



DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Bieler #2

9-15s-19w Ellis,KS

Start Date: 2014.08.19 @ 18:20:00

End Date: 2014.08.19 @ 23:43:15

Job Ticket #: 53963 DST #: 1

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

Printed: 2014.08.22 @ 13:05:55



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

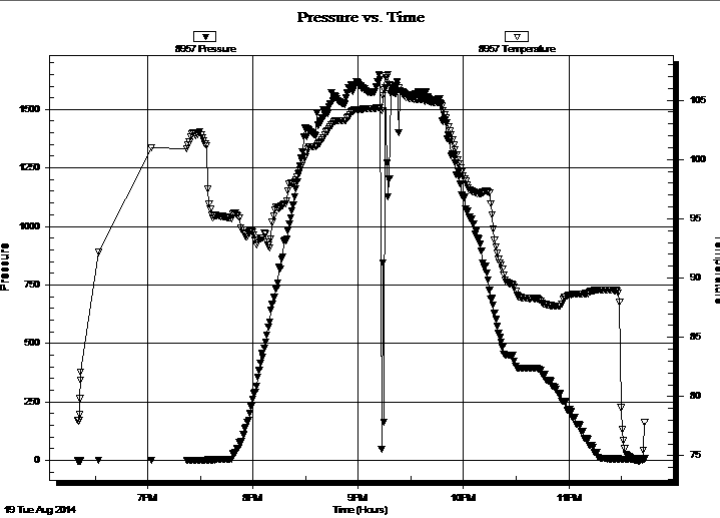
9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53963 **DST#: 1**
Test Start: 2014.08.19 @ 18:20:00

GENERAL INFORMATION:

Formation: **Toronto-KC"C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened:
 Time Test Ended: 23:43:15
 Interval: **3310.00 ft (KB) To 3365.00 ft (KB) (TVD)**
 Total Depth: 3365.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brett Dickinson
 Unit No: 59
 Reference Elevations: 2035.00 ft (KB)
 2025.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8957 Inside
 Press@RunDepth: psig @ 3311.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.19 End Date: 2014.08.19 Last Calib.: 2014.08.19
 Start Time: 18:20:05 End Time: 23:43:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: Packer failure



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

Recovery		
Length (ft)	Description	Volume (bbl)
740.00	Mud	10.38

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis, KS
Bieler #2
Job Ticket: 53963 **DST#: 1**
Test Start: 2014.08.19 @ 18:20:00

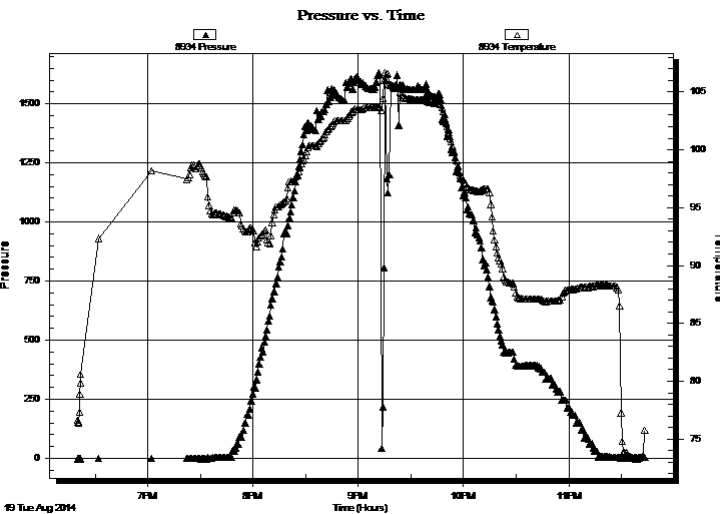
GENERAL INFORMATION:

Formation: **Toronto-KC"C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened:
 Time Test Ended: 23:43:15
 Interval: **3310.00 ft (KB) To 3365.00 ft (KB) (TVD)**
 Total Depth: 3365.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brett Dickinson
 Unit No: 59
 Reference Elevations: 2035.00 ft (KB)
 2025.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8934 Outside

Press@RunDepth: psig @ 3311.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.19 End Date: 2014.08.19 Last Calib.: 2014.08.19
 Start Time: 18:20:05 End Time: 23:43:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: Packer failure



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
740.00	Mud	10.38

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53963 **DST#: 1**
Test Start: 2014.08.19 @ 18:20:00

Tool Information

Drill Pipe:	Length: 3312.00 ft	Diameter: 3.80 inches	Volume: 46.46 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 46.46 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3310.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	75.00 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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Shut In Tool	5.00			3295.00	
Hydraulic tool	5.00			3300.00	
Packer	5.00			3305.00	20.00 Bottom Of Top Packer
Packer	5.00			3310.00	
Stubb	1.00			3311.00	
Recorder	0.00	8957	Inside	3311.00	
Recorder	0.00	8934	Outside	3311.00	
Perforations	2.00			3313.00	
Change Over Sub	1.00			3314.00	
Drill Pipe	32.00			3346.00	
Change Over Sub	1.00			3347.00	
Perforations	15.00			3362.00	
Bullnose	3.00			3365.00	55.00 Bottom Packers & Anchor

Total Tool Length: 75.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **9-15s-19w Ellis,KS**
 1310 Bison Rd **Bieler #2**
 Hays KS 67601 Job Ticket: 53963 **DST#: 1**
 ATTN: Herb Deines Test Start: 2014.08.19 @ 18:20:00

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: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3800.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
740.00	Mud	10.380

Total Length: 740.00 ft Total Volume: 10.380 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

