



## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

### **23-20s-15w Barton,KS**

Start Date: 2014.08.27 @ 13:10:00

End Date: 2014.08.27 @ 20:58:30

Job Ticket #: 60344                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:09:40



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

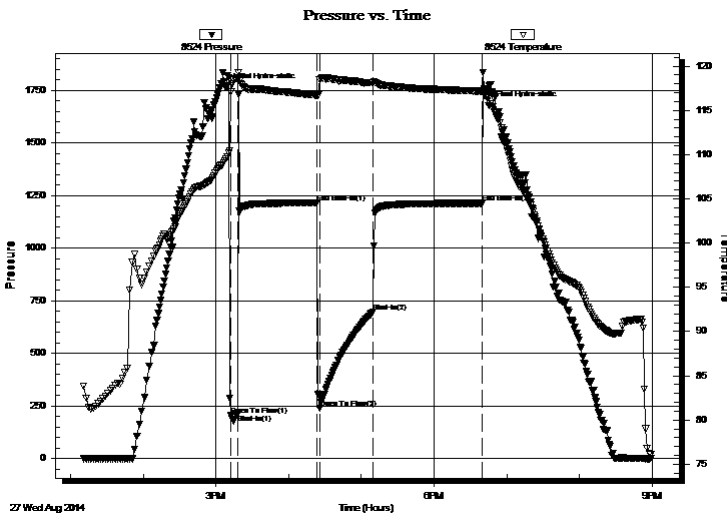
**23-20s-15w Barton,KS**  
**Crosby A Unit #1-23**  
Job Ticket: 60344 **DST#: 1**  
Test Start: 2014.08.27 @ 13:10:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 15:12:30  
Time Test Ended: 20:58:30  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Interval: **3625.00 ft (KB) To 3635.00 ft (KB) (TVD)**  
Reference Elevations: 1944.00 ft (KB)  
Total Depth: 3635.00 ft (KB) (TVD) 1934.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 10.00 ft

**Serial #: 8524 Inside**  
Press@RunDepth: 698.12 psig @ 3658.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.08.27 End Date: 2014.08.27 Last Calib.: 2014.08.27  
Start Time: 13:11:00 End Time: 20:58:30 Time On Btm: 2014.08.27 @ 15:08:30  
Time Off Btm: 2014.08.27 @ 18:45:00

**TEST COMMENT:** IFP 5 Strong blow built to bottom of 5 gallon bucket in 50 seconds.  
ISI 60 Blow back built to 3 inches and died back to weak surface blow by end of 60 minutes.  
FFP 45 Strong blow built to bottom of 5 gallon bucket in 1minute. Gas to surface in 20 minutes.  
FSI 90 Blow back built to bottom of bucket in 15 minutes and died back to 6 inches by end of shut in.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1762.47	109.56	Initial Hydro-static
4	208.12	117.09	Open To Flow (1)
10	211.64	118.58	Shut-In(1)
75	1214.40	116.71	End Shut-In(1)
77	238.77	118.52	Open To Flow (2)
121	698.12	118.11	Shut-In(2)
211	1214.12	117.15	End Shut-In(2)
217	1676.47	116.52	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
252.00	Muddy water 35% Mud, 65% water	3.53
378.00	Muddy water 10% Mud, 90% Water	5.30
912.00	100% Water	12.79

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	0.00	5.39
Last Gas Rate	0.25	1.60	25.38
Max. Gas Rate	0.25	2.00	26.02



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
 9431 E. Central STE 100  
 Wichita KS 67206-2563  
 ATTN: Frank Greenbaum

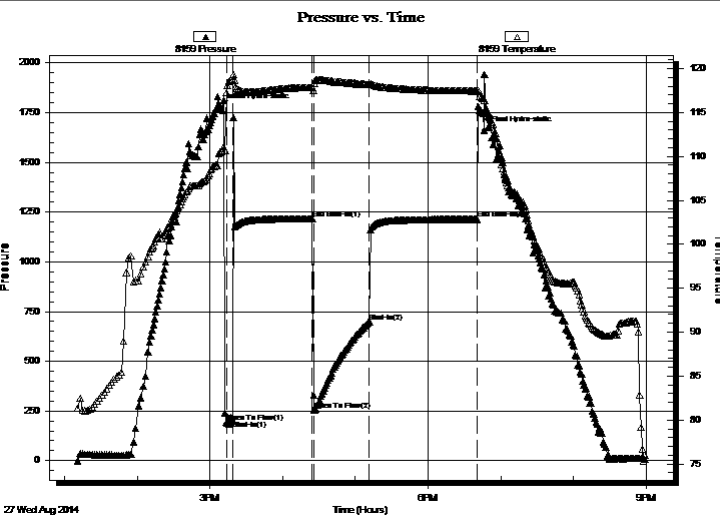
**23-20s-15w Barton,KS**  
**Crosby A Unit #1-23**  
 Job Ticket: 60344 **DST#: 1**  
 Test Start: 2014.08.27 @ 13:10:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:12:30  
 Time Test Ended: 20:58:30  
 Interval: **3625.00 ft (KB) To 3635.00 ft (KB) (TVD)**  
 Total Depth: 3635.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3  
 Reference Elevations: 1944.00 ft (KB)  
 1934.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8159 Outside**  
 Press@RunDepth: 1214.14 psig @ 3659.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.27 End Date: 2014.08.27 Last Calib.: 2014.08.27  
 Start Time: 13:11:00 End Time: 20:59:00 Time On Btm: 2014.08.27 @ 15:08:30  
 Time Off Btm: 2014.08.27 @ 18:46:00

**TEST COMMENT:** IFP 5 Strong blow built to bottom of 5 gallon bucket in 50 seconds.  
 ISI 60 Blow back built to 3 inches and died back to weak surface blow by end of 60 minutes.  
 FFP 45 Strong blow built to bottom of 5 gallon bucket in 1minute. Gas to surface in 20 minutes.  
 FSI 90 Blow back built to bottom of bucket in 15 minutes and died back to 6 inches by end of shut in.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1776.41	110.49	Initial Hydro-static
5	193.26	117.24	Open To Flow (1)
10	203.89	118.69	Shut-In(1)
76	1215.39	117.81	End Shut-In(1)
78	253.37	118.33	Open To Flow (2)
123	699.25	118.18	Shut-In(2)
212	1214.14	117.43	End Shut-In(2)
218	1661.70	116.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
252.00	Muddy water 35% Mud, 65% w ater	3.53
378.00	Muddy water 10% Mud, 90% Water	5.30
912.00	100% Water	12.79

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	0.00	5.39
Last Gas Rate	0.25	1.60	25.38
Max. Gas Rate	0.25	2.00	26.02



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60344

**DST#: 1**

ATTN: Frank Greenbaum

Test Start: 2014.08.27 @ 13:10:00

## Tool Information

Drill Pipe:	Length: 3624.00 ft	Diameter: 3.80 inches	Volume: 50.84 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 50.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	1000037. ft			
Tool Length:	38.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Shale Packer used.

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut-In Tool	5.00			3629.00	
Hydraulic tool	5.00			3634.00	
Jars	6.00			3640.00	
Safety Joint	2.00			3642.00	
Top Packer	5.00			3647.00	
Packer - Shale	5.00			3652.00	
Anchor	5.00			3657.00	
Recorder	1.00	8524	Inside	3658.00	
Recorder	1.00	8159	Outside	3659.00	
Bull Plug	3.00			3662.00	38.00
					Anchor Tool
<b>Total Tool Length:</b>	<b>38.00</b>				



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# DRILL STEM TEST REPORT

## FLUID SUMMARY

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60344

**DST#: 1**

ATTN: Frank Greenbaum

Test Start: 2014.08.27 @ 13:10:00

### 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:

32000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.34 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7500.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
252.00	Muddy w ater 35% Mud, 65% w ater	3.535
378.00	Muddy w ater 10% Mud, 90% Water	5.302
912.00	100% Water	12.793

