



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Rd.  
Hays, Ks 67601  
ATTN: Jeff Lawler

**Haitt #1**  
**7/14S/18W-ELLIS**  
Job Ticket: 42886 **DST#: 1**  
Test Start: 2011.05.18 @ 03:35:20

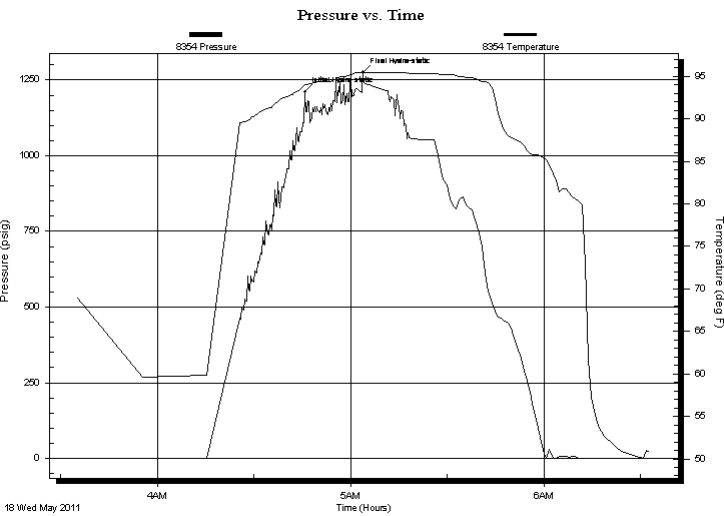
## GENERAL INFORMATION:

Formation: **Toronto**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole  
 Time Tool Opened: Tester: Dustin Rash  
 Time Test Ended: 06:32:50 Unit No: 38  
 Interval: **3367.00 ft (KB) To 3455.00 ft (KB) (TVD)** Reference Elevations: 2161.00 ft (KB)  
 Total Depth: 3455.00 ft (KB) (TVD) 2150.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 11.00 ft

## Serial #: 8354

Press @ Run Depth: psig @ ft (KB) Capacity: 8000.00 psig  
 Start Date: 2011.05.18 End Date: 2011.05.18 Last Calib.: 2011.05.18  
 Start Time: 03:35:20 End Time: 06:32:50 Time On Btm: 2011.05.18 @ 04:45:50  
 Time Off Btm: 2011.05.18 @ 05:03:50

TEST COMMENT: IF- Could not get tool to bottom. Pulled tool.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1210.81	94.02	Initial Hydro-static
18	1275.10	95.48	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Rd.  
Hays, Ks 67601  
ATTN: Jeff Lawler

**Haitt #1**  
**7/14S/18W-Ellis**  
Job Ticket: 42886      **DST#: 1**  
Test Start: 2011.05.18 @ 03:35:20

**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: 43.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.80 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1900.00 ppm			
Filter Cake: inches			

