



## DRILL STEM TEST REPORT

Prepared For: **Curtis Oil Operations**

PO Box 328  
Hoisington, KS 67544

ATTN: Jason Alm

**11-14s-20w Ellis,KS**

**Befort #7**

Start Date: 2011.07.23 @ 08:25:30

End Date: 2011.07.23 @ 15:10:30

Job Ticket #: 45214                      DST #: 1

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Curtis Oil Operations  
PO Box 328  
Hoisington, KS 67544  
ATTN: Jason Alm

**Before #7**  
**11-14s-20w Ellis,KS**  
Job Ticket: 45214      **DST#: 1**  
Test Start: 2011.07.23 @ 08:25:30

## GENERAL INFORMATION:

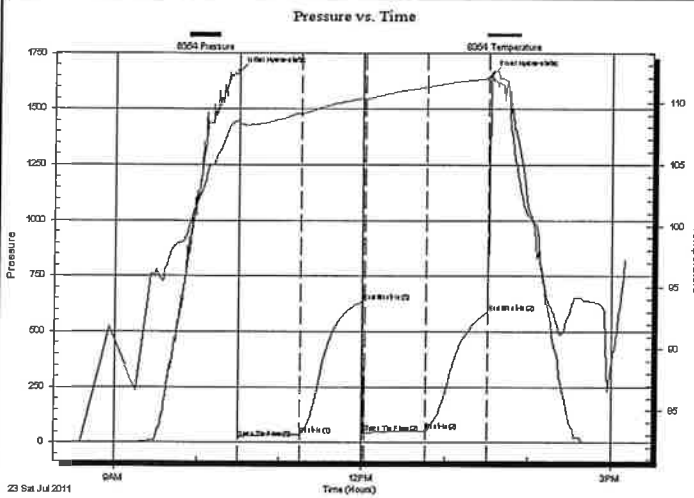
Formation: **LKC "C-D"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole  
 Time Tool Opened: 10:30:30  
 Tester: Dustin Rash  
 Time Test Ended: 15:10:30  
 Unit No: 38  
 Interval: **3514.00 ft (KB) To 3570.00 ft (KB) (TVD)**  
 Reference Elevations: 2238.00 ft (KB)  
 Total Depth: 3570.00 ft (KB) (TVD)  
 2231.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Fair  
 KB to GR/CF: 7.00 ft

## Serial #: 8354

Inside

Press@RunDepth: 54.41 psig @ 3553.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2011.07.23      End Date: 2011.07.23      Last Calib.: 2011.07.23  
 Start Time: 08:35:30      End Time: 15:10:30      Time On Btm: 2011.07.23 @ 10:30:00  
 Time Off Btm: 2011.07.23 @ 13:33:00

**TEST COMMENT:** IF-Weak building blow . Built to 6 1/2 inches.  
 IS-No Return.  
 FF-Fair building blow . BOB in 23 minutes.  
 FSI-No Return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1671.20	108.62	Initial Hydro-static
1	19.84	108.27	Open To Flow (1)
46	36.59	109.13	Shut-In(1)
91	635.68	110.38	End Shut-In(1)
92	43.41	110.27	Open To Flow (2)
137	54.41	111.31	Shut-In(2)
181	588.07	112.00	End Shut-In(2)
183	1656.93	112.51	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	40%Mud/30%Gas/20%Oil/10%Water	0.28
40.00	70%Mud/20%Oil/10%Gas	0.56
0.00	280' G.I.P.	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Curtis Oil Operations

