



## DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd  
Hays, KS 67601

ATTN: Herb Deines

**Alvin #1**

**27-10-17w Rooks,KS**

Start Date: 2014.04.08 @ 16:35:52

End Date: 2014.04.08 @ 22:19:52

Job Ticket #: 57559                      DST #: 1

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

Printed: 2014.04.11 @ 13:56:46

TDI  
27-10-17w Rooks,KS  
Alvin #1  
DST # 1  
"D"  
2014.04.08



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

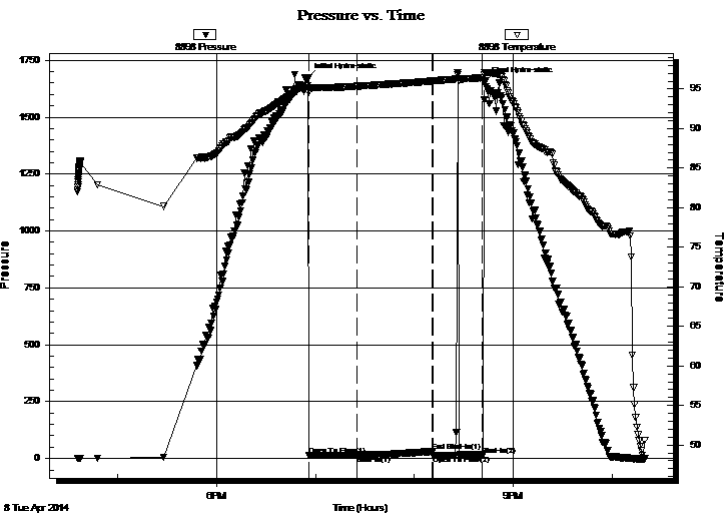
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57559 **DST#: 1**  
Test Start: 2014.04.08 @ 16:35:52

## GENERAL INFORMATION:

Formation: **"D"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 18:55:52 Tester: Tate Lang  
 Time Test Ended: 22:19:52 Unit No: 49  
 Interval: **3338.00 ft (KB) To 3370.00 ft (KB) (TVD)** Reference Elevations: 2075.00 ft (KB)  
 Total Depth: 3370.00 ft (KB) (TVD) 2065.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 10.00 ft

**Serial #: 8898 Outside**  
 Press@RunDepth: 15.63 psig @ 3342.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.08 End Date: 2014.04.08 Last Calib.: 2014.04.08  
 Start Time: 16:35:53 End Time: 22:19:52 Time On Btm: 2014.04.08 @ 18:55:42  
 Time Off Btm: 2014.04.08 @ 20:42:42

**TEST COMMENT:** Weak surface blow died in 20 mins  
 Dead no blow back  
 Dead no blow flushed tool dead no blow  
 Pulled tool



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1672.04	95.44	Initial Hydro-static
1	14.10	94.52	Open To Flow (1)
30	15.63	95.34	Shut-In(1)
76	30.33	95.99	End Shut-In(1)
76	14.43	95.99	Open To Flow (2)
106	15.91	96.42	Shut-In(2)
107	1658.54	97.05	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	100%M	0.01

## Gas Rates

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



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TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

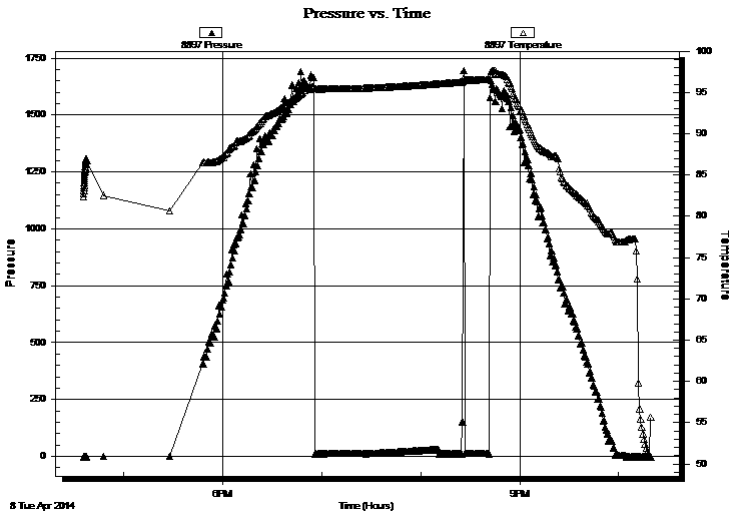
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57559 **DST#: 1**  
Test Start: 2014.04.08 @ 16:35:52

## GENERAL INFORMATION:

Formation: **"D"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 18:55:52  
Time Test Ended: 22:19:52  
Interval: **3338.00 ft (KB) To 3370.00 ft (KB) (TVD)**  
Total Depth: 3370.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Tate Lang  
Unit No: 49  
Reference Elevations: 2075.00 ft (KB)  
2065.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8897** Inside  
Press@RunDepth: psig @ 3342.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.04.08 End Date: 2014.04.08 Last Calib.: 2014.04.08  
Start Time: 16:35:40 End Time: 22:19:39 Time On Btm:  
Time Off Btm:

TEST COMMENT: Weak surface blow died in 20 mins  
Dead no blow back  
Dead no blow flushed tool dead no blow  
Pulled tool



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	100%M	0.01

## Gas Rates

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



**TRILOBITE  
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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI	<b>27-10-17w Rooks,KS</b>
1310 Bison Rd Hays, KS 67601	<b>Alvin #1</b>
ATTN: Herb Deines	Job Ticket: 57559 <b>DST#: 1</b>
	Test Start: 2014.04.08 @ 16:35:52

**Tool Information**

Drill Pipe: Length: 3341.00 ft	Diameter: 3.80 inches	Volume: 46.87 bbl	Tool Weight: 2200.00 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: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
	Total Volume: 46.87 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB: 23.00 ft			String Weight: Initial 43000.00 lb
Depth to Top Packer: 3338.00 ft			Final 43000.00 lb
Depth to Bottom Packer: ft			
Interval between Packers: 32.00 ft			
Tool Length: 52.00 ft			
Number of Packers: 2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	5.00			3323.00	
Hydraulic tool	5.00			3328.00	
Packer	5.00			3333.00	20.00      Bottom Of Top Packer
Packer	5.00			3338.00	
Stubb	1.00			3339.00	
Perforations	3.00			3342.00	
Recorder	0.00	8897	Inside	3342.00	
Recorder	0.00	8898	Outside	3342.00	
Perforations	25.00			3367.00	
Bullnose	3.00			3370.00	32.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>52.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI **27-10-17w Rooks,KS**  
 1310 Bison Rd **Alvin #1**  
 Hays, KS 67601 Job Ticket: 57559 **DST#: 1**  
 ATTN: Herb Deines Test Start: 2014.04.08 @ 16:35:52

## Mud and Cushion Information

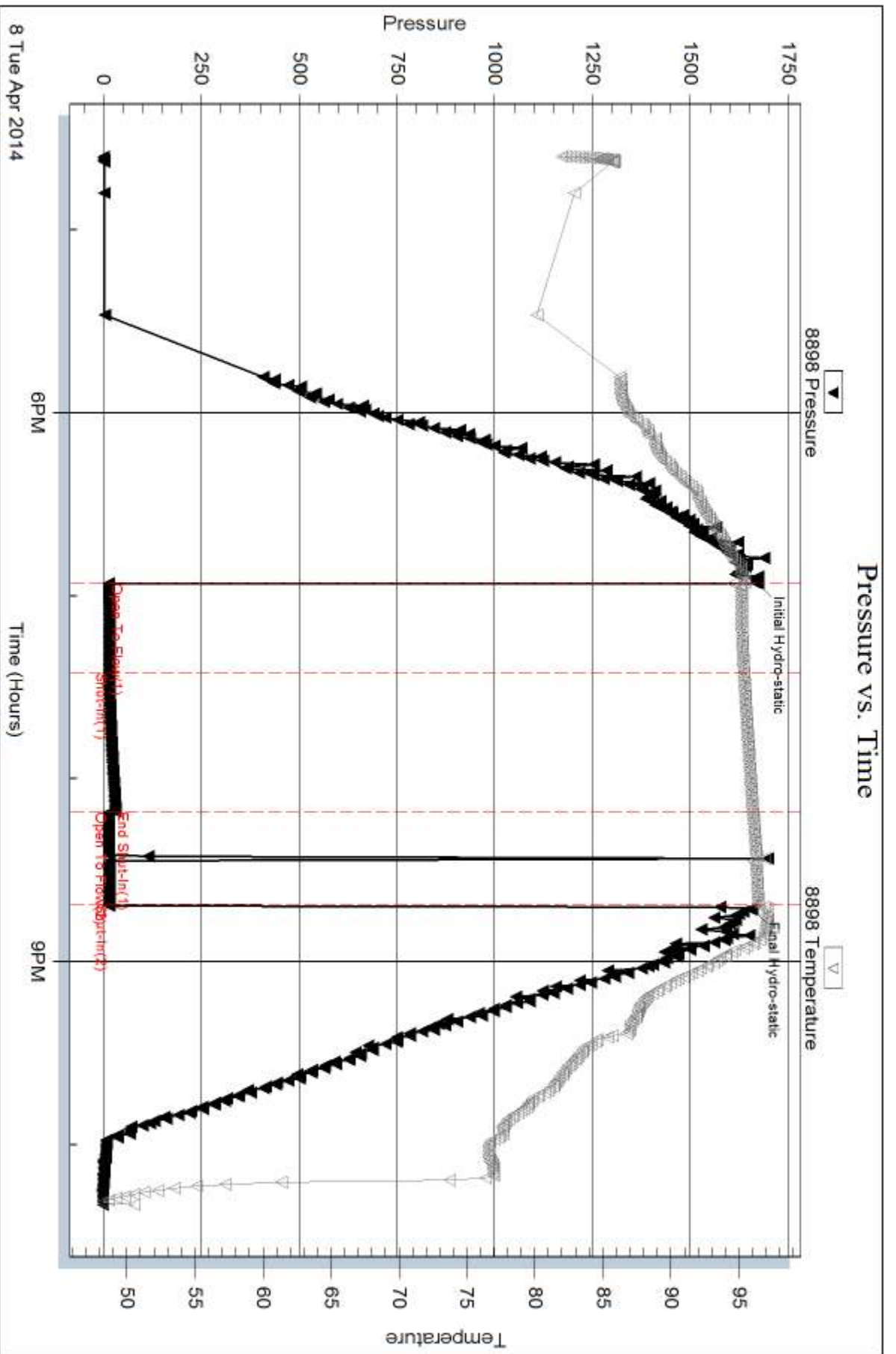
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: sec/qt	Cushion Volume: bbl		
Water Loss: 5.78 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2700.00 ppm			
Filter Cake: 1.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100%M	0.014

