

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ironhorse Resources

16/3s/26w Decatur KS

216th St. STE 1200
Denver, CO 80202

Lipplemann #1

Job Ticket: 62164

DST#: 5

ATTN: Bryan Bynog

Test Start: 2015.03.02 @ 15:28:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:01:15

Time Test Ended: 02:12:15

Test Type: Conventional Straddle (Reset)

Tester: James Winder

Unit No: 83

Interval: **3614.00 ft (KB) To 3644.00 ft (KB) (TVD)**

Total Depth: 3744.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2562.00 ft (KB)

2555.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8791

Inside

Press@RunDepth: 68.06 psig @ 3615.00 ft (KB)

Start Date: 2015.03.02

End Date: 2015.03.03

Start Time: 15:28:00

End Time: 02:12:15

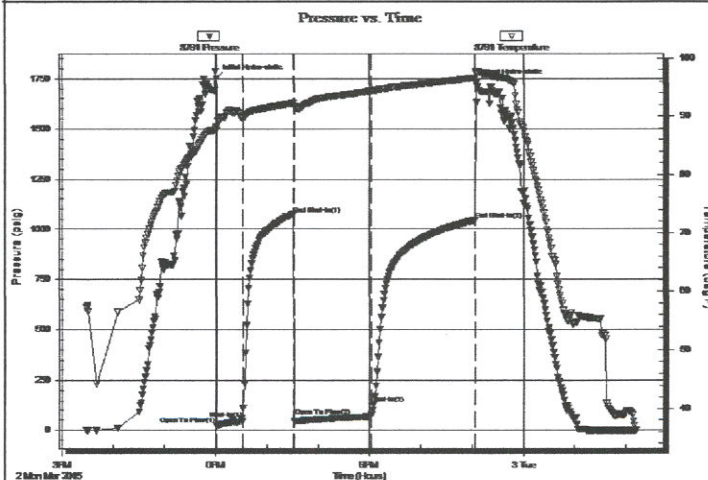
Capacity: 8000.00 psig

Last Calib.: 2015.03.03

Time On Btm: 2015.03.02 @ 18:01:00

Time Off Btm: 2015.03.02 @ 23:05:15

TEST COMMENT: 30 - IF: 1 1/4" Blow at open, surging blow built to 4" (Diesel in bucket)
60 - IS: Weak on/off surface blow back
90 - FF: Blow built to 4"
120 - FS: Some weak on/off surface blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1755.36	88.32	Initial Hydro-static
1	20.53	87.66	Open To Flow (1)
31	43.95	89.74	Shut-In(1)
90	1074.07	92.24	End Shut-In(1)
91	45.37	91.83	Open To Flow (2)
181	68.06	94.34	Shut-In(2)
303	1044.98	96.64	End Shut-In(2)
305	1731.88	97.62	Final Hydro-static

