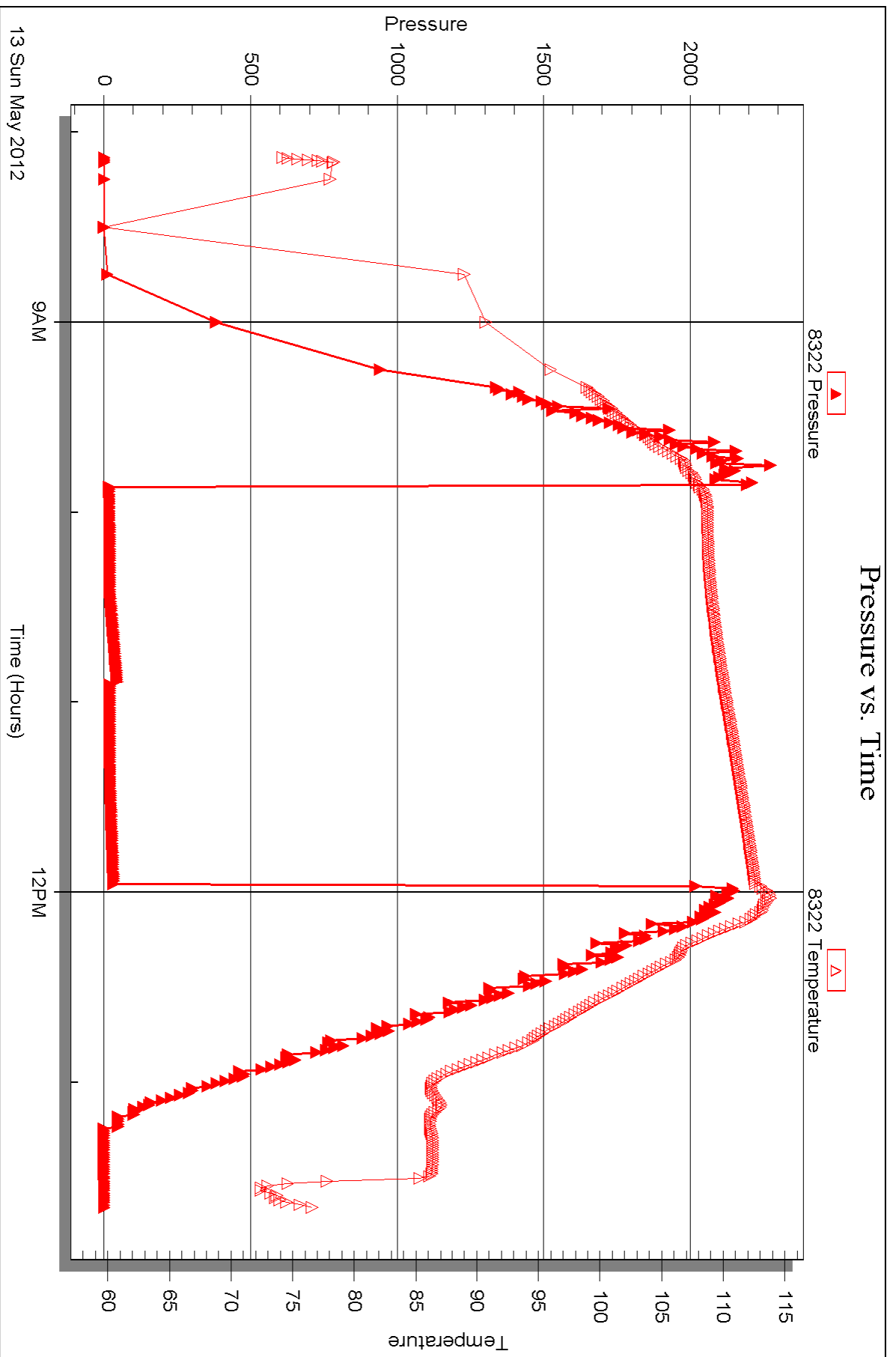
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.13 @ 20:28:00

End Date: 2012.05.14 @ 01:00:54

Job Ticket #: 45882 DST #: 6

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

Printed: 2012.05.17 @ 15:30:24



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Pioneer Resources
80 Windmill Dr
Phillipsburg KS 67661
ATTN: Steve Murphy

13-14s-32w Logan,KS

Knopp #4

Job Ticket: 45882

DST#: 6

Test Start: 2012.05.13 @ 20:28:00

GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: 0.00 ft (KB)

Time Tool Opened: 22:06:25

Time Test Ended: 01:00:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 40

Interval: 4346.00 ft (KB) To 4376.00 ft (KB) (TVD)

Reference Elevations: 2821.00 ft (KB)

Total Depth: 4376.00 ft (KB) (TVD)

2816.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Inside

Press @ Run Depth: 23.60 psig @ 4348.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.13

End Date:

2012.05.14

Last Calib.: 2012.05.14

Start Time: 20:28:00

End Time:

01:00:54

Time On Btm: 2012.05.13 @ 22:06:10

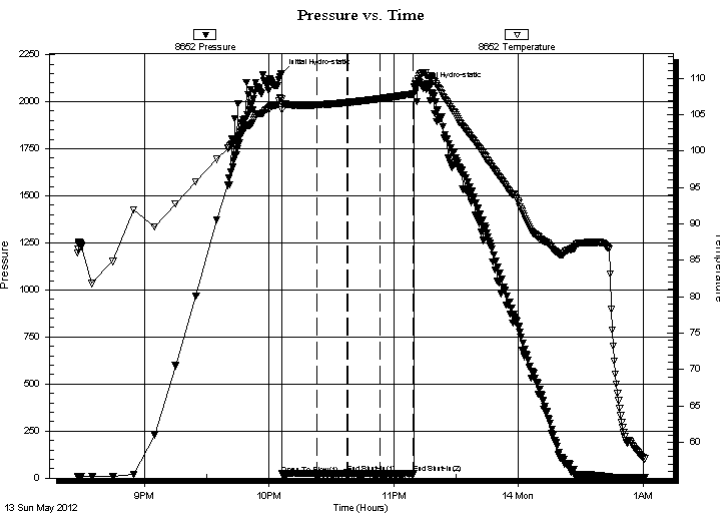
Time Off Btm: 2012.05.13 @ 23:09:55

TEST COMMENT: IF- Weak Surface Blow Died in 4 min Flushed Tool in Second Open

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2150.33	107.11	Initial Hydro-static
1	22.39	105.65	Open To Flow (1)
17	23.60	106.34	Shut-In(1)
32	27.17	106.67	End Shut-In(1)
32	23.97	106.67	Open To Flow (2)
47	23.60	107.19	Shut-In(2)
64	26.10	107.84	End Shut-In(2)
64	2082.34	108.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	100% mud with Few Oil Spots	0.01

* 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45882 **DST#: 6**
Test Start: 2012.05.13 @ 20:28:00

Tool Information

Drill Pipe:	Length: 4222.00 ft	Diameter: 3.80 inches	Volume: 59.22 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: 28000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 16000.00 lb
			<u>Total Volume: 59.82 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4346.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	57.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4320.00	
Shut In Tool	5.00			4325.00	
Hydraulic tool	5.00			4330.00	
Jars	5.00			4335.00	
Safety Joint	2.00			4337.00	
Packer	5.00			4342.00	27.00 Bottom Of Top Packer
Packer	4.00			4346.00	
Stubb	1.00			4347.00	
Perforations	1.00			4348.00	
Recorder	0.00	8652	Inside	4348.00	
Recorder	0.00	8322	Outside	4348.00	
Perforations	25.00			4373.00	
Bullnose	3.00			4376.00	30.00 Bottom Packers & Anchor

Total Tool Length: 57.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45882

DST#: 6

ATTN: Steve Murphy

Test Start: 2012.05.13 @ 20:28:00

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.94 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	100% mud with Few Oil Spots	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