Total Length: 1.00 ft      Total Volume: 0.014 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

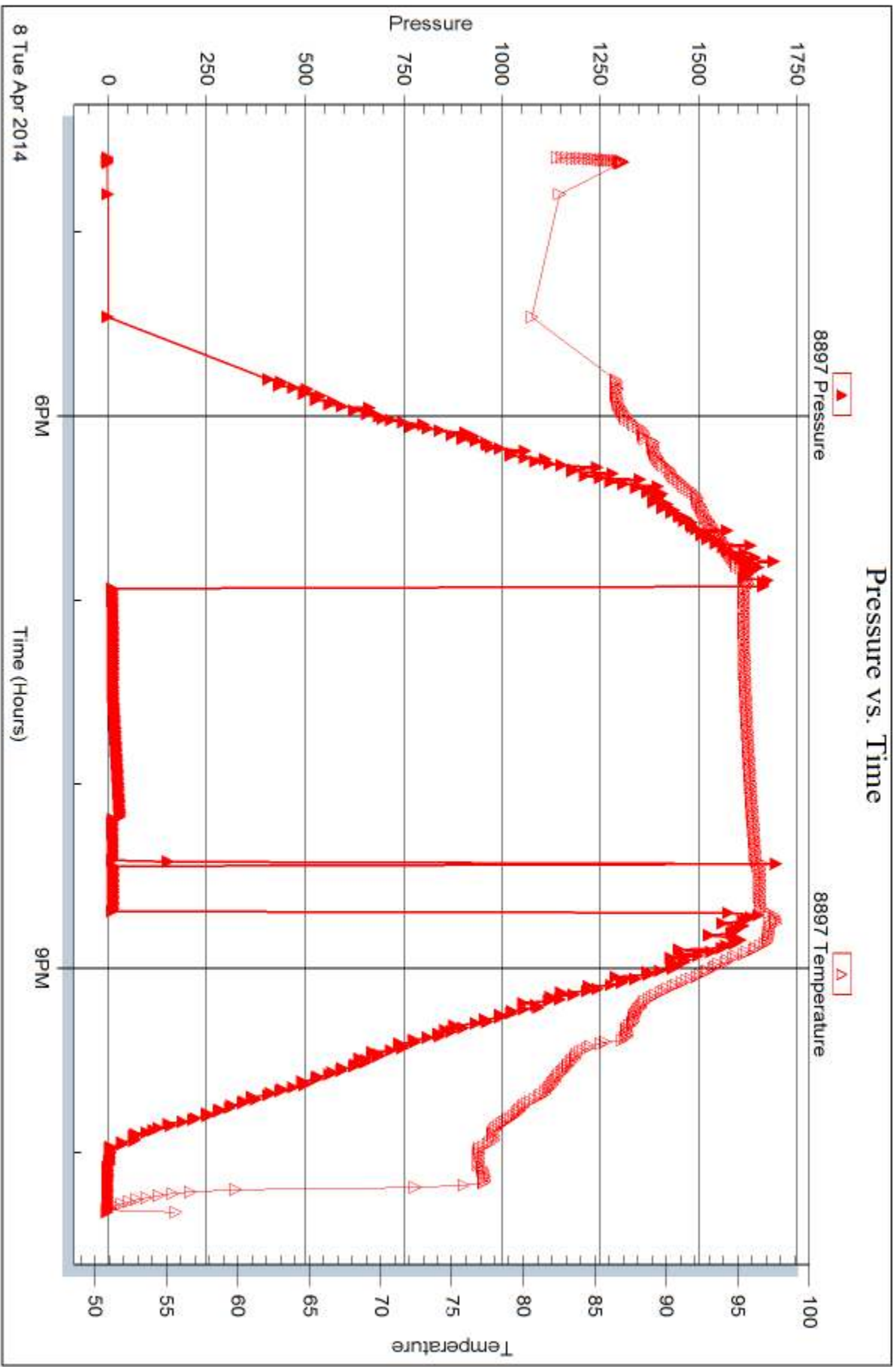


Serial #: 8897

Inside TDI

Alvin #1

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd  
Hays, KS 67601

ATTN: Herb Deines

**Alvin #1**

**27-10-17w Rooks,KS**

Start Date: 2014.04.09 @ 22:37:01

End Date: 2014.04.10 @ 05:33:40

Job Ticket #: 57560                      DST #: 2

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

Printed: 2014.04.11 @ 13:56:19





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

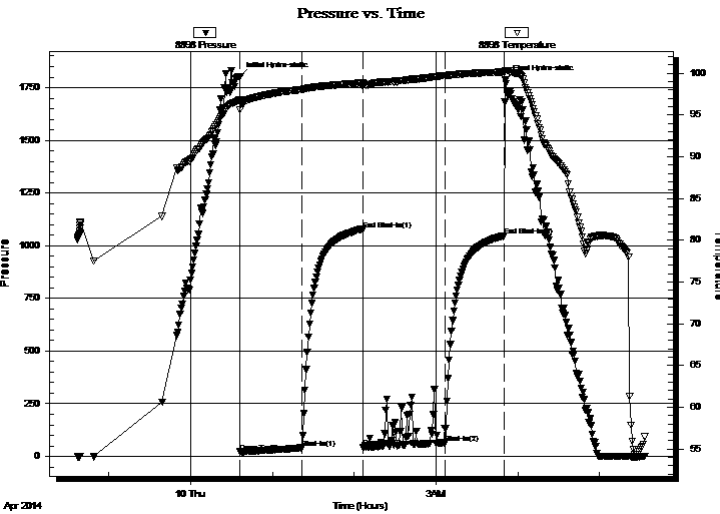
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57560 **DST#: 2**  
Test Start: 2014.04.09 @ 22:37:01

## GENERAL INFORMATION:

Formation: **Cong. Simpson Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:36:21  
 Time Test Ended: 05:33:40  
 Interval: **3534.00 ft (KB) To 3685.00 ft (KB) (TVD)**  
 Total Depth: 3368.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 49  
 Reference Elevations: 2075.00 ft (KB)  
 2065.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8898 Outside**  
 Press@RunDepth: 64.50 psig @ 3539.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.09 End Date: 2014.04.10 Last Calib.: 2014.04.10  
 Start Time: 22:37:02 End Time: 05:33:41 Time On Btm: 2014.04.10 @ 00:36:11  
 Time Off Btm: 2014.04.10 @ 03:51:01

TEST COMMENT: Weak surface blow built to 3"  
 Dead no blow  
 Weak surface blow built to 3"  
 Dead no blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1802.30	96.80	Initial Hydro-static
1	21.74	95.67	Open To Flow (1)
46	39.08	98.05	Shut-In(1)
90	1076.82	98.85	End Shut-In(1)
91	44.57	98.38	Open To Flow (2)
151	64.50	99.66	Shut-In(2)
194	1046.28	100.16	End Shut-In(2)
195	1788.19	100.31	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
90.00	100%M	1.26

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57560  
Test Start: 2014.04.09 @ 22:37:01

**DST#: 2**

**Tool Information**

Drill Pipe:	Length: 3529.00 ft	Diameter: 3.80 inches	Volume: 49.50 bbl	Tool Weight: 2200.00 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: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 49.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 47000.00 lb
Depth to Top Packer:	3534.00 ft			Final 47000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	151.00 ft			
Tool Length:	171.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	5.00			3519.00	
Hydraulic tool	5.00			3524.00	
Packer	5.00			3529.00	20.00 Bottom Of Top Packer
Packer	5.00			3534.00	
Stubb	1.00			3535.00	
Perforations	4.00			3539.00	
Recorder	0.00	8897	Inside	3539.00	
Recorder	0.00	8898	Outside	3539.00	
Change Over Sub	1.00			3540.00	
Drill Pipe	126.00			3666.00	
Change Over Sub	1.00			3667.00	
Perforations	15.00			3682.00	
Bullnose	3.00			3685.00	151.00 Bottom Packers & Anchor

**Total Tool Length: 171.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI **27-10-17w Rooks,KS**  
 1310 Bison Rd **Alvin #1**  
 Hays, KS 67601 Job Ticket: 57560 **DST#: 2**  
 ATTN: Herb Deines Test Start: 2014.04.09 @ 22:37:01

### 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: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: 1.00 inches			