**Before #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis, KS**

Job Ticket: 45214

**DST#: 1**

ATTN: Jason Alm

Test Start: 2011.07.23 @ 08:25:30

**Tool Information**

Drill Pipe:	Length: 3483.00 ft	Diameter: 3.80 inches	Volume: 48.86 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: 22000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 10000.00 lb
		<u>Total Volume:</u>	<u>49.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3514.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	76.00 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			3495.00	
Shut In Tool	5.00			3500.00	
Hydraulic tool	5.00			3505.00	
Packer	5.00			3510.00	20.00 Bottom Of Top Packer
Packer	4.00			3514.00	
Stubb	1.00			3515.00	
Perforations	5.00			3520.00	
Change Over Sub	1.00			3521.00	
Drill Pipe	31.00			3552.00	
Change Over Sub	1.00			3553.00	
Recorder	0.00	8354	Inside	3553.00	
Recorder	0.00	8520	Outside	3553.00	
Perforations	14.00			3567.00	
Bullnose	3.00			3570.00	56.00 Bottom Packers & Anchor

**Total Tool Length: 76.00**



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Curtis Oil Operations

**Befort #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis,KS**

Job Ticket: 45214

**DST#: 1**

ATTN: Jason Alm

Test Start: 2011.07.23 @ 08:25:30

## 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: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2200.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	40%Mud/30%Gas/20%Oil/10%Water	0.279
40.00	70%Mud/20%Oil/10%Gas	0.561
0.00	280' G.I.P.	0.000

Total Length: 80.00 ft      Total Volume: 0.840 bbl

Num Fluid Samples: 0

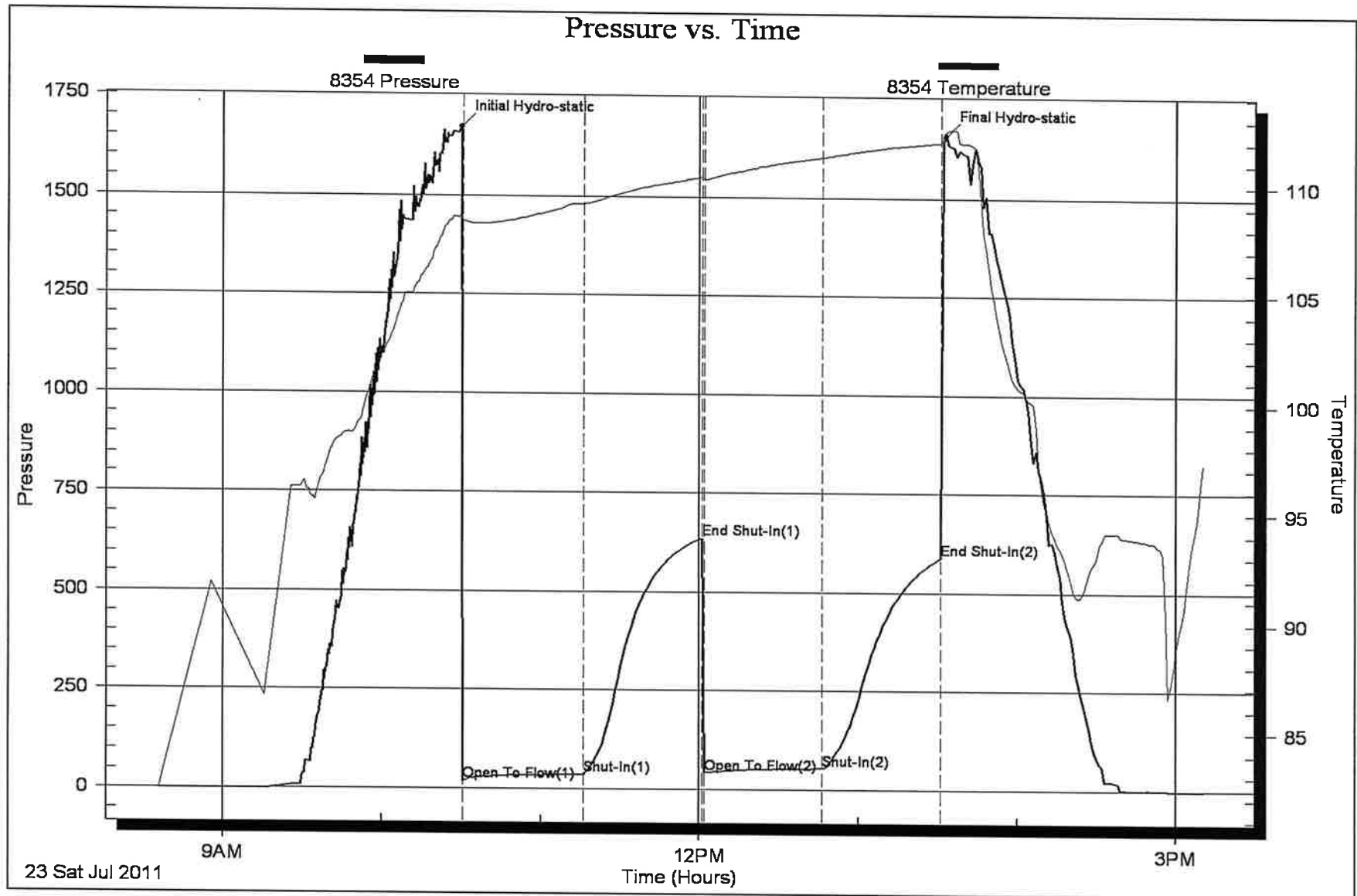
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 280' G.I.P.