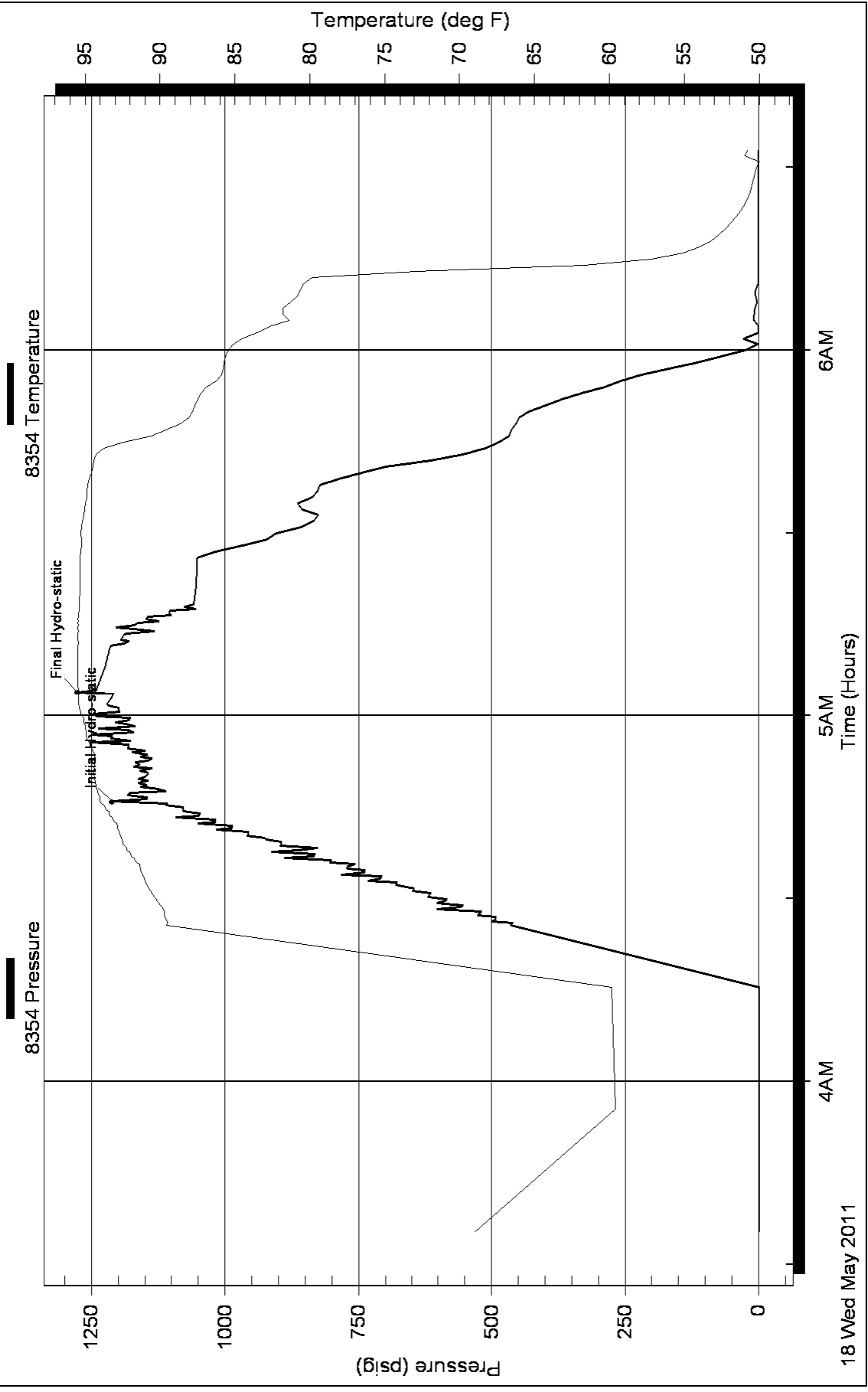
**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl

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

### Pressure vs. Time





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Rd.  
Hays, Ks 67601  
ATTN: Jeff Lawler

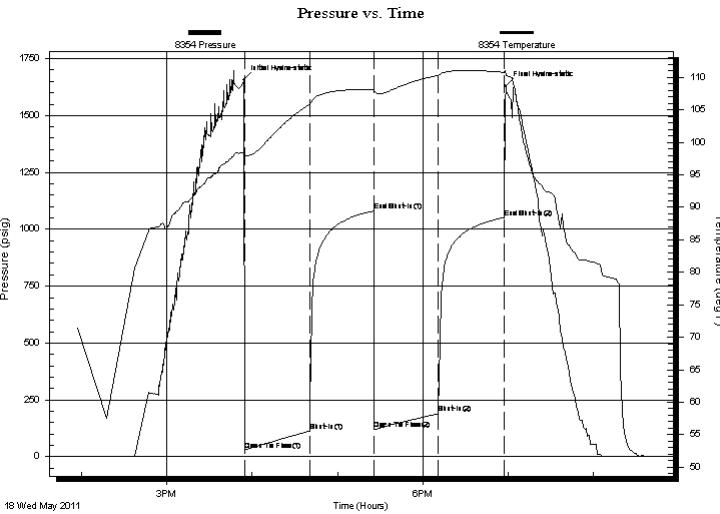
**Haitt #1**  
**7/14S/18W-Ellis**  
Job Ticket: 42887      **DST#: 2**  
Test Start: 2011.05.18 @ 13:47:21

## GENERAL INFORMATION:

Formation: **Toronto**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 15:54:51  
Time Test Ended: 20:36:21  
Interval: **3362.00 ft (KB) To 3455.00 ft (KB) (TVD)**  
Total Depth: 3455.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole  
Tester: Dustin Rash  
Unit No: 38  
Reference Elevations: 2161.00 ft (KB)  
2150.00 ft (CF)  
KB to GR/CF: 11.00 ft