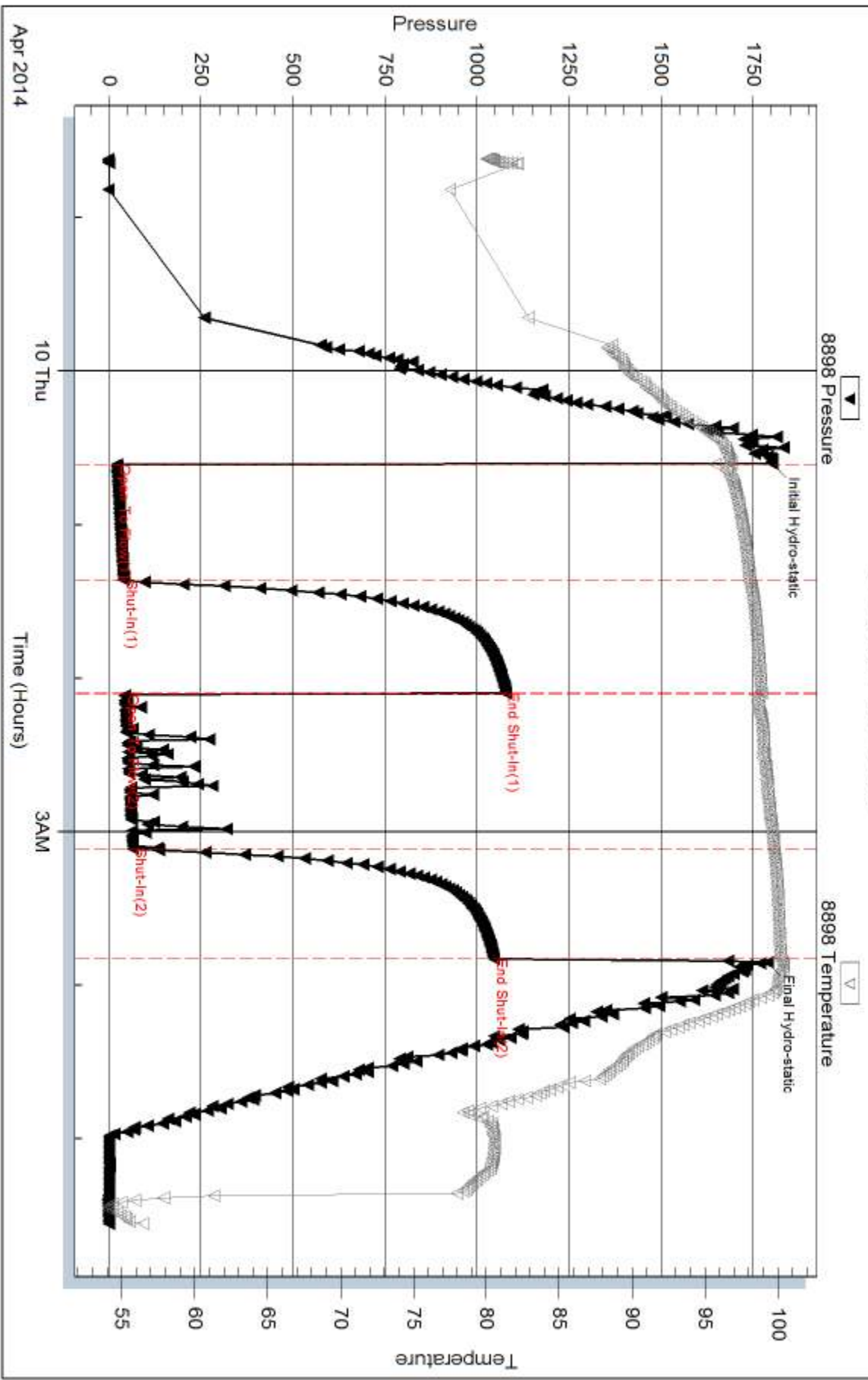
### Recovery Information

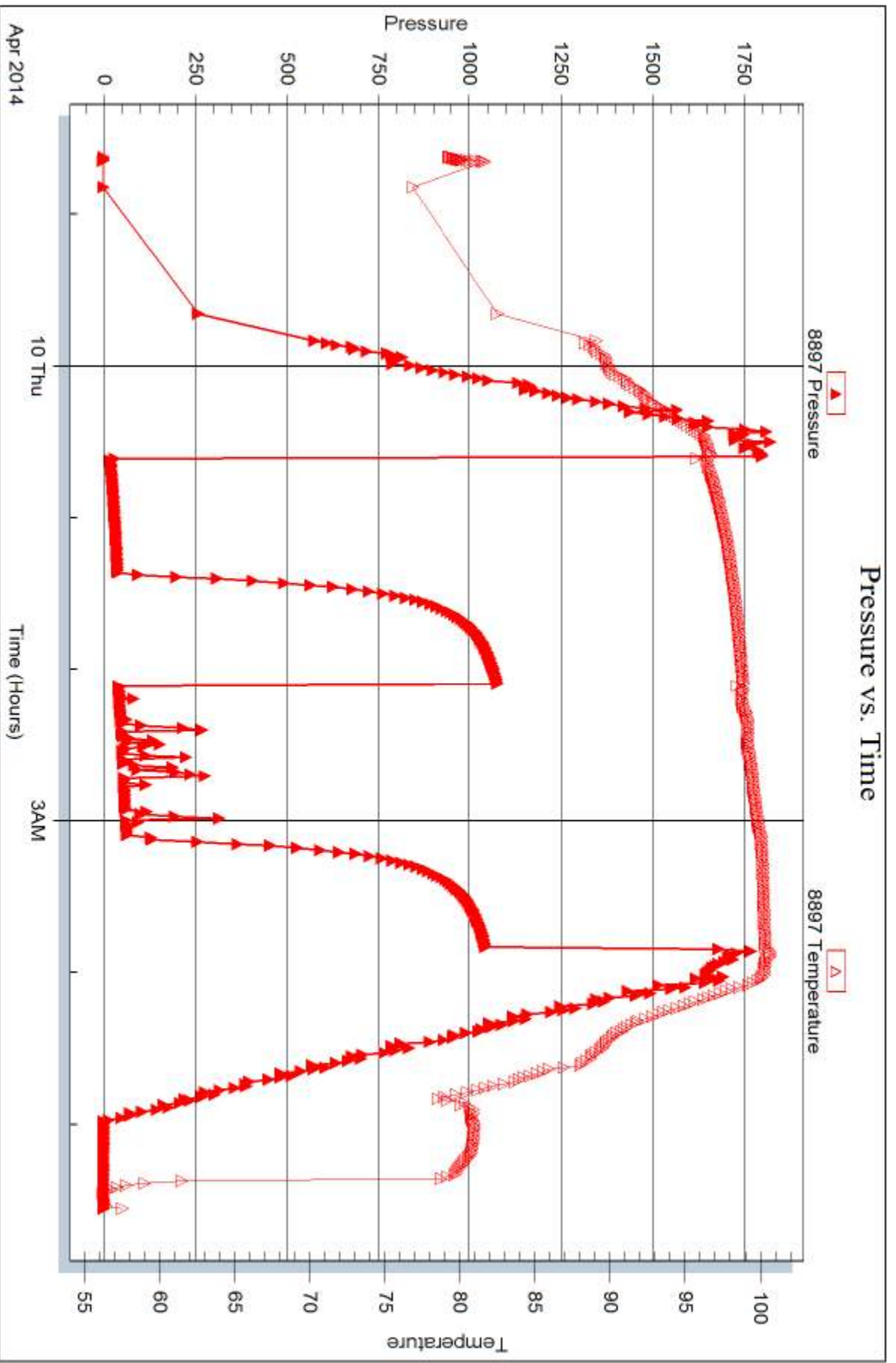
Recovery Table

Length ft	Description	Volume bbl
90.00	100%M	1.262

Total Length: 90.00 ft      Total Volume: 1.262 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd  
Hays, KS 67601

ATTN: Herb Deines

**Alvin #1**

**27-10-17w Rooks,KS**

Start Date: 2014.04.10 @ 17:30:30

End Date: 2014.04.10 @ 22:33:39

Job Ticket #: DST #: 3

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

Printed: 2014.04.11 @ 13:55:53

TDI  
27-10-17w Rooks,KS  
Alvin #1  
DST # 3  
"J-L"  
2014.04.10



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: **DST#: 3**  
Test Start: 2014.04.10 @ 17:30:30

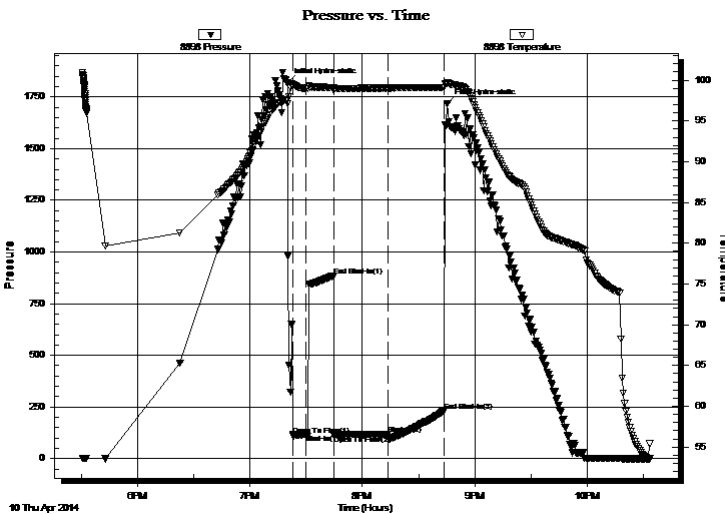
## GENERAL INFORMATION:

Formation: **"J-L"**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Straddle (Reset)  
 Time Tool Opened: 19:22:40 Tester: Tate Lang  
 Time Test Ended: 22:33:39 Unit No: 49  
**Interval: 3464.00 ft (KB) To 3552.00 ft (KB) (TVD)** Reference Elevations: 2075.00 ft (KB)  
 Total Depth: 3750.00 ft (KB) (TVD) 2065.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 10.00 ft

**Serial #: 8898 Outside**  
 Press@RunDepth: 117.65 psig @ 3465.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.10 End Date: 2014.04.10 Last Calib.: 2014.04.10  
 Start Time: 17:30:31 End Time: 22:33:40 Time On Btm: 2014.04.10 @ 19:20:00  
 Time Off Btm: 2014.04.10 @ 20:45:30