**TRILOBITE  
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# DRILL STEM TEST REPORT

Curtis Oil Operations

**Before #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis,KS**

Job Ticket: 45215 **DST#: 2**

ATTN: Jason Alm

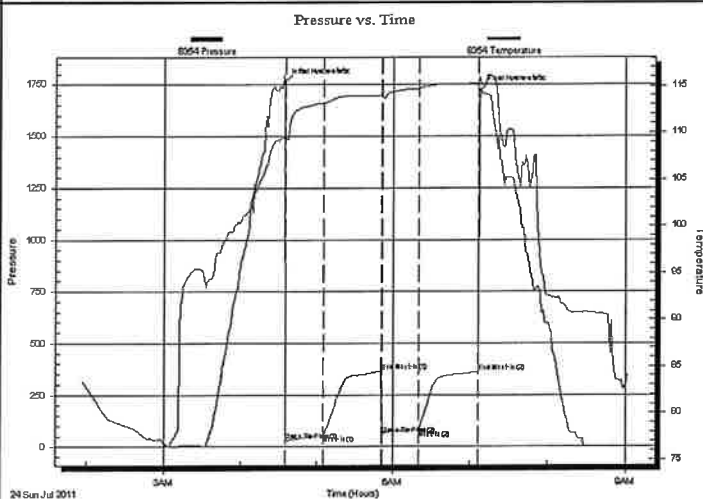
Test Start: 2011.07.24 @ 01:47:15

## GENERAL INFORMATION:

Formation: **LKC "I-K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:35:15  
 Time Test Ended: 09:02:15  
 Interval: **3650.00 ft (KB) To 3725.00 ft (KB) (TVD)**  
 Total Depth: 3725.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole  
 Tester: Dustin Rash  
 Unit No: 38  
 Reference Elevations: 2238.00 ft (KB)  
 2231.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8354** Inside  
 Press@RunDepth: 81.30 psig @ 3720.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2011.07.24 End Date: 2011.07.24 Last Calib.: 2011.07.24  
 Start Time: 01:57:15 End Time: 09:02:15 Time On Btmr: 2011.07.24 @ 04:34:45  
 Time Off Btmr: 2011.07.24 @ 07:08:15

