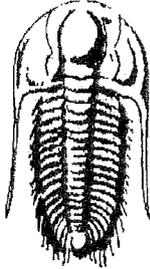


15-051-25901

28-14s-16w

IND



**TRILOBITE**  
**TESTING, INC.**

**DRILL STEM TEST REPORT**

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays Ks 67601-9696

ATTN: Tom Denning

**28-14s-16w Ellis KS**

**Rajewski #1**

Start Date: 2009.10.31 @ 09:18:43

End Date: 2009.10.31 @ 15:36:37

Job Ticket #: 36689                      DST #: 1

15-051-25901-0000

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KCC WICHITA

Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

TDI Inc

Rajewski #1

28-14s-16w Ellis KS

DST # 1

Arbuckle

2009.10.31



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
1310 Bison Rd  
Hays Ks 67601-9696  
ATTN: Tom Denning

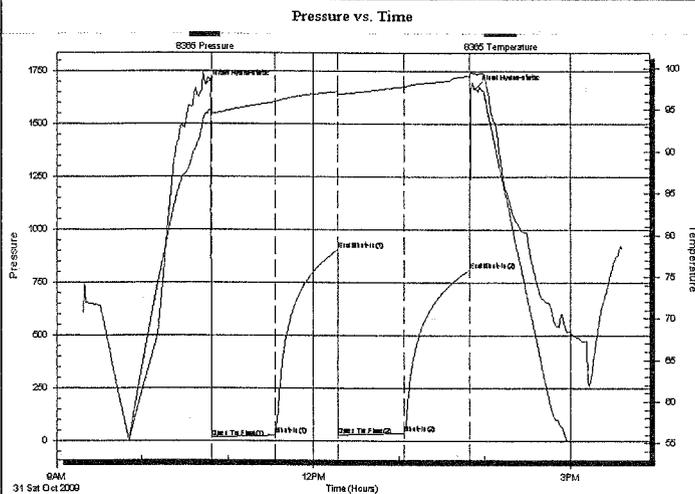
**Rajewski #1**  
**28-14s-16w Ellis KS**  
Job Ticket: 36689      DST#: 1  
Test Start: 2009.10.31 @ 09:18:43

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 10:47:38  
Time Test Ended: 15:36:37  
Interval: **3392.00 ft (KB) To 3441.00 ft (KB) (TVD)**  
Total Depth: 3528.00 ft (KB) (TVD)  
Hole Diameter: 7.85 inches Hole Condition: Fair  
Reference Elevations: 1909.00 ft (KB)  
1900.00 ft (CF)  
KB to GR/CF: 9.00 ft

**Serial #: 8365      Inside**  
Press@RunDepth: 36.77 psig @ 3399.01 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2009.10.31      End Date: 2009.10.31      Last Calib.: 2009.10.31  
Start Time: 09:18:43      End Time: 15:36:37      Time On Btm: 2009.10.31 @ 10:44:08  
Time Off Btm: 2009.10.31 @ 13:53:07

TEST COMMENT: IFP-wk bl thru-out 1/2" to 1 1/2" bl  
FFP-wk bl thru-out 1/4" bl  
Times 45-45-45-45



## PRESSURE SUMMARY

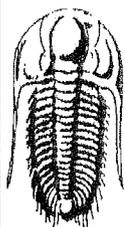
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1686.26	94.56	Initial Hydro-static
4	15.42	94.44	Open To Flow (1)
49	26.71	95.96	Shut-In (1)
93	902.27	97.21	End Shut-In (1)
94	27.66	96.67	Open To Flow (2)
140	36.77	97.80	Shut-In (2)
186	811.08	99.10	End Shut-In (2)
189	1666.91	99.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	wm	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 67601-9696  
ATTN: Tom Denning

**Rajewski #1**  
**28-14s-16w Ellis KS**  
Job Ticket: 36689      **DST#: 1**  
Test Start: 2009.10.31 @ 09:18:43

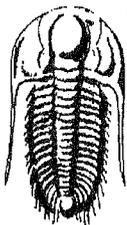
### Tool Information

Drill Pipe:	Length: 3384.00 ft	Diameter: 3.80 inches	Volume: 47.47 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: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<b>Total Volume: 47.47 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3392.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	3441.01 ft			
Interval between Packers:	49.01 ft			
Tool Length:	161.02 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			3372.00	
Shut In Tool	5.00			3377.00	
Hydraulic tool	5.00			3382.00	
Packer	5.00			3387.00	21.00 Bottom Of Top Packer
Packer	5.00			3392.00	
Stubb	1.00			3393.00	
Perforations	6.00			3399.00	
Recorder	0.01	8365	Inside	3399.01	
Blank Spacing	33.00			3432.01	
Perforations	5.00			3437.01	
Blank Off Sub	1.00			3438.01	
Blank Spacing	3.00			3441.01	49.01 Tool Interval
Packer	5.00			3446.01	
Stubb	1.00			3447.01	
Perforations	17.00			3464.01	
Recorder	0.01	6625	Below	3464.02	
Blank Spacing	65.00			3529.02	
Bullnose	3.00			3532.02	91.01 Bottom Packers & Anchor