Total Length: 1542.00 ft      Total Volume: 21.630 bbl

Num Fluid Samples: 0

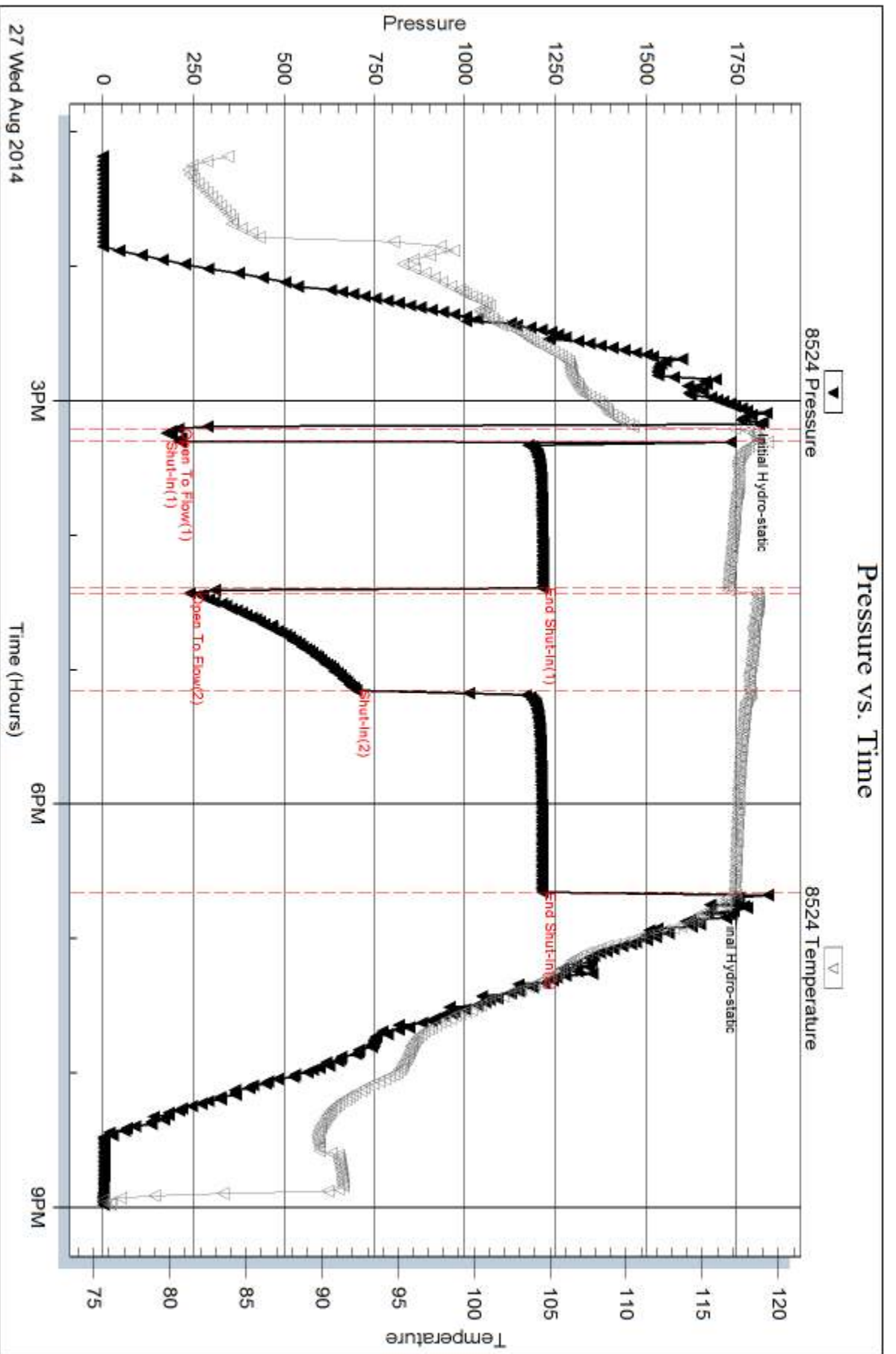
Num Gas Bombs: 0

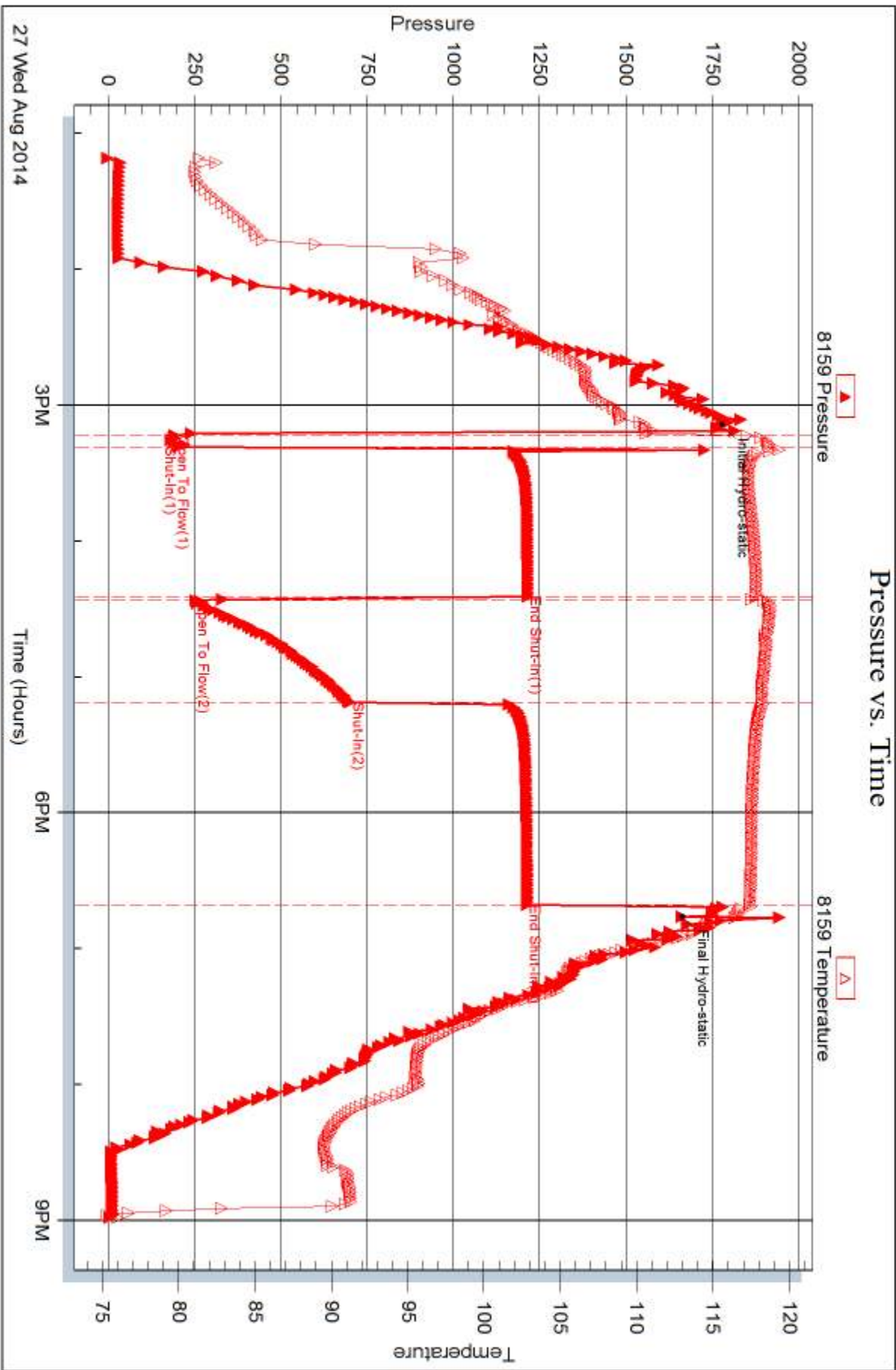
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .22 at 50 degrees







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

### **23-20s-15w Barton,KS**

Start Date: 2014.08.28 @ 16:00:00

End Date: 2014.08.28 @ 23:47:30

Job Ticket #: 60345                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:08:51





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

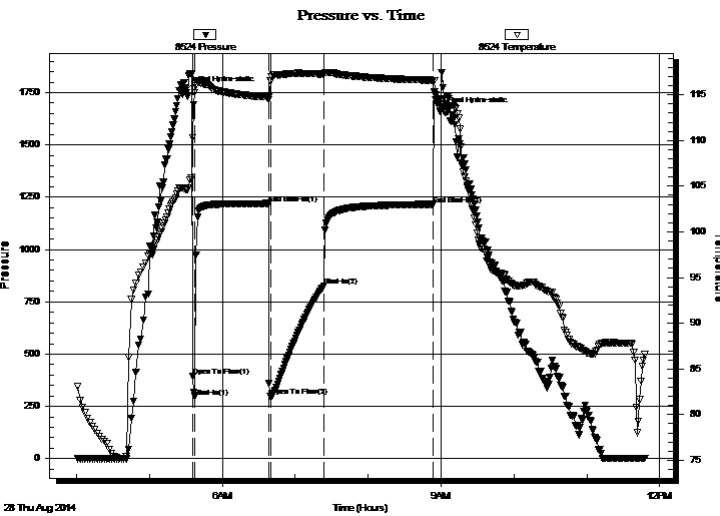
**23-20s-15w Barton,KS**  
**Crosby A Unit #1-23**  
Job Ticket: 60345 **DST#: 2**  
Test Start: 2014.08.28 @ 16:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 17:35:30  
Time Test Ended: 23:47:30  
Interval: **3636.00 ft (KB) To 3650.00 ft (KB) (TVD)**  
Total Depth: 3650.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Reference Elevations: 1944.00 ft (KB)  
1934.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8524 Inside**  
Press@RunDepth: 826.78 psig @ 3646.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.08.28 End Date: 2014.08.28 Last Calib.: 2014.08.28  
Start Time: 04:01:00 End Time: 11:47:30 Time On Btm: 2014.08.28 @ 05:30:00  
Time Off Btm: 2014.08.28 @ 08:59:30

TEST COMMENT: IFP 2 BOB in 17 seconds.  
ISI 60 No blow back.  
FFP 45 BOB in 7 seconds. GTS in 7 seconds.  
FSI 90 BOB blow back died back to 6 inches by end of shut in.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1760.21	104.60	Initial Hydro-static
6	392.37	110.30	Open To Flow (1)
8	296.16	115.23	Shut-In(1)
68	1220.45	114.76	End Shut-In(1)
70	297.30	116.50	Open To Flow (2)
114	826.78	117.26	Shut-In(2)
204	1216.25	116.58	End Shut-In(2)
210	1659.19	113.52	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
441.00	GCO	6.19
189.00	GWCO 2.5% w ater, 10% gas, 87.5% oil	2.65
252.00	MW 2.5% mud, 97.5% w ater	3.53
1031.00	100% w ater.	14.46

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.38	1.00	56.41
Last Gas Rate	0.13	18.00	12.13
Max. Gas Rate	0.13	18.00	12.13



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# DRILL STEM TEST REPORT

F.G. Holl  
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Wichita KS 67206-2563  
ATTN: Frank Greenbaum

**23-20s-15w Barton,KS**

**Crosby A Unit #1-23**

Job Ticket: 60345 **DST#: 2**

Test Start: 2014.08.28 @ 16:00:00

## GENERAL INFORMATION:

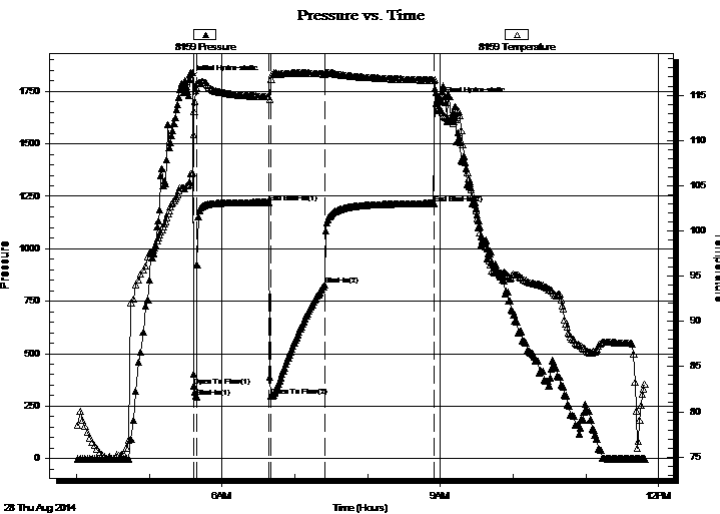
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 17:35:30 Tester: Shane Konzem  
 Time Test Ended: 23:47:30 Unit No: S3  
 Interval: **3636.00 ft (KB) To 3650.00 ft (KB) (TVD)** Reference Elevations: 1944.00 ft (KB)  
 Total Depth: 3650.00 ft (KB) (TVD) 1934.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 10.00 ft

## Serial #: 8159

**Outside**

Press@RunDepth: 1216.28 psig @ 3647.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.28 End Date: 2014.08.28 Last Calib.: 2014.08.28  
 Start Time: 04:01:00 End Time: 11:49:00 Time On Btm: 2014.08.28 @ 05:33:00  
 Time Off Btm: 2014.08.28 @ 08:58:00

TEST COMMENT: IFP 2 BOB in 17 seconds.  
 ISI 60 No blow back.  
 FFP 45 BOB in 7 seconds. GTS in 7 seconds.  
 FSI 90 BOB blow back died back to 6 inches by end of shut in.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1807.49	105.16	Initial Hydro-static
4	346.37	113.18	Open To Flow (1)
6	293.66	115.87	Shut-In(1)
66	1220.79	114.83	End Shut-In(1)
68	297.87	116.76	Open To Flow (2)
112	826.11	117.34	Shut-In(2)
202	1216.28	116.64	End Shut-In(2)
205	1700.87	113.51	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
441.00	GCO	6.19
189.00	GWCO 2.5% w ater, 10% gas, 87.5% oil	2.65
252.00	MW 2.5% mud, 97.5% w ater	3.53
1031.00	100% w ater.	14.46

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.38	1.00	56.41
Last Gas Rate	0.13	18.00	12.13
Max. Gas Rate	0.13	18.00	12.13



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60345

**DST#: 2**

ATTN: Frank Greenbaum

Test Start: 2014.08.28 @ 16:00:00

## Tool Information

Drill Pipe:	Length: 3625.00 ft	Diameter: 3.80 inches	Volume: 50.85 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 50.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	3636.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Shale Packer used.

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3613.00	
Hydraulic tool	5.00			3618.00	
Jars	6.00			3624.00	
Safety Joint	2.00			3626.00	
Top Packer	5.00			3631.00	
Packer	5.00			3636.00	28.00 Bottom Of Top Packer
Anchor	9.00			3645.00	
Recorder	1.00	8524	Inside	3646.00	
Recorder	1.00	8159	Outside	3647.00	
Bull Plug	3.00			3650.00	14.00 Anchor Tool
<b>Total Tool Length:</b>	<b>42.00</b>				



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60345

**DST#: 2**

ATTN: Frank Greenbaum

Test Start: 2014.08.28 @ 16:00:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 49.00 sec/qt  
Water Loss: 10.35 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 7500.00 ppm  
Filter Cake: 1.00 inches