**Serial #: 8354      Inside**  
Press @ Run Depth: 189.40 psig @ 3432.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2011.05.18      End Date: 2011.05.18      Last Calib.: 2011.05.18  
Start Time: 13:57:21      End Time: 20:36:21      Time On Btm: 2011.05.18 @ 15:54:21  
Time Off Btm: 2011.05.18 @ 18:58:21

**TEST COMMENT:** IF-Fair building blow . BOB in 20 minutes 40 seconds.  
ISI-Few surface bubbles @ 2 minutes. Died @ 4 minutes.  
FF-Fair building blow . BOB in 31 minutes 50 seconds.  
FSI-No Return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1655.63	98.35	Initial Hydro-static
1	27.78	98.01	Open To Flow (1)
46	112.38	105.80	Shut-In(1)
91	1080.53	108.11	End Shut-In(1)
92	120.33	107.74	Open To Flow (2)
137	189.40	110.31	Shut-In(2)
183	1051.65	110.76	End Shut-In(2)
184	1630.34	110.25	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	95%Water/5%Mud	1.74
124.00	80%Water/20%Mud	1.74
107.00	50%Water/50%Mud	1.50

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Rd.  
Hays, Ks 67601  
ATTN: Jeff Lawler

**Haitt #1**  
**7/14S/18W-Ellis**  
Job Ticket: 42887      **DST#: 2**  
Test Start: 2011.05.18 @ 13:47:21

## 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: 48000 ppm	
Viscosity: 67.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.80 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.20 ohm.m	Gas Cushion Pressure: psig		
Salinity: 9800.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	95%Water/5%Mud	1.739
124.00	80%Water/20%Mud	1.739
107.00	50%Water/50%Mud	1.501

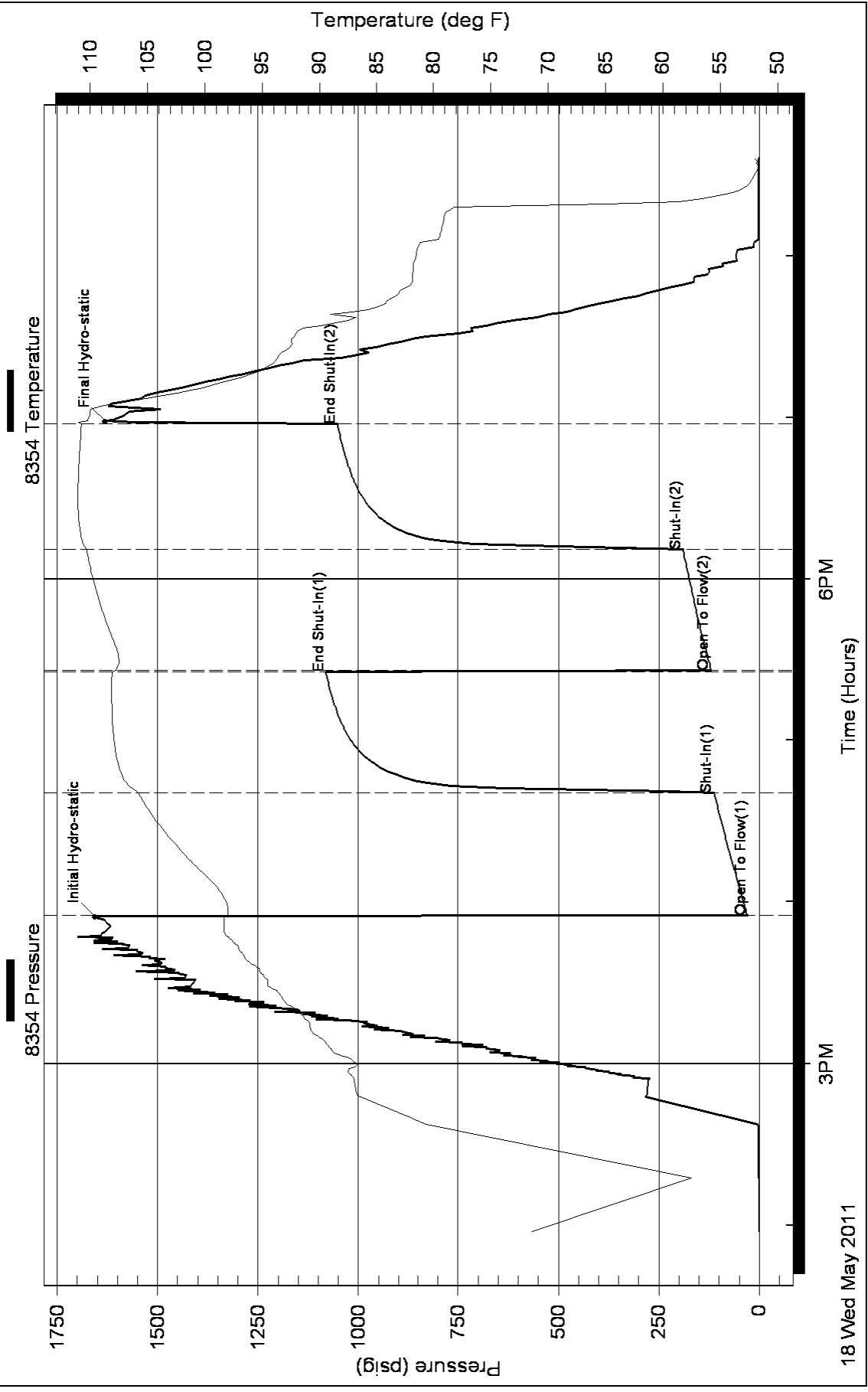
Total Length: 355.00 ft      Total Volume: 4.979 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Rd.  
Hays, Ks 67601  
ATTN: Jeff Lawler