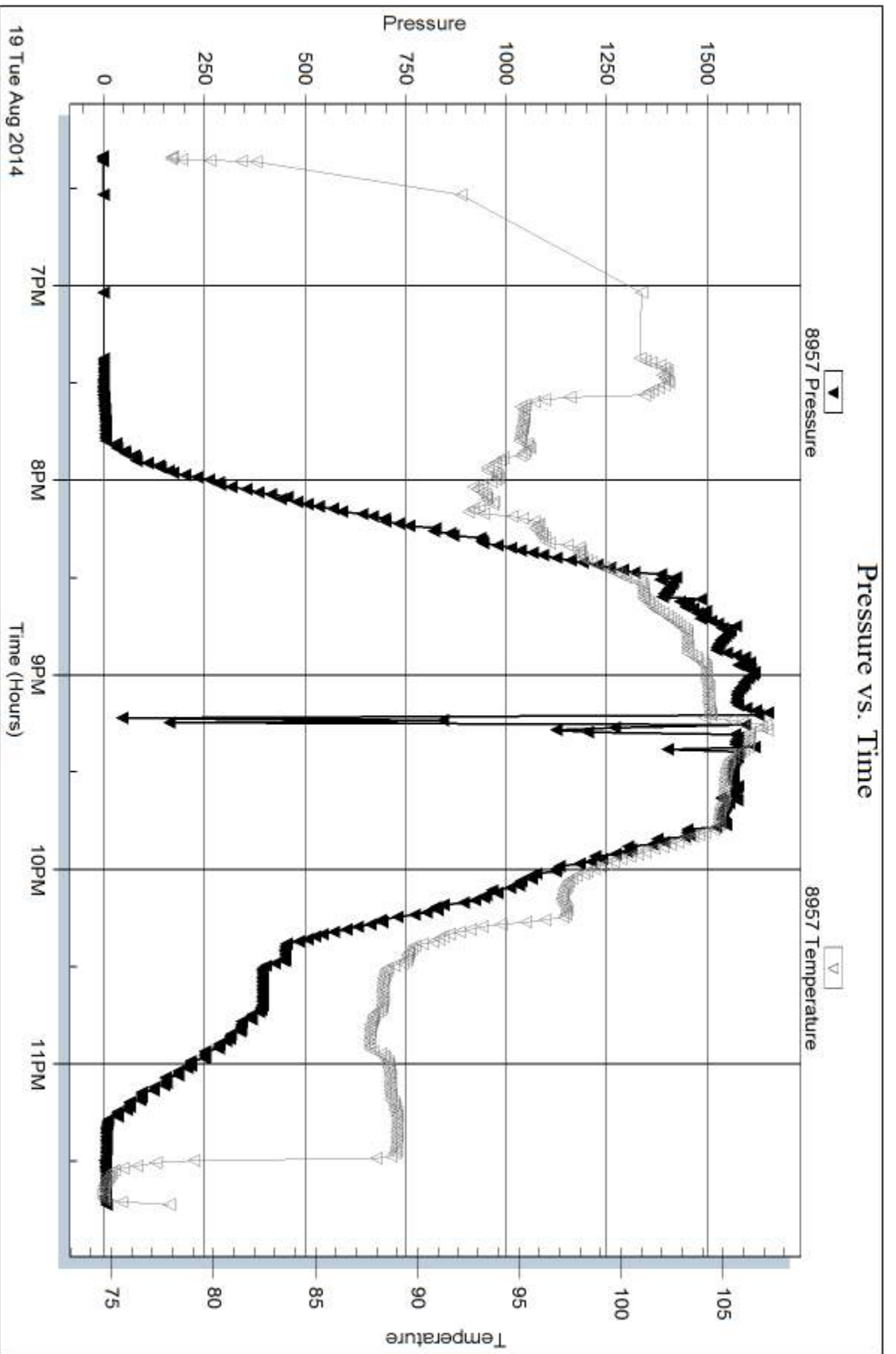
Serial #: 8957

Inside

TDI Inc.

Bieler #2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 53963

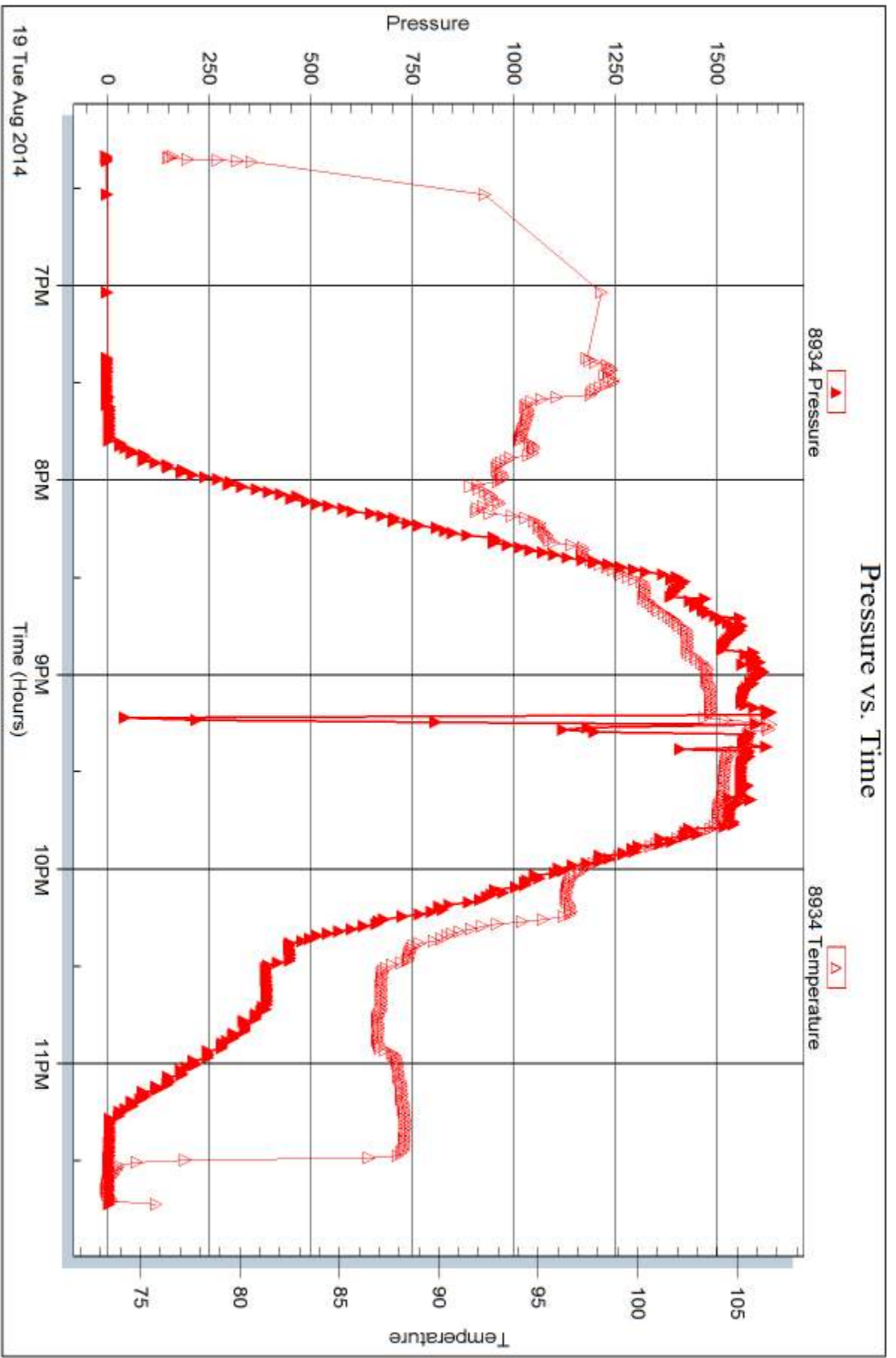
Printed: 2014.08.22 @ 13:05:58

Serial #: 8934

Outside TDI Inc.

Bieler #2

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Bieler #2

9-15s-19w Ellis,KS

Start Date: 2014.08.19 @ 23:55:00

End Date: 2014.08.20 @ 05:21:00

Job Ticket #: 53964 DST #: 2

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

Printed: 2014.08.22 @ 13:05:03

TDI Inc. 9-15s-19w Ellis,KS Bieler #2 DST # 2 KC "C" 2014.08.19



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53964 **DST#: 2**
Test Start: 2014.08.19 @ 23:55:00

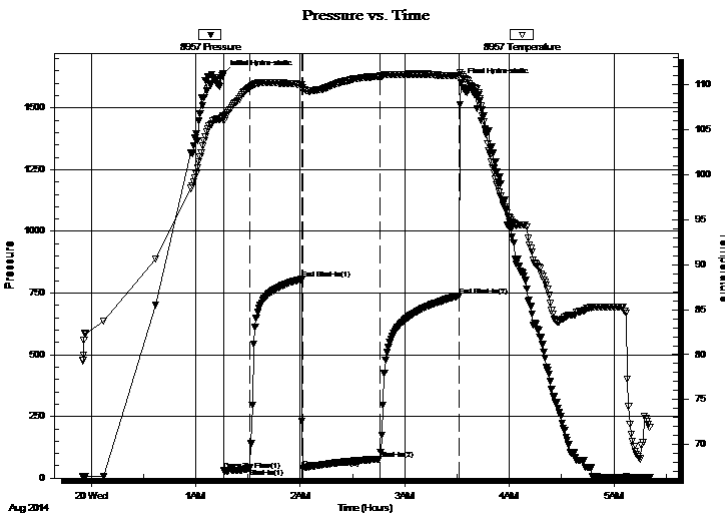
GENERAL INFORMATION:

Formation: **KC "C"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:16:15
Time Test Ended: 05:21:00
Interval: **3342.00 ft (KB) To 3365.00 ft (KB) (TVD)**
Total Depth: 3365.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2035.00 ft (KB)
2025.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8957 **Inside**
Press@RunDepth: 77.70 psig @ 3343.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.08.19 End Date: 2014.08.20 Last Calib.: 2014.08.20
Start Time: 23:55:05 End Time: 05:20:59 Time On Btm: 2014.08.20 @ 01:15:45
Time Off Btm: 2014.08.20 @ 03:32:30

TEST COMMENT: IF-BOB in 6 min
IS-No blow
FF-BOB in 1/2 min
FS-2 1/2" blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1637.38	106.55	Initial Hydro-static
1	32.77	106.05	Open To Flow (1)
15	39.05	109.68	Shut-In(1)
45	805.46	110.02	End Shut-In(1)
46	40.78	109.74	Open To Flow (2)
90	77.70	110.95	Shut-In(2)
136	738.69	111.07	End Shut-In(2)
137	1604.57	111.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GV/SOCM 35%G 5%O 60%M	0.84
105.00	SGO 10%G 90%O	1.47
0.00	1240ft 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

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53964 **DST#: 2**
Test Start: 2014.08.19 @ 23:55:00

Tool Information

Drill Pipe:	Length: 3342.00 ft	Diameter: 3.80 inches	Volume: 46.88 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 46.88 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	39000.00 lb
Depth to Top Packer:	3342.00 ft			Final	40000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	23.00 ft				
Tool Length:	43.00 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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Shut In Tool	5.00			3327.00	
Hydraulic tool	5.00			3332.00	
Packer	5.00			3337.00	20.00 Bottom Of Top Packer
Packer	5.00			3342.00	
Stubb	1.00			3343.00	
Recorder	0.00	8957	Inside	3343.00	
Recorder	0.00	8934	Outside	3343.00	
Perforations	4.00			3347.00	
Perforations	15.00			3362.00	
Bullnose	3.00			3365.00	23.00 Bottom Packers & Anchor
Total Tool Length:	43.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **9-15s-19w Ellis,KS**
 1310 Bison Rd **Bieler #2**
 Hays KS 67601 Job Ticket: 53964 **DST#: 2**
 ATTN: Herb Deines Test Start: 2014.08.19 @ 23:55:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.79 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3800.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GVSOCM 35%G 5%O 60%M	0.842
105.00	SGO 10%G 90%O	1.473
0.00	1240ft GIP	0.000

Total Length: 165.00 ft Total Volume: 2.315 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

