

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1233739  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well  Re-Entry  Workover
- Oil  WSW  SWD  SIOW
- Gas  D&A  ENHR  SIGW
- OG  GSW  Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening  Re-perf.  Conv. to ENHR  Conv. to SWD
- Plug Back  Conv. to GSW  Conv. to Producer
- Commingled Permit #: \_\_\_\_\_
- Dual Completion Permit #: \_\_\_\_\_
- SWD Permit #: \_\_\_\_\_
- ENHR Permit #: \_\_\_\_\_
- GSW Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1233739

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	F. G. Holl Company L.L.C.
Well Name	MILLARD TRUST 1-31
Doc ID	1233739

All Electric Logs Run

DIL
CDL/CNL
BHCS
Fracfinder
CPI

Form	ACO1 - Well Completion
Operator	F. G. Holl Company L.L.C.
Well Name	MILLARD TRUST 1-31
Doc ID	1233739

Tops

Name	Top	Datum
Herrington	1703	+185
Wiinfield	1753	+135
Towanda	1821	+67
Fort Riley	1861	+27
B/Florence	1964	-76
Kinney Ls	1980	-92
Wrefold	2010	-122
Council Grove	2029	-141
Crouse	2066	-178
Neva	2206	-318
Red Eagle	2266	-378
Onaga Shale	2415	-527
Wabaunsee	2438	-550
Root Shale	2499	-611
Stotler	2556	-668
Tarkio	2615	-727
Howard	2755	-867
Severy Shale	2812	-924
Topeka	2837	-949
Heebner	3082	-1194
Toronto	3089	-1201
Douglas Shale	3101	-1213
Brown Lime	3166	-1278
Lansing	3176	-1288

Form	ACO1 - Well Completion
Operator	F. G. Holl Company L.L.C.
Well Name	MILLARD TRUST 1-31
Doc ID	1233739

Tops

Name	Top	Datum
Drum	3322	-1434
Stark Shale	3358	-1470
Hushpuckney	3380	-1492
BKC	3398	-1510
Arbuckle	3426	-1538
RTD	3650	-1762







**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 60397

**DST#: 1**

Test Start: 2014.11.16 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Kansas City "A&B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4 16

**Interval: 3170.00 ft (KB) To 3216.00 ft (KB) (TVD)**

Total Depth: 3216.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1888.00 ft (KB)

1880.00 ft (CF)

KB to GR/CF: 8.00 ft

## Serial #: 8938

Press @ Run Depth: 63.99 psig @ ft (KB)

Start Date: 2014.11.15

End Date: 2014.11.16

Start Time: 21:03:00

End Time: 01:48:00

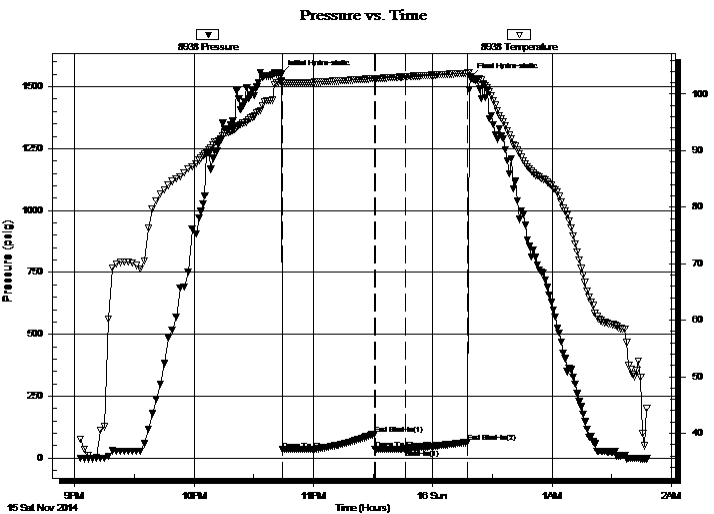
Capacity: 8000.00 psig

Last Calib.: 1899.12.30

Time On Btm: 2014.11.15 @ 22:44:00

Time Off Btm: 2014.11.16 @ 00:19:00

TEST COMMENT: 1st Opening 15 Minutes-WEak blow for 6 minutes and died



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1550.89	102.28	Initial Hydro-static
1	33.67	101.96	Open To Flow (1)
47	96.69	102.74	End Shut-In(1)
47	36.89	102.73	Open To Flow (2)
62	37.73	103.05	Shut-In(1)
94	63.99	103.69	End Shut-In(2)
95	1534.52	103.00	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**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 60397