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

Oil API: 41 deg API  
Water Salinity: 33000 ppm

## Recovery Information

Recovery Table

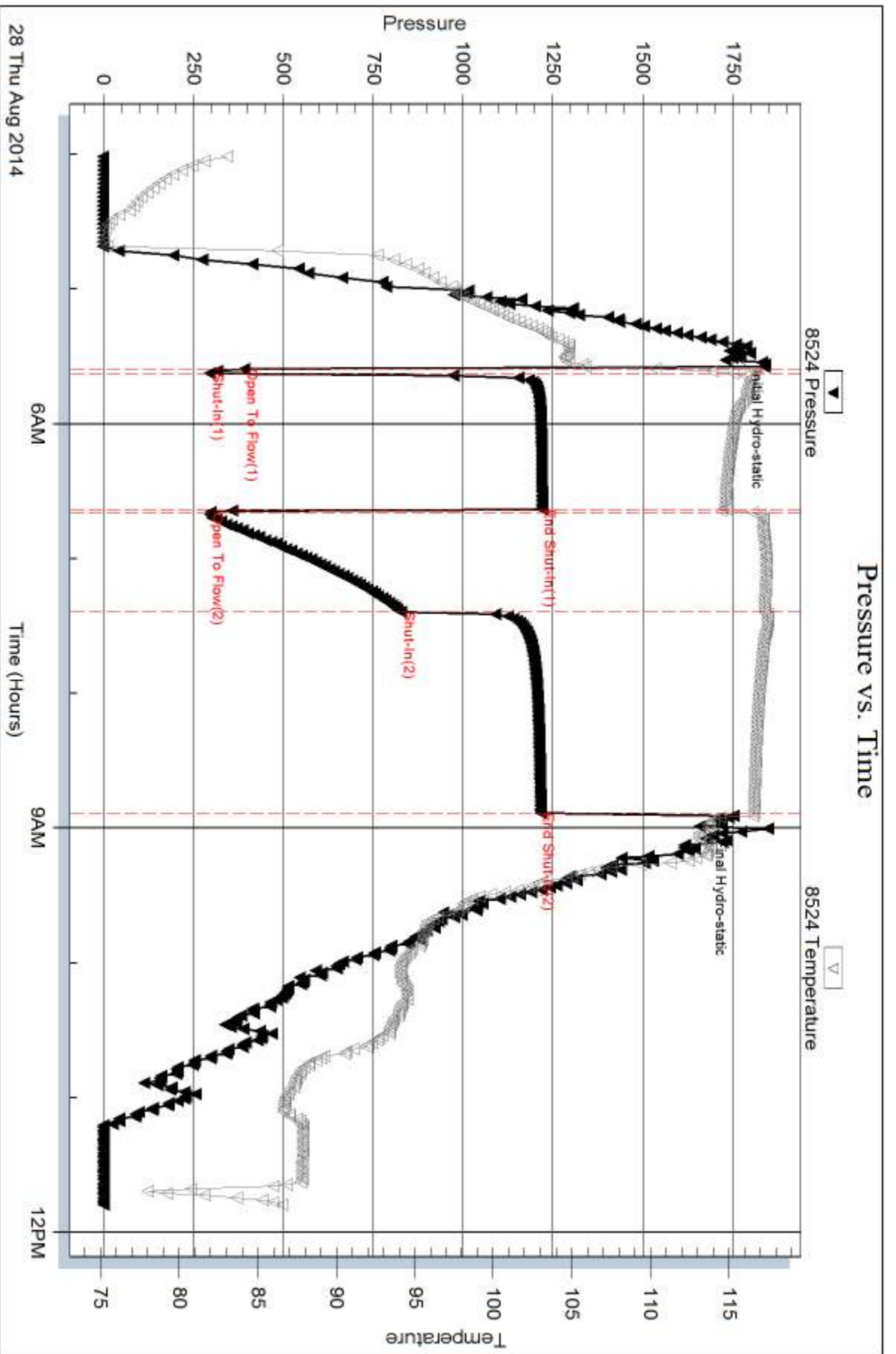
Length ft	Description	Volume bbl
441.00	GCO	6.186
189.00	GWCO 2.5% w ater, 10% gas, 87.5% oil	2.651
252.00	MW 2.5% mud, 97.5% w ater	3.535
1031.00	100% w ater.	14.462

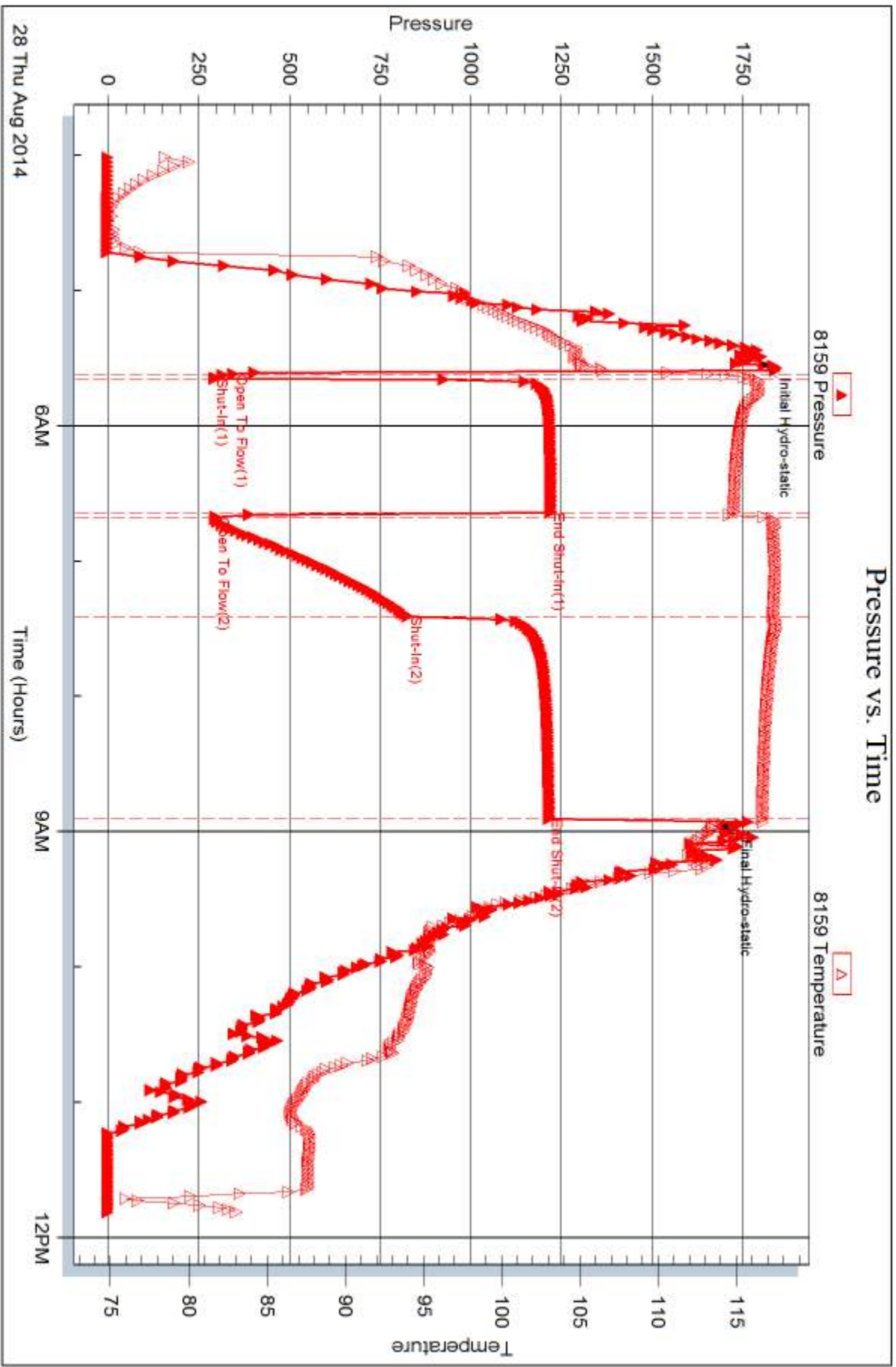
Total Length: 1913.00 ft      Total Volume: 26.834 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW .22 ohms at 40 degrees







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

### **23-20s-15w Barton,KS**

Start Date: 2014.08.28 @ 19:35:00

End Date: 2014.08.29 @ 02:53:30

Job Ticket #: 60346                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:08:25



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

**23-20s-15w Barton,KS**

**Crosby A Unit #1-23**

Job Ticket: 60346 **DST#: 3**

Test Start: 2014.08.28 @ 19:35:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 21:19:30 Tester: Shane Konzem  
 Time Test Ended: 02:53:30 Unit No: S3  
 Interval: **3651.00 ft (KB) To 3662.00 ft (KB) (TVD)** Reference Elevations: 1944.00 ft (KB)  
 Total Depth: 3662.00 ft (KB) (TVD) 1934.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 10.00 ft

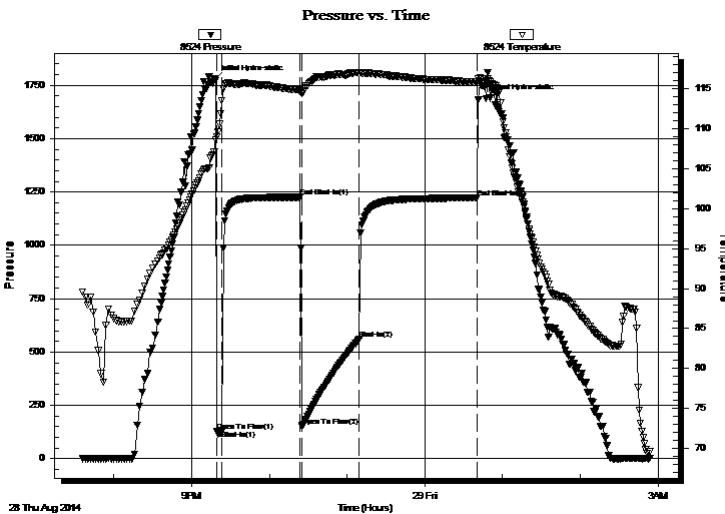
## Serial #: 8524

Inside

Press@RunDepth: 559.96 psig @ 3658.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.28 End Date: 2014.08.29 Last Calib.: 2014.08.29  
 Start Time: 19:36:00 End Time: 02:53:30 Time On Btm: 2014.08.28 @ 21:17:30  
 Time Off Btm: 2014.08.29 @ 00:47:30

TEST COMMENT: IFP 5 BOB in 17 seconds.  
 ISI 60 Weak surface blow back.  
 FFP 45 BOB in 50 seconds. GTS in 20 min.  
 FSI 90 Blow back built to 10"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1778.48	107.10	Initial Hydro-static
2	128.54	108.90	Open To Flow (1)
6	131.36	113.47	Shut-In(1)
66	1225.18	114.79	End Shut-In(1)
68	154.13	114.33	Open To Flow (2)
112	559.96	116.85	Shut-In(2)
203	1222.26	115.79	End Shut-In(2)
210	1686.51	116.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	OCMW 10% oil, 35% mud, 55% w ater	0.42
189.00	OMCW 2.5% oil, 2.5% mud, 95% w ater	2.65
315.00	MW 2.5% mud, 97.5% w ater	4.42
756.00	100% Water	10.60

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	5.00	7.26
Last Gas Rate	0.13	5.00	7.26
Max. Gas Rate	0.13	5.00	7.26





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

**23-20s-15w Barton,KS**

**Crosby A Unit #1-23**

Job Ticket: 60346 **DST#: 3**

Test Start: 2014.08.28 @ 19:35:00

## GENERAL INFORMATION:

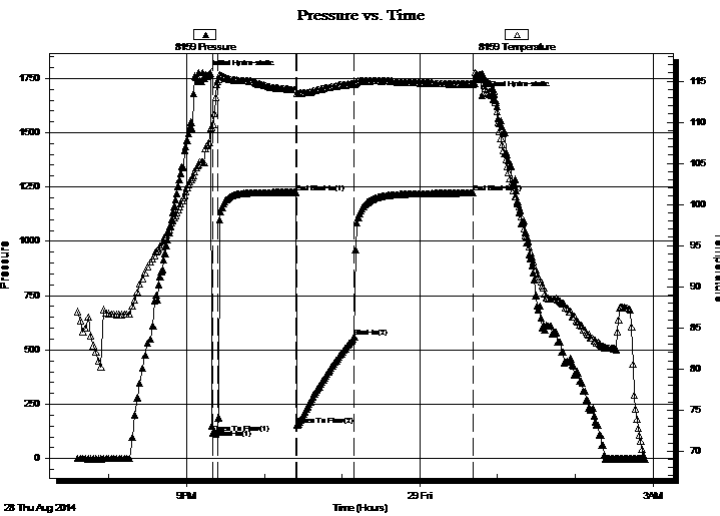
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:19:30  
 Time Test Ended: 02:53:30  
 Interval: **3651.00 ft (KB) To 3662.00 ft (KB) (TVD)**  
 Total Depth: 3662.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3  
 Reference Elevations: 1944.00 ft (KB)  
 1934.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 8159

**Outside**

Press@RunDepth: 1222.54 psig @ 3659.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.28 End Date: 2014.08.29 Last Calib.: 2014.08.29  
 Start Time: 19:36:00 End Time: 02:54:00 Time On Btm: 2014.08.28 @ 21:14:30  
 Time Off Btm: 2014.08.29 @ 00:48:00