**Haitt #1**  
**7/14S/18W-Ellis**  
Job Ticket: 42888      **DST#: 3**  
Test Start: 2011.05.19 @ 08:43:10

## 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: 63.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.40 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 9800.00 ppm			
Filter Cake: inches			

## Recovery Information

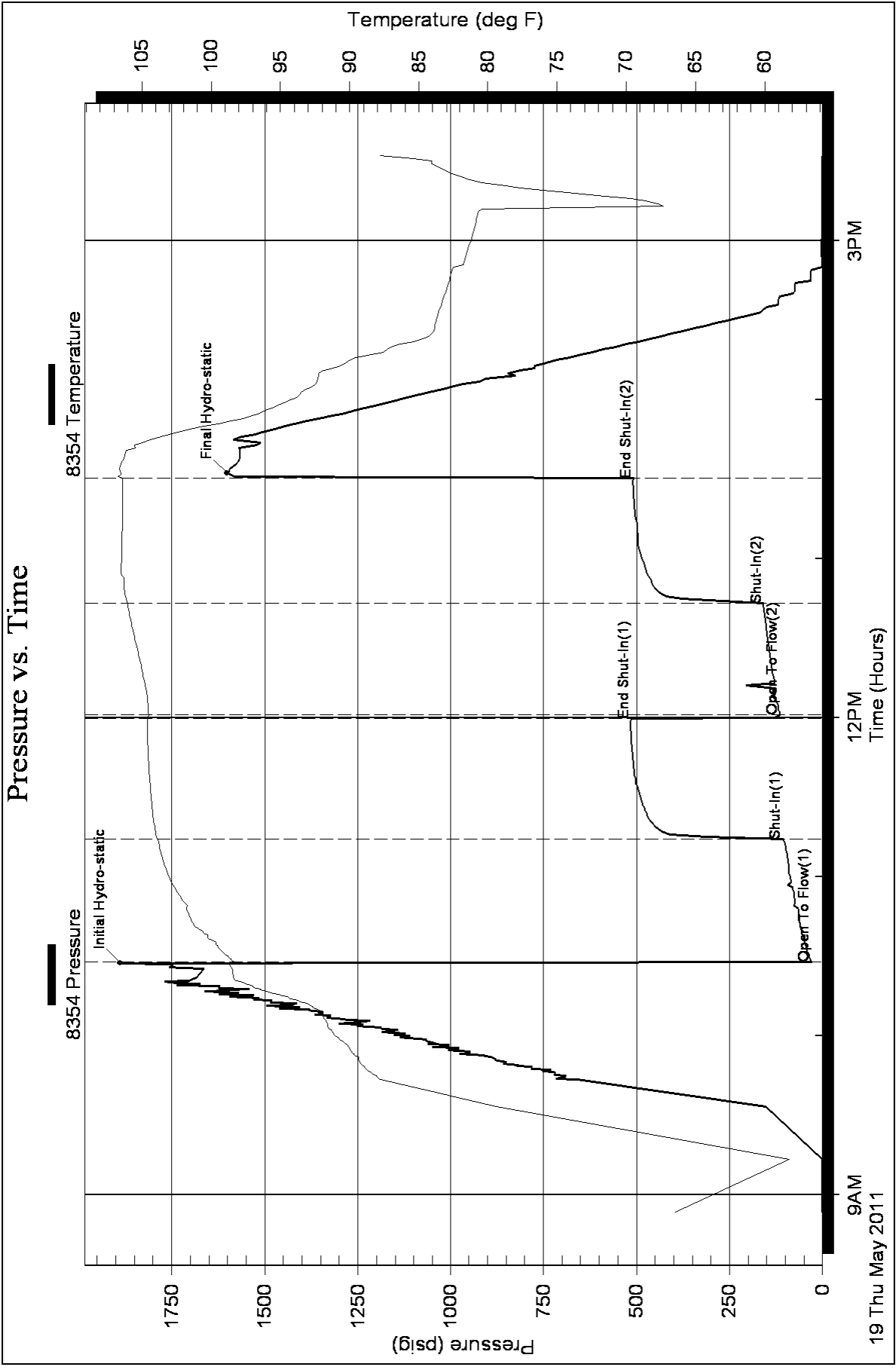
Recovery Table

Length ft	Description	Volume bbl
186.00	85%Mud/15%Water	2.609
87.00	100%Mud	1.220
20.00	95%Mud/2%Oil	0.281

Total Length: 293.00 ft      Total Volume: 4.110 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:



### Pressure vs. Time





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Rd.  
Hays, KS 67601  
ATTN: Jeff Lawler

**Hiatt #1**  
**7-14s-18w Ellis,KS**  
Job Ticket: 42889 **DST#: 4**  
Test Start: 2011.05.20 @ 04:26:50

## GENERAL INFORMATION:

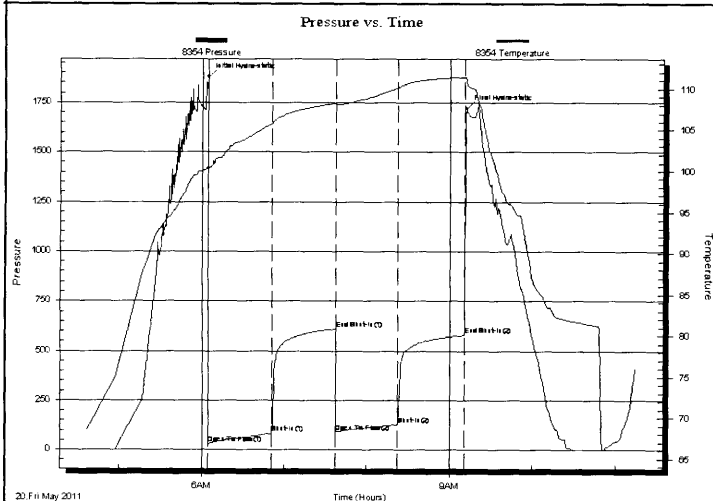
Formation: **LKC "H-J"**  
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole**  
 Time Tool Opened: **06:04:30** Tester: **Dustin Rash**  
 Time Test Ended: **11:14:20** Unit No: **38**  