**TEST COMMENT:** IF-Strong building blow . BOB in 3 minutes.  
 ISI-No Returns.  
 FF-Strong building blow . BOB in 45 seconds.  
 FSI-Return @ 30 seconds. Built to 1 inch.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1759.83	109.69	Initial Hydro-static
1	28.12	109.32	Open To Flow (1)
31	55.86	113.17	Shut-In(1)
76	366.06	113.98	End Shut-In(1)
77	55.84	113.83	Open To Flow (2)
106	81.30	114.70	Shut-In(2)
152	360.23	115.25	End Shut-In(2)
154	1723.89	115.39	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	80%Mud/10%Gas/10%Oil	0.35
60.00	50%Gas/30%Mud/20%Oil	0.84
60.00	60%Gas/20%Oil/20%Mud	0.84
0.00	1580' G.I.P.	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Curtis Oil Operations

**Befort #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis, KS**

Job Ticket: 45215

**DST#: 2**

ATTN: Jason Alm

Test Start: 2011.07.24 @ 01:47:15

**Tool Information**

Drill Pipe:	Length: 3609.00 ft	Diameter: 3.80 inches	Volume: 50.62 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:	22000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	5000.00 lb
			<u>Total Volume: 50.77 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	46000.00 lb
Depth to Top Packer:	3650.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	75.00 ft				
Tool Length:	95.00 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			3631.00	
Shut In Tool	5.00			3636.00	
Hydraulic tool	5.00			3641.00	
Packer	5.00			3646.00	20.00 Bottom Of Top Packer
Packer	4.00			3650.00	
Stubb	1.00			3651.00	
Perforations	5.00			3656.00	
Change Over Sub	1.00			3657.00	
Drill Pipe	62.00			3719.00	
Change Over Sub	1.00			3720.00	
Recorder	0.00	8354	Inside	3720.00	
Recorder	0.00	8520	Outside	3720.00	
Perforations	2.00			3722.00	
Bullnose	3.00			3725.00	75.00 Bottom Packers & Anchor

**Total Tool Length: 95.00**



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# DRILL STEM TEST REPORT

## FLUID SUMMARY

Curtis Oil Operations

**Before #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis,KS**

Job Ticket: 45215

**DST#: 2**

ATTN: Jason Alm

Test Start: 2011.07.24 @ 01:47:15

### 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: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2200.00 ppm			
Filter Cake: inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	80%Mud/10%Gas/10%Oil	0.349
60.00	50%Gas/30%Mud/20%Oil	0.842
60.00	60%Gas/20%Oil/20%Mud	0.842
0.00	1580' G.I.P.	0.000