TEST COMMENT: B.O.B. In 1 min  
 Dead no blow back  
 Dead no blow  
 Dead no blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1818.22	97.58	Initial Hydro-static
3	110.75	99.21	Open To Flow (1)
10	115.57	99.00	Shut-In(1)
25	884.45	99.12	End Shut-In(1)
25	111.42	98.68	Open To Flow (2)
54	117.65	99.05	Shut-In(2)
84	229.17	99.11	End Shut-In(2)
86	1717.60	99.64	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
170.00	100%M	2.38

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

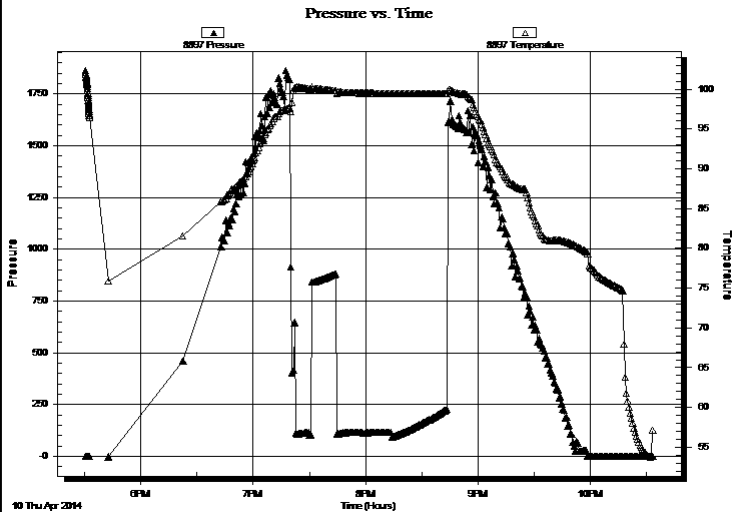
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: **DST#: 3**  
Test Start: 2014.04.10 @ 17:30:30

## GENERAL INFORMATION:

Formation: "J-L"  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Straddle (Reset)  
 Time Tool Opened: 19:22:40  
 Tester: Tate Lang  
 Time Test Ended: 22:33:39  
 Unit No: 49  
 Interval: **3464.00 ft (KB) To 3552.00 ft (KB) (TVD)**  
 Reference Elevations: 2075.00 ft (KB)  
 Total Depth: 3750.00 ft (KB) (TVD)  
 2065.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 KB to GR/CF: 10.00 ft

**Serial #: 8897** Inside  
 Press@RunDepth: psig @ 3465.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.10 End Date: 2014.04.10 Last Calib.: 2014.04.10  
 Start Time: 17:30:26 End Time: 22:33:35 Time On Btm:  
 Time Off Btm:

TEST COMMENT: B.O.B. In 1 min  
 Dead no blow back  
 Dead no blow  
 Dead no blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
170.00	100%M	2.38

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

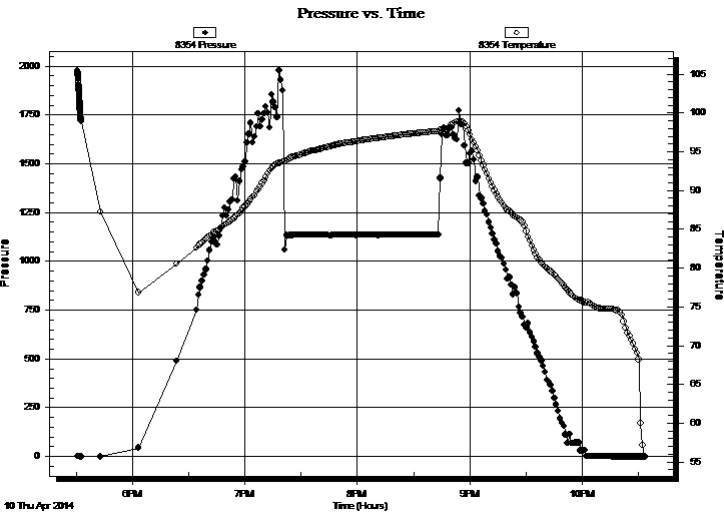
TDI **27-10-17w Rooks, KS**  
 1310 Bison Rd **Alvin #1**  
 Hays, KS 67601 Job Ticket: **DST#: 3**  
 ATTN: Herb Deines Test Start: 2014.04.10 @ 17:30:30

**GENERAL INFORMATION:**

Formation: **"J-L"**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Straddle (Reset)  
 Time Tool Opened: 19:22:40 Tester: Tate Lang  
 Time Test Ended: 22:33:39 Unit No: 49  
**Interval: 3464.00 ft (KB) To 3552.00 ft (KB) (TVD)** Reference Elevations: 2075.00 ft (KB)  
 Total Depth: 3750.00 ft (KB) (TVD) 2065.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 10.00 ft

**Serial #: 8354 Below (Straddle)**  
 Press@RunDepth: psig @ 3561.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.10 End Date: 2014.04.10 Last Calib.: 2014.04.10  
 Start Time: 17:30:45 End Time: 22:33:44 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** B.O.B. In 1 min  
 Dead no blow back  
 Dead no blow  
 Dead no blow back



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
170.00	100%M	2.38

\* Recovery from multiple tests

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI	<b>27-10-17w Rooks,KS</b>
1310 Bison Rd Hays, KS 67601	<b>Alvin #1</b>
ATTN: Herb Deines	Job Ticket: <b>DST#: 3</b>
	Test Start: 2014.04.10 @ 17:30:30

**Tool Information**

Drill Pipe:	Length: 3460.00 ft	Diameter: 3.80 inches	Volume: 48.53 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: lb
			<u>Total Volume: 48.53 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3464.00 ft			Final lb
Depth to Bottom Packer:	3552.00 ft			
Interval between Packers:	88.00 ft			
Tool Length:	318.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3442.00	
Hydraulic tool	5.00			3447.00	
Jars	5.00			3452.00	
Safety Joint	2.00			3454.00	
Packer	5.00			3459.00	27.00 Bottom Of Top Packer
Packer	5.00			3464.00	
Stubb	1.00			3465.00	
Recorder	0.00	8897	Inside	3465.00	
Recorder	0.00	8898	Outside	3465.00	
Perforations	3.00			3468.00	
Change Over Sub	1.00			3469.00	
Drill Pipe	62.00			3531.00	
Change Over Sub	1.00			3532.00	
perforations	15.00			3547.00	
Blank Off Sub	1.00			3548.00	
Blank Spacing	4.00			3552.00	88.00 Tool Interval
Packer	5.00			3557.00	
Stubb	1.00			3558.00	
Perforations	3.00			3561.00	
Recorder	0.00	8354	Below	3561.00	
Change Over Sub	1.00			3562.00	
Blank Spacing	189.00			3751.00	
Change Over Sub	1.00			3752.00	
Bullnose	3.00			3755.00	203.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>318.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI **27-10-17w Rooks,KS**  
 1310 Bison Rd **Alvin #1**  
 Hays, KS 67601 Job Ticket: **DST#: 3**  
 ATTN: Herb Deines Test Start: 2014.04.10 @ 17:30:30

### 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: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: 1.00 inches			

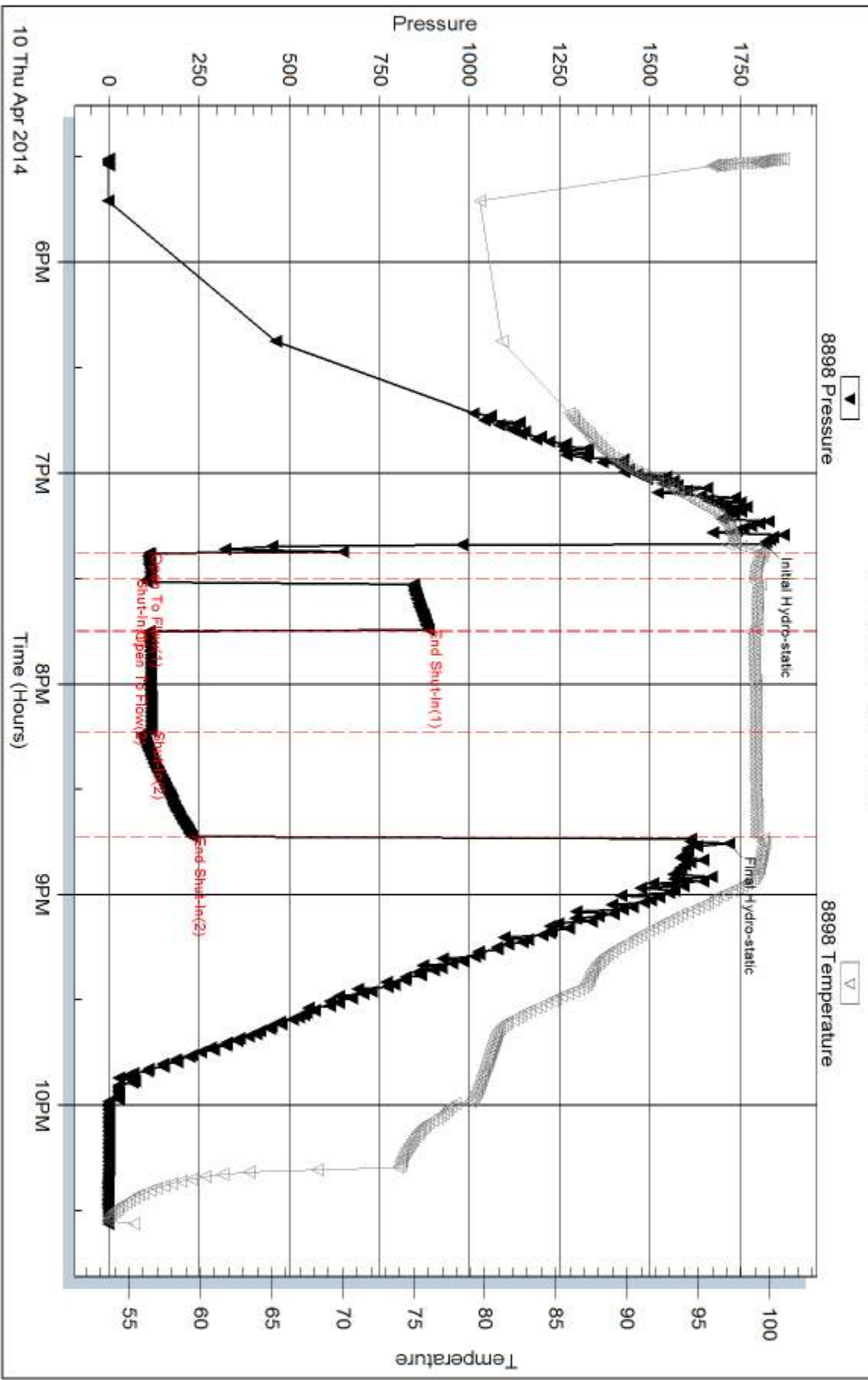
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
170.00	100%M	2.385