 Interval: **3568.00 ft (KB) To 3650.00 ft (KB) (TVD)** Reference Elevations: **2161.00 ft (KB)**  
 Total Depth: **3650.00 ft (KB) (TVD)** **2150.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Poor** KB to GR/CF: **11.00 ft**

## Serial #: 8354

**Inside**

Press@RunDepth: **128.55 psig @ 3637.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2011.05.20** End Date: **2011.05.20** Last Calib.: **2011.05.20**  
 Start Time: **04:36:50** End Time: **11:14:20** Time On Btm: **2011.05.20 @ 06:04:10**  
 Time Off Btm: **2011.05.20 @ 09:11:50**

TEST COMMENT: IF-Weak building blow . BOB in 36 minutes 50 seconds.  
 IS-No Return.  
 FF-Very weak building blow . Built to 8 inches.  
 FSI-No Return.



## PRESSURE SUMMARY

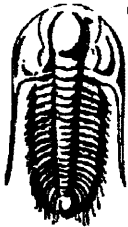
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1877.21	100.48	Initial Hydro-static
1	30.43	99.94	Open To Flow (1)
47	81.77	105.80	Shut-In(1)
93	608.25	108.25	End Shut-In(1)
94	90.83	108.11	Open To Flow (2)
139	128.55	110.14	Shut-In(2)
187	579.19	111.40	End Shut-In(2)
188	1721.90	111.17	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	MW 60%W 40%M	1.74
114.00	Mud	1.60