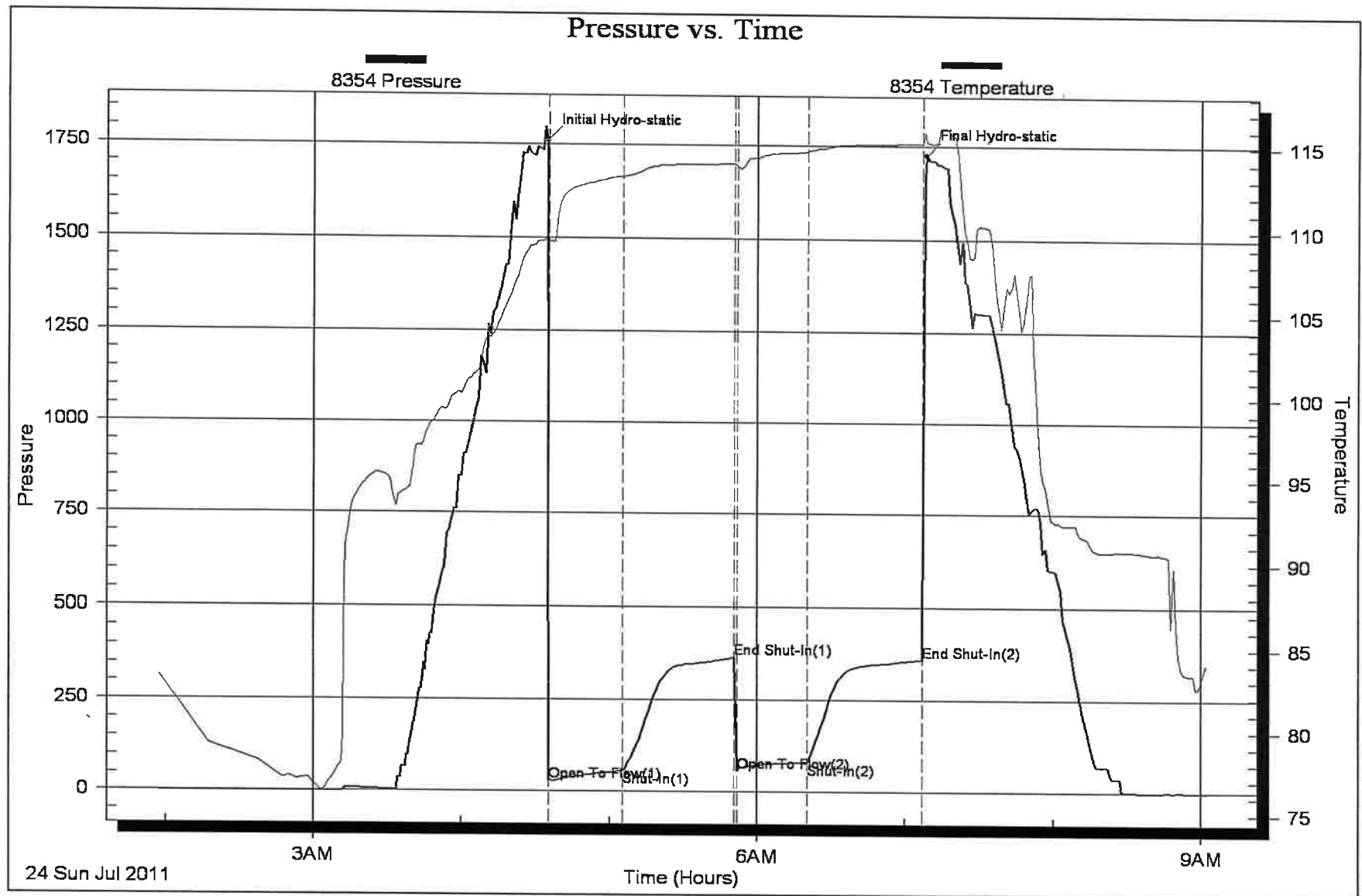
Total Length: 165.00 ft      Total Volume: 2.033 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: 1580' G.I.P.









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PO Box 328  
Hoisington, KS 67544

ATTN: Jason Alm

**11-14s-20w Ellis,KS**

**Befort #7**

Start Date: 2011.07.24 @ 20:35:30

End Date: 2011.07.25 @ 02:26:30

Job Ticket #: 45216                      DST #: 3

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



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# DRILL STEM TEST REPORT

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ATTN: Jason Alm

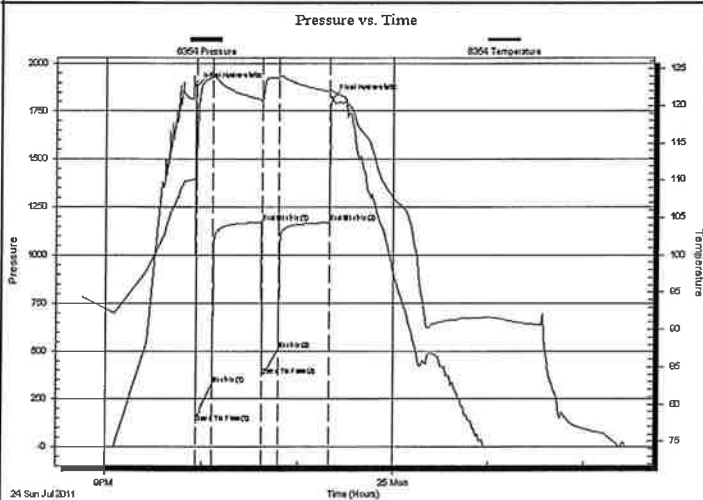
**Before #7**  
**11-14s-20w Ellis,KS**  
Job Ticket: 45216      **DST#: 3**  
Test Start: 2011.07.24 @ 20:35:30

