

**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Norstar Petroleum inc  
6855 S. Havana st.  
Suite 250  
Centennial, CO. 80112  
ATTN: Tim Lauer

**Norton 1-28**  
**28-21s-23w Hodgeman**  
Job Ticket: 039982 **DST#: 1**  
Test Start: 2010.08.14 @ 23:28:05

## GENERAL INFORMATION:

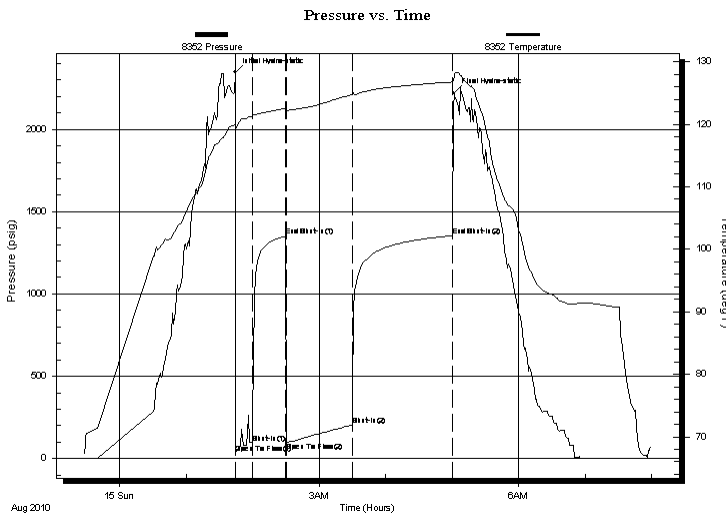
Formation: **Cherokee sand**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 01:44:40  
Time Test Ended: 07:59:20  
Interval: **4510.00 ft (KB) To 4581.00 ft (KB) (TVD)**  
Total Depth: 4581.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole  
Tester: Andy Carreira  
Unit No: 31  
Reference Elevations: 2359.00 ft (KB)  
2354.00 ft (CF)  
KB to GR/CF: 5.00 ft

## Serial #: 8352 Outside

Press@RunDepth: 203.87 psig @ 4515.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2010.08.14 End Date: 2010.08.15 Last Calib.: 2010.08.15  
Start Time: 23:28:05 End Time: 07:59:20 Time On Btm: 2010.08.15 @ 01:44:10  
Time Off Btm: 2010.08.15 @ 05:01:40

TEST COMMENT: IF: Fair, building to 8 inches  
IS: No return  
FF: BOB, 23 min  
FS: No return

## PRESSURE SUMMARY



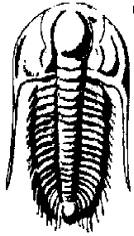
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2346.28	120.07	Initial Hydro-static
1	31.87	119.27	Open To Flow (1)
16	93.98	121.23	Shut-In(1)
46	1350.92	122.53	End Shut-In(1)
47	101.36	122.22	Open To Flow (2)
106	203.87	124.73	Shut-In(2)
197	1353.81	126.76	End Shut-In(2)
198	2221.92	127.80	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	GOCM g=10% o=40% m=50%	0.63
124.00	MGO m=10% g=10% o=80%	1.74
227.00	GO g=10% o=90%	3.18
0.00	745=GIP	0.00

## Gas Rates

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



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**TOOL DIAGRAM**

Norstar Petroleum inc  
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ATTN: Tim Lauer

**Norton 1-28**  
**28-21s-23w Hodgeman**  
Job Ticket: 039982      **DST#: 1**  
Test Start: 2010.08.14 @ 23:28:05

**Tool Information**

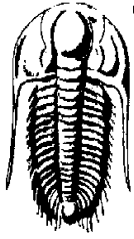
Drill Pipe:	Length: 4509.00 ft	Diameter: 3.80 inches	Volume: 63.25 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 122.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 55000.00 lb
		Total Volume: 63.85 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	144.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	4510.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	71.00 ft			
Tool Length:	94.00 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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Change Over Sub	1.00			4488.00	
Shut In Tool	5.00			4493.00	
Hydraulic tool	5.00			4498.00	
Safety Joint	3.00			4501.00	
Packer	5.00			4506.00	23.00      Bottom Of Top Packer
Packer	4.00			4510.00	
Stubb	1.00			4511.00	
Perforations	3.00			4514.00	
Change Over Sub	1.00			4515.00	
Recorder	0.00	8017	Inside	4515.00	
Recorder	0.00	8352	Outside	4515.00	
Drill Pipe	59.00			4574.00	
Change Over Sub	1.00			4575.00	
Perforations	3.00			4578.00	
Bullnose	3.00			4581.00	71.00      Bottom Packers & Anchor