## 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: Jeff Lawler

**Hiatt #1**

**7-14s-18w Ellis,KS**

Job Ticket: 42889

**DST#: 4**

Test Start: 2011.05.20 @ 04:26:50

**Tool Information**

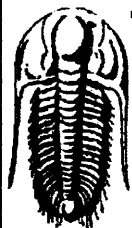
Drill Pipe:	Length: 3549.00 ft	Diameter: 3.80 inches	Volume: 49.78 bbl	Tool Weight: 3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 22000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 30000.00 lb
		<u>Total Volume:</u>	<u>49.78 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 39000.00 lb
Depth to Top Packer:	3568.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	109.00 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			3542.00	
Shut In Tool	5.00			3547.00	
Hydraulic tool	5.00			3552.00	
Jars	5.00			3557.00	
Safety Joint	2.00			3559.00	
Packer	5.00			3564.00	27.00 Bottom Of Top Packer
Packer	4.00			3568.00	
Stubb	1.00			3569.00	
Perforations	4.00			3573.00	
Change Over Sub	1.00			3574.00	
Drill Pipe	62.00			3636.00	
Change Over Sub	1.00			3637.00	
Recorder	0.00	8354	Inside	3637.00	
Recorder	0.00	8520	Outside	3637.00	
Perforations	10.00			3647.00	
Bullnose	3.00			3650.00	82.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>109.00</b>				



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Rd.  
Hays, KS 67601  
ATTN: Jeff Lawler

**Hiatt #1**  
**7-14s-18w Ellis,KS**  
Job Ticket: 42889      **DST#: 4**  
Test Start: 2011.05.20 @ 04:26:50

### Mud and Cushion Information

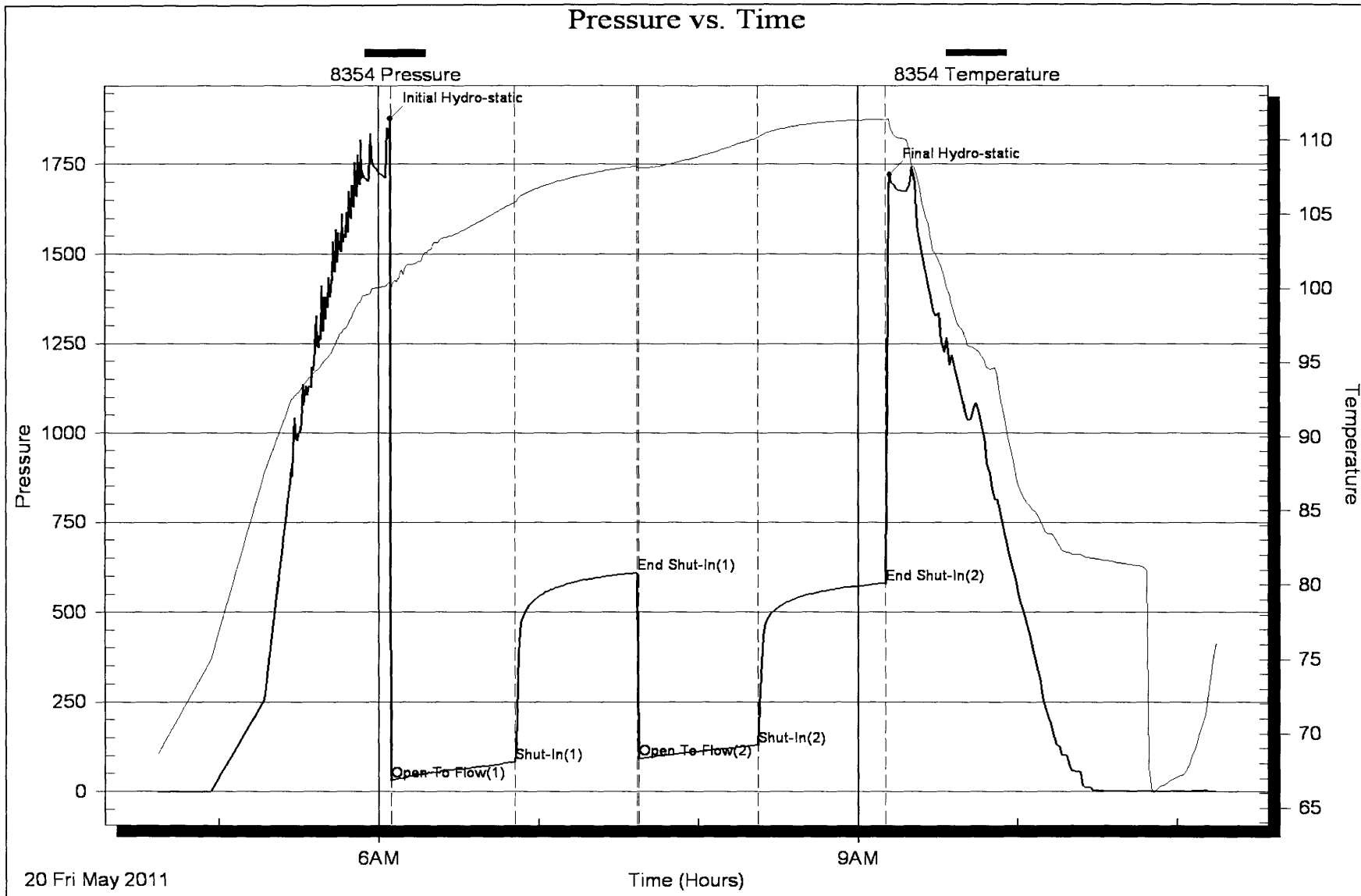
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	62500 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.11 ohm.m	Gas Cushion Pressure: psig		
Salinity: 9900.00 ppm			
Filter Cake: inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	MW 60%W 40%M	1.739
114.00	Mud	1.599