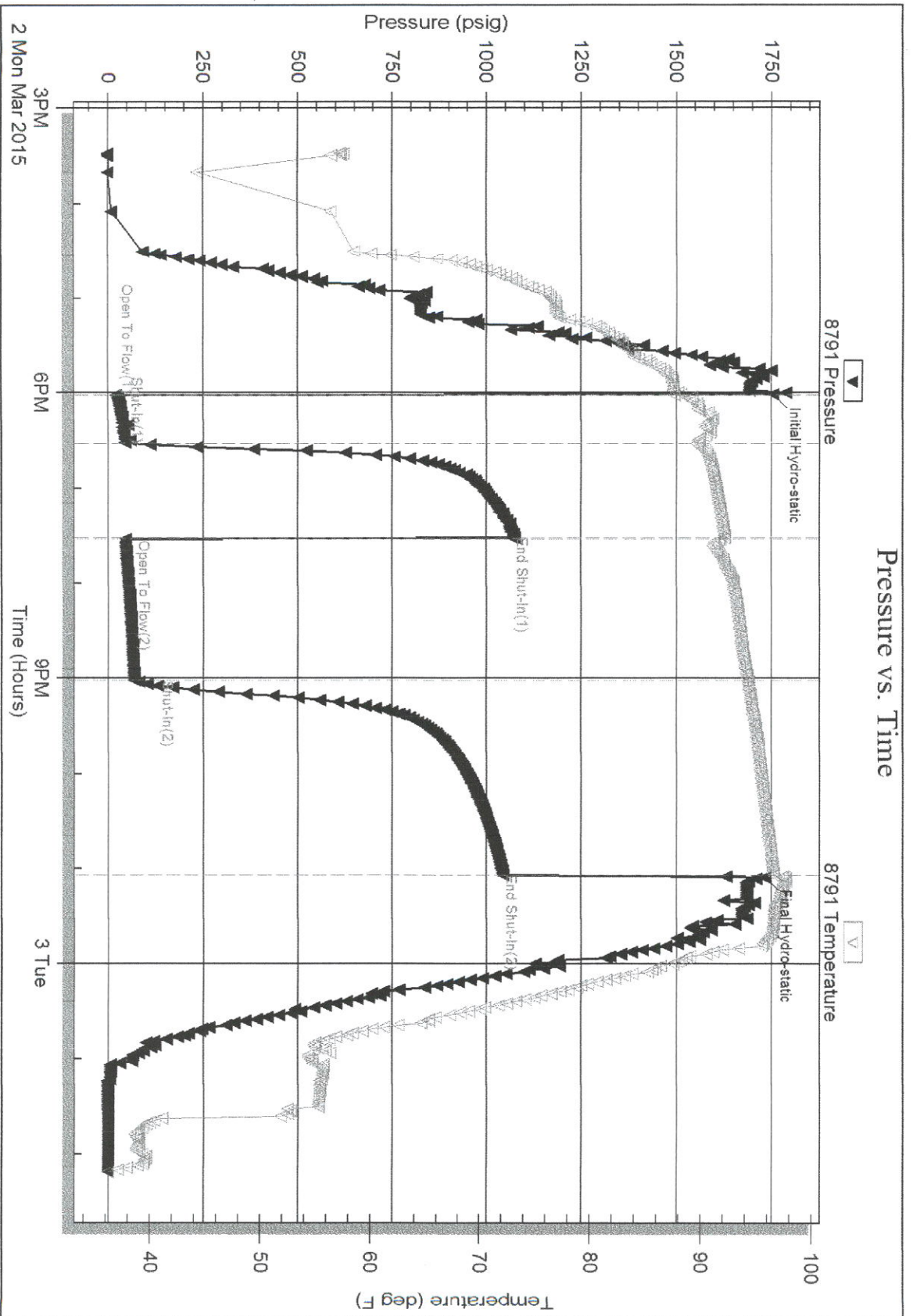
Recovery

Length (ft)	Description	Volume (bbl)
57.00	MW w/trace oil 53%w, 47%m	0.28
56.00	SO/WCM 71%m, 27%w, 2%o	0.28
7.00	OCM 89%m, 11%o	0.03