Total Length: 170.00 ft      Total Volume: 2.385 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time

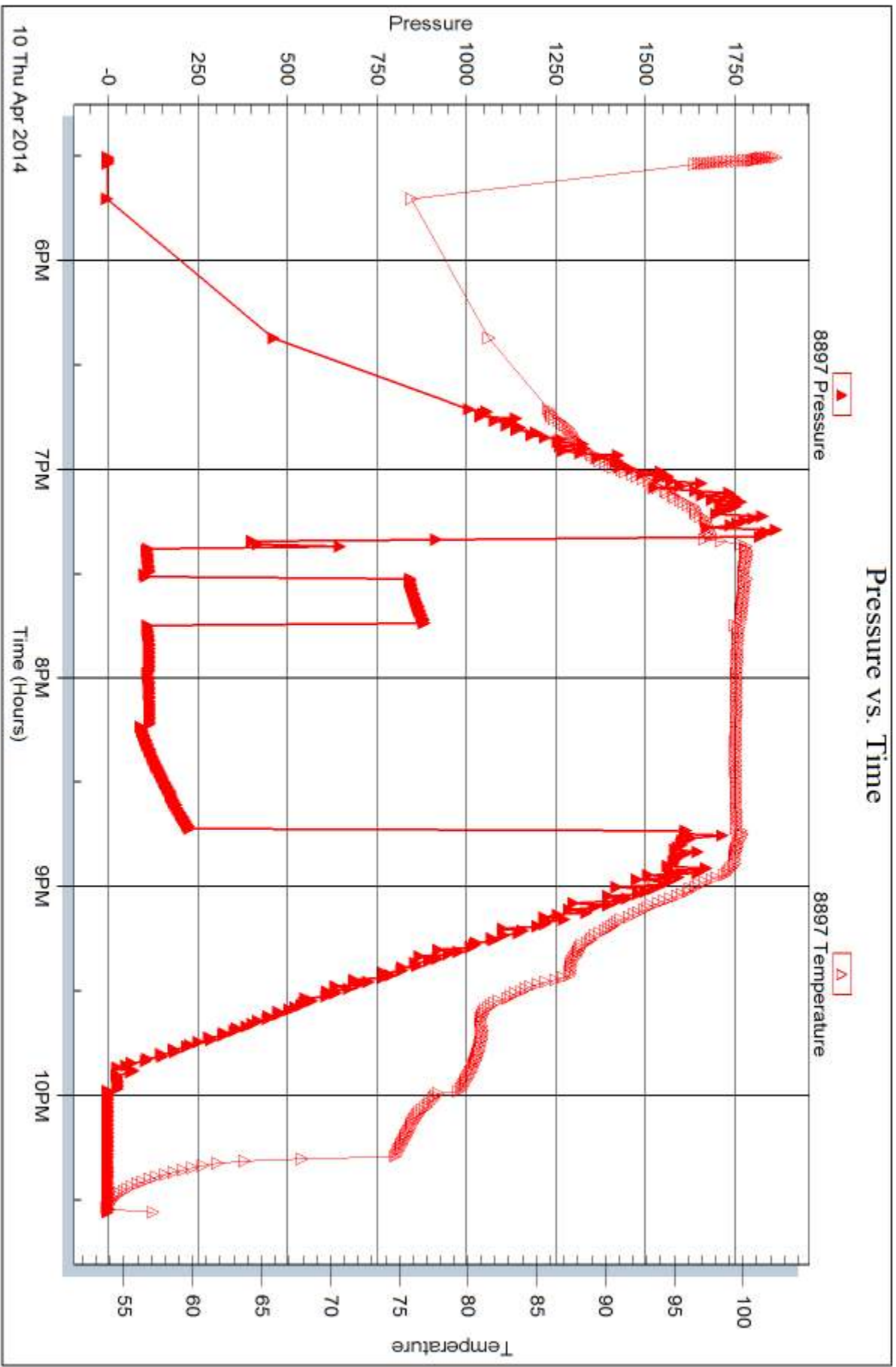


Serial #: 8897

Inside TDI

Alvin #1

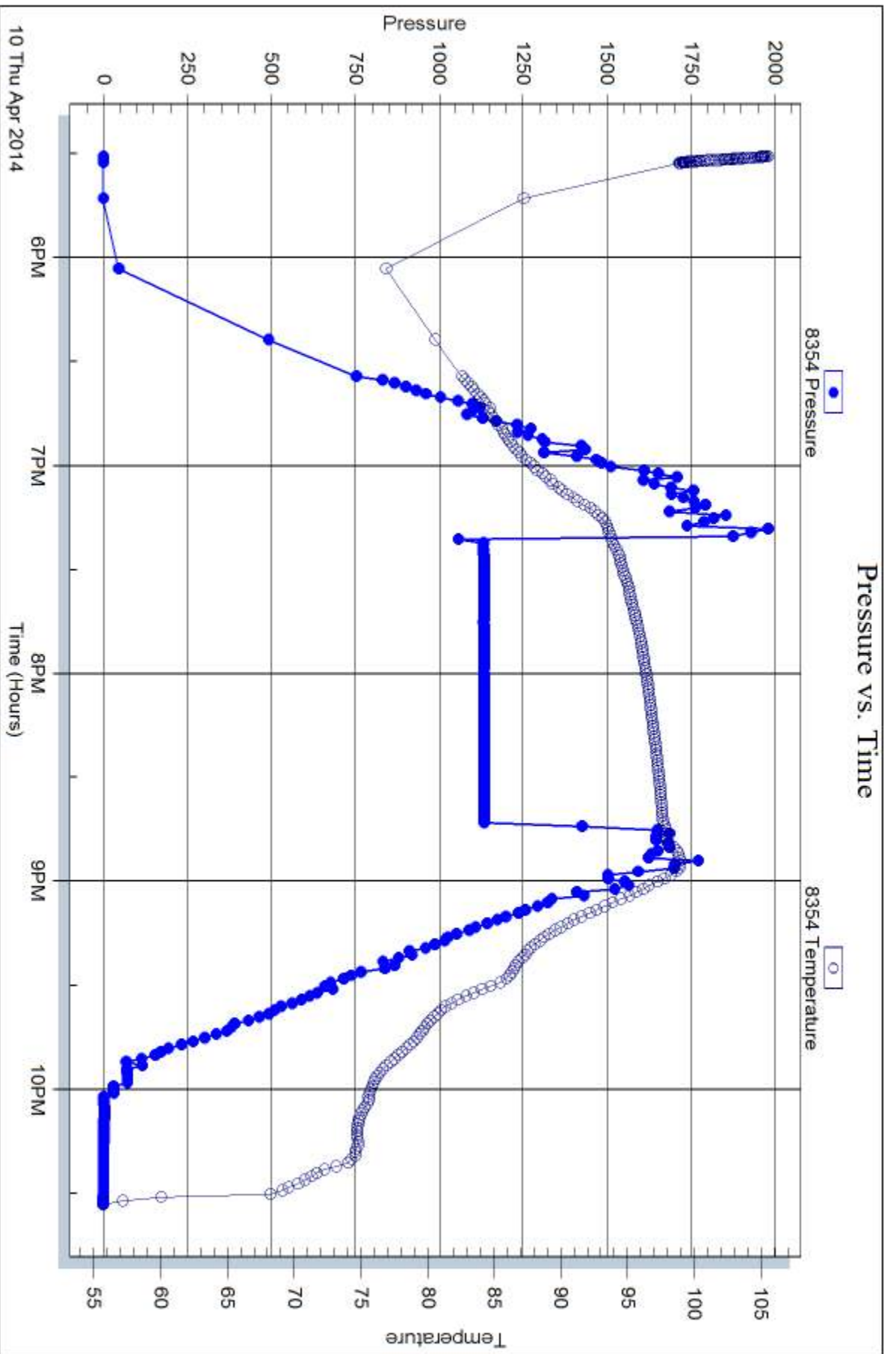
DST Test Number: 3



Trilobite Testing, Inc

Ref. No:

Printed: 2014.04.11 @ 13:55:56





## DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd  
Hays, KS 67601

ATTN: Herb Deines

**Alvin #1**

**27-10-17w Rooks,KS**

Start Date: 2014.04.10 @ 23:16:48

End Date: 2014.04.11 @ 05:22:57

Job Ticket #: 57562                      DST #: 4

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

Printed: 2014.04.11 @ 13:55:14

TDI  
27-10-17w Rooks,KS  
Alvin #1  
DST # 4  
J-L  
2014.04.10





# DRILL STEM TEST REPORT

TDI  
 1310 Bison Rd  
 Hays, KS 67601  
 ATTN: Herb Deines

**27-10-17w Rooks,KS**  
**Alvin #1**  
 Job Ticket: 57562      **DST#: 4**  
 Test Start: 2014.04.10 @ 23:16:48

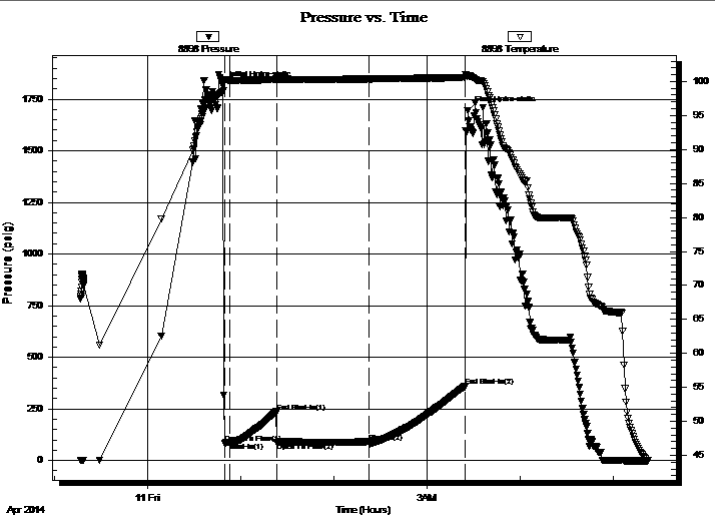
## GENERAL INFORMATION:

Formation: **J-L**  
 Deviated: No Whipstock:      ft (KB)      Test Type: Conventional Straddle (Reset)  
 Time Tool Opened: 00:49:38      Tester: Tate Lang  
 Time Test Ended: 05:22:57      Unit No: 49  
 Interval: **3460.00 ft (KB) To 3540.00 ft (KB) (TVD)**      Reference Elevations: 2075.00 ft (KB)  
 Total Depth: 3750.00 ft (KB) (TVD)      2065.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 10.00 ft

## Serial #: 8898      Outside

Press@RunDepth: 88.08 psig @ 3461.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.04.10      End Date: 2014.04.11      Last Calib.: 2014.04.11  
 Start Time: 23:16:49      End Time: 05:22:58      Time On Btm: 2014.04.11 @ 00:48:28  
 Time Off Btm: 2014.04.11 @ 03:26:28

TEST COMMENT: B.O.B. in 30 sec  
 Dead no blow  
 Dead no blow  
 Dead no blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1817.54	98.47	Initial Hydro-static
2	83.88	100.02	Open To Flow (1)
5	89.75	100.20	Shut-In(1)
35	235.99	100.27	End Shut-In(1)
35	88.13	100.17	Open To Flow (2)
94	88.08	100.38	Shut-In(2)
157	358.89	100.58	End Shut-In(2)
158	1693.89	100.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	100%M	1.75

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

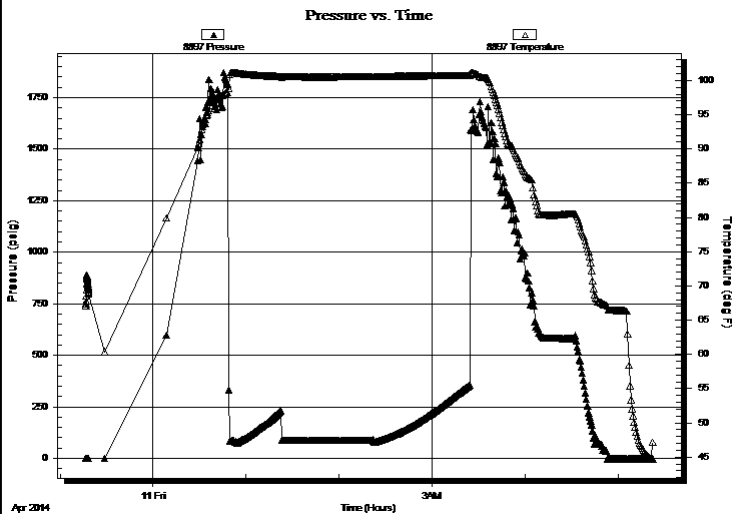
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57562      **DST#: 4**  
Test Start: 2014.04.10 @ 23:16:48

## GENERAL INFORMATION:

Formation: <b>J-L</b>			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Straddle (Reset)	
Time Tool Opened: 00:49:38		Tester: Tate Lang	
Time Test Ended: 05:22:57		Unit No: 49	
<b>Interval: 3460.00 ft (KB) To 3540.00 ft (KB) (TVD)</b>		Reference Elevations: 2075.00 ft (KB)	
Total Depth: 3750.00 ft (KB) (TVD)		2065.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Good	KB to GR/CF: 10.00 ft	

<b>Serial #: 8897</b>	<b>Inside</b>				
Press@RunDepth:                      psig @	3461.00 ft (KB)	Capacity:	8000.00 psig		
Start Date: 2014.04.10	End Date: 2014.04.11	Last Calib.:	2014.04.11		
Start Time: 23:16:31	End Time: 05:22:40	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: B.O.B. in 30 sec  
Dead no blow  
Dead no blow  
Dead no blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	100%M	1.75

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

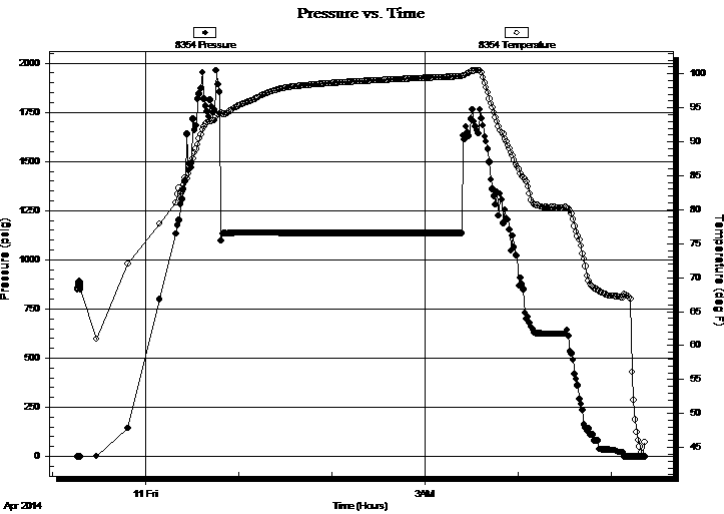
**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57562      **DST#: 4**  
Test Start: 2014.04.10 @ 23:16:48

**GENERAL INFORMATION:**

Formation: **J-L**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Straddle (Reset)  
Time Tool Opened: 00:49:38      Tester: Tate Lang  
Time Test Ended: 05:22:57      Unit No: 49  
**Interval: 3460.00 ft (KB) To 3540.00 ft (KB) (TVD)**      Reference Elevations: 2075.00 ft (KB)  
Total Depth: 3750.00 ft (KB) (TVD)      2065.00 ft (CF)  
Hole Diameter: 7.88 inchesHole Condition: Good      KB to GR/CF: 10.00 ft

**Serial #: 8354 Below (Straddle)**  
Press@RunDepth:      psig @      3550.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.04.10      End Date: 2014.04.11      Last Calib.: 2014.04.11  
Start Time: 23:16:11      End Time: 05:22:10      Time On Btm:  
Time Off Btm:

TEST COMMENT: B.O.B. in 30 sec  
Dead no blow  
Dead no blow  
Dead no blow



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
125.00	100%M	1.75

\* Recovery from multiple tests

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI  
1310 Bison Rd  
Hays, KS 67601  
ATTN: Herb Deines

**27-10-17w Rooks,KS**  
**Alvin #1**  
Job Ticket: 57562      **DST#: 4**  
Test Start: 2014.04.10 @ 23:16:48

**Tool Information**

Drill Pipe:	Length: 3451.00 ft	Diameter: 3.80 inches	Volume: 48.41 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	34000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 48.41 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	49000.00 lb
Depth to Top Packer:	3460.00 ft			Final	49000.00 lb
Depth to Bottom Packer:	3540.00 ft				
Interval between Packers:	80.00 ft				
Tool Length:	311.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3438.00	
Hydraulic tool	5.00			3443.00	
Jars	5.00			3448.00	
Safety Joint	2.00			3450.00	
Packer	5.00			3455.00	27.00      Bottom Of Top Packer
Packer	5.00			3460.00	
Stubb	1.00			3461.00	
Recorder	0.00	8897	Inside	3461.00	
Recorder	0.00	8898	Outside	3461.00	
Perforations	10.00			3471.00	
Change Over Sub	1.00			3472.00	
Drill Pipe	62.00			3534.00	
Change Over Sub	1.00			3535.00	
Blank Off Sub	1.00			3536.00	
Blank Spacing	4.00			3540.00	80.00      Tool Interval
Packer	5.00			3545.00	
Stubb	1.00			3546.00	
Perforations	4.00			3550.00	
Recorder	0.00	8354	Below	3550.00	
Change Over Sub	1.00			3551.00	
Blank Spacing	189.00			3740.00	
Change Over Sub	1.00			3741.00	
Blank Off Sub	3.00			3744.00	204.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>311.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI **27-10-17w Rooks,KS**  
 1310 Bison Rd **Alvin #1**  
 Hays, KS 67601 Job Ticket: 57562 **DST#: 4**  
 ATTN: Herb Deines Test Start: 2014.04.10 @ 23:16:48