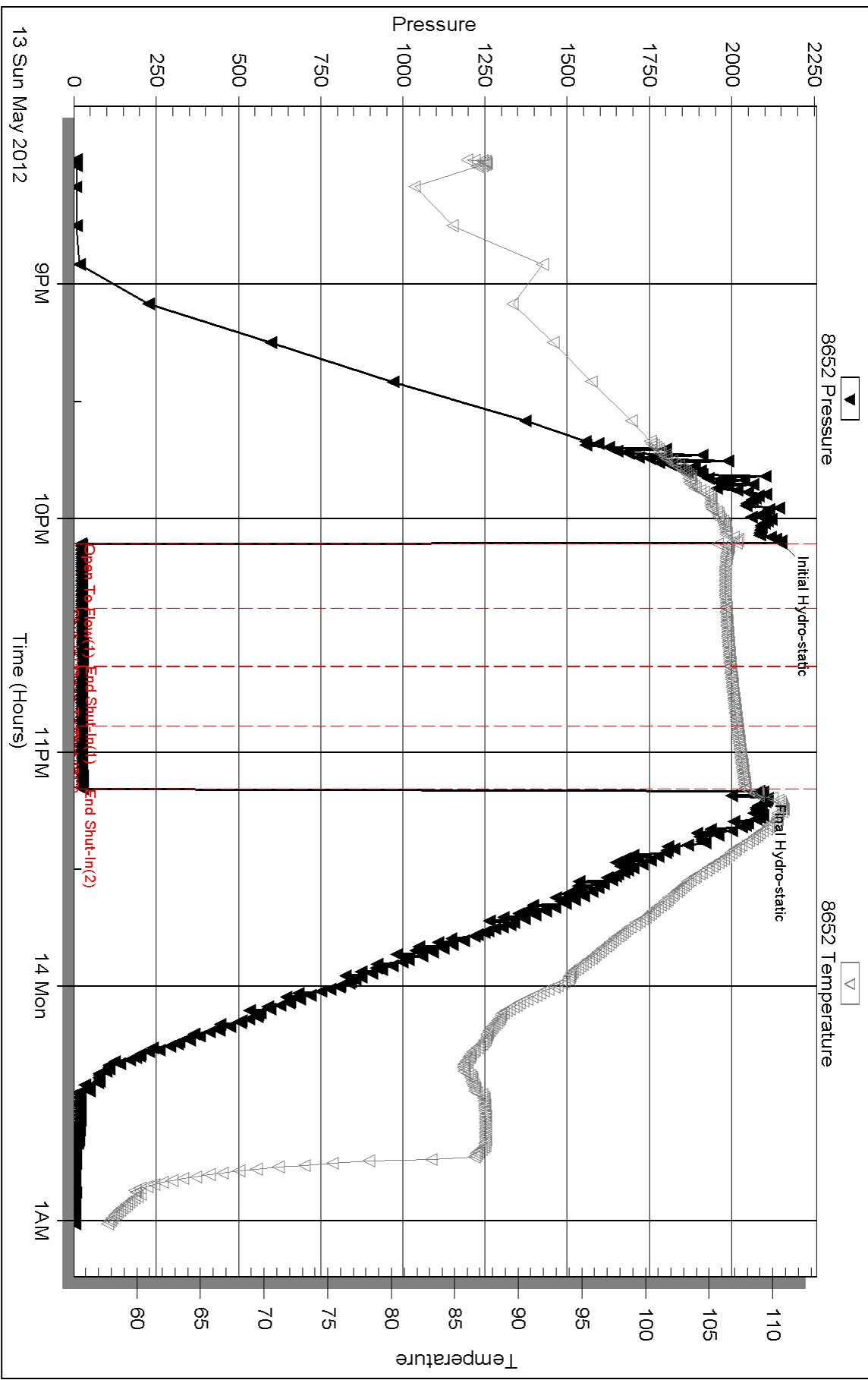
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

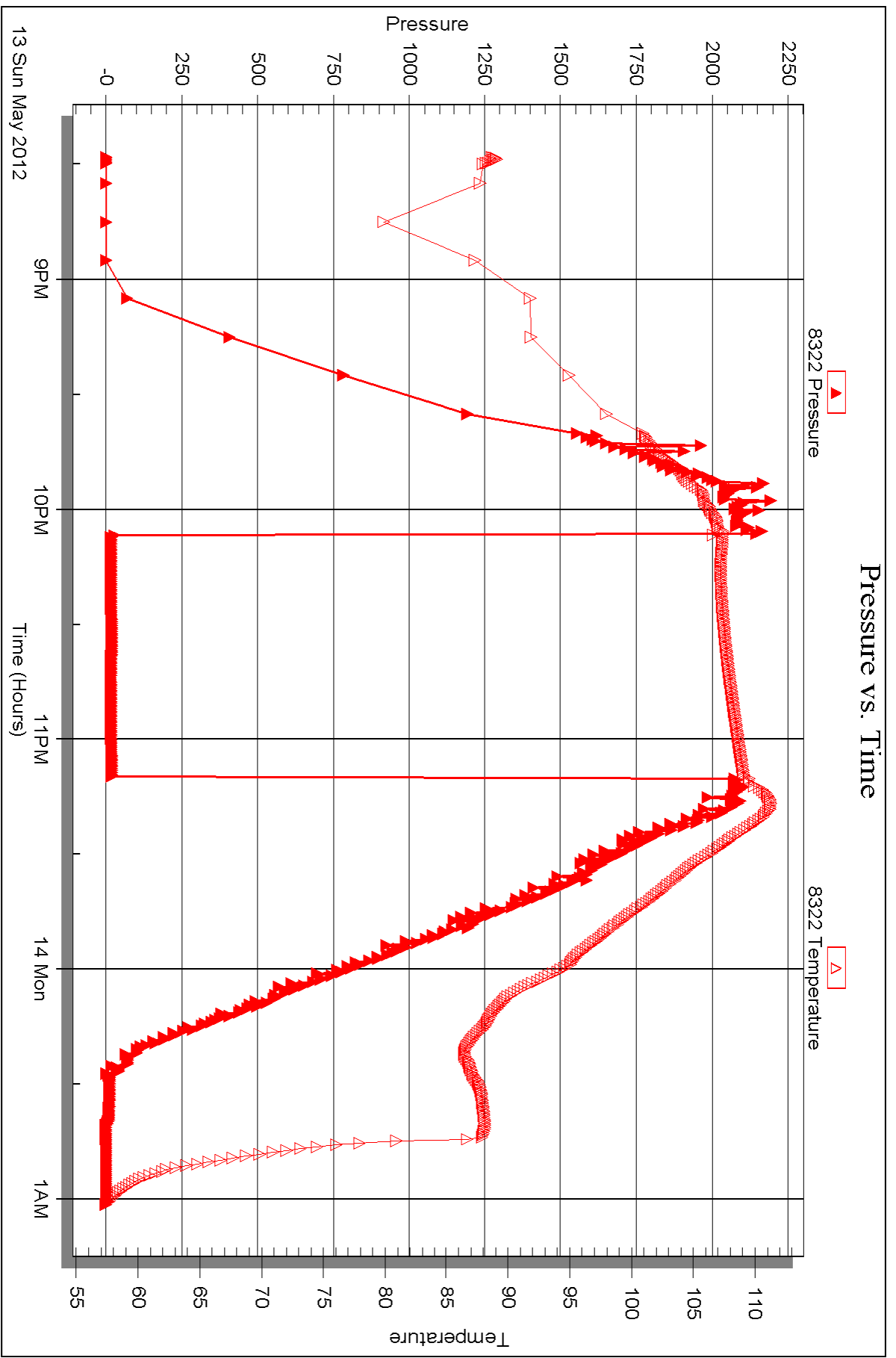


Serial #: 8322

Outside Pioneer Resources

Knopp #4

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.14 @ 07:56:00

End Date: 2012.05.14 @ 13:31:39

Job Ticket #: 45883 DST #: 7

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

Printed: 2012.05.17 @ 15:25:25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45883

DST#: 7

ATTN: Steve Murphy

Test Start: 2012.05.14 @ 07:56:00

GENERAL INFORMATION:

Formation: **Cherokee Lime**

Deviated: No Whipstock: 0.00 ft (KB)

Time Tool Opened: 09:47:25

Time Test Ended: 13:31:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 40

Interval: 4382.00 ft (KB) To 4406.00 ft (KB) (TVD)

Total Depth: 4406.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2821.00 ft (KB)

2816.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8652 Inside

Press @ Run Depth: 40.38 psig @ 4383.00 ft (KB)

Start Date: 2012.05.14

End Date:

2012.05.14

Start Time: 07:56:00

End Time:

13:31:39

Capacity: 8000.00 psig

Last Calib.: 2012.05.14

Time On Btm: 2012.05.14 @ 09:47:10

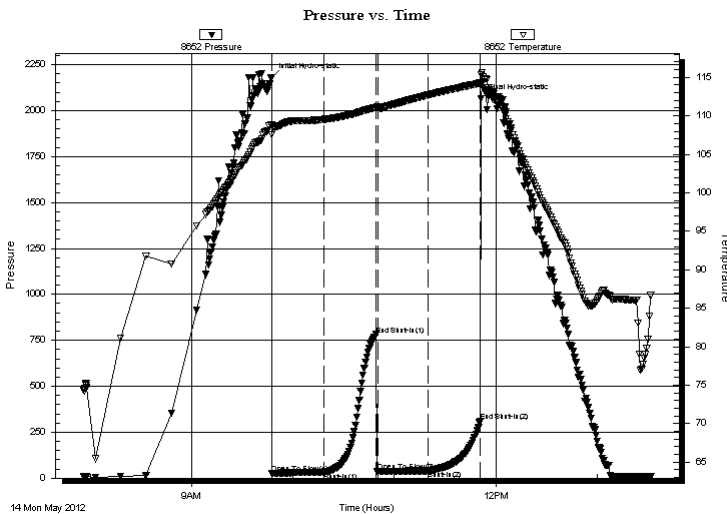
Time Off Btm: 2012.05.14 @ 11:51:10

TEST COMMENT: IF- Weak Surface Blow Built to 3/4

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2177.96	108.89	Initial Hydro-static
1	26.02	107.57	Open To Flow (1)
31	32.84	109.53	Shut-In(1)
62	780.76	111.07	End Shut-In(1)
63	36.22	111.02	Open To Flow (2)
93	40.38	112.70	Shut-In(2)
124	308.86	114.26	End Shut-In(2)
124	2065.15	115.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
8.00	100% m with Oil Spots	0.04

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45883

DST#: 7

ATTN: Steve Murphy

Test Start: 2012.05.14 @ 07:56:00

Tool Information

Drill Pipe:	Length: 4254.00 ft	Diameter: 3.80 inches	Volume: 59.67 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: 24000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 12000.00 lb
			<u>Total Volume: 60.27 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4382.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4356.00	
Shut In Tool	5.00			4361.00	
Hydraulic tool	5.00			4366.00	
Jars	5.00			4371.00	
Safety Joint	2.00			4373.00	
Packer	5.00			4378.00	27.00 Bottom Of Top Packer
Packer	4.00			4382.00	
Stubb	1.00			4383.00	
Recorder	0.00	8652	Inside	4383.00	
Recorder	0.00	8322	Outside	4383.00	
Perforations	20.00			4403.00	
Bullnose	3.00			4406.00	24.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45883

DST#: 7

ATTN: Steve Murphy

Test Start: 2012.05.14 @ 07:56:00

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.93 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
8.00	100% m with Oil Spots	0.039