Gas Rates

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

* Recovery from multiple tests

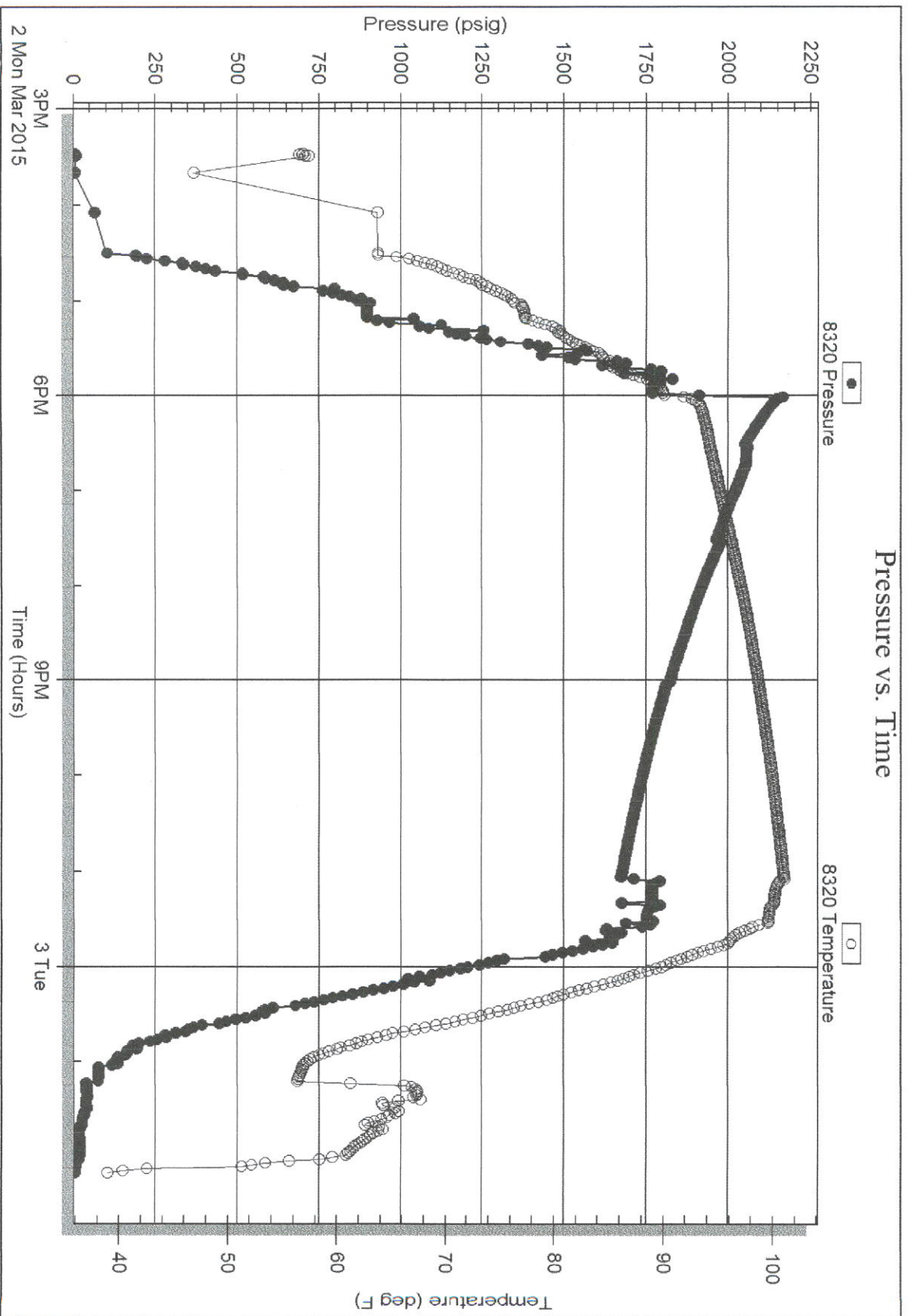


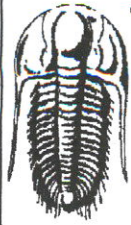
Serial #: 8320

Below / Straddles Resources

Lipplmann #1

DST Test Number: 5





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ironhorse Resources

16/3s/26w Decatur KS

216th St. STE 1200
Denver, CO 80202

Lipplemann #1

Job Ticket: 62163

DST#: 4

ATTN: Bryan Bynog

Test Start: 2015.03.01 @ 23:33:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 04:18:45

Test Type: Conventional Straddle (Reset)

Tester: James Winder

Unit No: 83

Interval: **3614.00 ft (KB) To 3644.00 ft (KB) (TVD)**

Reference Elevations: 2562.00 ft (KB)

Total Depth: 3744.00 ft (KB) (TVD)

2555.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8791 Inside

Press@RunDepth: psig @ 3615.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.03.01

End Date: 2015.03.02

Last Calib.: 2015.03.02

Start Time: 23:33:00

End Time: 04:18:45

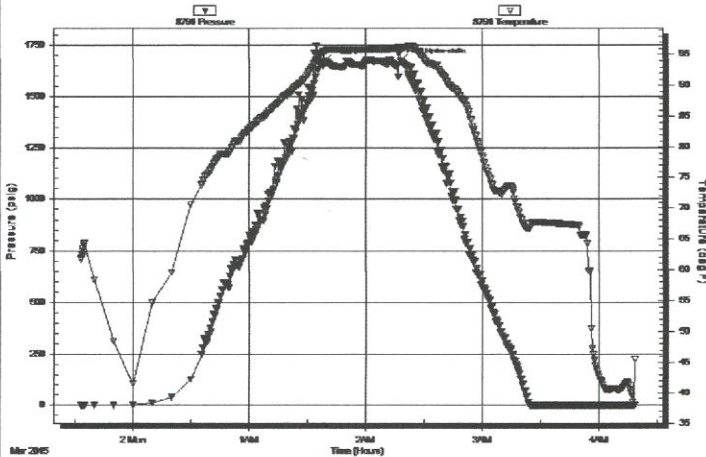
Time On Btm: 2015.03.02 @ 01:38:45

Time Off Btm: 2015.03.02 @ 02:18:00

TEST COMMENT:

Mis-run
Picked up head joint - No mud in hole, couldn't get it to fill
pulled tool

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1670.39	95.46	Initial Hydro-static
40	1671.00	96.18	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.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62168