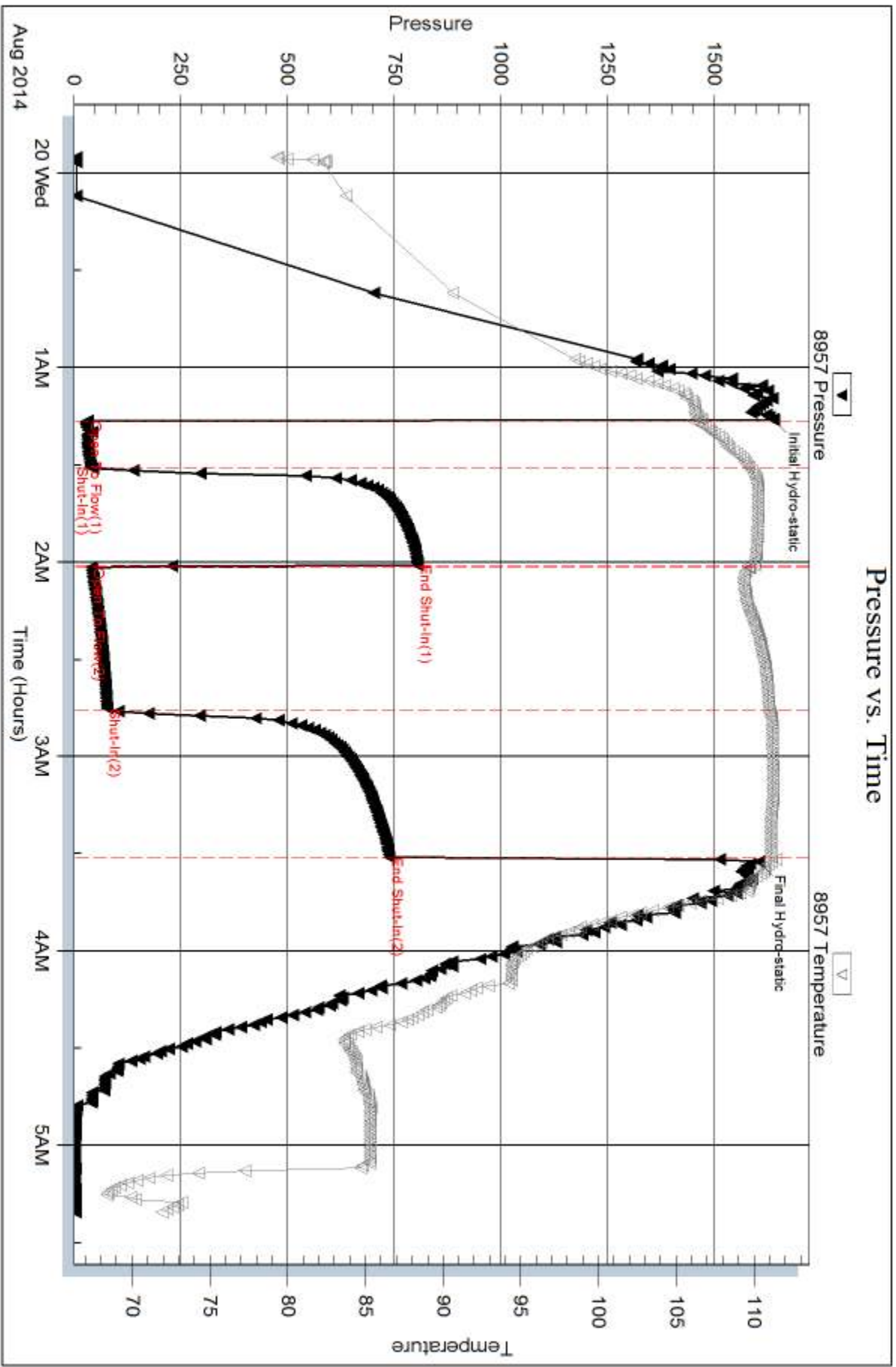
Serial #: 8957

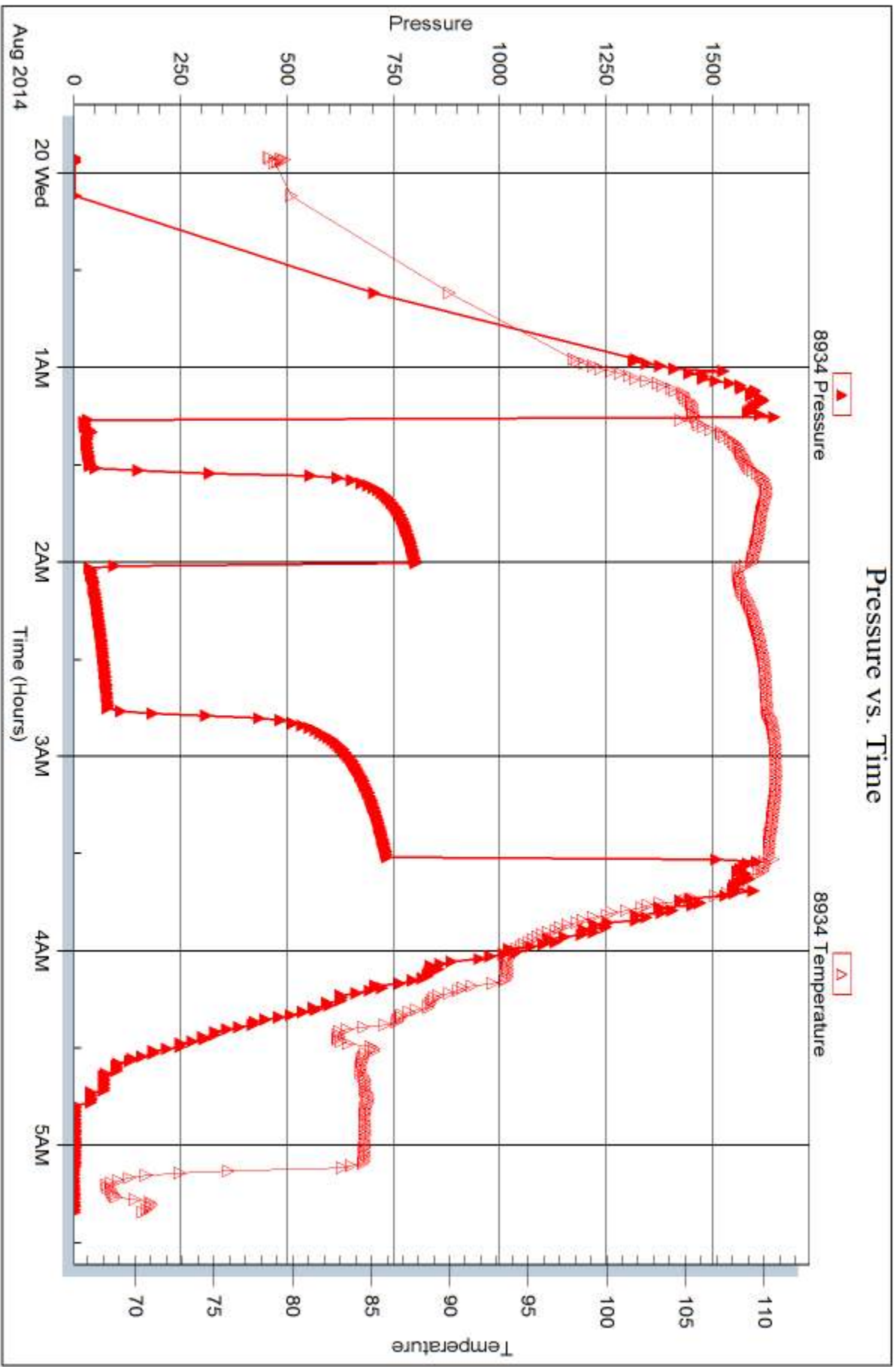
Inside

TDI Inc.

Bieler #2

DST Test Number: 2







DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Bieler #2

9-15s-19w Ellis,KS

Start Date: 2014.08.20 @ 15:15:00

End Date: 2014.08.21 @ 00:33:15

Job Ticket #: 53965 DST #: 3

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

Printed: 2014.08.22 @ 12:01:34

TDI Inc.
9-15s-19w Ellis,KS
Bieler #2
DST # 3
KC "D-G"
2014.08.20



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

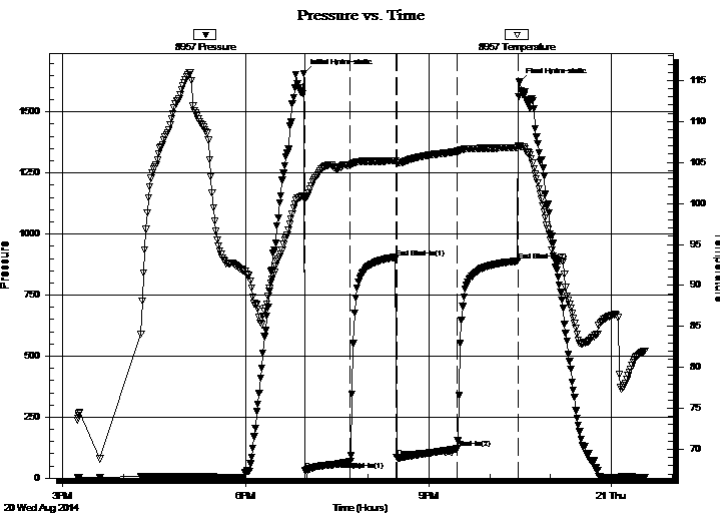
9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53965 **DST#: 3**
Test Start: 2014.08.20 @ 15:15:00

GENERAL INFORMATION:

Formation: **KC "D-G"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:58:15
Time Test Ended: 00:33:15
Interval: **3364.00 ft (KB) To 3415.00 ft (KB) (TVD)**
Total Depth: 3415.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2035.00 ft (KB)
2025.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8957 Inside
Press@RunDepth: 120.19 psig @ 3365.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.08.20 End Date: 2014.08.21 Last Calib.: 2014.08.21
Start Time: 15:15:05 End Time: 00:33:15 Time On Btm: 2014.08.20 @ 18:57:15
Time Off Btm: 2014.08.20 @ 22:29:00

TEST COMMENT: IF-BOB in 29 min
IS- No blow
FF-BOB in 49 min
FS- 1/2" blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1658.47	100.86	Initial Hydro-static
1	33.33	100.42	Open To Flow (1)
46	68.55	104.65	Shut-In(1)
91	901.18	105.24	End Shut-In(1)
92	84.37	105.00	Open To Flow (2)
151	120.19	106.35	Shut-In(2)
211	889.30	106.82	End Shut-In(2)
212	1622.16	107.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	SGOWCM 10%G 10%O 30%W 50%M	1.68
60.00	SGOWCM 10%G 10%O 10%W 70%M	0.84
45.00	GOCM 20%G 25%O 55%M	0.63
0.00	310ft 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

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53965 **DST#: 3**
Test Start: 2014.08.20 @ 15:15:00