**Total Tool Length: 94.00**



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**FLUID SUMMARY**

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ATTN: Tim Lauer

**Norton 1-28**  
**28-21s-23w Hodgeman**  
Job Ticket: 039982      **DST#: 1**  
Test Start: 2010.08.14 @ 23:28:05

## 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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.80 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: inches			

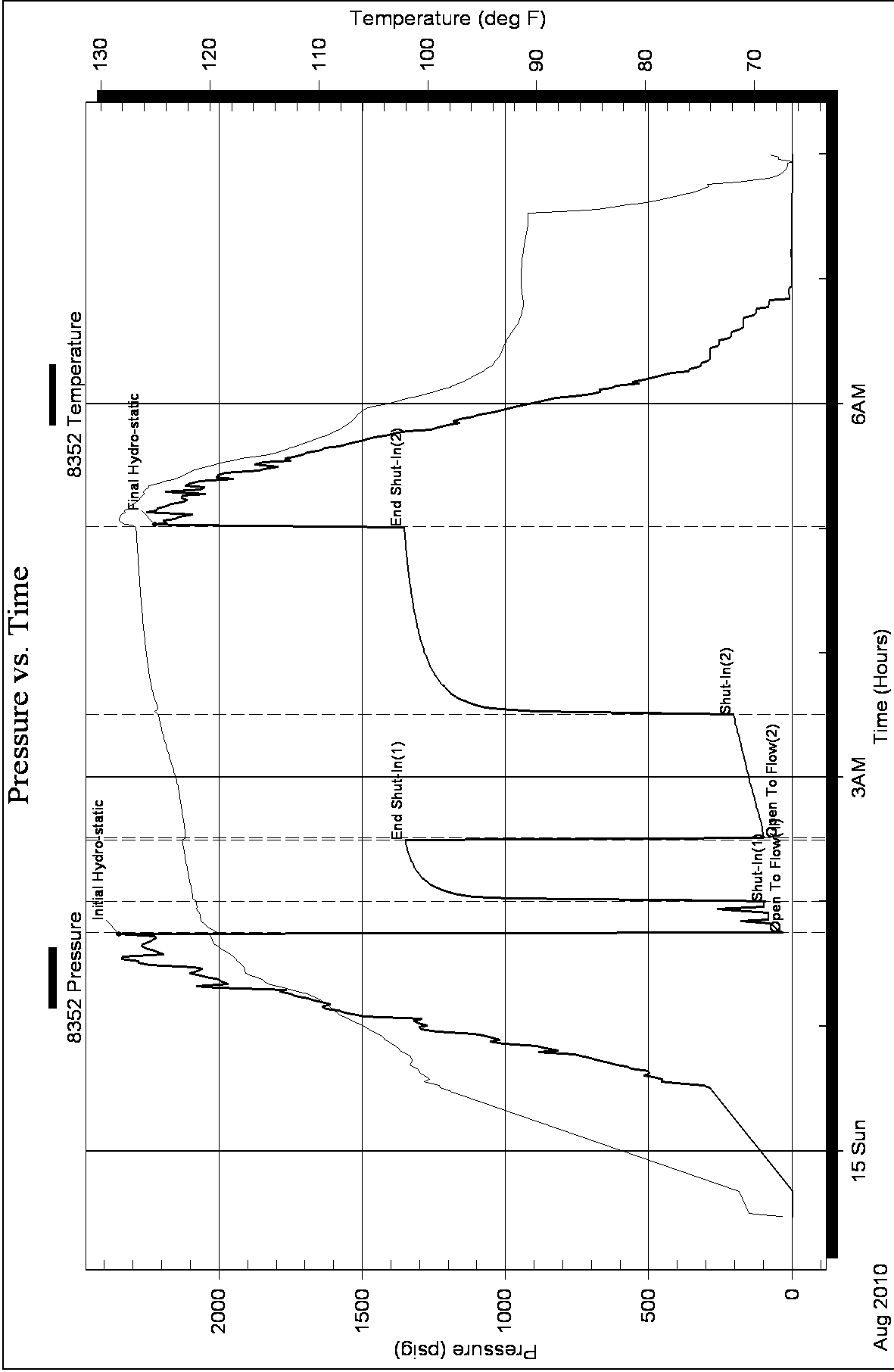
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	GOCM g=10% o=40% m=50%	0.628
124.00	MGO m=10% g=10% o=80%	1.739
227.00	GO g=10% o=90%	3.184
0.00	745=GIP	0.000