Well Name & No. Lipplemann #1 Test No. 4 Date 3-1-15
 Company Ironhorse Resources Elevation 2562 KB 2555 GL
 Address 216 16th St. STE 1200 Denver CO 80202
 Co. Rep / Geo. Bryan Bynog Rig Skytop
 Location: Sec. 16 Twp. 3s Rge. 26w Co. Decatur State KS

Interval Tested 3614 - 3644 Zone Tested LKC "H"
 Anchor Length 30 Anchor 100 Tail Drill Pipe Run _____ Mud Wt. 9.3
 Top Packer Depth 3609 - 3614 Drill Collars Run 143 Vis 66
 Bottom Packer Depth 3644 Wt. Pipe Run - WL 8.0
 Total Depth 3744 Chlorides 500 ppm System LCM 2
 Blow Description Mis-Run
Picked up Head joint - No mud in hole - couldn't get it to fill
pulled tool

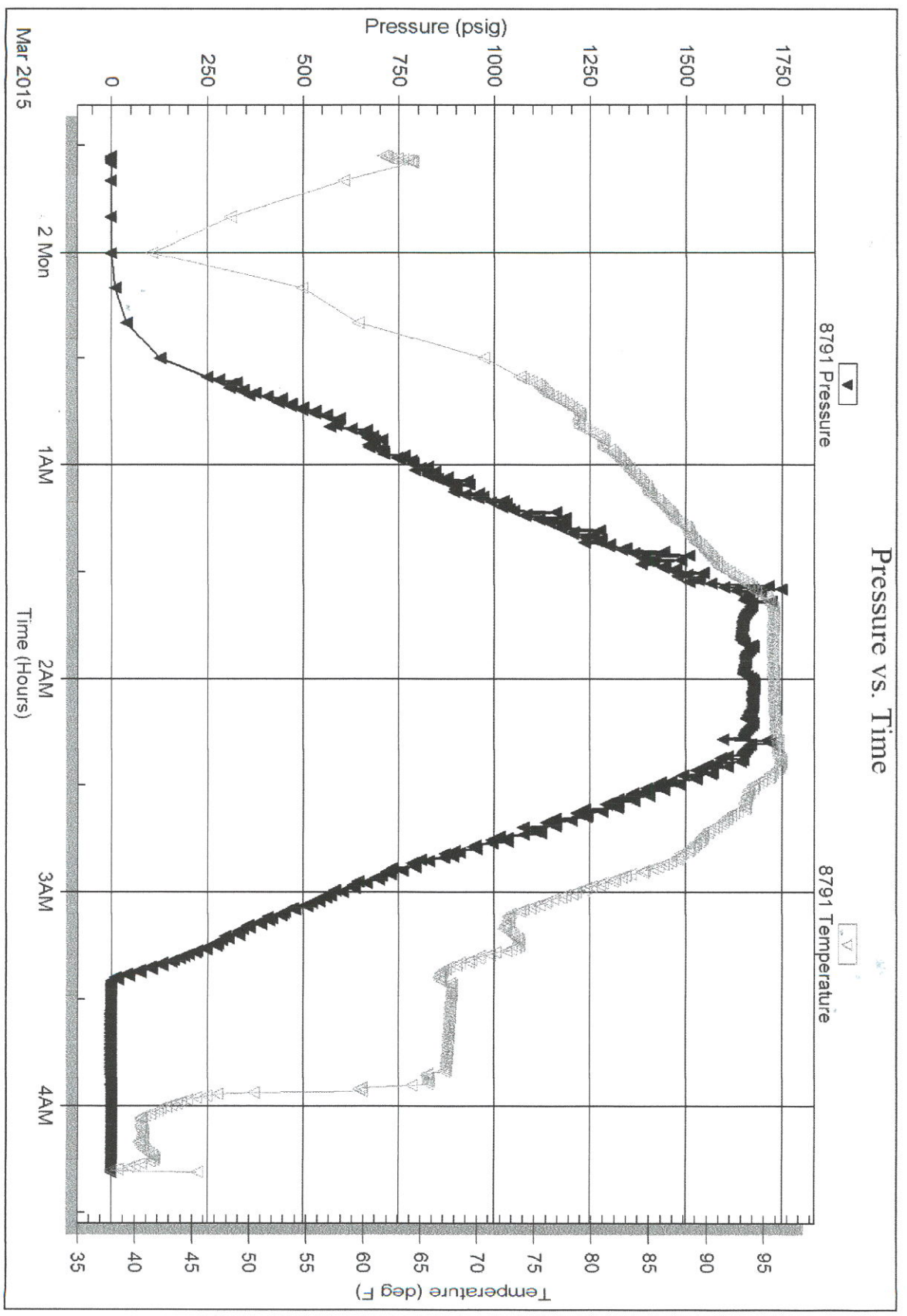
Rec	Feet of	%gas	%oil	%water	%mud

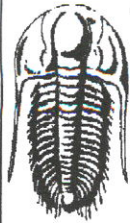
Rec Total _____ BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic _____ Test _____ T-On Location 22:35 3/1
 (B) First Initial Flow _____ Jars _____ T-Started 23:33
 (C) First Final Flow _____ Safety Joint _____ T-Open _____
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled m 2:18
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 4:15 3/2
 (F) Second Final Flow _____ Mileage 40RT _____ Comments _____
 (G) Final Shut-In _____ Sampler _____ _____
 (H) Final Hydrostatic _____ Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Initial Open _____ Extra Packer _____ Extra Copies _____
 Initial Shut-In _____ Extra Recorder _____ Sub Total _____
 Final Flow _____ Day Standby _____ Total _____