Tool Information

Drill Pipe:	Length: 3362.00 ft	Diameter: 3.80 inches	Volume: 47.16 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume: 47.16 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	40000.00 lb
Depth to Top Packer:	3364.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	51.00 ft				
Tool Length:	71.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3349.00	
Hydraulic tool	5.00			3354.00	
Packer	5.00			3359.00	20.00 Bottom Of Top Packer
Packer	5.00			3364.00	
Stubb	1.00			3365.00	
Recorder	0.00	8957	Inside	3365.00	
Recorder	0.00	8934	Outside	3365.00	
Perforations	2.00			3367.00	
Change Over Sub	1.00			3368.00	
Drill Pipe	32.00			3400.00	
Change Over Sub	1.00			3401.00	
Perforations	11.00			3412.00	
Bullnose	3.00			3415.00	51.00 Bottom Packers & Anchor

Total Tool Length: 71.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **9-15s-19w Ellis, KS**
 1310 Bison Rd **Bieler #2**
 Hays KS 67601 Job Ticket: 53965 **DST#: 3**
 ATTN: Herb Deines Test Start: 2014.08.20 @ 15:15:00

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:	46000 ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3800.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	SGOWCM 10%G 10%O 30%W 50%M	1.683
60.00	SGOWCM 10%G 10%O 10%W 70%M	0.842
45.00	GOCM 20%G 25%O 55%M	0.631
0.00	310ft GIP	0.000

Total Length: 225.00 ft Total Volume: 3.156 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 8957

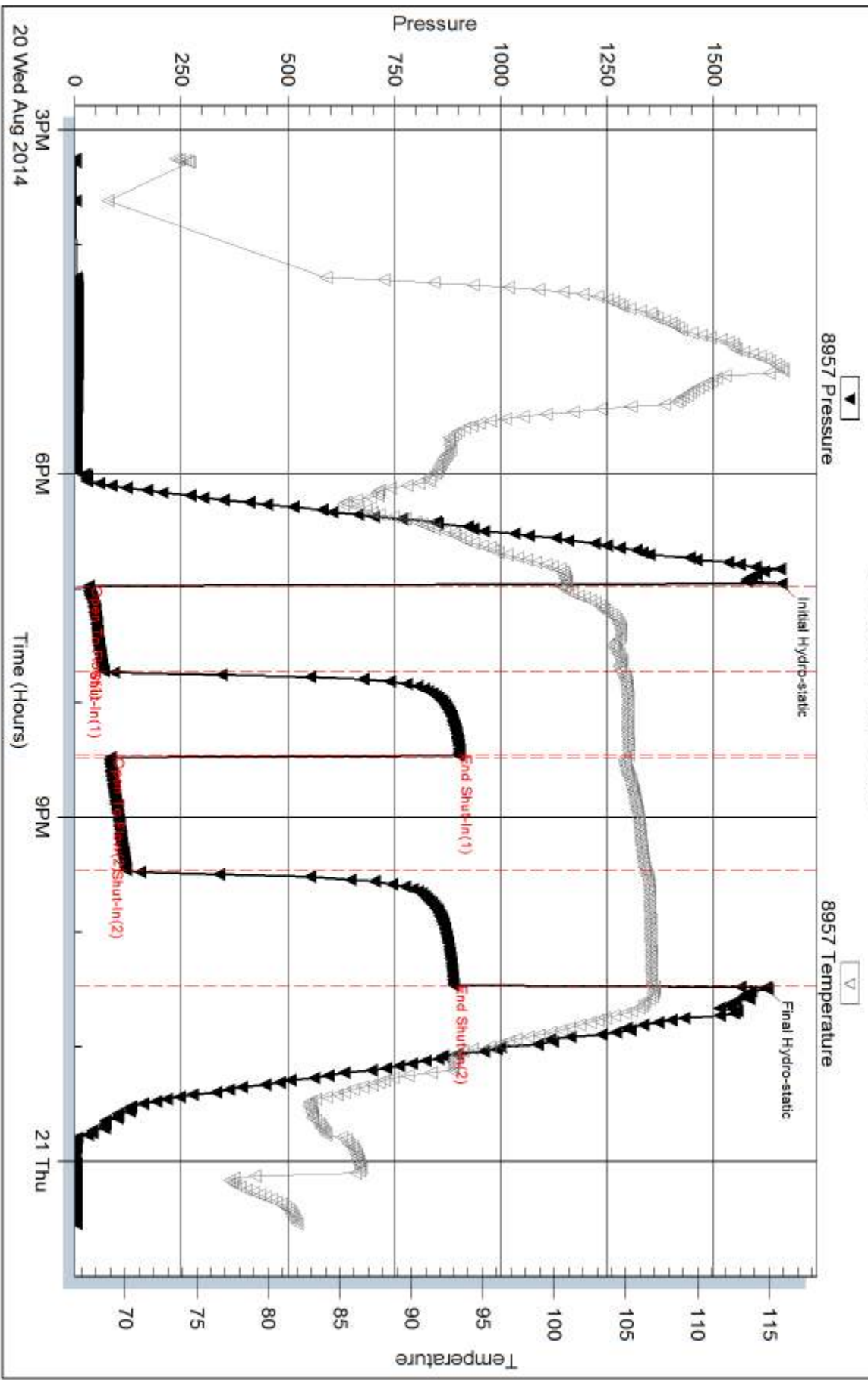
Inside

TDI Inc.