### Mud and Cushion Information

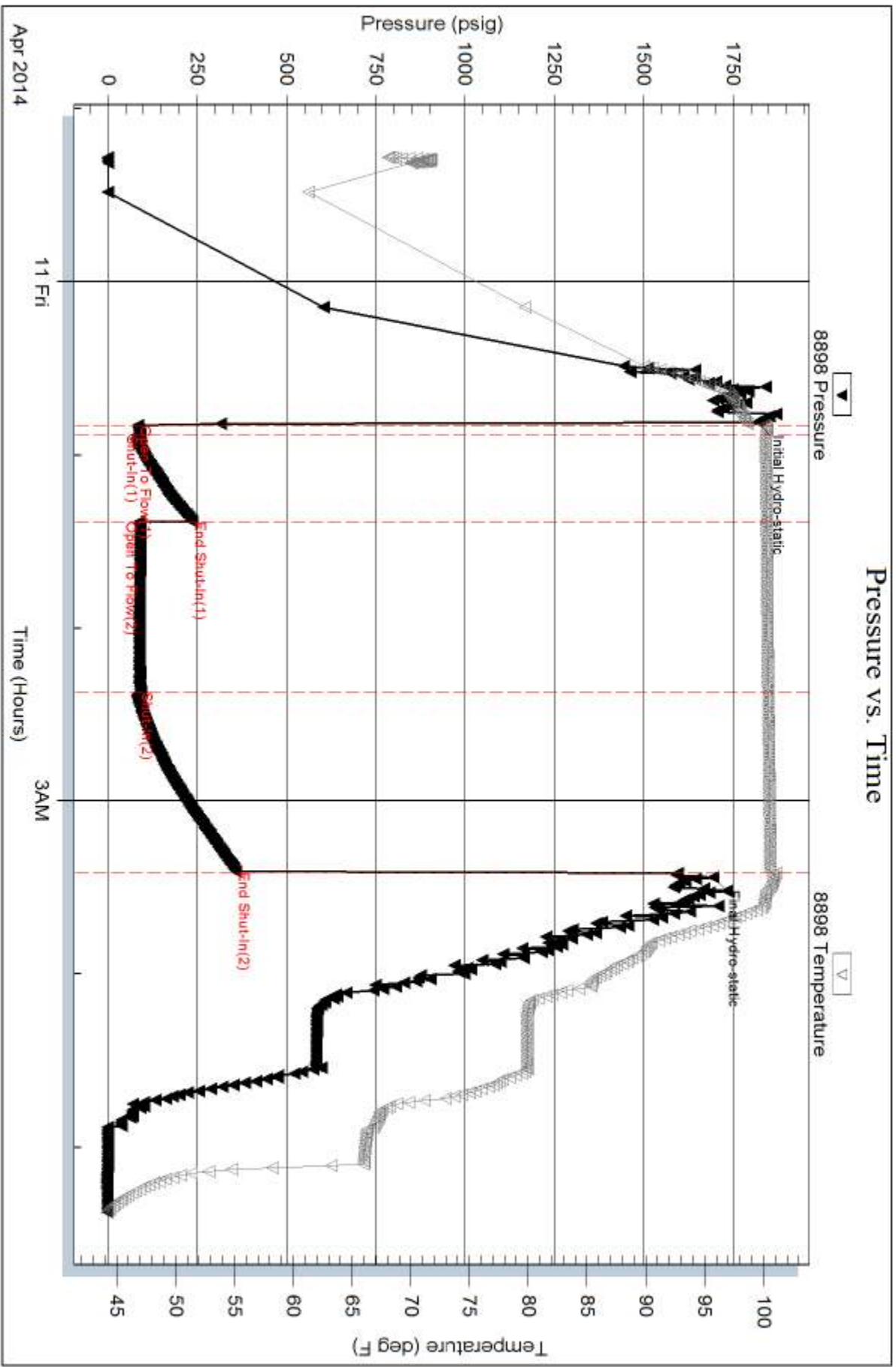
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2900.00 ppm			
Filter Cake: 1.00 inches			