TEST COMMENT: IFP 5 BOB in 17 seconds.  
 ISI 60 Weak surface blow back.  
 FFP 45 BOB in 50 seconds. GTS in 20 min.  
 FSI 90 Blow back built to 10"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1766.41	106.79	Initial Hydro-static
6	116.39	109.76	Open To Flow (1)
10	133.47	114.96	Shut-In(1)
70	1225.55	113.94	End Shut-In(1)
71	152.29	113.52	Open To Flow (2)
115	558.10	114.59	Shut-In(2)
207	1222.54	114.62	End Shut-In(2)
214	1671.37	115.88	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	OCMW 10% oil, 35% mud, 55% w ater	0.42
189.00	OMCW 2.5% oil, 2.5% mud, 95% w ater	2.65
315.00	MW 2.5% mud, 97.5% w ater	4.42
756.00	100% Water	10.60

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.13	5.00	7.26
Last Gas Rate	0.13	5.00	7.26
Max. Gas Rate	0.13	5.00	7.26



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60346

**DST#: 3**

ATTN: Frank Greenbaum

Test Start: 2014.08.28 @ 19:35:00

## Tool Information

Drill Pipe:	Length: 3656.00 ft	Diameter: 3.80 inches	Volume: 51.28 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 51.28 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3651.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	11.00 ft			
Tool Length:	34.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3633.00	
Hydraulic tool	5.00			3638.00	
Jars	6.00			3644.00	
Safety Joint	2.00			3646.00	
Packer	5.00			3651.00	23.00 Bottom Of Top Packer
Anchor	6.00			3657.00	
Recorder	1.00	8524	Inside	3658.00	
Recorder	1.00	8159	Outside	3659.00	
Bull Plug	3.00			3662.00	11.00 Anchor Tool
<b>Total Tool Length:</b>	<b>34.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60346

**DST#: 3**

ATTN: Frank Greenbaum

Test Start: 2014.08.28 @ 19:35:00

## 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:

33000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 11.95 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 bbbl
30.00	OCMW 10% oil, 35% mud, 55% w ater	0.421
189.00	OMCW 2.5% oil, 2.5% mud, 95% w ater	2.651
315.00	MW 2.5% mud, 97.5% w ater	4.419
756.00	100% Water	10.605

Total Length: 1290.00 ft      Total Volume: 18.096 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

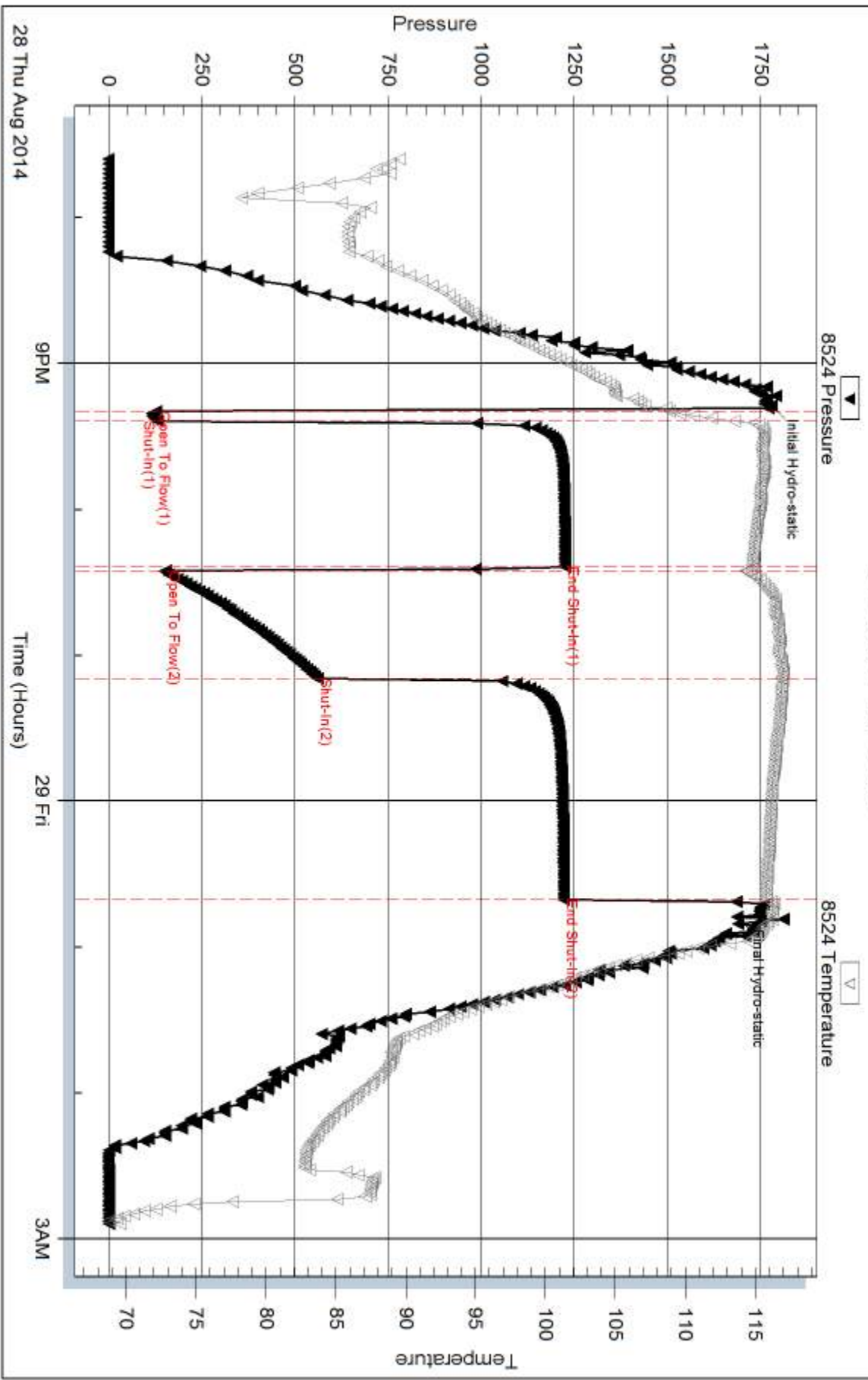
Serial #:

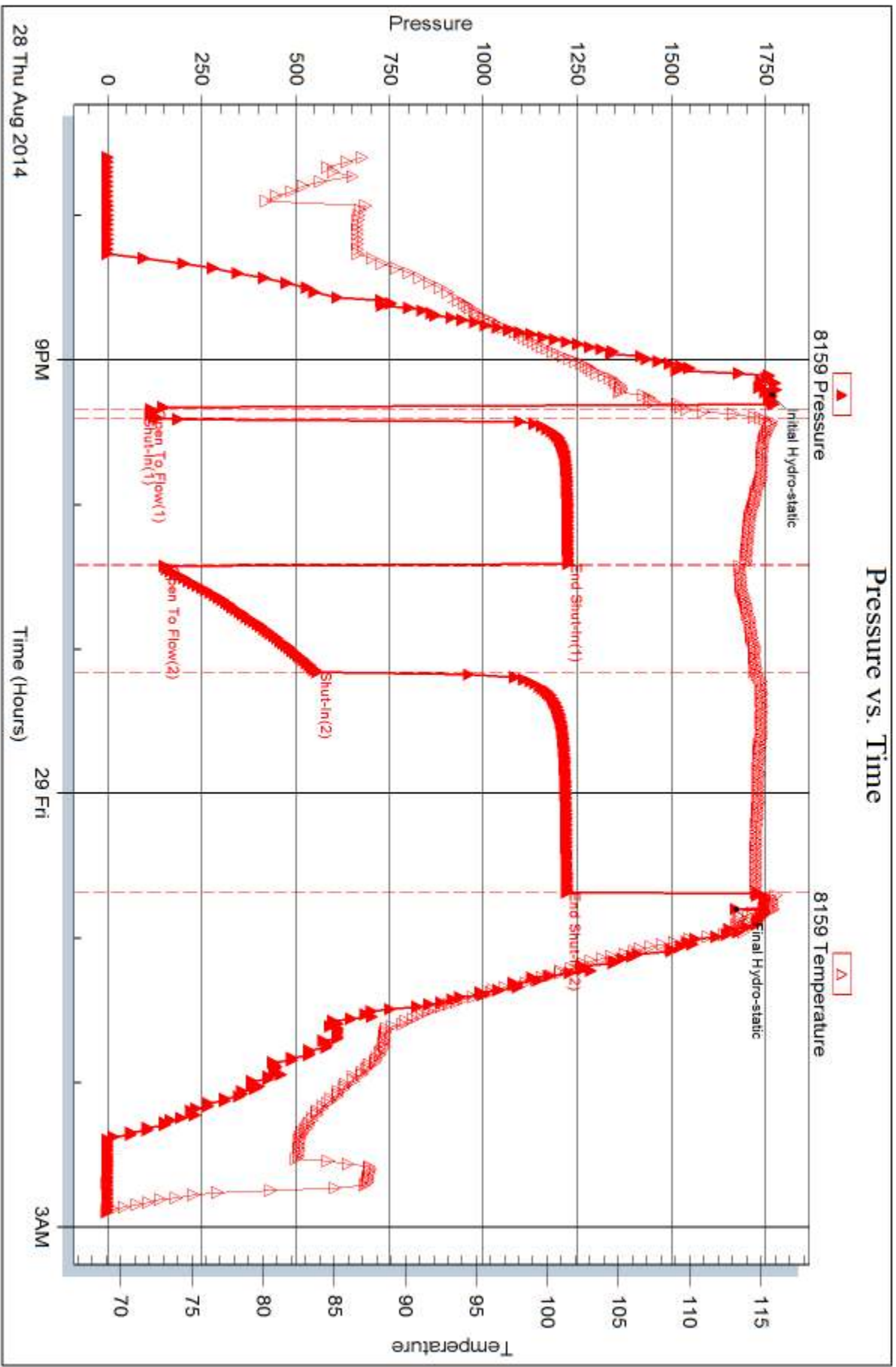
Laboratory Name:

Laboratory Location:

Recovery Comments: resist recov .22 ohms at 40 degrees

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

### **23-20s-15w Barton,KS**

Start Date: 2014.08.29 @ 09:35:00

End Date: 2014.08.29 @ 18:31:30

Job Ticket #: 60347                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:07:44

F.G. Holl  
23-20s-15w Barton,KS  
Crosby A Unit #1-23  
DST # 4  
Arbuckle  
2014.08.29



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

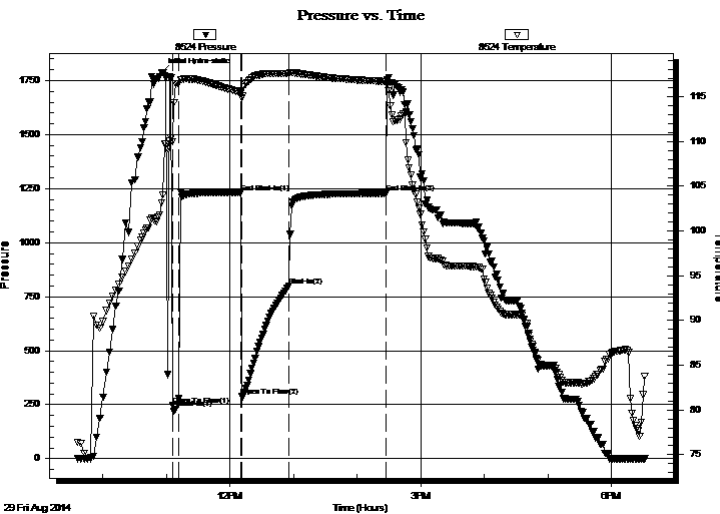
**23-20s-15w Barton,KS**  
**Crosby A Unit #1-23**  
Job Ticket: 60347 **DST#: 4**  
Test Start: 2014.08.29 @ 09:35:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 11:05:30  
Time Test Ended: 18:31:30  
Interval: **3663.00 ft (KB) To 3672.00 ft (KB) (TVD)**  
Total Depth: 3672.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Reference Elevations: 1944.00 ft (KB)  
1934.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8524 Inside**  
Press@RunDepth: 798.80 psig @ 3668.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.08.29 End Date: 2014.08.29 Last Calib.: 2014.08.29  
Start Time: 09:36:00 End Time: 18:31:30 Time On Btm: 2014.08.29 @ 10:55:00  
Time Off Btm:

TEST COMMENT: IFP 5 BOB in 50 seconds.  
ISI 60 No blow back.  
FFP 45 BOB in 50 seconds. GTS in 50 seconds.  
FSI 90 Blow back built to BOB and died back to 10"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1786.73	103.13	Initial Hydro-static
11	248.94	110.01	Open To Flow (1)
17	277.72	116.47	Shut-In(1)
75	1230.24	115.49	End Shut-In(1)
76	288.64	114.89	Open To Flow (2)
120	798.80	117.61	Shut-In(2)
212	1228.82	116.70	End Shut-In(2)

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% Clean gassy oil.	0.07
640.00	OCM 15% Oil, 85% Mud	8.98
520.00	GOCW 20% Gas, 25% Water, 55% Oil.	7.29
625.00	GOCW 10% Gas, 35% Water, 55% oil.	8.77
441.00	GOCW 5% Gas, 40% Water, 55% Oil	6.19
200.00	GWCO 20% w ater, 40% Gas, 40% Oil	2.81

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	19.00	52.99
Last Gas Rate	0.13	14.00	10.63
Max. Gas Rate	0.13	21.00	13.25



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
 9431 E. Central STE 100  
 Wichita KS 67206-2563  
 ATTN: Frank Greenbaum

**23-20s-15w Barton,KS**  
**Crosby A Unit #1-23**  
 Job Ticket: 60347 **DST#: 4**  
 Test Start: 2014.08.29 @ 09:35:00

## GENERAL INFORMATION:

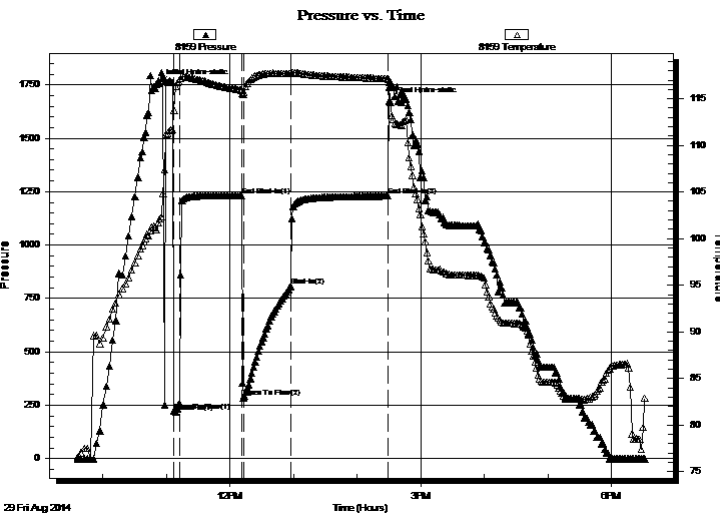
Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:05:30  
 Time Test Ended: 18:31:30  
 Interval: **3663.00 ft (KB) To 3672.00 ft (KB) (TVD)**  
 Total Depth: 3672.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane Konzem  
 Unit No: S3  
 Reference Elevations: 1944.00 ft (KB)  
 1934.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 8159

## Outside

Press@RunDepth: 1230.48 psig @ 3669.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.08.29 End Date: 2014.08.29 Last Calib.: 2014.08.29  
 Start Time: 09:36:00 End Time: 18:32:00 Time On Btm: 2014.08.29 @ 10:53:30  
 Time Off Btm: 2014.08.29 @ 14:30:00

TEST COMMENT: IFP 5 BOB in 50 seconds.  
 ISI 60 No blow back.  
 FFP 45 BOB in 50 seconds. GTS in 50 seconds.  
 FSI 90 Blow back built to BOB and died back to 10"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1757.03	102.11	Initial Hydro-static
14	222.15	113.78	Open To Flow (1)
19	259.65	116.90	Shut-In(1)
78	1231.35	115.92	End Shut-In(1)
79	285.22	115.41	Open To Flow (2)
124	806.70	117.67	Shut-In(2)
215	1230.48	117.14	End Shut-In(2)
217	1673.69	116.78	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% Clean gassy oil.	0.07
640.00	OCM 15% Oil, 85% Mud	8.98
520.00	GOCW 20% Gas, 25% Water, 55% Oil.	7.29
625.00	GOCW 10% Gas, 35% Water, 55% oil.	8.77
441.00	GOCW 5% Gas, 40% Water, 55% Oil	6.19
200.00	GWCO 20% w ater, 40% Gas, 40% Oil	2.81

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	19.00	52.99
Last Gas Rate	0.13	14.00	10.63
Max. Gas Rate	0.13	21.00	13.25





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60347

**DST#: 4**

ATTN: Frank Greenbaum

Test Start: 2014.08.29 @ 09:35:00

## Tool Information

Drill Pipe:	Length: 3657.00 ft	Diameter: 3.80 inches	Volume: 51.30 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 51.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3663.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	32.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments: On 1st open had to reset packer three times to get it to seal off had total of about 40 foot mud loss from top side.

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut-In Tool	5.00			3645.00	
Hydraulic tool	5.00			3650.00	
Jars	6.00			3656.00	
Safety Joint	2.00			3658.00	
Packer	5.00			3663.00	23.00 Bottom Of Top Packer
Anchor	4.00			3667.00	
Recorder	1.00	8524	Inside	3668.00	
Recorder	1.00	8159	Outside	3669.00	
Bull Plug	3.00			3672.00	9.00 Anchor Tool
<b>Total Tool Length:</b>	<b>32.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60347

**DST#: 4**

ATTN: Frank Greenbaum

Test Start: 2014.08.29 @ 09:35:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 44.00 sec/qt  
Water Loss: 9.17 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 6700.00 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: 35000 ppm

## Recovery Information

Recovery Table

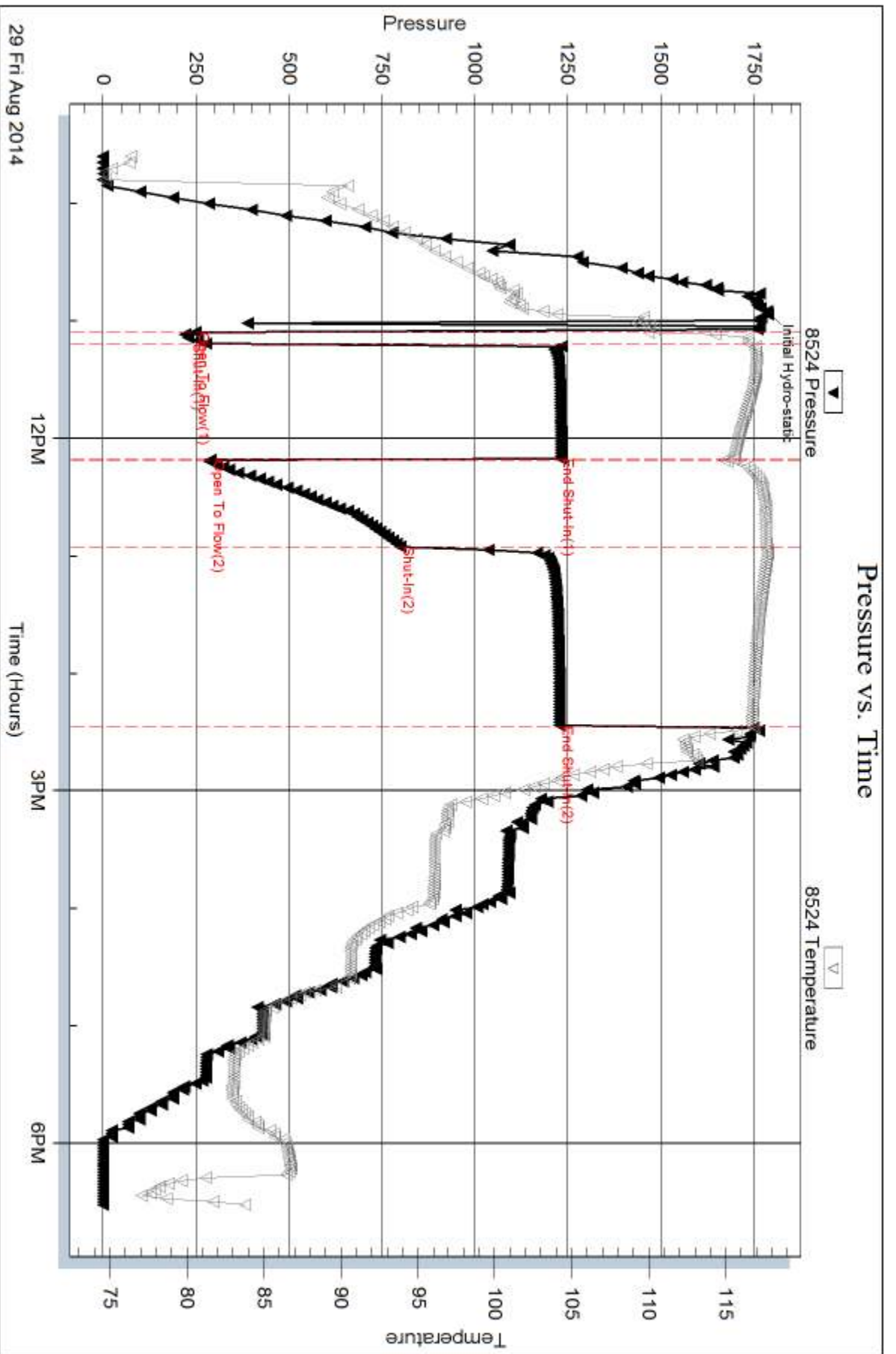
Length ft	Description	Volume bbl
5.00	100% Clean gassy oil.	0.070
640.00	OCM 15% Oil, 85% Mud	8.978
520.00	GOCW 20% Gas, 25% Water, 55% Oil.	7.294
625.00	GOCW 10% Gas, 35% Water, 55% oil.	8.767
441.00	GOCW 5% Gas, 40% Water, 55% Oil	6.186
200.00	GWCO 20% w ater, 40% Gas, 40% Oil	2.805
283.00	GWCO 2.5% w ater, 37.5% gas, 60% oil	3.970
126.00	MW 5% Mud, 95% w ater.	1.767

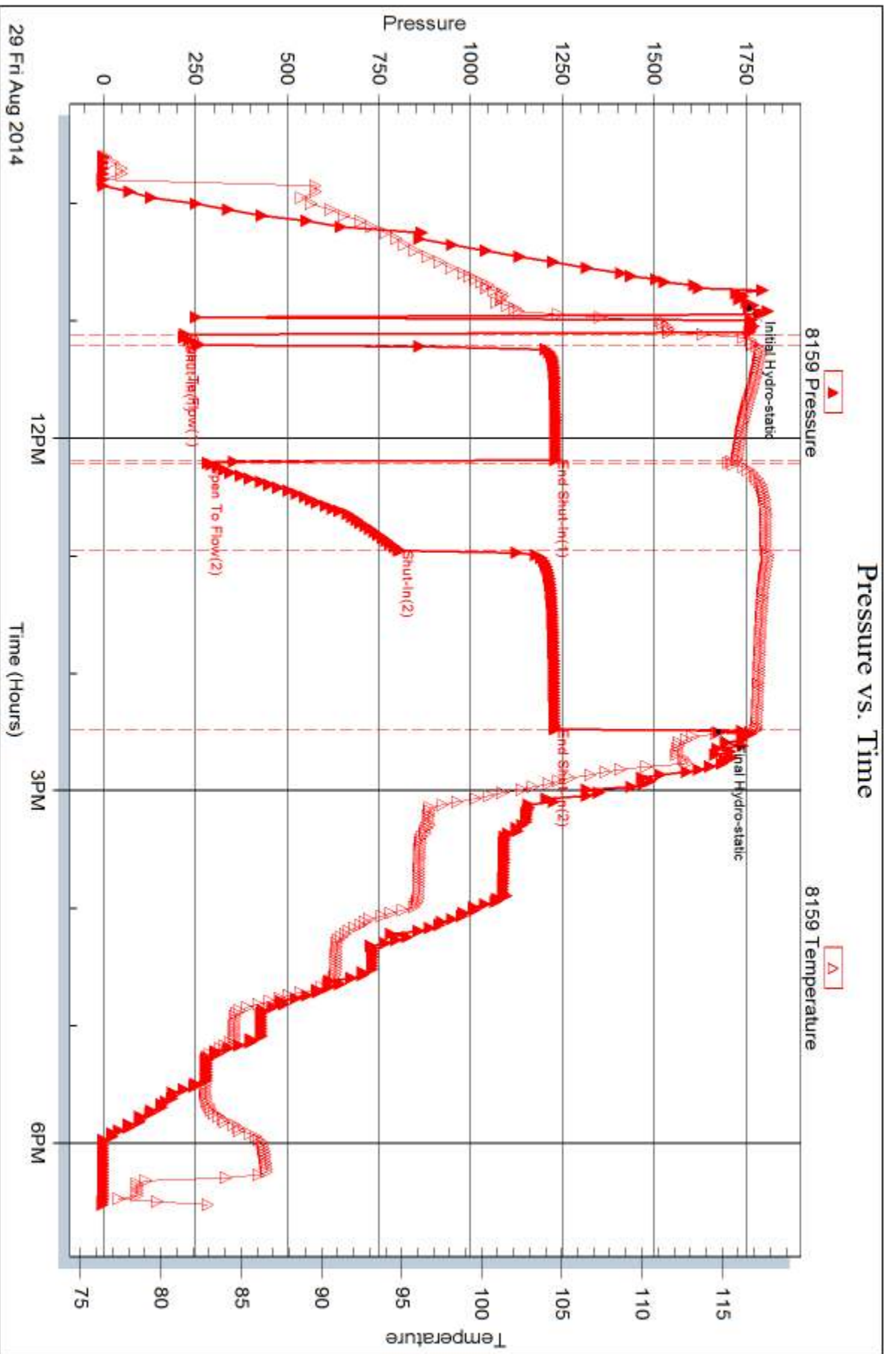
Total Length: 2840.00 ft      Total Volume: 39.837 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: resistiv recov .22 at 50 degrees.