 Final Shut-In _____ Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By _____ Our Representative James Winder

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.

DRILL STEM TEST REPORT

Ironhorse Resources

16/3s/26w Decatur KS

216th St. STE 1200
Denver, CO 80202

Lipplemann #1

Job Ticket: 62162

DST#: 3

ATTN: Bryan Bynog

Test Start: 2015.02.28 @ 20:20:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:38:15

Time Test Ended: 06:06:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: **3612.00 ft (KB) To 3655.00 ft (KB) (TVD)**

Total Depth: 3655.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2562.00 ft (KB)

2555.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8791

Inside

Press@RunDepth: 76.67 psig @ 3613.00 ft (KB)

Start Date: 2015.02.28

End Date:

2015.03.01

Start Time: 20:20:00

End Time:

06:06:45

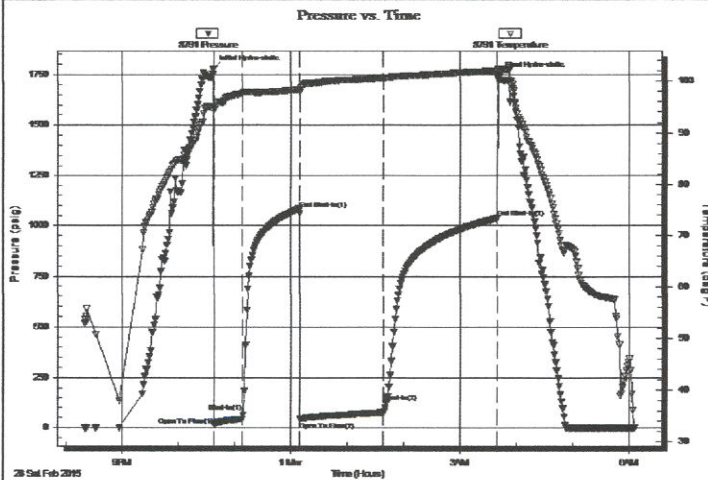
Capacity: 8000.00 psig

Last Calib.: 2015.03.01

Time On Btm: 2015.02.28 @ 22:38:00

Time Off Btm: 2015.03.01 @ 03:41:45

TEST COMMENT: 30 - IF: 1" Blow at open, built to 4 1/2" (Diesel in bucket)
60 - IS: No blow back
90 - FF: Blow built to 3 3/4"
120 - FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1778.93	95.00	Initial Hydro-static
1	17.80	94.59	Open To Flow (1)
31	43.11	97.82	Shut-In(1)
92	1082.81	98.38	End Shut-In(1)
92	46.09	97.88	Open To Flow (2)
181	76.67	100.66	Shut-In(2)
302	1037.54	102.06	End Shut-In(2)
304	1747.34	102.38	Final Hydro-static