**Total Tool Length: 161.02**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc  
1310 Bison Rd  
Hays Ks 67601-9696  
  
ATTN: Tom Denning

**Rajewski #1**  
**28-14s-16w Ellis KS**  
Job Ticket: 36689      **DST#: 1**  
Test Start: 2009.10.31 @ 09:18:43

## 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:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.18 in <sup>3</sup>	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	7000.00 ppm				
Filter Cake:	2.00 inches				

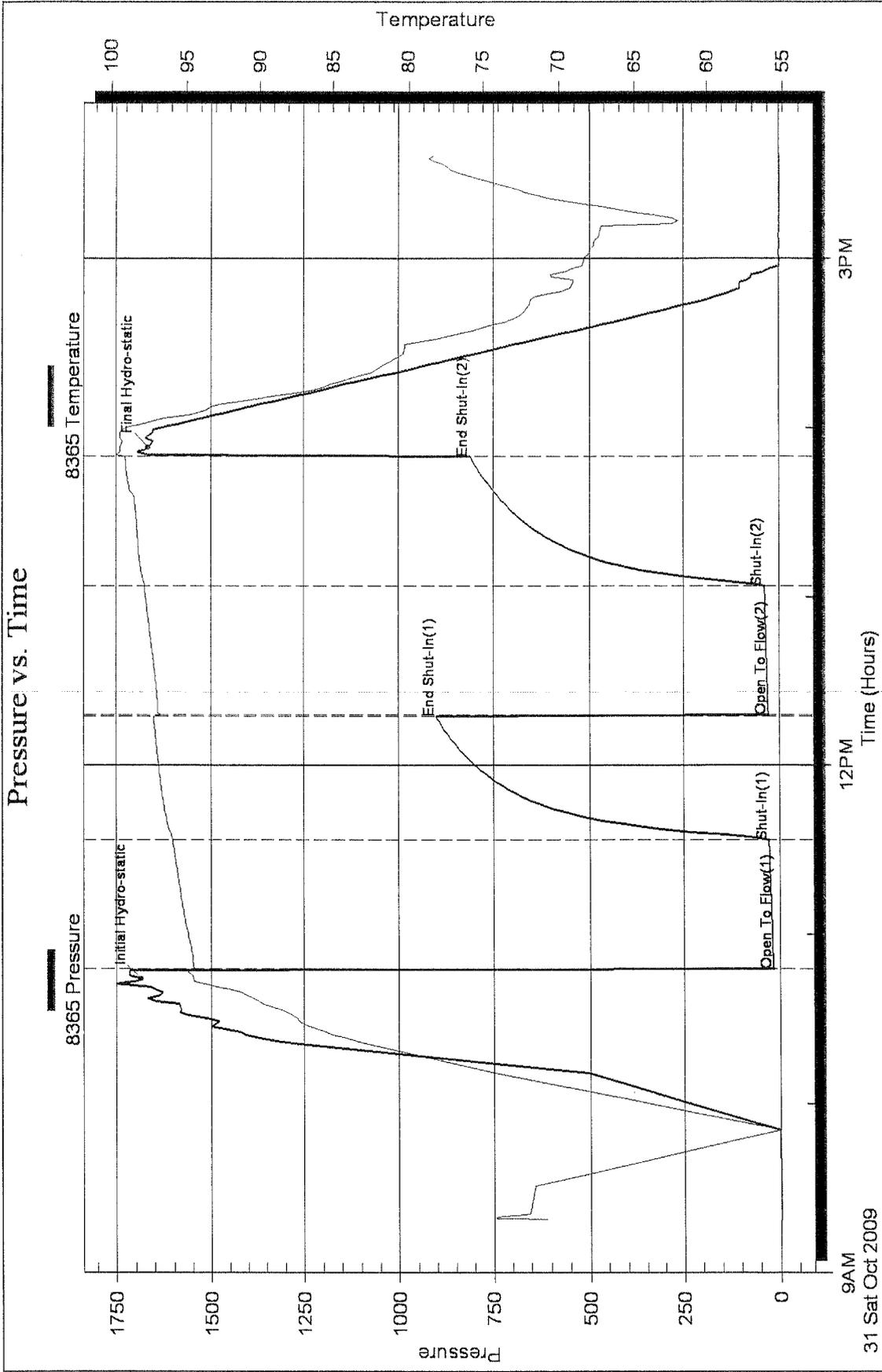
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	w m	0.631

Total Length: 45.00 ft      Total Volume: 0.631 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

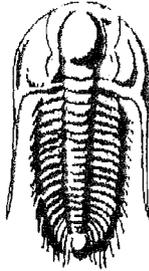
### Pressure vs. Time



9AM  
31 Sat Oct 2009

12PM

3PM



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays Ks 67601-9696

ATTN: Tom Denning

**28-14s-16w Ellis KS**

**Rajewski #1**

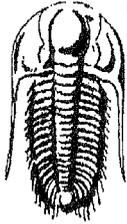
Start Date: 2009.10.31 @ 15:48:42

End Date: 2009.10.31 @ 20:54:36

Job Ticket #: 36690                      DST #: 2

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Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays Ks 67601-9696  
 ATTN: Tom Denning