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

### **23-20s-15w Barton,KS**

Start Date: 2014.08.30 @ 01:55:00

End Date: 2014.08.30 @ 08:46:00

Job Ticket #: 60348                      DST #: 5

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:06:56

F.G. Holl  
23-20s-15w Barton,KS  
Crosby A Unit #1-23  
DST # 5  
Arbuckle  
2014.08.30







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60348

**DST#: 5**

ATTN: Frank Greenbaum

Test Start: 2014.08.30 @ 01:55:00

## Tool Information

Drill Pipe:	Length: 3657.00 ft	Diameter: 3.80 inches	Volume: 51.30 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 51.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3673.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	32.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut-In Tool	5.00			3655.00		
Hydraulic tool	5.00			3660.00		
Jars	6.00			3666.00		
Safety Joint	2.00			3668.00		
Packer	5.00			3673.00	23.00	Bottom Of Top Packer
Anchor	4.00			3677.00		
Recorder	1.00	8524	Inside	3678.00		
Recorder	1.00	8159	Outside	3679.00		
Bull Plug	3.00			3682.00	9.00	Anchor Tool
<b>Total Tool Length:</b>	<b>32.00</b>					





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60348

**DST#: 5**

ATTN: Frank Greenbaum

Test Start: 2014.08.30 @ 01:55:00

### 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:

34000 ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.17 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6700.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
40.00	OCWM 2.5% Oil, 37.5% Water, 60% Mud	0.561
126.00	MW 15% Mud, 85% Water	1.767
252.00	100% Water	3.535

Total Length: 418.00 ft      Total Volume: 5.863 bbl

Num Fluid Samples: 0

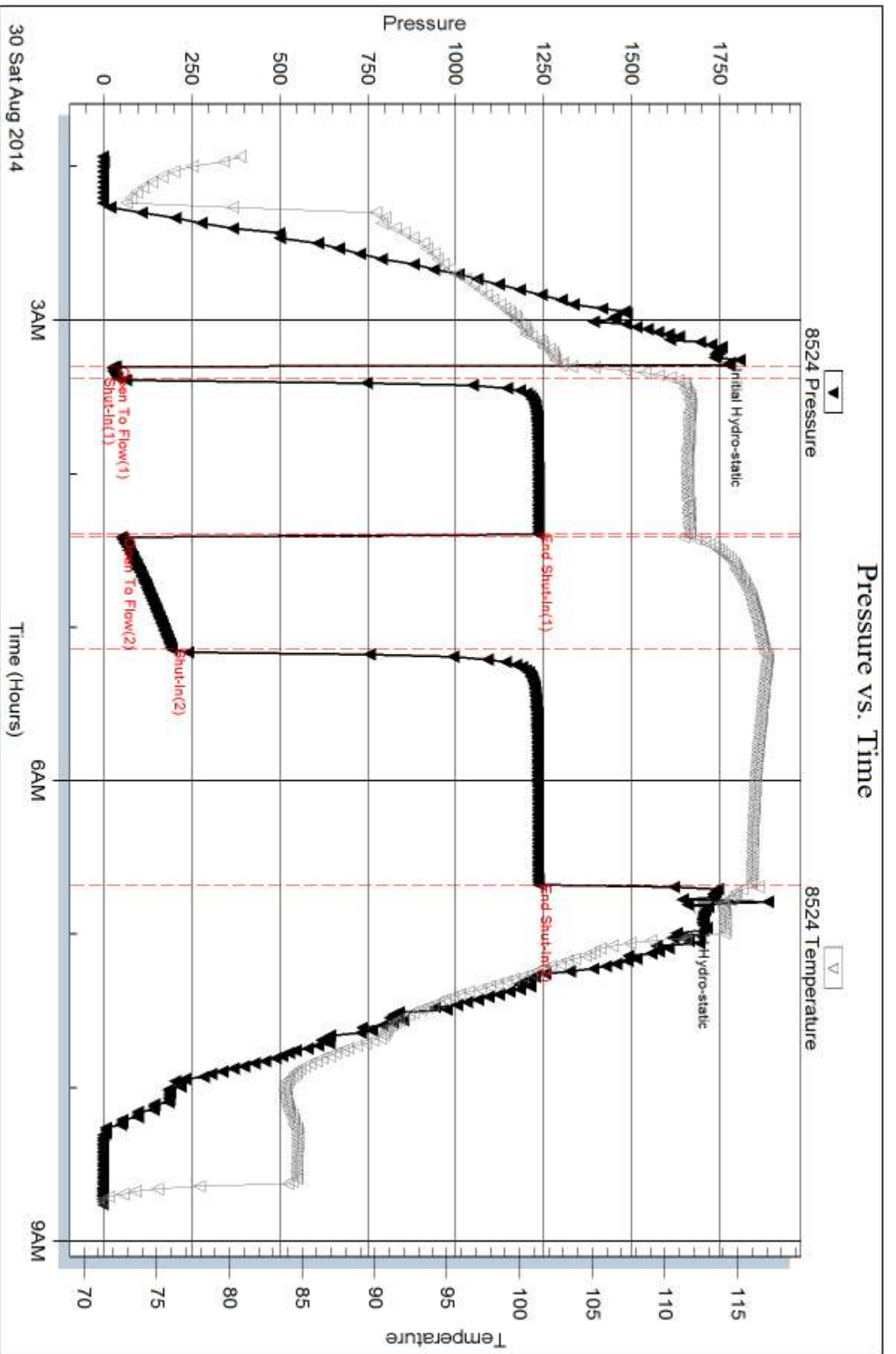
Num Gas Bombs: 0

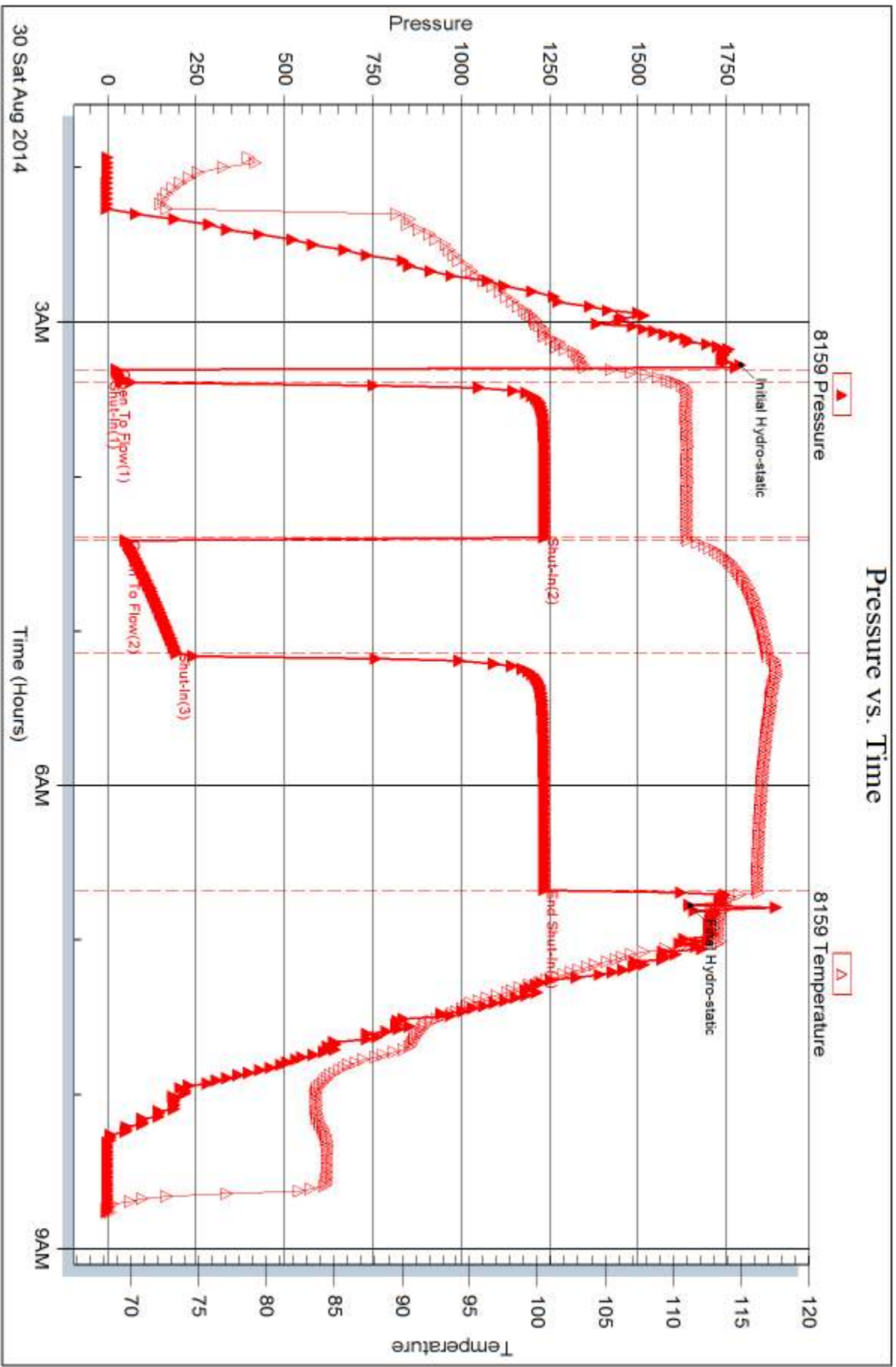
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: resist recov .22 ohms at 40 degrees.