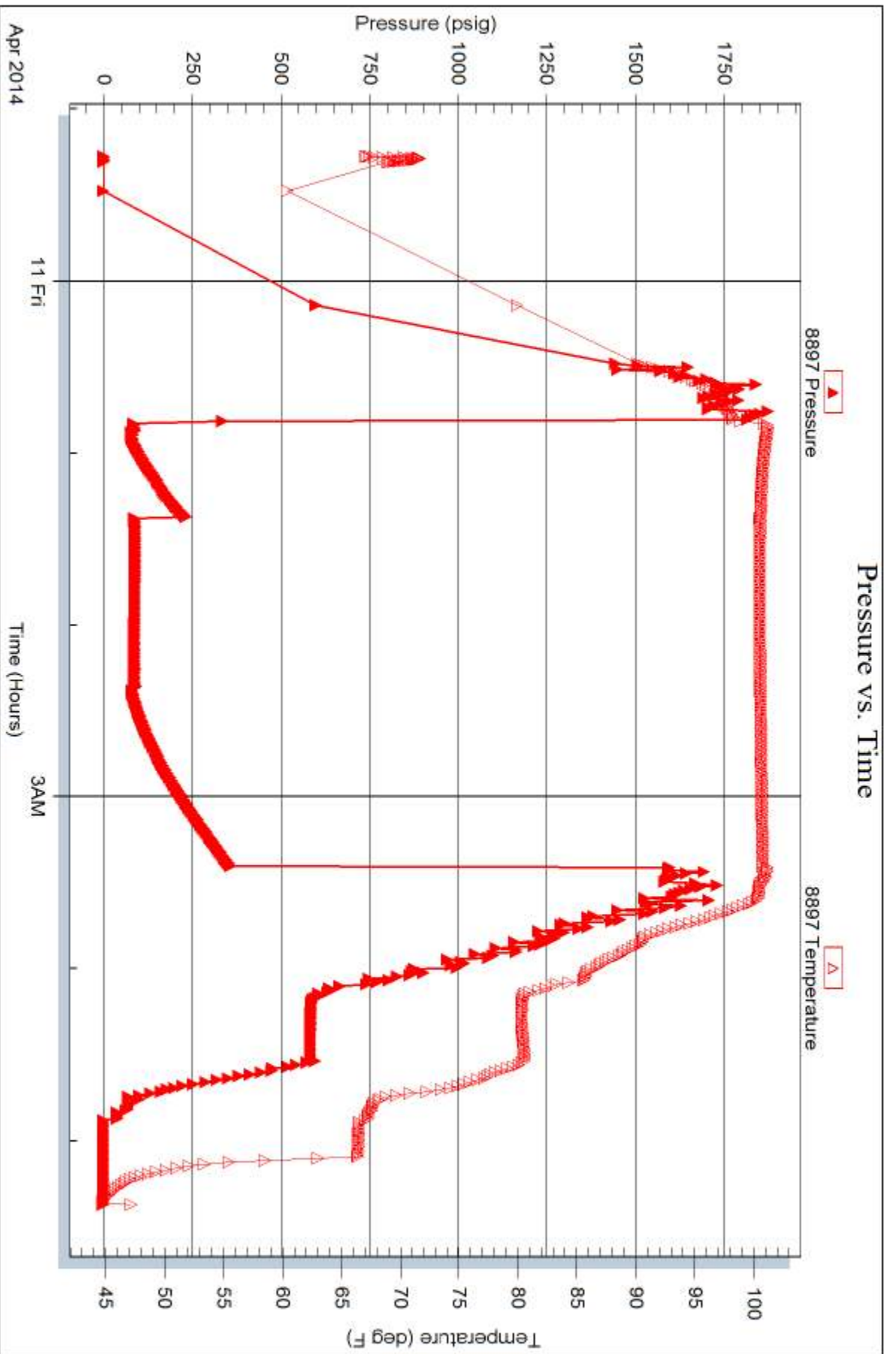
### Recovery Information

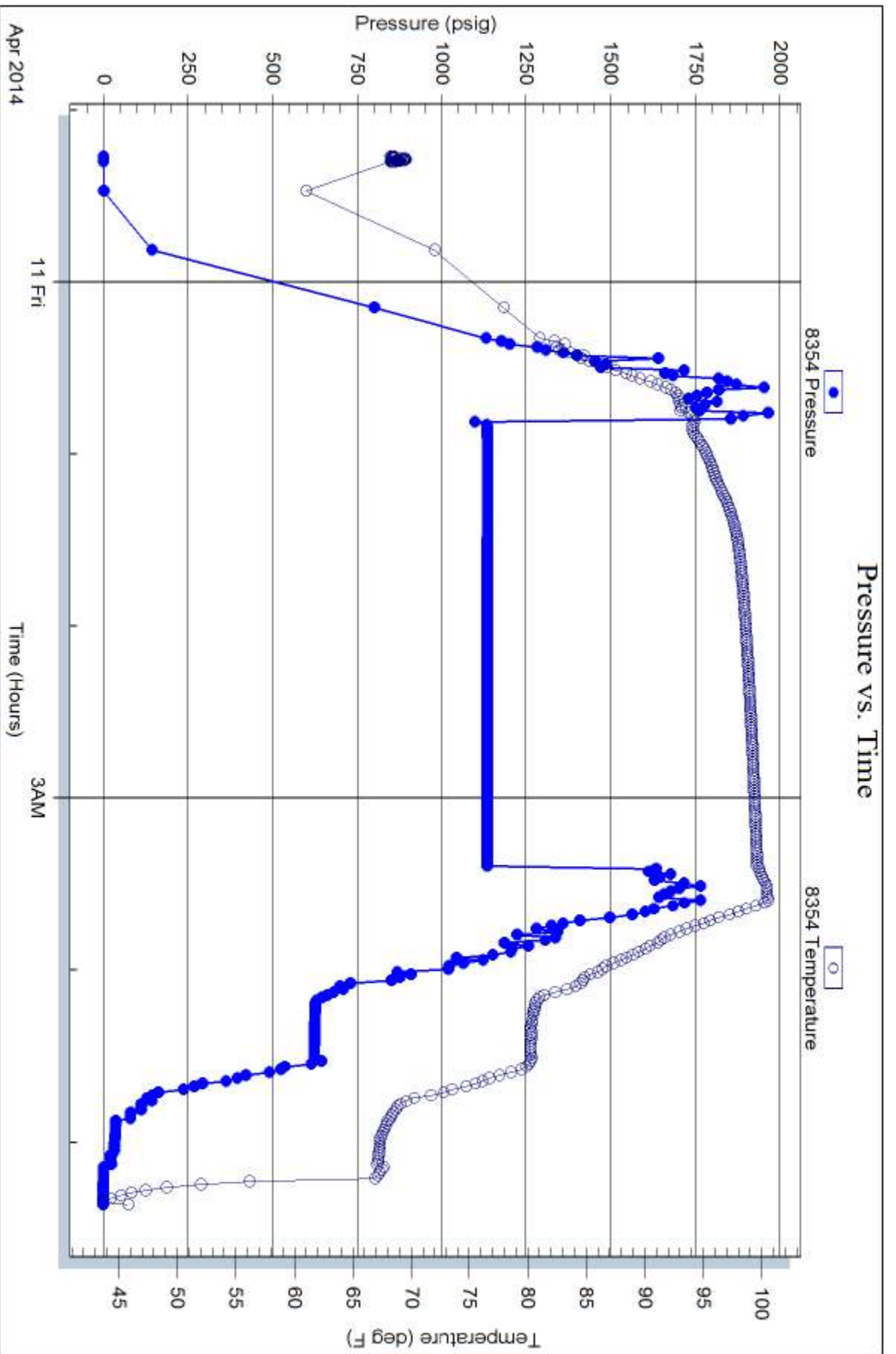
Recovery Table

Length ft	Description	Volume bbl
125.00	100%M	1.753

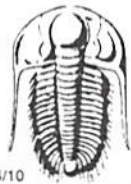
Total Length: 125.00 ft      Total Volume: 1.753 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:











# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57559

Well Name & No. Alvin #1 Test No. 1 Date 4-8-14  
 Company T.D.I. Inc. Elevation 2075 KB 2065 GL  
 Address 1310 Bison Rd Hays KS 67601  
 Co. Rep / Geo. Herb Deines Rig Southwind #1  
 Location: Sec. 27 Twp. 10 Rge. 17w Co. Rooks State KS

Interval Tested 3338 3370 Zone Tested "D"  
 Anchor Length 32 Drill Pipe Run 3341 Mud Wt. 8.9  
 Top Packer Depth 3335 Drill Collars Run 0 Vis 60+  
 Bottom Packer Depth 3338 Wt. Pipe Run 9 WL 58  
 Total Depth 3370 Chlorides 200 ppm System LCM 3H

Blow Description Weak surface blow died IN 20 mins  
Dead no blow back  
Dead no blow flushed tool dead no blow  
pulled tool

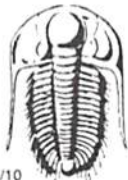
Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>1</u>	Feet of <u>mud</u>				<u>100</u>
Rec	Feet of				
Rec	Feet of				

Rec Total 1001 BHT 97 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1672  Test 1150 T-On Location 15:35  
 (B) First Initial Flow 14  Jars \_\_\_\_\_ T-Started 16:35  
 (C) First Final Flow 16  Safety Joint \_\_\_\_\_ T-Open 18:55  
 (D) Initial Shut-In 30  Circ Sub \_\_\_\_\_ T-Pulled 20:50  
 (E) Second Initial Flow 14  Hourly Standby \_\_\_\_\_ T-Out 22:19  
 (F) Second Final Flow 16  Mileage 60 R/K 93 Comments \_\_\_\_\_  
 (G) Final Shut-In N/A  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1659  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Flow 15 Flush 15  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Shut-In pull it  Day Standby \_\_\_\_\_ Total 1243  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1243

Approved By \_\_\_\_\_ Our Representative [Signature]  
 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. 57560

Well Name & No. Alvin #1 Test No. 2 Date 4-9-14  
 Company TDI INC Elevation 2075 KB 2065 GL  
 Address 1310 Bison Rd Hays KS 67601  
 Co. Rep / Geo. Herb Deines Rig Southwind #1  
 Location: Sec. 27 Twp. 10 Rge. 17W Co. Rooks State KS

Interval Tested 3534 3685 Zone Tested Conglomerate, Simpson Sand  
 Anchor Length 151 Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.1  
 Top Packer Depth 3529 Drill Collars Run 0 Vis 6.0  
 Bottom Packer Depth 3534 Wt. Pipe Run 0 WL 6.0  
 Total Depth 3685 Chlorides 2800 ppm System LCM 3#

Blow Description Weak surface blow built to 3 in  
Dead no blow back  
Weak surface blow built to 3 in  
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>90</u>	Feet of <u>100 mud</u>	%gas	%oil	%water <u>100</u>	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

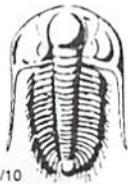
Rec Total 90 BHT 160 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1802  Test 1150 T-On Location 22:00  
 (B) First Initial Flow 22  Jars \_\_\_\_\_ T-Started 22:37  
 (C) First Final Flow 39  Safety Joint \_\_\_\_\_ T-Open 00:32  
 (D) Initial Shut-In 1077  Circ Sub \_\_\_\_\_ T-Pulled 04:07  
 (E) Second Initial Flow 45  Hourly Standby \_\_\_\_\_ T-Out 05:33  
 (F) Second Final Flow 65  Mileage 93 Comments \_\_\_\_\_  
 (G) Final Shut-In 1046  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1788  Straddle \_\_\_\_\_

Initial Open 2.5  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Ruined Packer \_\_\_\_\_  
 Final Flow 6.0  Extra Packer \_\_\_\_\_  
 Final Shut-In 6.0  Extra Recorder \_\_\_\_\_  
 Sub Total 0  Day Standby \_\_\_\_\_  
 Total 1243  Accessibility \_\_\_\_\_  
 Sub Total 1243 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative [Signature]

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. 57561

Well Name & No. Alvin #1 Test No. 3 Date 4-10-14  
 Company TDI INC. Elevation 2075 KB 2065 GL  
 Address 1310 Bison Rd Hays MS 67601  
 Co. Rep / Geo. Herb Peines Rig Southwind #1  
 Location: Sec. 27 Twp. 10 Rge. 17W Co. Rooks State MS

Interval Tested 3464 3552 Zone Tested S-L  
 Anchor Length 88 Tail 198 Drill Pipe Run 3460 Mud Wt. 91  
 Top Packer Depth 3459 Drill Collars Run 0 Vis 60  
 Bottom Packer Depth 3464 Wt. Pipe Run 0 WL 60  
 Total Depth 3750 Chlorides 2900 ppm System LCM 3#

Blow Description BOB, Iu 1min  
Dead no blow back  
Dead no blow  
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>170</u>	<u>100% M</u>				<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 170 BHT 100 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

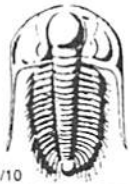
(A) Initial Hydrostatic 1818  Test 1150 T-On Location 17:00  
 (B) First Initial Flow 111  Jars \_\_\_\_\_ T-Started 17:30  
 (C) First Final Flow 116  Safety Joint \_\_\_\_\_ T-Open 19:20  
 (D) Initial Shut-In 884  Circ Sub \_\_\_\_\_ T-Pulled 20:45  
 (E) Second Initial Flow 111  Hourly Standby \_\_\_\_\_ T-Out 22:39  
 (F) Second Final Flow 118  Mileage 93 Comments \_\_\_\_\_  
 (G) Final Shut-In 925  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1718  Straddle 600  Ruined Shale Packer \_\_\_\_\_

Initial Open 10  Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Initial Shut-In 15  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Shut-In 30  Day Standby \_\_\_\_\_ Total 1843  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1843

Approved By \_\_\_\_\_

Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57562

Well Name & No. Alun #1 Test No. 3 Date 4/10/4-11  
 Company TAT INC Elevation 2075 KB 2065 GL  
 Address 1310 Bison Rd Hays KS 67601  
 Co. Rep / Geo. Herb Deines Rig Southwind #1  
 Location: Sec. 27 Twp. 10 Rge. 17W Co. Rooks State KS

Interval Tested 3460 3540 Zone Tested B 5-L  
 Anchor Length 80 199 tail Drill Pipe Run 3451 Mud Wt. 9.1  
 Top Packer Depth 3455 Drill Collars Run 0 Vis 60  
 Bottom Packer Depth 3460 Wt. Pipe Run 0 WL 6.0  
 Total Depth 3750 Chlorides 2900 ppm System LCM 3#  
 Blow Description B.O.B. IN 30 sec.  
Dead no blow back  
Dead no blow  
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>125</u>	Feet of <u>mud</u>	%gas	%oil	%water <u>100</u>	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 125 BHT 101 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1818  Test 1150 T-On Location 9  
 (B) First Initial Flow 84  Jars \_\_\_\_\_ T-Started 23:16  
 (C) First Final Flow 90  Safety Joint \_\_\_\_\_ T-Open 00:48  
 (D) Initial Shut-In 236  Circ Sub \_\_\_\_\_ T-Pulled 03:22  
 (E) Second Initial Flow 88  Hourly Standby \_\_\_\_\_ T-Out 05:22  
 (F) Second Final Flow 88  Mileage \_\_\_\_\_ Comments \_\_\_\_\_  
 (G) Final Shut-In 359  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1694  Straddle 600  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 5  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 30  Day Standby \_\_\_\_\_ Total 1750  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60 Sub Total 1750

Approved By \_\_\_\_\_ Our Representative [Signature]  
 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.