Total Length: 238.00 ft      Total Volume: 3.338 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:





**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Rd.  
Hays, KS 67601  
ATTN: Jeff Lawler

**Hiatt #1**  
**7-14s-18w Ellis, KS**  
Job Ticket: 42890 **DST#: 5**  
Test Start: 2011.05.21 @ 12:11:30

### GENERAL INFORMATION:

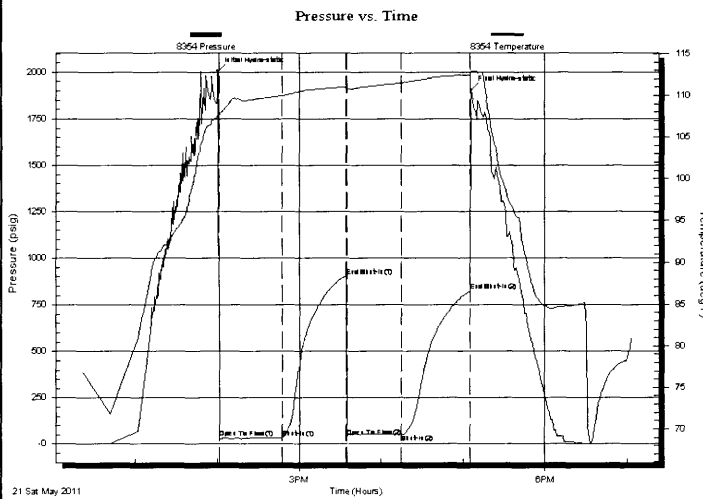
Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 14:01:20  
Time Test Ended: 19:03:00  
Test Type: Conventional Straddle  
Tester: Dustin Rash  
Unit No: 38  
Interval: **3718.00 ft (KB) To 3802.00 ft (KB) (TVD)**  
Reference Elevations: 2161.00 ft (KB)  
Total Depth: 3899.00 ft (KB) (TVD) 2150.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 11.00 ft

### Serial #: 8354

Inside

Press@RunDepth: 54.63 psig @ 3788.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2011.05.21 End Date: 2011.05.21 Last Calib.: 2011.05.21  
Start Time: 12:21:30 End Time: 19:03:00 Time On Btm: 2011.05.21 @ 14:00:30  
Time Off Btm: 2011.05.21 @ 17:06:00

TEST COMMENT: IF-Weak building blow . Built to 5 inches.  
IS-Weak surface return @ 20 seconds. Died @ 8 minutes.  
FF-Weak building blow . Built to 4 inches.  
FSI-No Return.