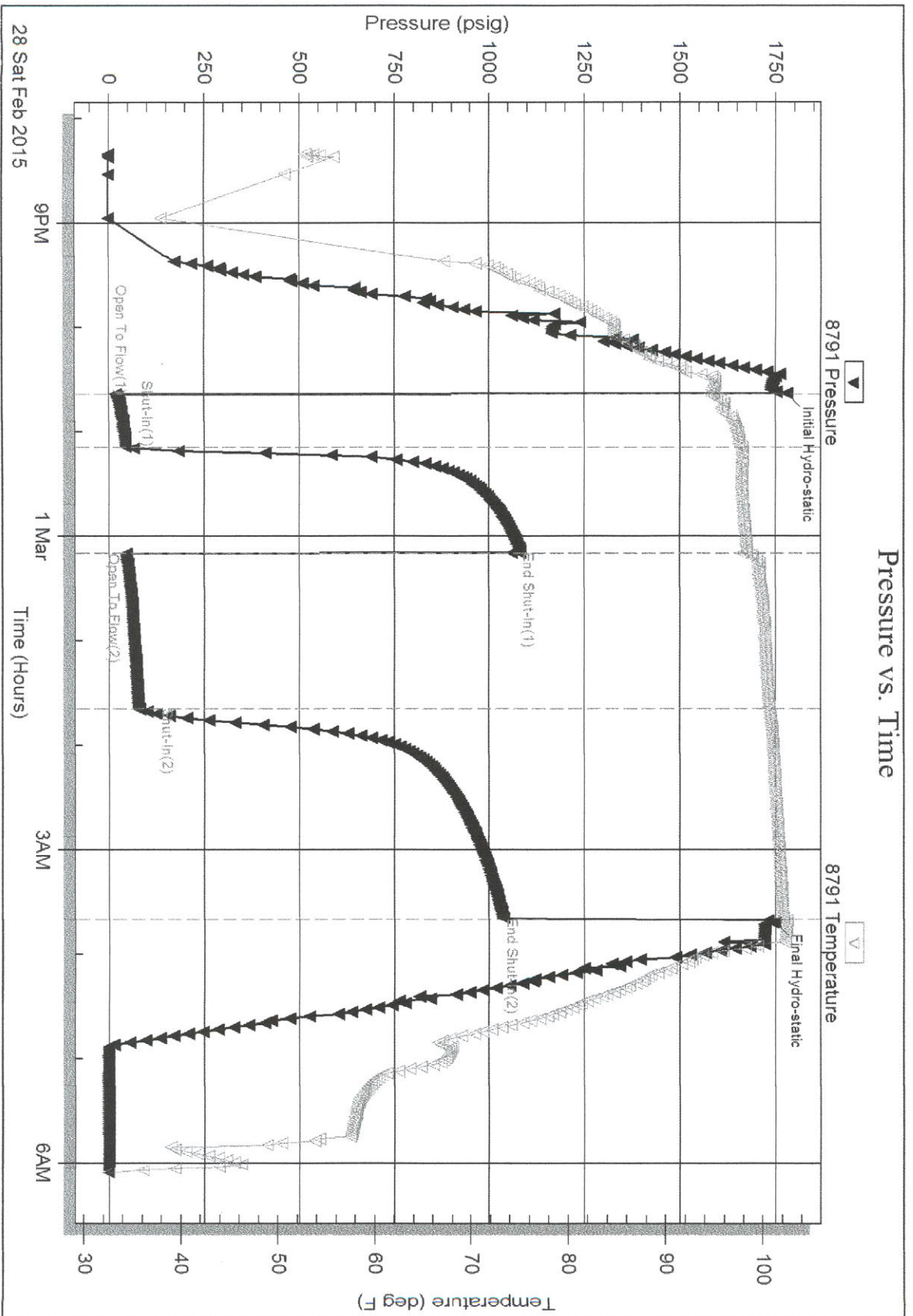
Recovery

Length (ft)	Description	Volume (bbl)
56.00	MCW w/trace oil 62%w, 38%m	0.28
58.00	SOW/Mud 98%m, 1%o, 1%w	0.29
20.00	SO/WCM 59%m, 38%w, 3%o	0.10
0.00	A few inches of Free Oil on top	0.00

* Recovery from multiple tests

Gas Rates

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





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ironhorse Resources

16/3s/26w Decatur KS

216th St. STE 1200
Denver, CO 80202

Lipplemann #1

Job Ticket: 62161

DST#: 2

ATTN: Bryan Bynog

Test Start: 2015.02.27 @ 16:20:00

GENERAL INFORMATION:

Formation: **LKC "C"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:49:45

Time Test Ended: 02:10:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: **3536.00 ft (KB) To 3560.00 ft (KB) (TVD)**

Reference Elevations: 2562.00 ft (KB)

Total Depth: 3560.00 ft (KB) (TVD)