## GENERAL INFORMATION:

Formation: **Reagan Sand**  
Deviated: No    Whipstock:                      ft (KB)  
Time Tool Opened: 21:56:10  
Time Test Ended: 02:26:30  
Interval: **3815.00 ft (KB) To 3855.00 ft (KB) (TVD)**  
Total Depth: 3855.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches    Hole Condition: Fair  
Test Type: Conventional Bottom Hole  
Tester: Dustin Rash  
Unit No: 38  
Reference Elevations: 2238.00 ft (KB)  
2231.00 ft (CF)  
KB to GR/CF: 7.00 ft

**Serial #: 8354      Inside**  
Press@RunDepth: 506.37 psig @ 3817.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2011.07.24      End Date: 2011.07.25  
Start Time: 20:45:30      End Time: 02:26:30  
Last Calib.: 2011.07.25  
Time On Btm: 2011.07.24 @ 21:56:00  
Time Off Btm: 2011.07.24 @ 23:21:00

**TEST COMMENT:** IF-Strong building blow . BOB in 1 1/2 minutes.  
IS-No Return.  
FF-Strong building blow . BOB in 2 minutes.  
FSI-No Return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1878.64	110.26	Initial Hydro-static
1	128.08	109.52	Open To Flow (1)
11	328.44	123.73	Shut-In(1)
41	1171.01	120.78	End Shut-In(1)
42	370.31	120.51	Open To Flow (2)
52	506.37	123.76	Shut-In(2)
84	1169.26	121.90	End Shut-In(2)
85	1819.85	121.93	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
392.00	80%Water/20%Mud	5.22
372.00	90%Water/10%Mud	5.22
248.00	95%Water/5%Mud	3.48

## Gas Rates

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



**TRILOBITE  
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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Curtis Oil Operations  
PO Box 328  
Hoisington, KS 67544  
ATTN: Jason Alm

**Befort #7**  
**11-14s-20w Ellis, KS**  
Job Ticket: 45216      **DST#: 3**  
Test Start: 2011.07.24 @ 20:35:30

**Tool Information**

Drill Pipe:	Length: 3766.00 ft	Diameter: 3.80 inches	Volume: 52.83 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: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	5000.00 lb
			<u>Total Volume: 52.98 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	44000.00 lb
Depth to Top Packer:	3815.00 ft			Final	lb
Depth to Bottom Packer:	ft				
Interval between Packers:	40.00 ft				
Tool Length:	68.00 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			3788.00	
Shut In Tool	5.00			3793.00	
Hydraulic tool	5.00			3798.00	
Jars	5.00			3803.00	
Safety Joint	3.00			3806.00	
Packer	5.00			3811.00	28.00      Bottom Of Top Packer
Packer	4.00			3815.00	
Stubb	1.00			3816.00	
Perforations	1.00			3817.00	
Recorder	0.00	8354	Inside	3817.00	
Recorder	0.00	8520	Outside	3817.00	
Perforations	35.00			3852.00	
Bullnose	3.00			3855.00	40.00      Bottom Packers & Anchor

**Total Tool Length: 68.00**



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**FLUID SUMMARY**

Curtis Oil Operations

**Before #7**

PO Box 328  
Hoisington, KS 67544

**11-14s-20w Ellis,KS**

Job Ticket: 45216

**DST#: 3**

ATTN: Jason Alm

Test Start: 2011.07.24 @ 20:35:30

## 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:

43000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.15 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
392.00	80%Water/20%Mud	5.216
372.00	90%Water/10%Mud	5.218
248.00	95%Water/5%Mud	3.479

Total Length: 1012.00 ft

Total Volume: 13.913 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