### PRESSURE SUMMARY

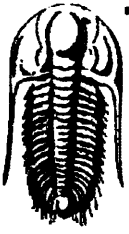
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2005.35	107.73	Initial Hydro-static
1	31.85	106.74	Open To Flow (1)
47	35.82	110.02	Shut-In(1)
94	904.06	111.06	End Shut-In(1)
95	39.67	110.81	Open To Flow (2)
135	54.63	111.55	Shut-In(2)
185	825.84	112.47	End Shut-In(2)
186	1904.09	112.92	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
50.00	70%Mud/30%Oil	0.70
45.00	100%Oil	0.63

### 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: Jeff Lawler

**Hiatt #1**

**7-14s-18w Ellis,KS**

Job Ticket: 42890

**DST#: 5**

Test Start: 2011.05.21 @ 12:11:30

**GENERAL INFORMATION:**

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:01:20

Time Test Ended: 19:03:00

Interval: **3718.00 ft (KB) To 3802.00 ft (KB) (TVD)**

Total Depth: 3899.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Poor

Test Type: Conventional Straddle

Tester: Dustin Rash

Unit No: 38

Reference Elevations: 2161.00 ft (KB)

2150.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8653 Below (Straddle)**

Press@RunDepth: psig @ 3805.00 ft (KB)

Start Date: 2011.05.21

End Date: 2011.05.21

Start Time: 12:11:55

End Time: 19:00:24

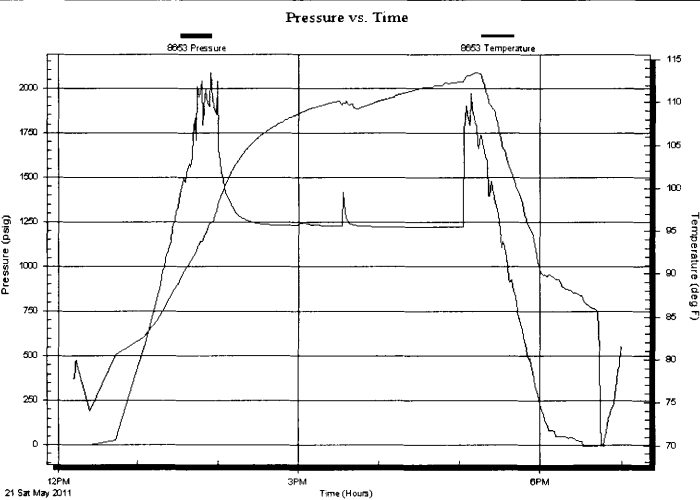
Capacity: 8000.00 psig

Last Calib.: 2011.05.21

Time On Btm

Time Off Btm

**TEST COMMENT:** IF-Weak building blow . Built to 5 inches.  
 ISI-Weak surface return @ 20 seconds. Died @ 8 minutes.  
 FF-Weak building blow . Built to 4 inches.  
 FSI-No Return.



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
50.00	70%Mud/30%Oil	0.70
45.00	100%Oil	0.63

**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: Jeff Lawler

**Hiatt #1**  
**7-14s-18w Ellis,KS**  
Job Ticket: 42890      **DST#: 5**  
Test Start: 2011.05.21 @ 12:11:30

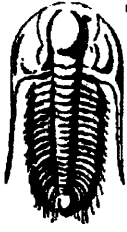
**Tool Information**

Drill Pipe:	Length: 3713.00 ft	Diameter: 3.80 inches	Volume: 52.08 bbl	Tool Weight: 3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 10000.00 lb
		Total Volume: 52.08 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3718.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	3799.00 ft			
Interval between Packers:	81.00 ft			
Tool Length:	204.00 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			3699.00	
Shut In Tool	5.00			3704.00	
Hydraulic tool	5.00			3709.00	
Packer	5.00			3714.00	20.00      Bottom Of Top Packer
Packer	4.00			3718.00	
Stubb	1.00			3719.00	
Perforations	5.00			3724.00	
Change Over Sub	1.00			3725.00	
Drill Pipe	62.00			3787.00	
Change Over Sub	1.00			3788.00	
Recorder	0.00	8354	Inside	3788.00	
Recorder	0.00	8520	Outside	3788.00	
Perforations	10.00			3798.00	
Blank Off Sub	1.00			3799.00	81.00      Tool Interval
Packer	4.00			3803.00	
Stubb	1.00			3804.00	
Change Over Sub	1.00			3805.00	
Recorder	0.00	8653	Below	3805.00	
Drill Pipe	93.00			3898.00	
Change Over Sub	1.00			3899.00	
Bullnose	3.00			3902.00	103.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>204.00</b>				





**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI, Inc.

**Hiatt #1**

1310 Bison Rd.  
Hays, KS 67601

**7-14s-18w Ellis, KS**

Job Ticket: 42890

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2011.05.21 @ 12:11:30

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API: 29 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 8.38 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 10000.00 ppm		
Filter Cake: inches		

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
50.00	70%Mud/30%Oil	0.701
45.00	100%Oil	0.631

Total Length: 95.00 ft      Total Volume: 1.332 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