Total Length: 475.00 ft      Total Volume: 5.551 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

### Pressure vs. Time





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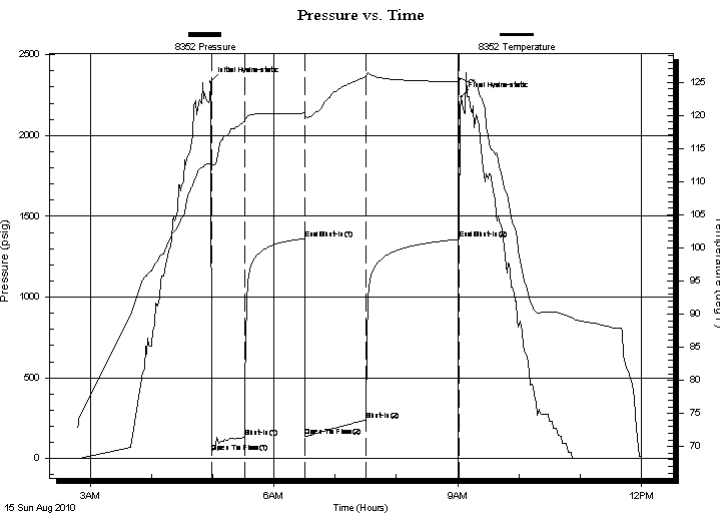
**Norton 1-28**  
**28-21s-23w Hodgeman**  
 Job Ticket: 039983 **DST#: 2**  
 Test Start: 2010.08.15 @ 02:47:05

## GENERAL INFORMATION:

Formation: **Cherokee sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:58:20  
 Time Test Ended: 12:04:20  
 Interval: **4510.00 ft (KB) To 4586.00 ft (KB) (TVD)**  
 Total Depth: 4581.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole  
 Tester: Andy Carreira  
 Unit No: 31  
 Reference Elevations: 2359.00 ft (KB)  
 2354.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8352 Outside**  
 Press @ Run Depth: 240.81 psig @ 4515.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2010.08.15 End Date: 2010.08.15 Last Calib.: 2010.08.15  
 Start Time: 02:47:05 End Time: 12:04:20 Time On Btm: 2010.08.15 @ 04:57:40  
 Time Off Btm: 2010.08.15 @ 09:03:39

TEST COMMENT: IF: BOB, 23 min.  
 IS: No return  
 FF: BOB, 19 min  
 FS: No return



## PRESSURE SUMMARY

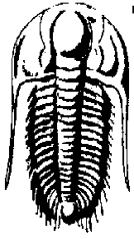
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2332.24	112.79	Initial Hydro-static
1	41.66	111.82	Open To Flow (1)
34	133.21	119.10	Shut-In(1)
92	1362.33	120.33	End Shut-In(1)
93	136.23	119.92	Open To Flow (2)
153	240.81	125.78	Shut-In(2)
244	1357.33	125.12	End Shut-In(2)
246	2237.67	125.54	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	OCGM g=10% o=20% m=70%	1.50
186.00	MCGO g=10% m=20% o=70%	2.61
206.00	GO g=10% o=90%	2.89
0.00	GIP=248ft	0.00

## Gas Rates

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



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Job Ticket: 039983      **DST#: 2**  
Test Start: 2010.08.15 @ 02:47:05

## 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: 46.00 sec/qt	Cushion Volume: bbl		
Water Loss: 13.58 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5600.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	OCGM g=10% o=20% m=70%	1.498
186.00	MCGO g=10% m=20% o=70%	2.609
206.00	GO g=10% o=90%	2.890
0.00	GIP=248ft	0.000

Total Length: 578.00 ft      Total Volume: 6.997 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