Bieler #2

DST Test Number: 3

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 53965

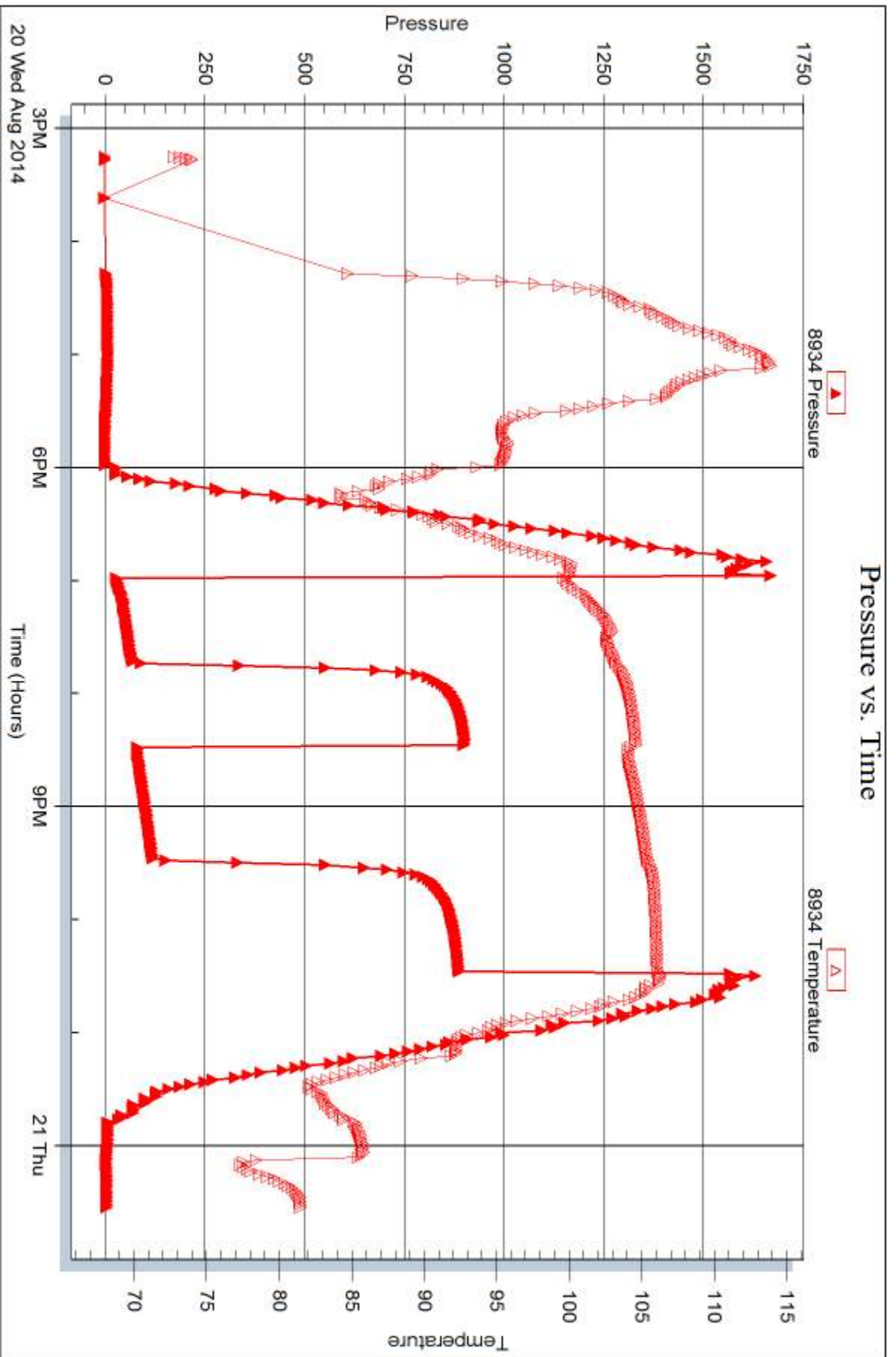
Printed: 2014.08.22 @ 12:01:41

Serial #: 8934

Outside TDI Inc.

Bieler #2

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 53965

Printed: 2014.08.22 @ 12:01:44



DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Bieler #2

9-15s-19w Ellis,KS

Start Date: 2014.08.21 @ 18:15:00

End Date: 2014.08.22 @ 02:25:30

Job Ticket #: 53966 DST #: 4

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

Printed: 2014.08.22 @ 12:00:42

TDI Inc.
9-15s-19w Ellis,KS
Bieler #2
DST # 4
Conglomerate. Sand.
2014.08.21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

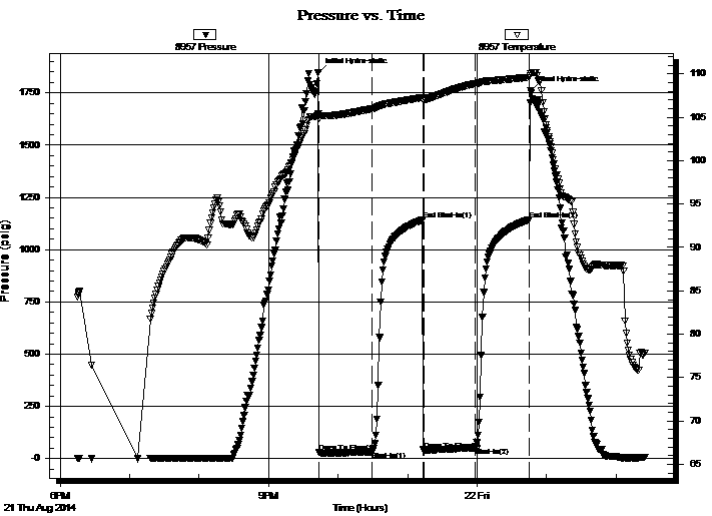
9-15s-19w Ellis, KS
Bieler #2
Job Ticket: 53966 **DST#: 4**
Test Start: 2014.08.21 @ 18:15:00

GENERAL INFORMATION:

Formation: **Conglomerate. Sand.**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:43:45
 Time Test Ended: 02:25:30
 Interval: **3628.00 ft (KB) To 3648.00 ft (KB) (TVD)**
 Total Depth: 3648.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brett Dickinson
 Unit No: 59
 Reference Elevations: 2035.00 ft (KB)
 2025.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8957 **Inside**
 Press@RunDepth: 53.67 psig @ 3629.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.08.21 End Date: 2014.08.22 Last Calib.: 2014.08.22
 Start Time: 18:15:05 End Time: 02:25:29 Time On Btm: 2014.08.21 @ 21:43:00
 Time Off Btm: 2014.08.22 @ 00:46:30

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



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1848.48	105.39	Initial Hydro-static
1	29.91	104.88	Open To Flow (1)
47	33.19	105.99	Shut-In(1)
90	1142.39	107.28	End Shut-In(1)
91	41.76	107.07	Open To Flow (2)
136	53.67	108.87	Shut-In(2)
183	1142.96	109.61	End Shut-In(2)
184	1760.82	110.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	MCO 45%O 55%M	0.42
70.00	SGO 10%G 90%O	0.98

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc.
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-19w Ellis,KS
Bieler #2
Job Ticket: 53966 **DST#: 4**
Test Start: 2014.08.21 @ 18:15:00

Tool Information

Drill Pipe:	Length: 3620.00 ft	Diameter: 3.80 inches	Volume: 50.78 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 50.78 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3628.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	20.00 ft				
Tool Length:	40.00 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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Shut In Tool	5.00			3613.00	
Hydraulic tool	5.00			3618.00	
Packer	5.00			3623.00	20.00 Bottom Of Top Packer
Packer	5.00			3628.00	
Stubb	1.00			3629.00	
Recorder	0.00	8957	Inside	3629.00	
Recorder	0.00	8934	Outside	3629.00	
Perforations	4.00			3633.00	
Perforations	12.00			3645.00	
Bullnose	3.00			3648.00	20.00 Bottom Packers & Anchor
Total Tool Length:	40.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **9-15s-19w Ellis,KS**
 1310 Bison Rd **Bieler #2**
 Hays KS 67601 Job Ticket: 53966 **DST#: 4**
 ATTN: Herb Deines Test Start: 2014.08.21 @ 18:15:00