Total Length: 8.00 ft Total Volume: 0.039 bbl

Num Fluid Samples: 0

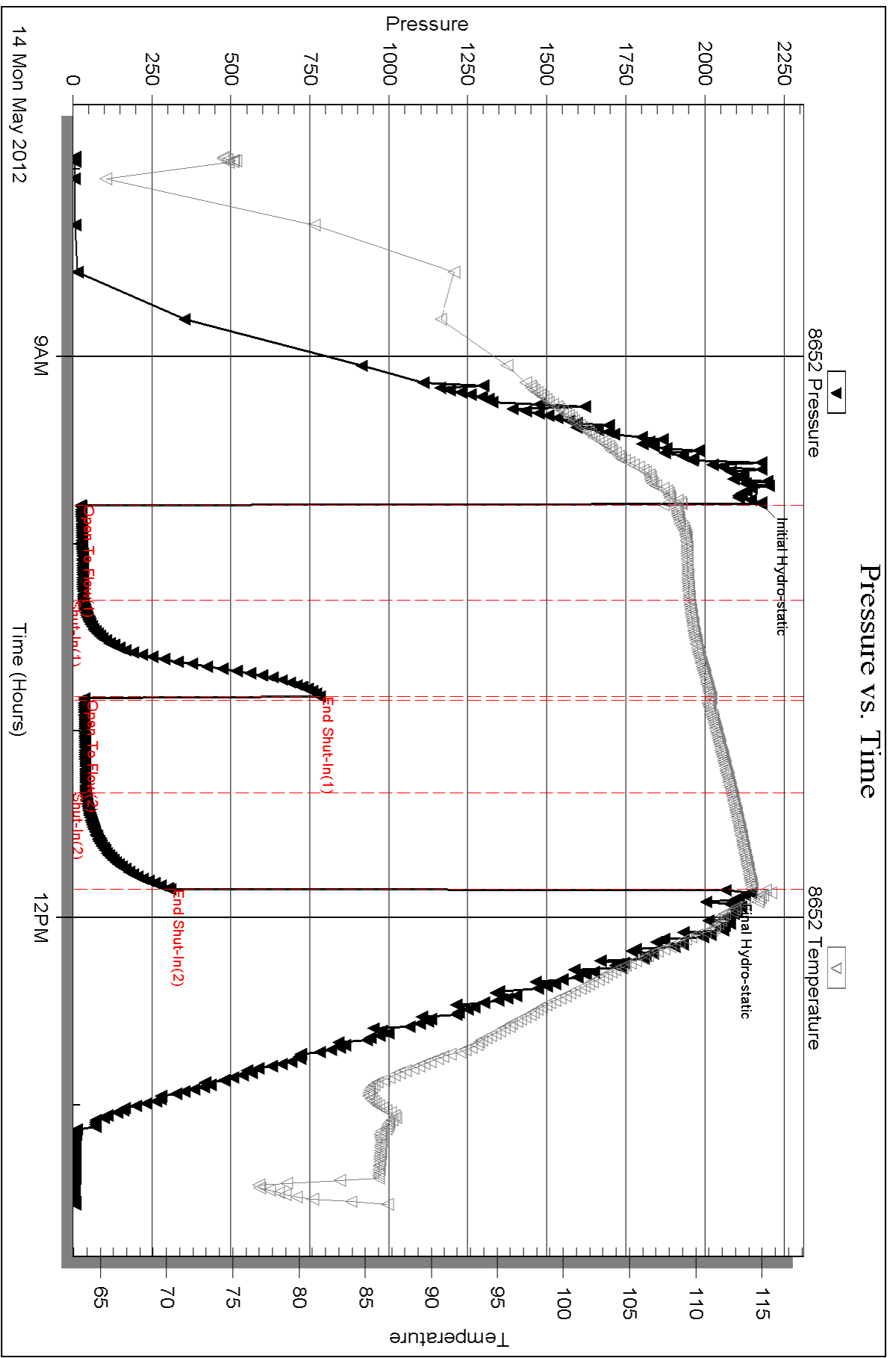
Num Gas Bombs: 0

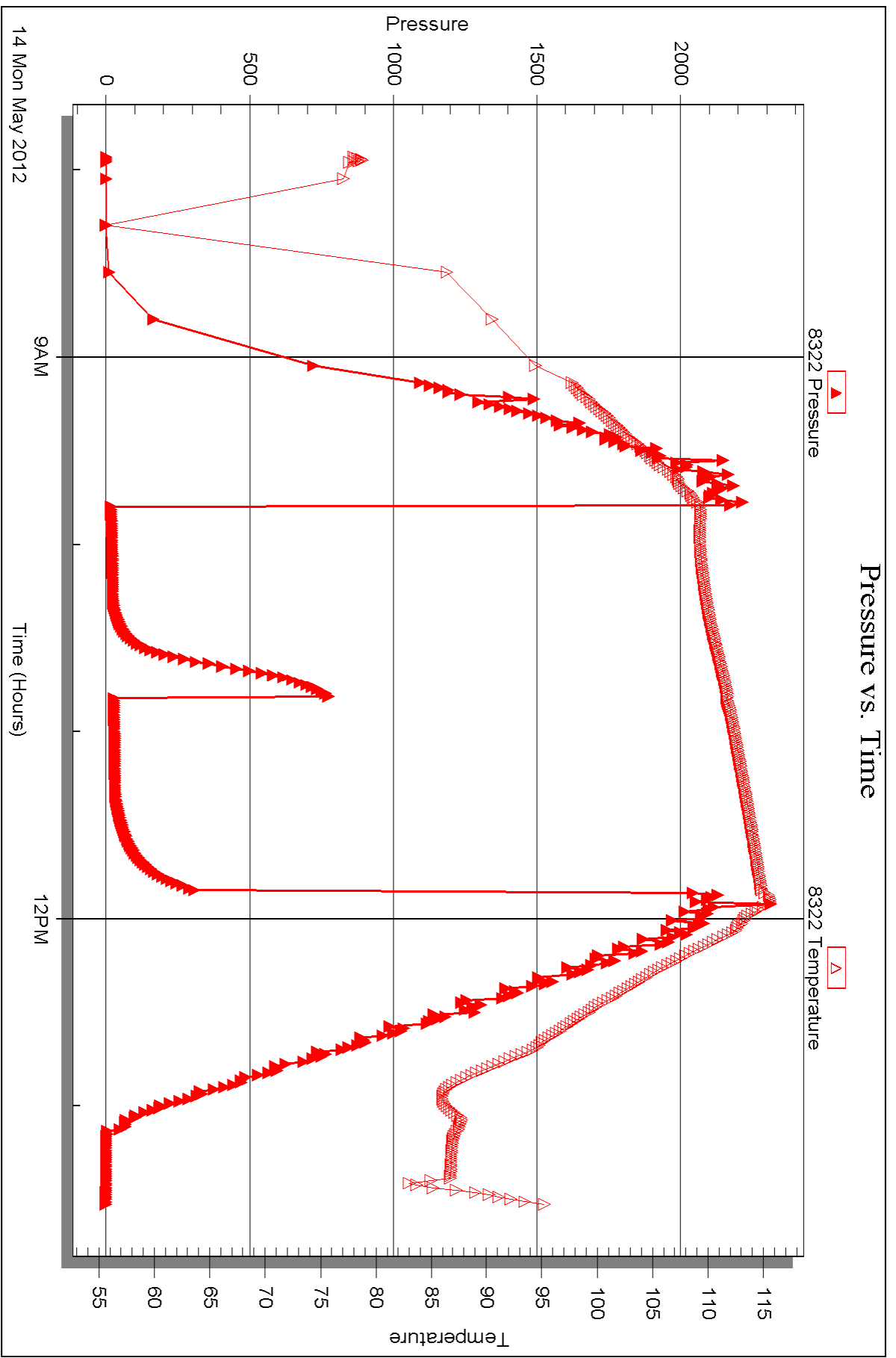
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.14 @ 20:34:05

End Date: 2012.05.15 @ 03:15:44

Job Ticket #: 45884 DST #: 8

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

Printed: 2012.05.17 @ 15:17:35



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Pioneer Resources
 80 Windmill Dr
 Phillipsburg KS 67661
 ATTN: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
 Job Ticket: 45884 **DST#: 8**
 Test Start: 2012.05.14 @ 20:34:05

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: 0.00 ft (KB)
 Time Tool Opened: 22:23:30
 Time Test Ended: 03:15:44
 Interval: **4402.00 ft (KB) To 4440.00 ft (KB) (TVD)**
 Total Depth: 4440.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 40
 Reference Elevations: 2821.00 ft (KB)
 2816.00 ft (CF)
 KB to GR/CF: 5.00 ft

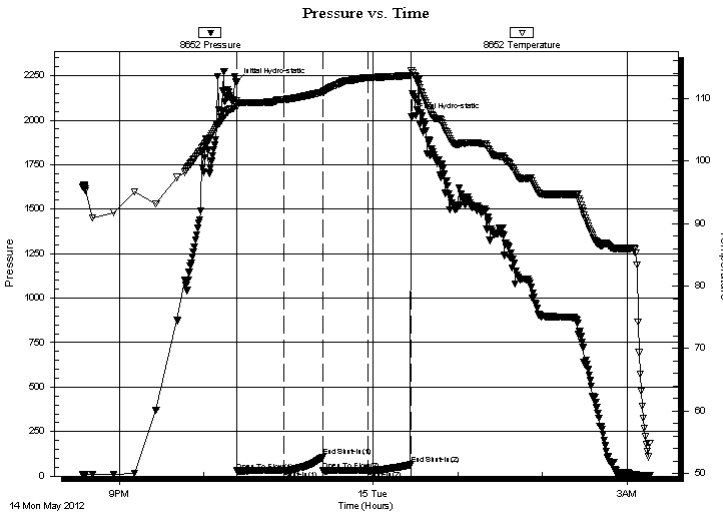
Serial #: 8652

Inside

Press @ Run Depth: 32.62 psig @ 4405.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.05.14 End Date: 2012.05.15 Last Calib.: 2012.05.15
 Start Time: 20:34:05 End Time: 03:15:44 Time On Btm: 2012.05.14 @ 22:23:15
 Time Off Btm: 2012.05.15 @ 00:27:00

TEST COMMENT: IF- Weak Surface Blow Died in 24 min
 IS- No Blow
 FF- No Blow
 FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2213.72	109.62	Initial Hydro-static
1	28.97	108.77	Open To Flow (1)
33	31.31	109.83	Shut-In(1)
61	108.68	110.97	End Shut-In(1)
62	30.34	110.93	Open To Flow (2)
93	32.62	113.34	Shut-In(2)
124	64.06	113.74	End Shut-In(2)
124	2016.37	114.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%	0.02

* 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 45884 **DST#: 8**
Test Start: 2012.05.14 @ 20:34:05

Tool Information

Drill Pipe:	Length: 4255.00 ft	Diameter: 3.80 inches	Volume: 59.69 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: 24000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: 60.29 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4402.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	38.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4376.00	
Shut In Tool	5.00			4381.00	
Hydraulic tool	5.00			4386.00	
Jars	5.00			4391.00	
Safety Joint	2.00			4393.00	
Packer	5.00			4398.00	27.00 Bottom Of Top Packer
Packer	4.00			4402.00	
Stubb	1.00			4403.00	
Perforations	2.00			4405.00	
Recorder	0.00	8652	Inside	4405.00	
Recorder	0.00	8322	Outside	4405.00	
Perforations	32.00			4437.00	
Bullnose	3.00			4440.00	38.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 45884

DST#: 8

ATTN: Steve Murphy

Test Start: 2012.05.14 @ 20:34:05

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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%	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:

Serial #: 8652

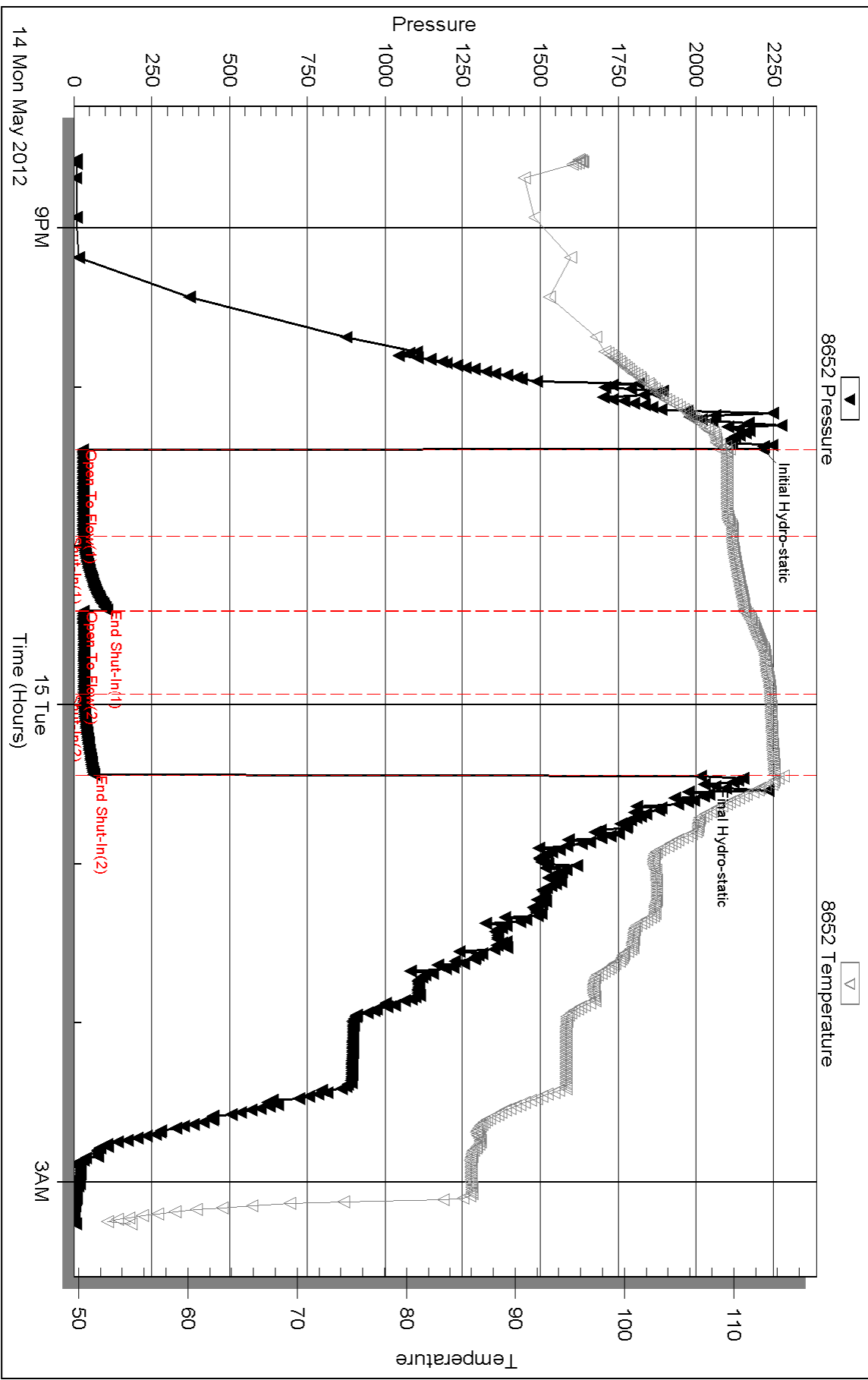
Inside

Pioneer Resources

Knopp #4

DST Test Number: 8

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 45884

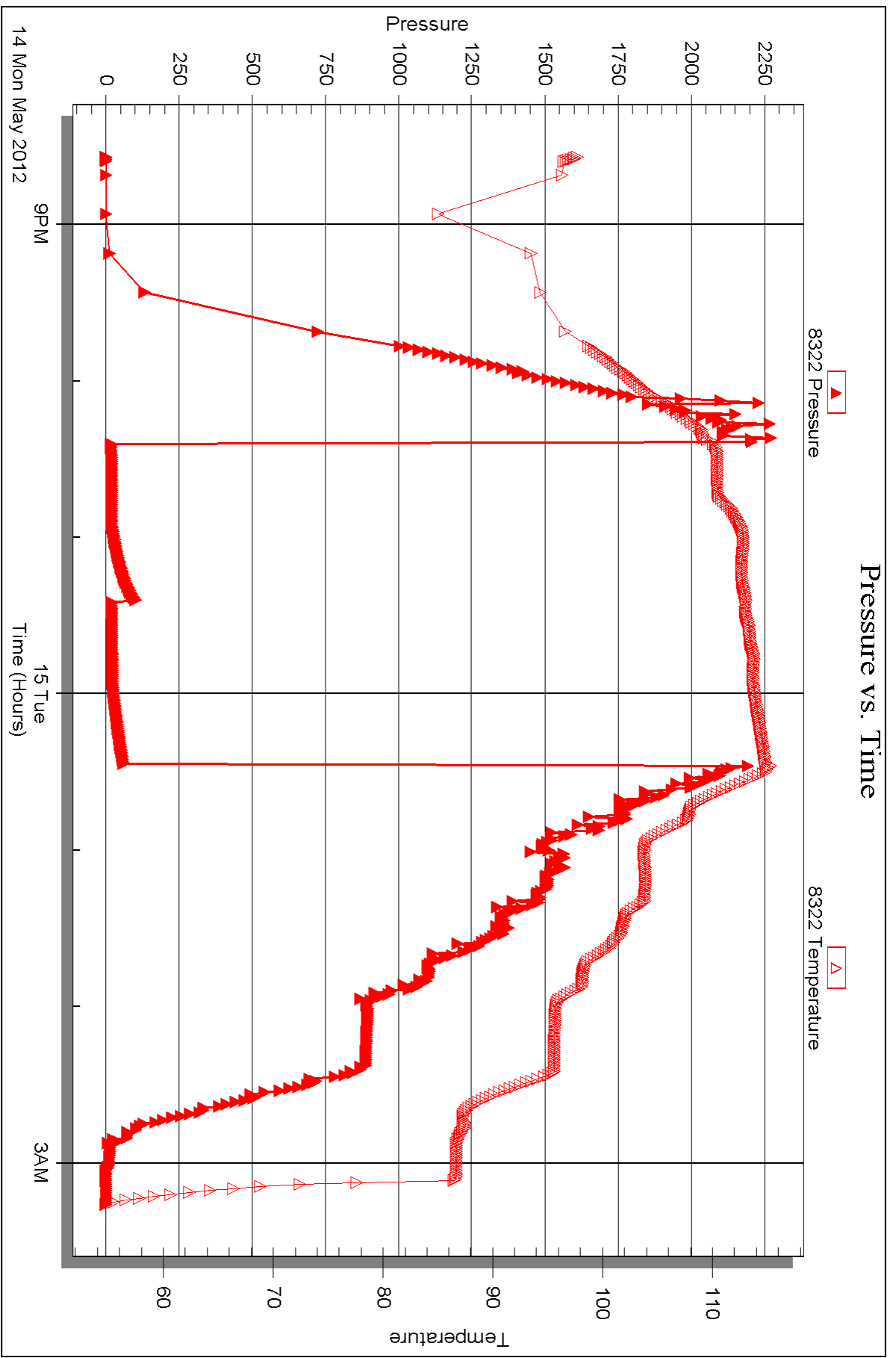
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Serial #: 8322

Outside Pioneer Resources

Knopp #4

DST Test Number: 8





DRILL STEM TEST REPORT

Prepared For: **Pioneer Resources**

80 Windmill Dr
Phillipsburg KS 67661

ATTN: Steve Murphy

Knopp #4

13-14s-32w Logan,KS

Start Date: 2012.05.15 @ 12:40:02

End Date: 2012.05.15 @ 20:40:30

Job Ticket #: 46588 DST #: 9

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

Printed: 2012.05.17 @ 15:16:20

Pioneer Resources
13-14s-32w Logan,KS
Knopp #4
DST # 9
morrow sst
2012.05.15



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Pioneer Resources
80 Windmill Dr
Phillipsburg KS 67661
ATTN: Steve Murphy

13-14s-32w Logan,KS

Knopp #4

Job Ticket: 46588

DST#: 9

Test Start: 2012.05.15 @ 12:40:02

GENERAL INFORMATION:

Formation: **morrow sst**

Deviated: No Whipstock: 0.00 ft (KB)

Time Tool Opened: 14:38:40

Time Test Ended: 20:40:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cole Archibald

Unit No: 40

Interval: 4442.00 ft (KB) To 4500.00 ft (KB) (TVD)

Reference Elevations: 2821.00 ft (KB)

Total Depth: 4500.00 ft (KB) (TVD)

2816.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6751

Inside

Press @ Run Depth: 392.81 psig @ 4443.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.15

End Date:

2012.05.15

Last Calib.:

2012.05.15

Start Time: 12:40:00

End Time:

20:40:28

Time On Btm:

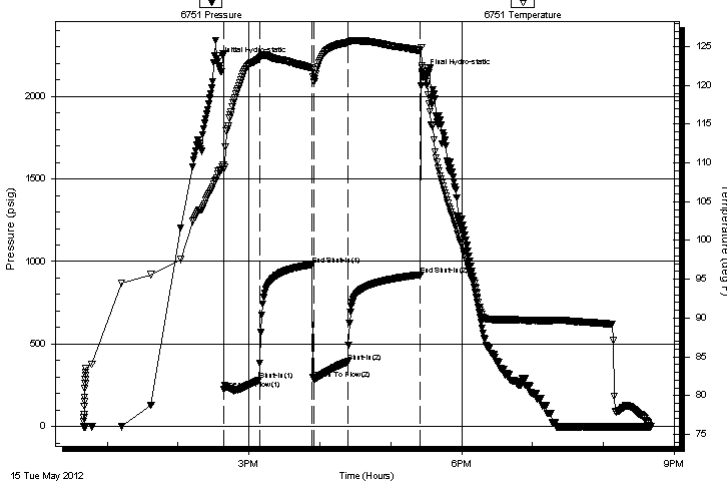
2012.05.15 @ 14:33:18

Time Off Btm:

2012.05.15 @ 17:26:48

TEST COMMENT: IF- BOB 4 min
IS- BOB 7 min
FF- BOB 4 min
FS- BOB 5 min

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2209.22	108.63	Initial Hydro-static
6	223.28	109.28	Open To Flow (1)
36	282.70	123.42	Shut-In(1)
81	981.23	122.23	End Shut-In(1)
82	286.93	120.52	Open To Flow (2)
111	392.81	125.51	Shut-In(2)
172	917.90	124.52	End Shut-In(2)
174	2136.00	122.31	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
252.00	MGO 10 m 30 g 60 o	2.41
189.00	GO 30 G 70 o	2.65
252.00	mco 90 o 10 m	3.53
189.00	mog 10 m 40 o 50 g	2.65
262.00	o 100 o	3.68
0.00	2669 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: Steve Murphy

13-14s-32w Logan,KS
Knopp #4
Job Ticket: 46588 **DST#: 9**
Test Start: 2012.05.15 @ 12:40:02

Tool Information

Drill Pipe:	Length: 4317.00 ft	Diameter: 3.80 inches	Volume: 60.56 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	67000.00 lb
			<u>Total Volume: 61.16 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4442.00 ft			Final	65000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	58.00 ft				
Tool Length:	85.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4416.00	
Shut In Tool	5.00			4421.00	
Hydraulic tool	5.00			4426.00	
Jars	5.00			4431.00	
Safety Joint	2.00			4433.00	
Packer	5.00			4438.00	27.00 Bottom Of Top Packer
Packer	4.00			4442.00	
Stubb	1.00			4443.00	
Recorder	0.00	6751	Inside	4443.00	
Recorder	0.00	8018	Outside	4443.00	
Perforations	20.00			4463.00	
Change Over Sub	1.00			4464.00	
Drill Pipe	32.00			4496.00	
Change Over Sub	1.00			4497.00	
Bullnose	3.00			4500.00	58.00 Bottom Packers & Anchor

Total Tool Length: 85.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Pioneer Resources

13-14s-32w Logan,KS

80 Windmill Dr
Phillipsburg KS 67661

Knopp #4

Job Ticket: 46588

DST#: 9

ATTN: Steve Murphy

Test Start: 2012.05.15 @ 12:40:02

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 66.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
252.00	MGO 10 m 30 g 60 o	2.414
189.00	GO 30 G 70 o	2.651
252.00	mco 90 o 10 m	3.535
189.00	mog 10 m 40 o 50 g	2.651
262.00	o 100 o	3.675
0.00	2669 gip	0.000

Total Length: 1144.00 ft

Total Volume: 14.926 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

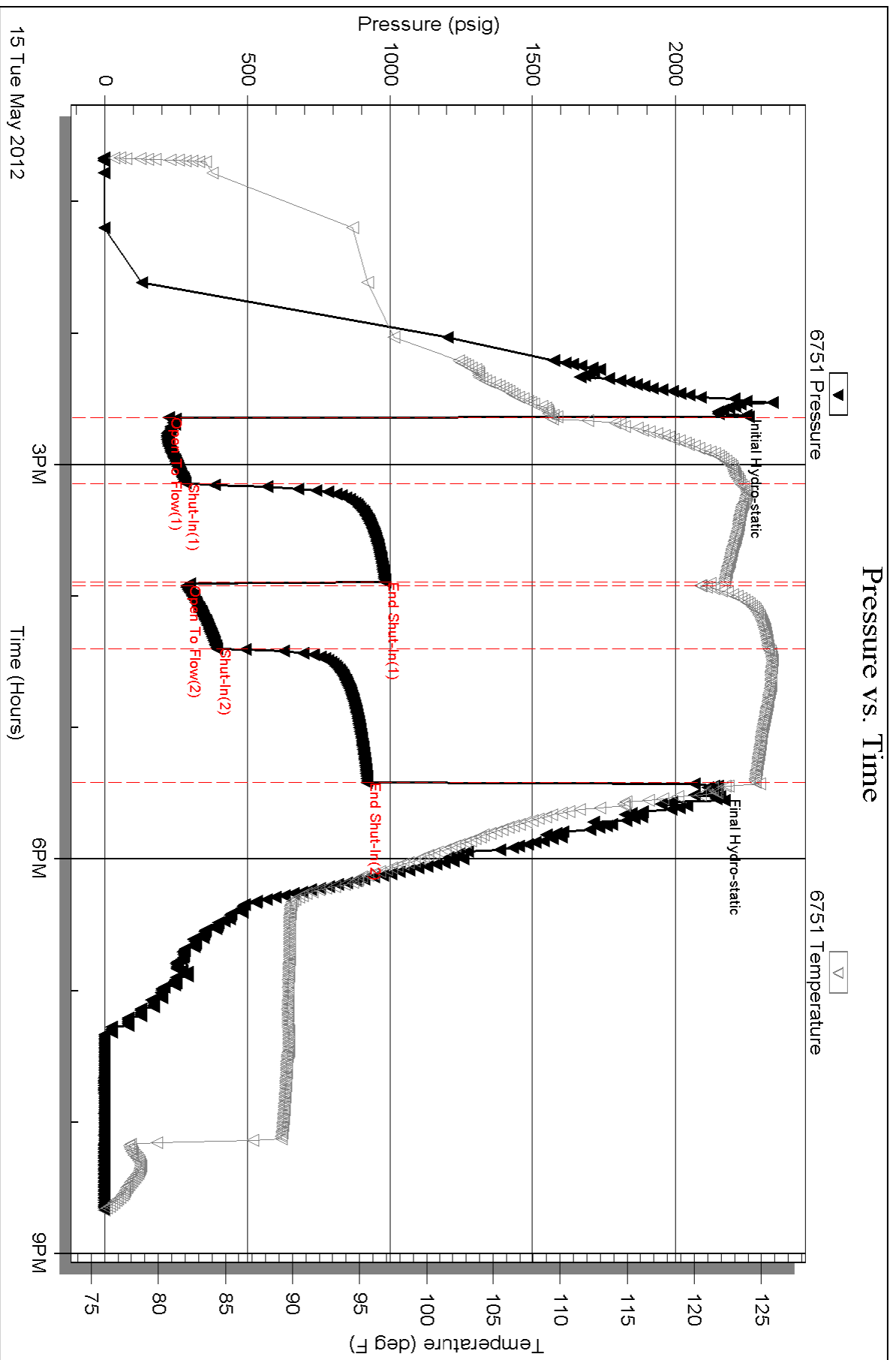
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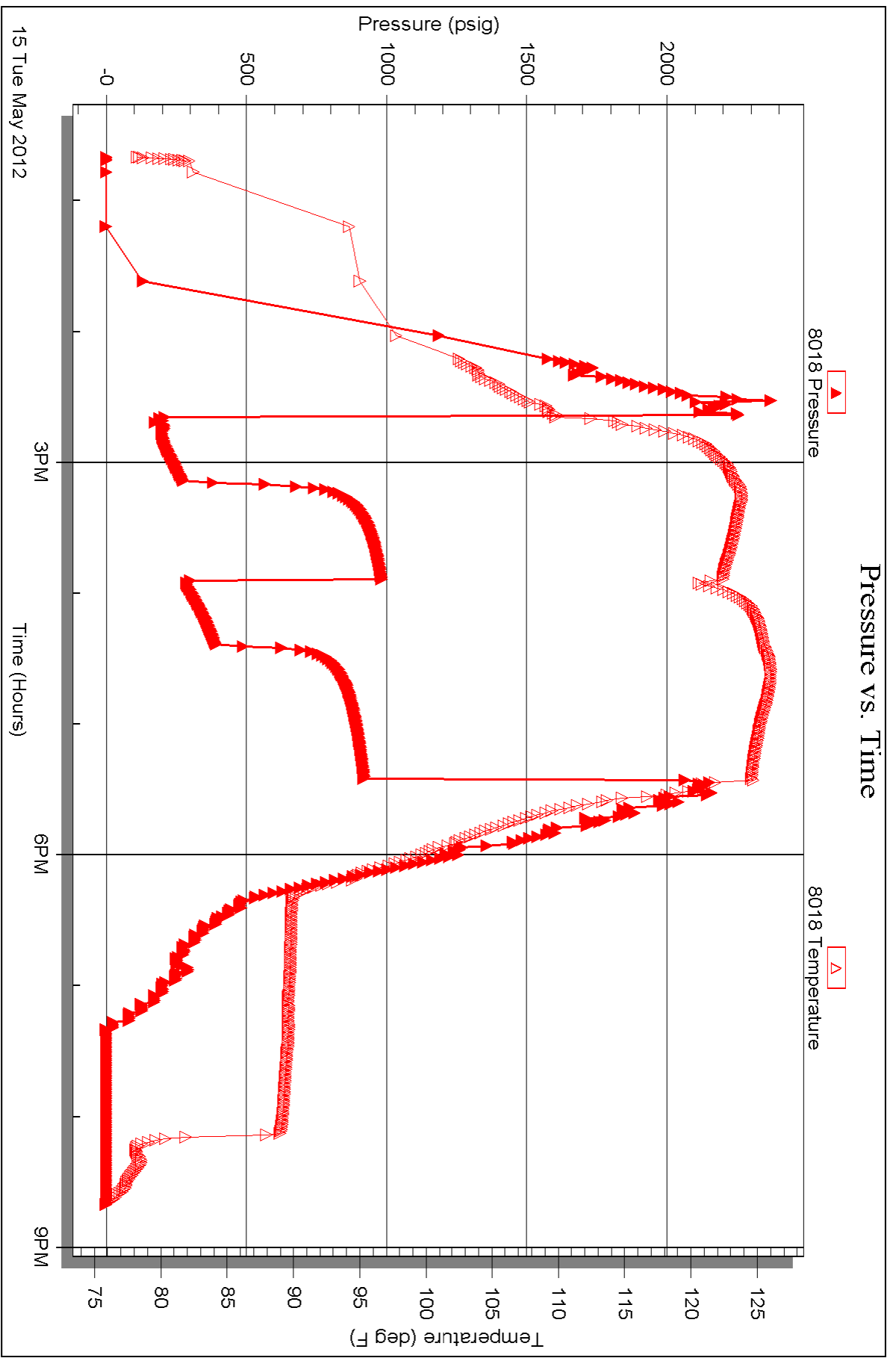
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45877