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl**

9431 E. Central STE 100  
Wichita KS 67206-2563

ATTN: Frank Greenbaum

### **Crosby A Unit #1-23**

#### **23-20s-15w Barton,KS**

Start Date: 2014.08.30 @ 14:15:00

End Date: 2014.08.30 @ 21:43:00

Job Ticket #: 60349                      DST #: 6

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.09.03 @ 13:06:23



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl  
9431 E. Central STE 100  
Wichita KS 67206-2563  
ATTN: Frank Greenbaum

**23-20s-15w Barton,KS**

**Crosby A Unit #1-23**

Job Ticket: 60349      **DST#: 6**  
Test Start: 2014.08.30 @ 14:15:00

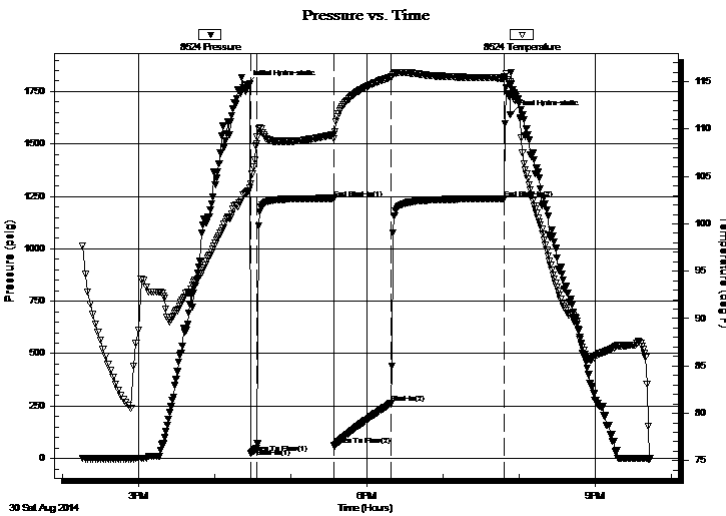
## GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 16:28:30  
Time Test Ended: 21:43:00  
Interval: **3683.00 ft (KB) To 3692.00 ft (KB) (TVD)**  
Total Depth: 3692.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Poor  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane Konzem  
Unit No: S3  
Reference Elevations: 1944.00 ft (KB)  
1934.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8524      Inside**  
Press@RunDepth: 263.51 psig @ 3688.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.08.30      End Date: 2014.08.30      Last Calib.: 2014.08.30  
Start Time: 14:16:00      End Time: 21:43:00      Time On Btm: 2014.08.30 @ 16:25:30  
Time Off Btm: 2014.08.30 @ 19:53:00

TEST COMMENT: IFP 5 BOB in 3 minutes.  
ISI 60 No blow back.  
FFP 45 BOB in 6 minutes.  
FSI 90 No blow back.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1783.36	103.34	Initial Hydro-static
3	24.66	104.23	Open To Flow (1)
8	48.99	108.49	Shut-In(1)
68	1240.49	109.40	End Shut-In(1)
69	62.96	108.99	Open To Flow (2)
114	263.51	115.50	Shut-In(2)
203	1239.20	115.41	End Shut-In(2)
208	1640.97	114.75	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
630.00	100% w ater w ith a trace of oil.	8.84

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60349

**DST#: 6**

ATTN: Frank Greenbaum

Test Start: 2014.08.30 @ 14:15:00

## Tool Information

Drill Pipe:	Length: 3677.00 ft	Diameter: 3.80 inches	Volume: 51.58 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 51.58 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3683.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	32.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3665.00	
Hydraulic tool	5.00			3670.00	
Jars	6.00			3676.00	
Safety Joint	2.00			3678.00	
Packer	5.00			3683.00	23.00 Bottom Of Top Packer
Anchor	4.00			3687.00	
Recorder	1.00	8524	Inside	3688.00	
Recorder	1.00	8159	Outside	3689.00	
Bull Plug	3.00			3692.00	9.00 Anchor Tool
<b>Total Tool Length:</b>	<b>32.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl

**23-20s-15w Barton,KS**

9431 E. Central STE 100  
Wichita KS 67206-2563

**Crosby A Unit #1-23**

Job Ticket: 60349

**DST#: 6**

ATTN: Frank Greenbaum

Test Start: 2014.08.30 @ 14:15:00

## 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:

34000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbf

Water Loss: 8.76 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
630.00	100% water with a trace of oil.	8.837

Total Length: 630.00 ft      Total Volume: 8.837 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

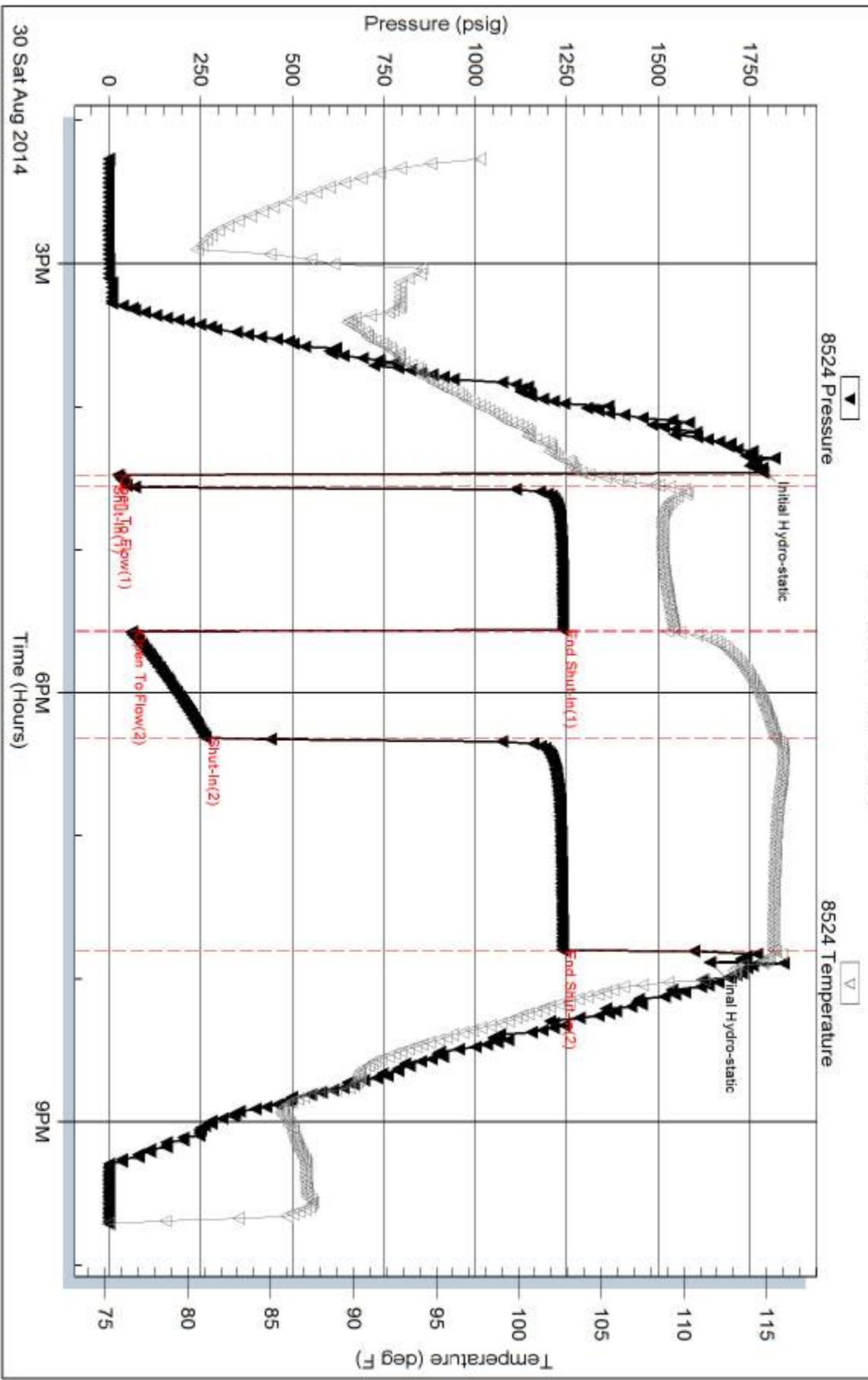
Laboratory Name:

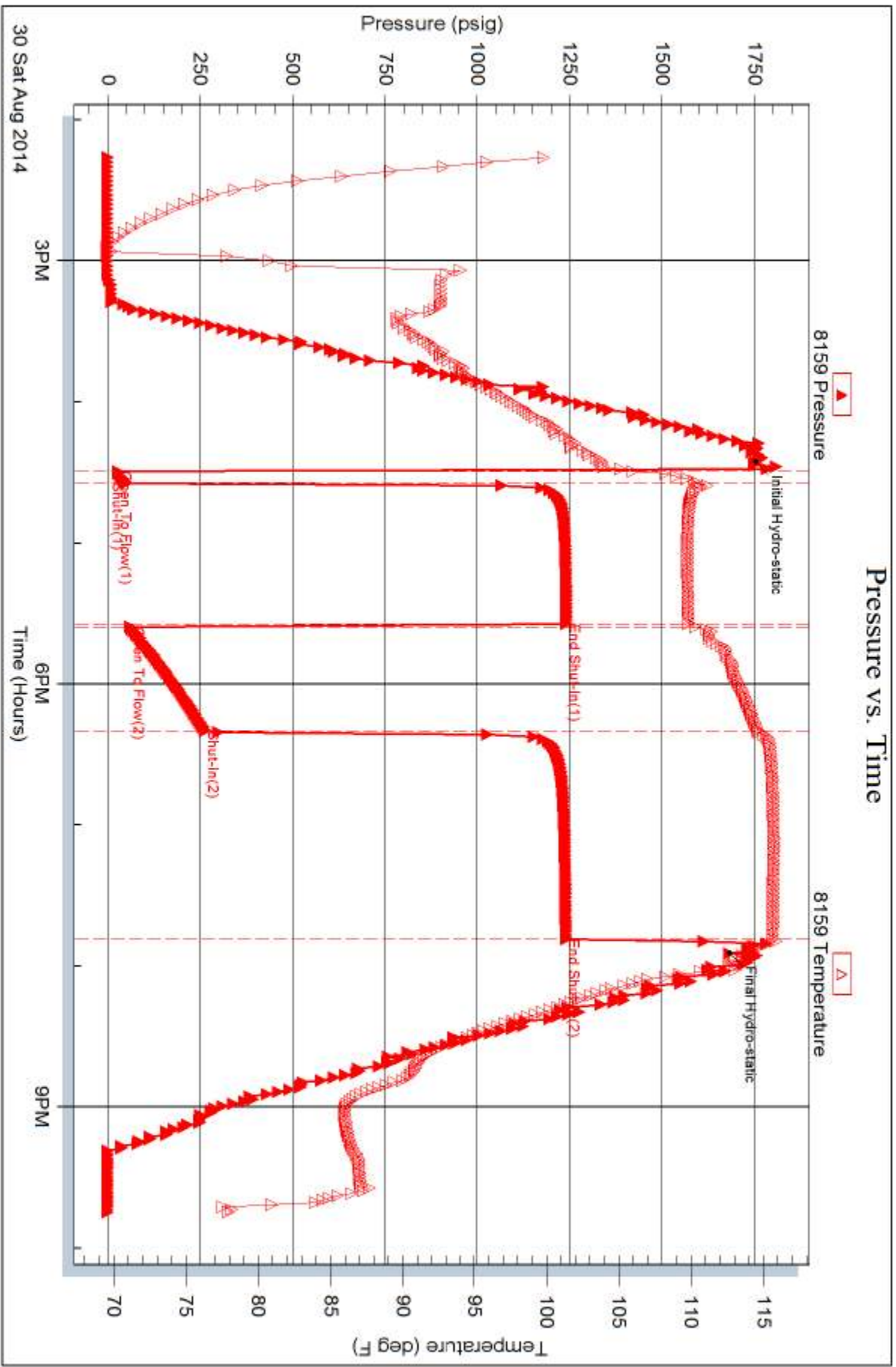
Laboratory Location:

Recovery Comments: resist recov .21 ohms at 40 degrees.



### Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60344

Well Name & No. Crosby "A" unit #1-23 Test No. 1 Date 8-27-14  
 Company EG Hall company L.L.C. Elevation 1934 KB 1934 GL  
 Address 9431 E. Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Duke Rig #  
 Location: Sec. 23 Twp. 20 S Rge. 15 W Co. Barton State KS

Interval Tested 3625 - 3635 Zone Tested Arbuckle  
 Anchor Length 10' Drill Pipe Run 3624 Mud Wt. 9.3  
 Top Packer Depth 3620 Drill Collars Run 0 Vis 49  
 Bottom Packer Depth 3625 Wt. Pipe Run 0 WL 10.4  
 Total Depth 3635 Chlorides 7,500 ppm System LCM 0

Blow Description 1<sup>st</sup> Open - Good blow built to bottom of 5 gallon bucket in 50 seconds.  
1<sup>st</sup> Shut In - Blow back built to 3 inches. Dried back to weak surface blow  
by end of shut in. 2<sup>nd</sup> Open - Bottom of bucket in 1 minute. Gas to  
surface in 20 min. 2<sup>nd</sup> Shut in - Blow built to bottom of bucket in 15 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>252</u>	<u>muddy water</u>			<u>65</u>	<u>35</u>
<u>378</u>	<u>muddy water</u>			<u>90</u>	<u>10</u>
<u>912</u>	<u>water</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1542 BHT 116 Gravity 1150 API RW -22 @ 50° F Chlorides 32000 ppm

- (A) Initial Hydrostatic 1762
- (B) First Initial Flow 208
- (C) First Final Flow 211
- (D) Initial Shut-In 1214
- (E) Second Initial Flow 238
- (F) Second Final Flow 698
- (G) Final Shut-In 1214
- (H) Final Hydrostatic 1676

- Test 1150
- Jars 250
- Safety Joint 75
- Circ Sub
- Hourly Standby
- Mileage 20 31
- Sampler
- Straddle
- Shale Packer 250
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1756

- T-On Location 12:30
- T-Started 13:30
- T-Open 15:15
- T-Pulled 18:35
- T-Out 20:55
- Comments Gas sample taken
- Ruined Shale Packer
- Ruined Packer
- Extra Copies
- Sub Total 0
- Total 1756
- MP/DST Disc't

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

Our Representative [Signature]

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# TRILOBITE TESTING INC.

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## Test Ticket

NO. 60345

Well Name & No. Crosby "A" Unit #1-23 Test No. 2 Date 8-28-14  
 Company F.G. Hall Company L.L.C Elevation 1944 KB 1934 GL  
 Address 9431 E Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Duke Rig # 2  
 Location: Sec. 23 Twp. 20S Rge. 15W Co. Barton State KS

Interval Tested 3636 - 3650 Zone Tested Arbuckle  
 Anchor Length 14' Drill Pipe Run 3625 Mud Wt. 9.3  
 Top Packer Depth 3631 Drill Collars Run 0 Vis 49  
 Bottom Packer Depth 3636 Wt. Pipe Run 0 WL 10.4  
 Total Depth 3650 Chlorides 7,500 ppm System LCM 0

Blow Description 1<sup>st</sup> Open - Strong blow to bottom of 5 gallon bucket in 17 sec. 1<sup>st</sup> Shut In - No blow back. 2<sup>nd</sup> Open - Strong blow to bottom of bucket in 7 seconds. Gas to surface in 7 seconds. 2<sup>nd</sup> Shut In - Blow back built to bottom of bucket and died back to 6 inches by end of shut in.

Rec	Feet of	%gas	%oil	%water	%mud
<u>441</u>	<u>Gassy oil</u>	<u>10</u>	<u>90</u>		
<u>189</u>	<u>water cut gassy oil</u>	<u>10</u>	<u>87.5</u>	<u>2.5</u>	
<u>252</u>	<u>muddy water</u>			<u>97.5</u>	<u>2.5</u>
<u>1031</u>	<u>water</u>			<u>100</u>	

Rec Total 1920 BHT 113 Gravity 41 API RW 22 @ 40 °F Chlorides 33000 ppm

- (A) Initial Hydrostatic 1760
- (B) First Initial Flow 382
- (C) First Final Flow 296
- (D) Initial Shut-In 1220
- (E) Second Initial Flow 297
- (F) Second Final Flow 826
- (G) Final Shut-In 1216
- (H) Final Hydrostatic 1659

- Test 1150
- Jars 250
- Safety Joint 75
- Circ Sub
- Hourly Standby
- Mileage 31
- Sampler
- Straddle
- Shale Packer 250
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1756

T-On Location 03:00  
 T-Started 03:45  
 T-Open 05:55  
 T-Pulled 08:55  
 T-Out 11:50  
 Comments Gas Sample taken.  
 Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1756  
 MP/DST Disc't

Initial Open 2  
 Initial Shut-In 60  
 Final Flow 45  
 Final Shut-In 90

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

Our Representative [Signature]



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **60346**

Well Name & No. Crosby "A" Unit #1-23 Test No. 3 Date 8-28-14  
 Company F. G. Holl Company LLC Elevation 1944 KB 1934 GL  
 Address 9431 E Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Dieke Rig #2  
 Location: Sec. 23 Twp. 20 S Rge. 15 W Co. Barton State KS

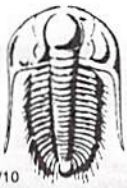
Interval Tested 3650 - 3662 Zone Tested Arbuckle  
 Anchor Length 11' Drill Pipe Run 3656 Mud Wt. 9.4  
 Top Packer Depth N/A Drill Collars Run 0 Vis 51  
 Bottom Packer Depth 3650 Wt. Pipe Run 0 WL 12.0  
 Total Depth 3662 Chlorides 7,000 ppm System LCM  
 Blow Description 1<sup>st</sup> Open - Built to bottom of bucket in 17 seconds. 1<sup>st</sup> Shut In - weak surface blow back. 2<sup>nd</sup> Open - Bottom of bucket in 50 sec. Gas to surface in 20 minutes, 2<sup>nd</sup> Shut In - Blow built to 10 inches into water.

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>oily mud cut water</u>	<u>10</u>	<u>55</u>	<u>35</u>	
<u>189</u>	<u>oily mud cut water</u>	<u>2.5</u>	<u>95</u>	<u>2.5</u>	
<u>315</u>	<u>muddy water</u>		<u>97.5</u>	<u>2.5</u>	
<u>756</u>	<u>water</u>		<u>100</u>		

Rec Total 1290 BHT 116 Gravity 1 API RW -22 @ 40 °F Chlorides 33000 ppm

(A) Initial Hydrostatic 1778  Test 1150 T-On Location 18:20  
 (B) First Initial Flow 128  Jars 250 T-Started 20:20  
 (C) First Final Flow 131  Safety Joint 75 T-Open 21:20  
 (D) Initial Shut-In 1225  Circ Sub \_\_\_\_\_ T-Pulled 00:40  
 (E) Second Initial Flow 154  Hourly Standby \_\_\_\_\_ T-Out \_\_\_\_\_  
 (F) Second Final Flow 559  Mileage 20 31 Comments Gas Sample taken  
 (G) Final Shut-In 1222  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1686  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 5  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1506  
 Final Flow 45  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1506

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60347

Well Name & No. Crosby "A" unit #1-23 Test No. 4 Date 8-29-14  
 Company F.G. Hall Company LLC Elevation 1944 KB 1934 GL  
 Address 9431 E Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Duke Rig #2  
 Location: Sec. 23 Twp. 20 S Rge. 15 W Co. Barton State KS

Interval Tested 3663 - 3672 Zone Tested Arbuckle  
 Anchor Length 9 Drill Pipe Run 3657 Mud Wt. 9.3  
 Top Packer Depth N/A Drill Collars Run 0 Vis 44  
 Bottom Packer Depth 3663 Wt. Pipe Run 0 WL 9.2  
 Total Depth 3672 Chlorides 6,700 ppm System LCM 0

Blow Description 1st Open - Strong blow to bottom of bucket in 50 seconds. 1st Shut In - No blow back. 2nd Open - bottom of bucket in 50 seconds. Gas to surface in 50 seconds. 2nd Shut In - blow back built to bottom of 5 gallon bucket. died off to 10 inch at end of Shut in.

Rec	Feet of	%gas	%oil	%water	%mud
5	<u>muddy oil clean oil</u>	100			
	<u>oil cut mud</u>	15		85	
	<u>gassy oil cut water</u>	20	55	25	
	<u>gassy oil cut water</u>	10	5	35	
	<u>gassy oil cut water</u>	5	55	40	

Rec Total 2840 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1786  Test 1150 T-On Location 0900 0900  
 (B) First Initial Flow 248  Jars 250 T-Started 0940  
 (C) First Final Flow 277  Safety Joint 75 T-Open 11:10  
 (D) Initial Shut-In 1230  Circ Sub \_\_\_\_\_ T-Pulled 14:30  
 (E) Second Initial Flow 288  Hourly Standby \_\_\_\_\_ T-Out \_\_\_\_\_  
 (F) Second Final Flow 798  Mileage 20 31 Comments Gas Sample taken  
 (G) Final Shut-In 1228  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1675  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1506  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1506

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

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## Test Ticket

NO. 60348

Well Name & No. Crosby "A" Unit #1-23 Test No. 5 Date 8-30-14  
 Company F.G. Holl Company LLC Elevation 1944 KB 1934 GL  
 Address 9431 E. Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Duke Rig #2  
 Location: Sec. 23 Twp. 20S Rge. 15W Co. Barton State KS

Interval Tested 3673 - 3682 Zone Tested Arbuckle  
 Anchor Length 9 Drill Pipe Run 3657 Mud Wt. 9.3  
 Top Packer Depth N/A Drill Collars Run 0 Vis 44  
 Bottom Packer Depth 3673 Wt. Pipe Run 0 WL 9.2  
 Total Depth 3682 Chlorides 6700 ppm System LCM 0

Blow Description 1<sup>st</sup> Open - Bottom of Bucket in 50 seconds. 1<sup>st</sup> Shut In - No blow back. 2<sup>nd</sup> Open - Bottom of Bucket in 5 min. 10 sec. Gas to surface in 15 minutes. Gas was unmeasurable. 2<sup>nd</sup> Shut In - No blow back.

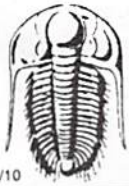
Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>water mud with oil</u>	<u>2.5</u>	<u>37.5</u>	<u>60</u>	
<u>126</u>	<u>muddy water</u>		<u>85</u>	<u>15</u>	
<u>252</u>	<u>water</u>		<u>100</u>		

Rec Total 418 BHT 114 Gravity — API RW -22 @ 40 °F Chlorides 34000 ppm

(A) Initial Hydrostatic <u>1237</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>0145</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0200</u>
(C) First Final Flow <u>39</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0320</u>
(D) Initial Shut-In <u>1235</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0640</u>
(E) Second Initial Flow <u>52</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0840</u>
(F) Second Final Flow <u>194</u>	<input checked="" type="checkbox"/> Mileage <u>20</u> 31	Comments <u>Gas Sample taken.</u>
(G) Final Shut-In <u>1235</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1644</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>5</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>45</u>	<input type="checkbox"/> Day Standby	Total <u>1506</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1506</u>	

Approved By \_\_\_\_\_ Our Representative Shane King

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60349

4/10

Well Name & No. Crosby "A" Unit #1-23 Test No. 6 Date 8-30-14  
 Company F.G. Hall Company LLC Elevation 1944 KB 1934 GL  
 Address 9431 E. Central STE 100 Wichita KS 67206-2563  
 Co. Rep / Geo. Frank Greenbaum Rig Duke Rig #2  
 Location: Sec. 23 Twp. 20S Rge. 15W Co. Barton State KS

Interval Tested 3683-3692 Zone Tested Arbuckle  
 Anchor Length 9 Drill Pipe Run 3677 Mud Wt. 9.25  
 Top Packer Depth N/A Drill Collars Run 0 Vis 51  
 Bottom Packer Depth 3683 Wt. Pipe Run 0 WL 8.8  
 Total Depth 3692 Chlorides 6600 ppm System LCM 6600 0  
 Blow Description 1<sup>st</sup> Open - Good blow built to bottom of bucket in 3 mins. 1<sup>st</sup> shut in - No blow back  
2<sup>nd</sup> Open - fair blow to bottom of 5 gallon bucket in 6 min. 2<sup>nd</sup> shut in - No  
Blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>630</u>	<u>water with Trace oil</u>	<u>T</u>	<u>100</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 630 BHT 114 Gravity ✓ API RW 0.21 @ 40 ° F Chlorides 34000 ppm

(A) Initial Hydrostatic <u>1783</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>14:30</u>
(B) First Initial Flow <u>24</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>15:15</u>
(C) First Final Flow <u>48</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:25</u>
(D) Initial Shut-In <u>1240</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>19:50</u>
(E) Second Initial Flow <u>62</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>21:30</u>
(F) Second Final Flow <u>263</u>	<input checked="" type="checkbox"/> Mileage <u>20</u> 31	Comments
(G) Final Shut-In <u>1239</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1640</u>	<input type="checkbox"/> Straddle	
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>48</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1506</u>
	Sub Total <u>1506</u>	MP/DST Disc't

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

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