2557.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8791

Inside

Press@RunDepth: 61.04 psig @ 3537.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.02.27

End Date: 2015.02.28

Last Calib.: 2015.02.28

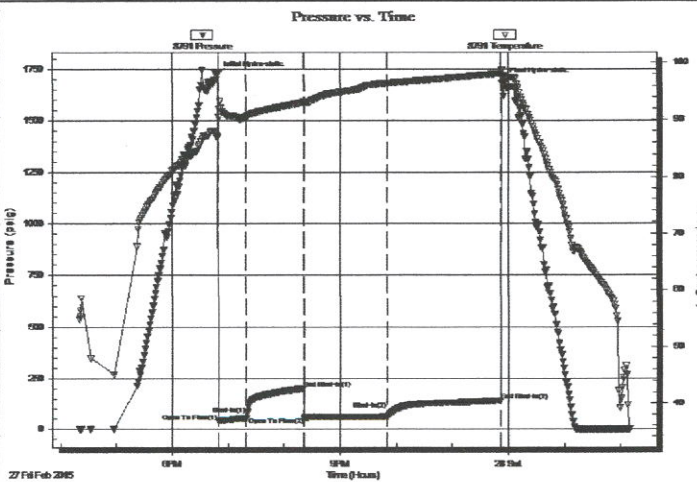
Start Time: 16:20:00

End Time: 02:10:15

Time On Btm: 2015.02.27 @ 18:48:45

Time Off Btm: 2015.02.27 @ 23:54:45

TEST COMMENT: 30 - IF: 3"+ Blow at open, built to 5 1/4" (Diesel in bucket)
60 - IS: No blow back
90 - FF: Blow built to 1 3/4"
120 - FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1720.18	86.91	Initial Hydro-static
1	42.19	92.03	Open To Flow (1)
31	51.47	90.49	Shut-In(1)
92	200.59	93.06	End Shut-In(1)
93	55.12	93.00	Open To Flow (2)
182	61.04	96.38	Shut-In(2)
304	139.70	98.13	End Shut-In(2)
306	1690.47	97.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
56.00	SOCM 95% m, 3% o, 2% g	0.28
54.00	OCM 80% m, 20% o	0.27