Well Name & No. Knapp #4 Test No. DST #1 Date 5-10-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67061
 Co. Rep / Geo. Steve Murphy Rig WW Rig #2
 Location: Sec. 13 Twp. 14s Rge. 32W Co. Logan State KS

Interval Tested 3908-3940 Zone Tested LKC "E4F"
 Anchor Length 32 Drill Pipe Run 3783 Mud Wt. 9.1
 Top Packer Depth 3904 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 3908 Wt. Pipe Run 0 WL 8.4
 Total Depth 3940 Chlorides 3300 ppm System LCM 216
 Blow Description IF - Weak Surface Blow Built to 2 1/4"
ISI - No Blow
FF - Weak Surface Blow Built to 1 1/4"
FBI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>G-MCO</u>	<u>3</u>	<u>85</u>	<u>12</u>	<u>0</u>
<u>15</u>	<u>WCM</u>			<u>2</u>	<u>98</u>
<u>61</u>	<u>GWCM</u>	<u>2</u>		<u>18</u>	<u>80</u>
<u>61</u>	<u>G-OWCM</u>	<u>4</u>	<u>4</u>	<u>18</u>	<u>74</u>
	<u>53' of GJP</u>				
Rec Total	<u>147</u>				

BHT 141 Gravity 35 API RW 142 @ 93 °F Chlorides 36000 ppm

(A) Initial Hydrostatic 1942 Test 1150 T-On Location 7:42
 (B) First Initial Flow 25 Jars 250 T-Started 9:22
 (C) First Final Flow 76 Safety Joint 75 T-Open 11:22
 (D) Initial Shut-In 1131 Circ Sub N/C T-Pulled 13:47
 (E) Second Initial Flow 80 Hourly Standby T-Out 15:39
 (F) Second Final Flow 97 Mileage 58 R/T 89.90 Comments API is 38@90t=35
 (G) Final Shut-In 1123 Sampler
 (H) Final Hydrostatic 1805 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Extra Recorder Sub Total 0
 Day Standby Total 1564.9
 Accessibility MP/DST Disc't
 Sub Total 1564.90

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 45

Approved By Steve Murphy Our Representative Tim

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45878

Well Name & No. Knopp #4 Test No. DST #2 Date 5-11-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW R's #2
 Location: Sec. 13 Twp. 14s Rge. 32W Co. Logan State KS

Interval Tested 4020 - 4052 Zone Tested LKC "I"
 Anchor Length 32 Drill Pipe Run 3879 Mud Wt. 9.1
 Top Packer Depth 4016 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 4020 Wt. Pipe Run 0 WL 8.4
 Total Depth 4052 Chlorides 3300 ppm System LCM 216
 Blow Description IF - 1/4" Blow Dred back to wear surface Blow
ISI - No Blow
FF - No Blow
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>OCM</u>		<u>1</u>		<u>99</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 5 BHT 107 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2010 Test 1250 T-On Location 1:46 AM
 (B) First Initial Flow 21 Jars 250 T-Started 4:34 AM
 (C) First Final Flow 25 Safety Joint 75 T-Open 6:21
 (D) Initial Shut-In 38 Circ Sub NIC T-Pulled 8:25
 (E) Second Initial Flow 25 Hourly Standby 2Hr T-Out 10:02
 (F) Second Final Flow 25 Mileage 58 RIT 89.90 Comments Had to shut up
 (G) Final Shut-In 31 Sampler _____
 (H) Final Hydrostatic 1868 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1664.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1664.90

Approved By Steve Murphy Our Representative Kim Mc

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45879

Well Name & No. Knopp #4 Test No. DST #3 Date 5-11-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW R15 #2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4084-4110 Zone Tested LKC "K"
 Anchor Length 26 Drill Pipe Run 3944 Mud Wt. 9.2
 Top Packer Depth 4080 Drill Collars Run 123 Vis 48
 Bottom Packer Depth 4084 Wt. Pipe Run 0 WL 7.2
 Total Depth 4110 Chlorides 2700 ppm System LCM 116

Blow Description IF - Weak Surface Blow Built to 1"
ISL - No Blow
FF - Weak Surface Blow
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Oil</u>		<u>100%</u>		
<u>61</u>	<u>OGCM</u>	<u>3%</u>	<u>2%</u>	<u>95%</u>	
<u>61</u>	<u>WGM (skin of oil on top)</u>	<u>3%</u>		<u>1%</u>	<u>96%</u>
	<u>63' of GIP</u>				

Rec Total 123 BHT 107 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2031 Test 1250 T-On Location 18:42
 (B) First Initial Flow 24 Jars 250 T-Started 19:04
 (C) First Final Flow 52 Safety Joint 75 T-Open 20:40
 (D) Initial Shut-In 1132 Circ Sub T-Pulled 22:43
 (E) Second Initial Flow 56 Hourly Standby T-Out 00:36
 (F) Second Final Flow 79 Mileage 58 R/T 89.90 Comments _____
 (G) Final Shut-In 1109 Sampler _____
 (H) Final Hydrostatic 1855 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1664.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1664.90

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45880

Well Name & No. Knopp #4 Test No. DST #4 Date 5-12-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW Rig #2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4252 - 4312 Zone Tested Altamont \ Pawnee
 Anchor Length 60 Drill Pipe Run 4128 Mud Wt. 9.1
 Top Packer Depth 4248 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 4252 Wt. Pipe Run 0 WL 8.4
 Total Depth 4312 Chlorides 2900 ppm System LCM 116
 Blow Description IF - Surface Blow Built to BOB in 17 1/2 min
IS1 - No Blow
FF - Surface Blow Built to BOB in 35 1/2 min
FS1 - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>78</u>	<u>MCW</u>		<u>67</u>	<u>33</u>	
<u>252</u>	<u>MCW</u>		<u>92</u>	<u>8</u>	
<u>123</u>	<u>MCW</u>		<u>95</u>	<u>5</u>	