Mud and Cushion Information

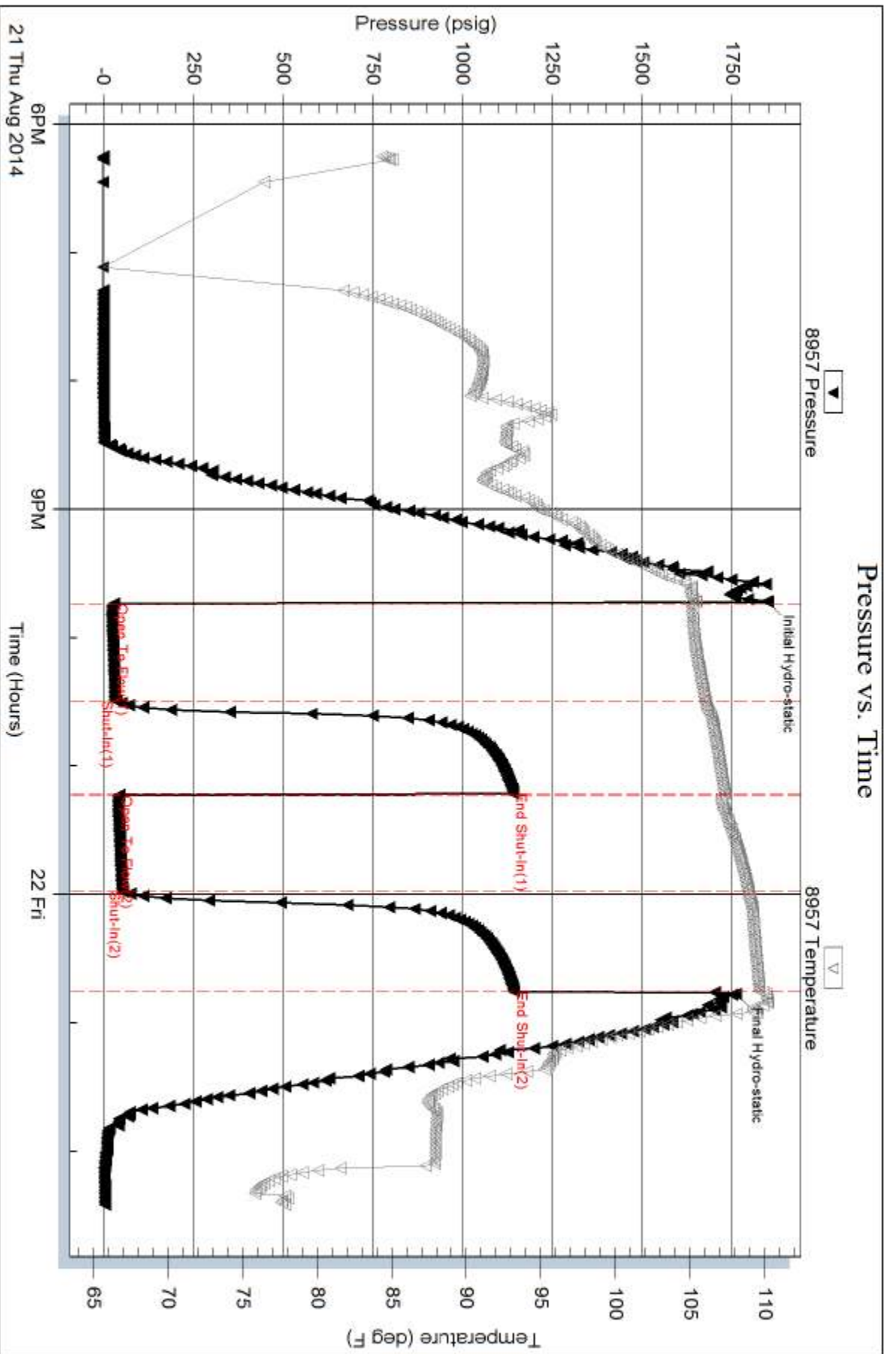
Mud Type: Gel Chem	Cushion Type:	Oil API: 25 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.78 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3800.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	MCO 45%O 55%M	0.421
70.00	SGO 10%G 90%O	0.982

Total Length: 100.00 ft Total Volume: 1.403 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

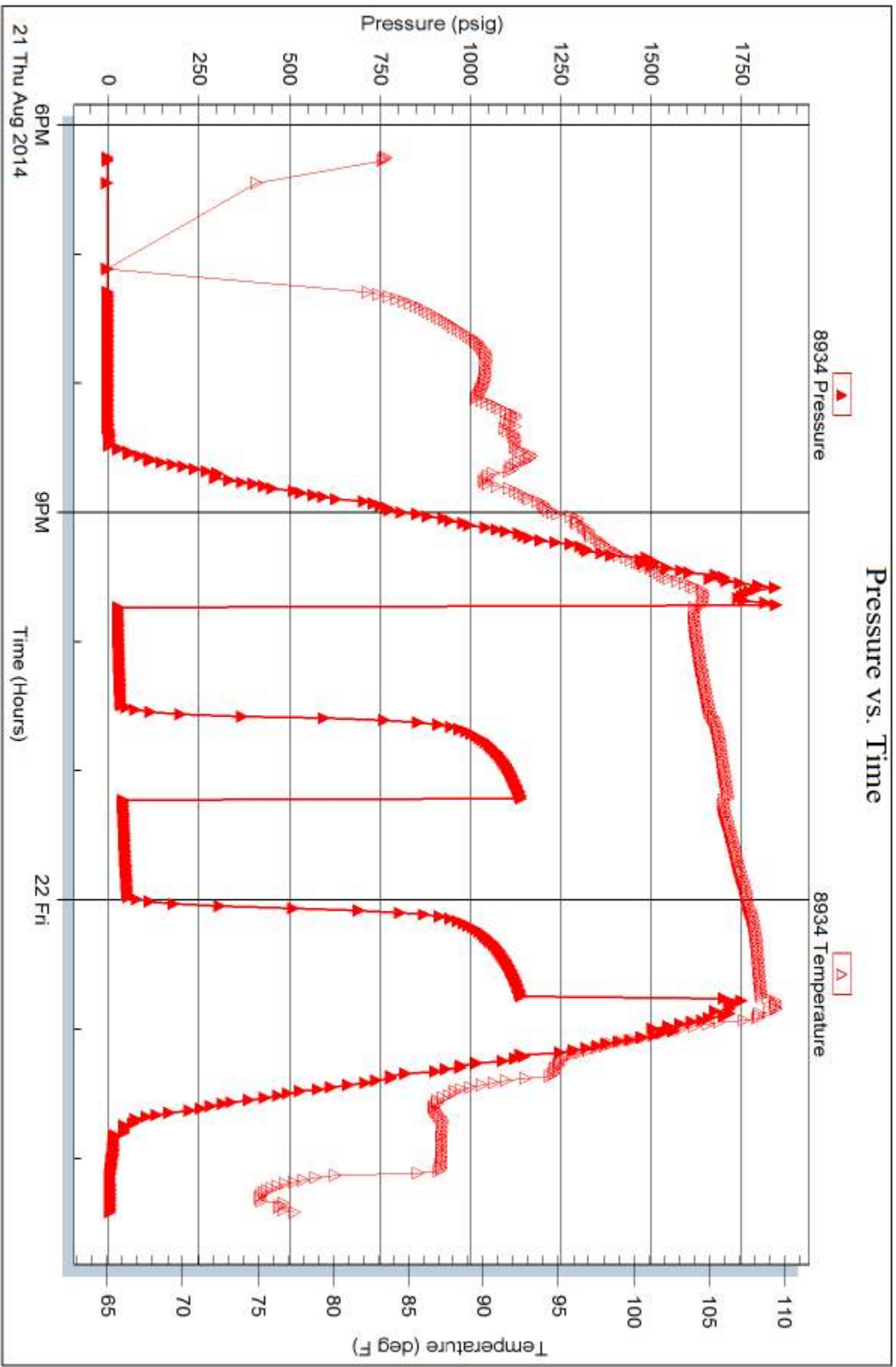


Serial #: 8934

Outside TDI Inc.