* Recovery from multiple tests

Gas Rates

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

Serial #: 8791

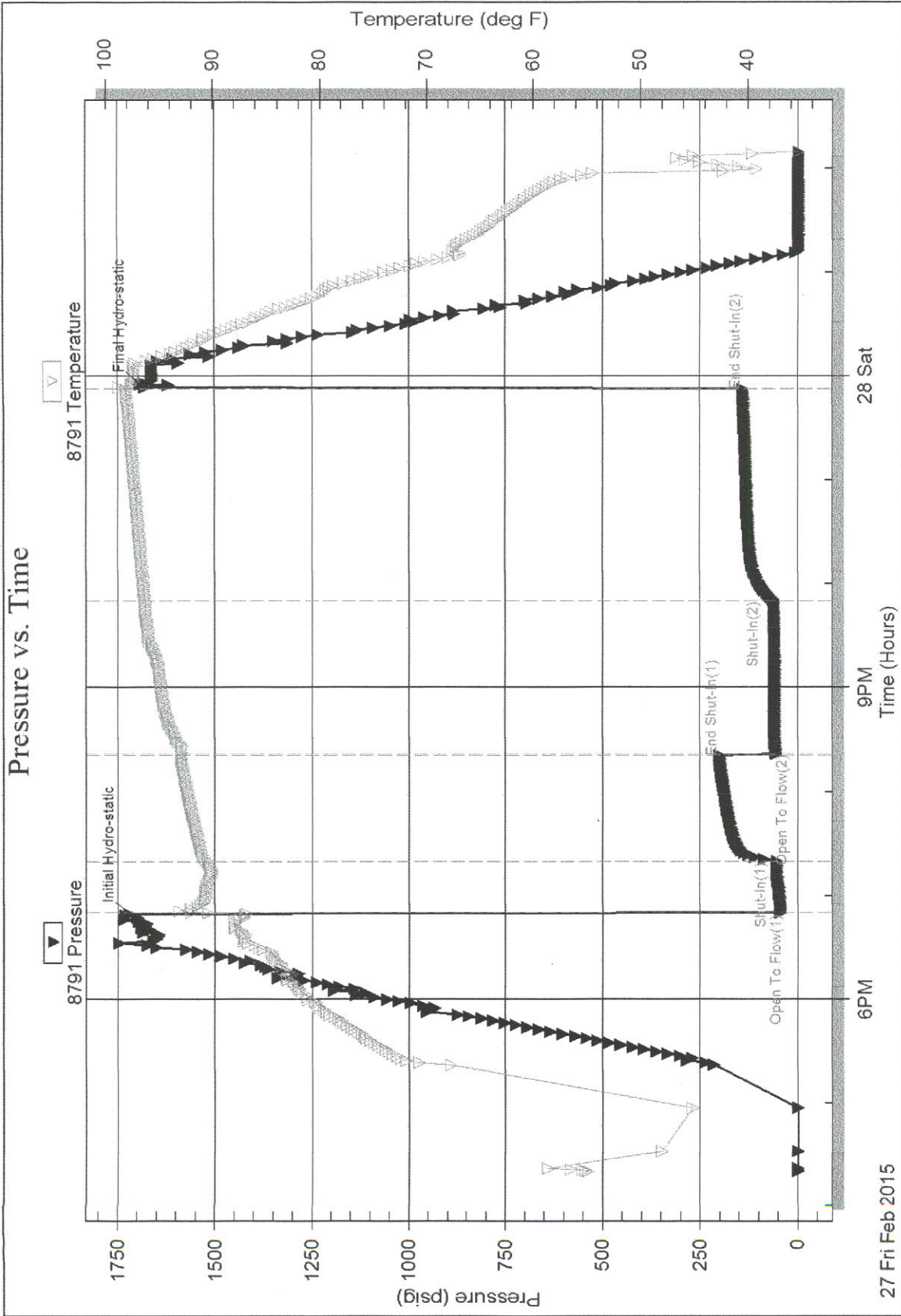
Inside

Ironhorse Resources

Lippmann #1

DST Test Number: 2

Pressure vs. Time





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ironhorse Resources

16/3s/26w Decatur KS

216th St. STE 1200
Denver, CO 80202

Lippleman #1

Job Ticket: 62160

DST#: 1

ATTN: Bryan Bynog

Test Start: 2015.02.26 @ 20:44:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:30:30

Time Test Ended: 07:13:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: **3470.00 ft (KB) To 3540.00 ft (KB) (TVD)**

Reference Elevations: 2562.00 ft (KB)

Total Depth: 3540.00 ft (KB) (TVD)

2557.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8791

Inside

Press@RunDepth: 112.00 psig @ 3471.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.02.26

End Date: 2015.02.27

Last Calib.: 2015.02.27

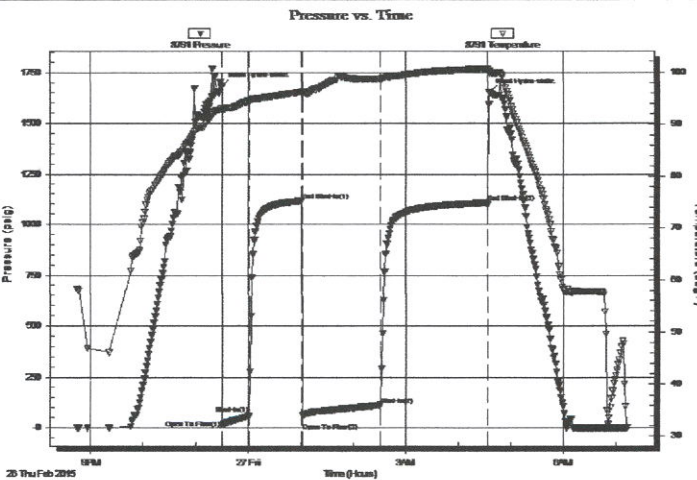
Start Time: 20:44:00

End Time: 07:13:00

Time On Btm: 2015.02.26 @ 23:30:15

Time Off Btm: 2015.02.27 @ 04:35:00

TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 6 1/4" (Diesel in bucket)
60 - ISI: No blow back
90 - FF: Blow built to BOB (11") at 85 min.
120 - FSI: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1684.00	93.15	Initial Hydro-static
1	14.69	92.70	Open To Flow (1)
31	57.05	94.52	Shut-In(1)
92	1114.07	96.24	End Shut-In(1)
93	61.32	95.81	Open To Flow (2)
181	112.00	98.70	Shut-In(2)
303	1105.18	100.68	End Shut-In(2)
305	1653.38	100.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
56.00	MCW 64%w, 36%m	0.28
154.00	WCM 73%m, 27%w	1.38

Gas Rates

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