Rec Total 453 BHT 114 Gravity API RW 346 @ 56 °F Chlorides 24000 ppm

(A) Initial Hydrostatic 2157 Test 1250 T-On Location 16:16
 (B) First Initial Flow 31 Jars 250 T-Started 17:10
 (C) First Final Flow 149 Safety Joint 75 T-Open 18:57
 (D) Initial Shut-In 1140 Circ Sub N/C T-Pulled 22:17
 (E) Second Initial Flow 154 Hourly Standby T-Out 00:30
 (F) Second Final Flow 228 Mileage 58 RIT 89.90 Comments _____
 (G) Final Shut-In 1142 Sampler _____
 (H) Final Hydrostatic 1926 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 60

Sub Total 1664.90

Approved By _____ Our Representative Rin M

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45881

Well Name & No. Knopp #4 Test No. DST #5 Date 5-13-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW R's #2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4320-4346 Zone Tested Myric Station
 Anchor Length 26 Drill Pipe Run 4191 Mud Wt. 9.1
 Top Packer Depth 4316 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 4320 Wt. Pipe Run 0 WL 8.4
 Total Depth 4346 Chlorides 2900 ppm System LCM 116

Blow Description IF - Weak Surface Blow
ISI - No Blow
FF - No Blow
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>OCM</u>		<u>2</u>		<u>98</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 5 BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2200 Test 1250 T-On Location 7:24
 (B) First Initial Flow 24 Jars 250 T-Started 8:08
 (C) First Final Flow 27 Safety Joint 75 T-Open 9:51
 (D) Initial Shut-In 51 Circ Sub _____ T-Pulled 11:57
 (E) Second Initial Flow 26 Hourly Standby _____ T-Out 13:39
 (F) Second Final Flow 28 Mileage 58 R/T 89.90 Comments _____
 (G) Final Shut-In 39 Sampler _____
 (H) Final Hydrostatic 2021 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1664.90
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Sub Total 1664.90

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45882

4/10

Well Name & No. Knopp # 4 Test No. DST # 6 Date 5-13-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW Rig # 2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4346 - 4376 Zone Tested Ft. Scott
 Anchor Length 30 Drill Pipe Run 4222 Mud Wt. 9.3
 Top Packer Depth 4342 Drill Collars Run 123 Vis 49
 Bottom Packer Depth 4346 Wt. Pipe Run 0 WL 8.0
 Total Depth 4376 Chlorides 3700 ppm System LCM 1
 Blow Description IF - Weak Surface Blow Dried in 4min
ISI - No Blow
FF - No Blow
FST - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Mud with (Few Oil Spots)</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 _____ BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2150</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>8:20:00</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>20:28</u>
(C) First Final Flow <u>23</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>22:06</u>
(D) Initial Shut-In <u>27</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>23:09</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1:00</u>
(F) Second Final Flow <u>23</u>	<input checked="" type="checkbox"/> Mileage <u>58 RIT</u> 89.90	Comments _____
(G) Final Shut-In <u>26</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2082</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>15</u>	<input type="checkbox"/> Day Standby	Total <u>1664.90</u>
Final Shut-In <u>15</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1664.90</u>	

Approved By _____ Our Representative Will Mac

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45883

Well Name & No. Knopp #4 Test No. DST # 7 Date 5-14-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW Rig #2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4382 - 4406 Zone Tested Cherokee Lime
 Anchor Length 24 Drill Pipe Run 4254 Mud Wt. 9.3
 Top Packer Depth 4378 Drill Collars Run 123 Vis 49
 Bottom Packer Depth 4382 Wt. Pipe Run 0 WL 8.0
 Total Depth 4406 Chlorides 3700 ppm System LCM 116
 Blow Description IF - Weak Surface Blow Built to 34
ISI - No Blow
FF - No Blow
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>8</u>	<u>Mud with Oil Spots</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 _____ BHT 112 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2177 Test 1250 T-On Location ~~7:56~~ 6:54
 (B) First Initial Flow 26 Jars 250 T-Started 7:56
 (C) First Final Flow 32 Safety Joint 75 T-Open 9:47
 (D) Initial Shut-In 780 Circ Sub NIC T-Pulled 11:51
 (E) Second Initial Flow 36 Hourly Standby T-Out 13:31
 (F) Second Final Flow 40 Mileage 58 RIT 89.90 Comments _____
 (G) Final Shut-In 308 Sampler Ruined Shale Packer _____
 (H) Final Hydrostatic 2065 Straddle Ruined Packer _____
 Shale Packer Extra Copies _____
 Extra Packer Extra Recorder _____
 Extra Recorder Day Standby _____ Sub Total 0
 Accessibility _____ Total 1664.90
 Sub Total 1664.90 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 45884

Well Name & No. Knopp Test No. DST #8 Date 5-14-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 Windmill Dr. Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig WW Rs # 2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4402 - 4440 Zone Tested Johnson
 Anchor Length 38 Drill Pipe Run 4255 Mud Wt. 9.3
 Top Packer Depth 4398 Drill Collars Run 123 Vis 48
 Bottom Packer Depth 4402 Wt. Pipe Run 0 WL 8.8
 Total Depth 4440 Chlorides 4200 ppm System LCM 216
 Blow Description IF - Weak Surface Blow died in 24 min
ISJ - No Blow
FF - No Blow
FSJ - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</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 _____ BHT 107 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2213 Test 1250 T-On Location 20:14
 (B) First Initial Flow 28 Jars 250 T-Started 20:34
 (C) First Final Flow 31 Safety Joint 75 T-Open 22:23
 (D) Initial Shut-In 108 Circ Sub NIC T-Pulled 00:27
 (E) Second Initial Flow 30 Hourly Standby _____ T-Out 3:15
 (F) Second Final Flow 32 Mileage 58 R/T 89.90 Comments _____
 (G) Final Shut-In 64 Sampler _____
 (H) Final Hydrostatic 2016 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1664.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1664.90

Approved By _____ Our Representative Rich Ma
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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 46589

4/10

Well Name & No. Knopp #4 Test No. 9 Date 5-5-12
 Company Pioneer Resources Elevation 2821 KB 2816 GL
 Address 80 windmill Dr Phillipsburg KS 67661
 Co. Rep / Geo. Steve Murphy Rig ww Rig #2
 Location: Sec. 13 Twp. 14s Rge. 32w Co. Logan State KS

Interval Tested 4442 - 4500 Zone Tested morrow - SS+
 Anchor Length 58 Drill Pipe Run 4317 Mud Wt. 9.2
 Top Packer Depth 4437 Drill Collars Run 123 Vis 66
 Bottom Packer Depth 4442 Wt. Pipe Run — WL 9.8
 Total Depth 4500 Chlorides 5,000 ppm System LCM 2#
 Blow Description BOB 4 min
BOB 7 min.
BOB 4 min
BOB 5 min

Rec	Feet of	Gas	Oil	Water	Mud
<u>262</u>	<u>0</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>189</u>	<u>MOG</u>	<u>50</u>	<u>40</u>	<u>10</u>	<u>0</u>
<u>252</u>	<u>MO</u>	<u>90</u>	<u>0</u>	<u>10</u>	<u>0</u>
<u>189</u>	<u>GO</u>	<u>30</u>	<u>70</u>	<u>0</u>	<u>0</u>
<u>252</u>	<u>MGO</u>	<u>30</u>	<u>60</u>	<u>10</u>	<u>0</u>

Rec Total 1144 BHT 124 Gravity 31 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2209 Test 1250 T-On Location 12:00
 (B) First Initial Flow 223 Jars 250 T-Started 12:40
 (C) First Final Flow 283 Safety Joint 75 T-Open 14:40
 (D) Initial Shut-In 981 Circ Sub NC T-Pulled 17:25
 (E) Second Initial Flow 287 Hourly Standby T-Out 20:40
 (F) Second Final Flow 393 Mileage 56 RA 89.90 Comments
 (G) Final Shut-In 918 Sampler
 (H) Final Hydrostatic 2,136 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies
 Extra Recorder Sub Total 0
 Day Standby Total 1664.90
 Accessibility MP/DST Disc't

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 60

Sub Total 1664.90

Approved By [Signature] Our Representative Cal Archill

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