Bieler #2

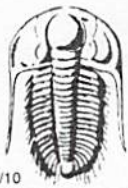
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 53966

Printed: 2014.08.22 @ 12:00:45



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53963

Well Name & No. Bieler #2 Test No. 1 Date 8/19/14
 Company TDI Inc. Elevation 2035 KB 2028 GL
 Address 1310 Bison Rd Hays KS 67601
 Co. Rep / Geo. Herb D Rig Southwind #1
 Location: Sec. 9 Twp. 15 Rge. 19 Co. Ellis State KS

Interval Tested 3310-3365 Zone Tested Toronto - KC "C"
 Anchor Length 55 Drill Pipe Run _____ Mud Wt. 8.9
 Top Packer Depth 3305 Drill Collars Run — Vis 55
 Bottom Packer Depth 3310 Wt. Pipe Run — WL 7.8
 Total Depth 3365 Chlorides 3800 ppm System LCM 2#
 Blow Description FF - Packer - failure

Rec	Feet of	%gas	%oil	%water	%mud

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

(A) Initial Hydrostatic _____ Test 950 T-On Location 18:00
 (B) First Initial Flow _____ Jars _____ T-Started 18:20
 (C) First Final Flow _____ Safety Joint _____ T-Open 19:
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled 19:
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 23:45
 (F) Second Final Flow _____ Mileage 38.7 58.90 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open _____
 Initial Shut-In _____
 Final Flow _____
 Final Shut-In _____

Sub Total 1008.90

Sub Total 0
 Total 1208.90
 MP/DST Disc't _____

Approved By _____ Our Representative Burt Dyer

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **53964**

Well Name & No. Bieler #2 Test No. 2 Date 8/19/14
 Company TDI Inc. Elevation 2035 KB 2028 GL
 Address 1310 Bison Rd Hays KS 67601
 Co. Rep / Geo. Herb D Rig Southwind #1
 Location: Sec. 9 Twp. 15 Rge. 19 Co. Ellis State KS

Interval Tested 3342 - 3365 Zone Tested KC¹¹C¹¹
 Anchor Length 23 Drill Pipe Run _____ Mud Wt. 8.9
 Top Packer Depth 3337 Drill Collars Run - Vis 55
 Bottom Packer Depth 3342 Wt. Pipe Run - WL 7.8
 Total Depth 3365 Chlorides 3800 ppm System LCM 2[#]

Blow Description FF - BOB in 6min
ISF - No blow
FF - BOB in 1/2min
ISF - 2 1/2 in blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>105</u>	<u>SGO</u>	<u>10</u>	<u>90</u>		
<u>60</u>	<u>GVSOCM</u>	<u>35</u>	<u>5</u>		<u>60</u>
	<u>1240 @ GIP</u>				

Rec Total 165 BHT 111 Gravity 30 API RW _____ @ _____ °F Chlorides _____ ppm
 (A) Initial Hydrostatic 1,637 Test 1150 T-On Location _____
 (B) First Initial Flow 33 Jars _____ T-Started 23:55
 (C) First Final Flow 39 Safety Joint _____ T-Open 1:15
 (D) Initial Shut-In 805 Circ Sub _____ T-Pulled 3:30
 (E) Second Initial Flow 41 Hourly Standby _____ T-Out 5:20
 (F) Second Final Flow 78 Mileage 58.90 Comments _____
 (G) Final Shut-In 739 Sampler _____
 (H) Final Hydrostatic 1,605 Straddle _____

Initial Open 15 Ruined Shale Packer _____
 Initial Shut-In 30 Ruined Packer _____
 Final Flow 45 Extra Copies _____
 Final Shut-In 45 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1208.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1208.90

Approved By _____ Our Representative Butt Dan

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53965

Well Name & No. Bieler #2 Test No. 3 Date 8/20/14
 Company TOT Inc. Elevation 2035 KB 2025 GL
 Address 1310 Bison Rd Hays KS 67601
 Co. Rep / Geo. Herb D. Rig Southwind #1
 Location: Sec. 9 Twp. 15 Rge. 19 Co. Ellis State KS

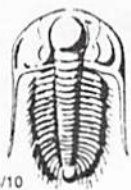
Interval Tested 3364-3415 Zone Tested KC "D-G"
 Anchor Length 51 Drill Pipe Run _____ Mud Wt. _____
 Top Packer Depth 3359 Drill Collars Run _____ Vis _____
 Bottom Packer Depth 3364 Wt. Pipe Run _____ WL _____
 Total Depth 3415 Chlorides _____ ppm System LCM _____
 Blow Description FF-BOB in 29min
FSI-No blow
FF-BOB in 49min
FSI - 1/2 in blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>SGOWCM</u>	<u>10</u>	<u>10</u>	<u>30</u>	<u>50</u>
<u>60</u>	<u>SGOWCM</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>70</u>
<u>45</u>	<u>GOCM</u>	<u>20</u>	<u>25</u>		<u>55</u>
Rec	Feet of <u>310 FT GRP</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 225 BHT _____ Gravity _____ API RW .2 @ 60° F Chlorides 46,000 ppm
 (A) Initial Hydrostatic 1,658 Test 1150 T-On Location 14:45
 (B) First Initial Flow 33 Jars _____ T-Started 15:15
 (C) First Final Flow 69 Safety Joint _____ T-Open 19:00
 (D) Initial Shut-In 901 Circ Sub _____ T-Pulled 22:30
 (E) Second Initial Flow 84 Hourly Standby _____ T-Out 00:35
 (F) Second Final Flow 120 Mileage 38RT 58.90 Comments _____
 (G) Final Shut-In 889 Sampler _____
 (H) Final Hydrostatic 1,622 Straddle _____ Ruined Shale Packer _____
 Initial Open 45 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 45 Extra Packer _____ Extra Copies _____
 Final Flow 60 Extra Recorder _____ Sub Total 0
 Final Shut-In 60 Day Standby _____ Total 1208.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1208.90

Approved By _____ Our Representative Butch

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **53966**

Well Name & No. Bieler #2 Test No. 4 Date 8/21/14
 Company TOI Inc. Elevation 2035 KB 2025 GL
 Address _____
 Co. Rep / Geo. Herb D. Rig Southwind #1
 Location: Sec. 9 Twp. 15 Rge. 19 Co. Ellis State KS

Interval Tested 3628-3648 Zone Tested Cong Sd.
 Anchor Length 20 Drill Pipe Run _____ Mud Wt. _____
 Top Packer Depth 3623 Drill Collars Run — Vis _____
 Bottom Packer Depth 3628 Wt. Pipe Run — WL _____
 Total Depth 3648 Chlorides _____ ppm System LCM _____

Blow Description 7F - 4in blow
FSI - No blow
FF - 2in blow
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MCO</u>	<u>45</u>	<u>—</u>	<u>55</u>	<u>—</u>
<u>70</u>	<u>SGO</u>	<u>10</u>	<u>90</u>	<u>—</u>	<u>—</u>
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total 100 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 6848 Test 1150 T-On Location 17:50
 (B) First Initial Flow 30 Jars _____ T-Started 18:15
 (C) First Final Flow 33 Safety Joint _____ T-Open 21:42
 (D) Initial Shut-In 1,142 Circ Sub _____ T-Pulled 00:42
 (E) Second Initial Flow 42 Hourly Standby _____ T-Out 2:25
 (F) Second Final Flow 54 Mileage 38rt 58.90 Comments _____
 (G) Final Shut-In 1,143 Sampler _____
 (H) Final Hydrostatic 1,761 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 45 Extra Packer _____ Extra Copies _____
 Initial Shut-In 45 Extra Recorder _____ Sub Total 0
 Final Flow 45 Day Standby _____ Total 1208.90
 Final Shut-In 45 Accessibility _____ MP/DST Disc't _____
 Sub Total 1208.90

Approved By _____ Our Representative But Dineen

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