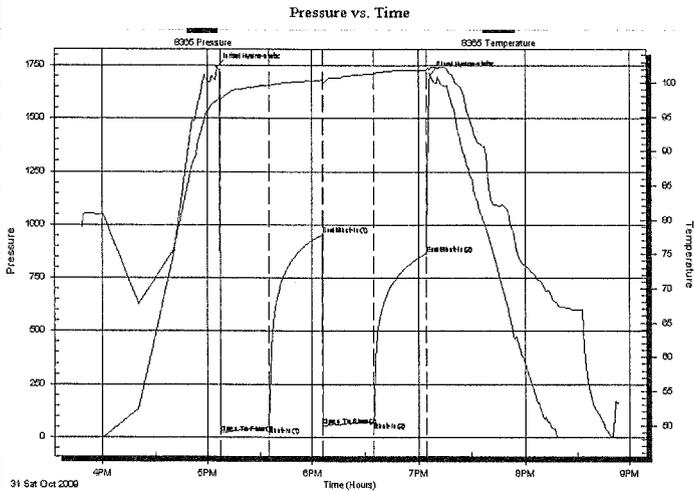
**Rajewski #1**  
**28-14s-16w Ellis KS**  
 Job Ticket: 36690      DST#: 2  
 Test Start: 2009.10.31 @ 15:48:42

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No      Whipstock:      ft (KB)  
 Time Tool Opened: 17:07:37  
 Time Test Ended: 20:54:36  
 Interval: **3404.00 ft (KB) To 3462.00 ft (KB) (TVD)**  
 Total Depth: 3528.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches      Hole Condition: Fair  
 Test Type: Conventional Straddle  
 Tester: Ray Schwager  
 Unit No: 42  
 Reference Elevations: 1909.00 ft (KB)  
 1900.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 8365      Inside**  
 Press@RunDepth: 72.95 psig @ 3415.01 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2009.10.31      End Date: 2009.10.31      Last Calib.: 2009.10.31  
 Start Time: 15:48:42      End Time: 20:54:36      Time On Btm: 2009.10.31 @ 17:05:07  
 Time Off Btm: 2009.10.31 @ 19:06:37

**TEST COMMENT:** IFP-wk to a fr bl 1/2" to 5 1/2" bl  
 FFP-wk bl thru-out 1/4" to 2 1/4" bl  
 Times 30-30-30-30



**PRESSURE SUMMARY**

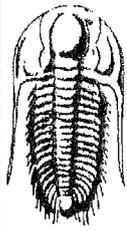
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1741.89	97.34	Initial Hydro-static
3	19.71	97.44	Open To Flow (1)
30	48.07	99.52	Shut-In(1)
61	953.08	100.36	End Shut-In(1)
61	53.26	99.81	Open To Flow (2)
90	72.95	101.30	Shut-In(2)
120	865.20	101.88	End Shut-In(2)
122	1707.18	102.11	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
115.00	Mud	1.61

**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 67601-9696  
ATTN: Tom Denning

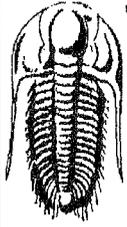
**Rajewski #1**  
**28-14s-16w Ellis KS**  
Job Ticket: 36690      **DST#: 2**  
Test Start: 2009.10.31 @ 15:48:42

### Tool Information

Drill Pipe:	Length: 3390.00 ft	Diameter: 3.80 inches	Volume: 47.55 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: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
			<b>Total Volume: 47.55 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3404.00 ft			Final 47000.00 lb
Depth to Bottom Packer:	3462.01 ft			
Interval between Packers:	58.01 ft			
Tool Length:	150.02 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3384.00	
Shut In Tool	5.00			3389.00	
Hydraulic tool	5.00			3394.00	
Packer	5.00			3399.00	21.00      Bottom Of Top Packer
Packer	5.00			3404.00	
Stubb	1.00			3405.00	
Perforations	10.00			3415.00	
Recorder	0.01	8365	Inside	3415.01	
Blank Spacing	33.00			3448.01	
Perforations	10.00			3458.01	
Blank Off Sub	1.00			3459.01	
Blank Spacing	3.00			3462.01	58.01      Tool Interval
Packer	5.00			3467.01	
Stubb	1.00			3468.01	
Recorder	0.01	6625	Below	3468.02	
Blank Spacing	62.00			3530.02	
Bullnose	3.00			3533.02	71.01      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>150.02</b>				



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI Inc  
1310 Bison Rd  
Hays Ks 67601-9696  
ATTN: Tom Denning

**Rajewski #1**  
**28-14s-16w Ellis KS**  
Job Ticket: 36690      DST#: 2  
Test Start: 2009.10.31 @ 15:48:42

**Mud and Cushion Information**

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 50.00 sec/qt  
Water Loss: 7.17 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 7000.00 ppm  
Filter Cake: 2.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: ppm

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
115.00	Mud	1.613

Total Length: 115.00 ft      Total Volume: 1.613 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

# Pressure vs. Time