**DST#: 1**

ATTN: Ryan Greenbaum

Test Start: 2014.11.16 @ 00:00:00

## Mud and Cushion Information

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

## Recovery Information

Recovery Table

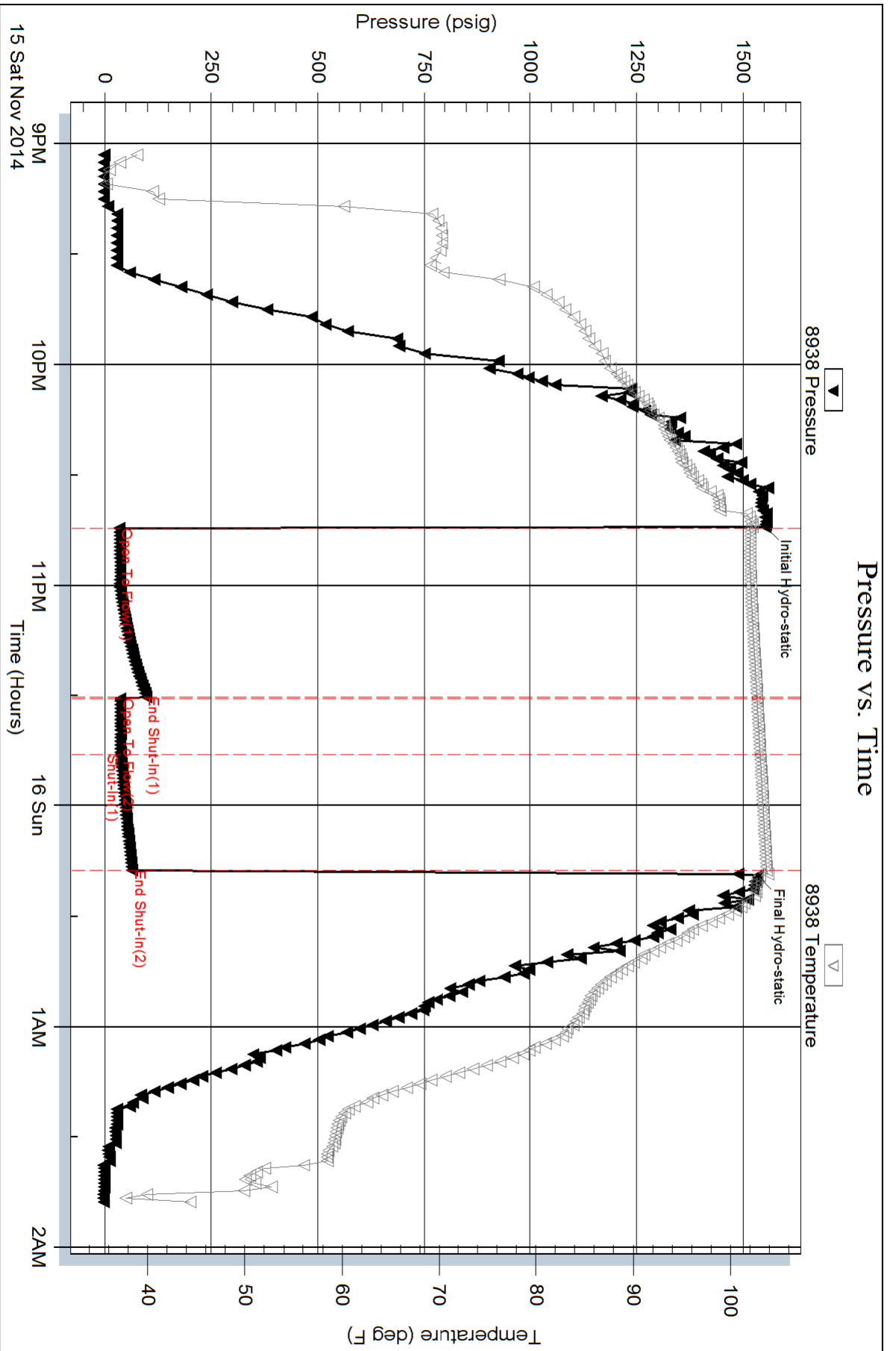
Length ft	Description	Volume bbbl

Total Length:                      ft      Total Volume:                      bbl

Num Fluid Samples:                      Num Gas Bombs:                      Serial #:

Laboratory Name:                      Laboratory Location:

Recovery Comments:





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 60398

**DST#: 2**

Test Start: 2014.11.16 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4 16

**Interval: 3215.00 ft (KB) To 3256.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3256.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press @ Run Depth: 133.92 psig @ 3251.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.16 End Date: 2014.11.16

Last Calib.: 2014.11.16

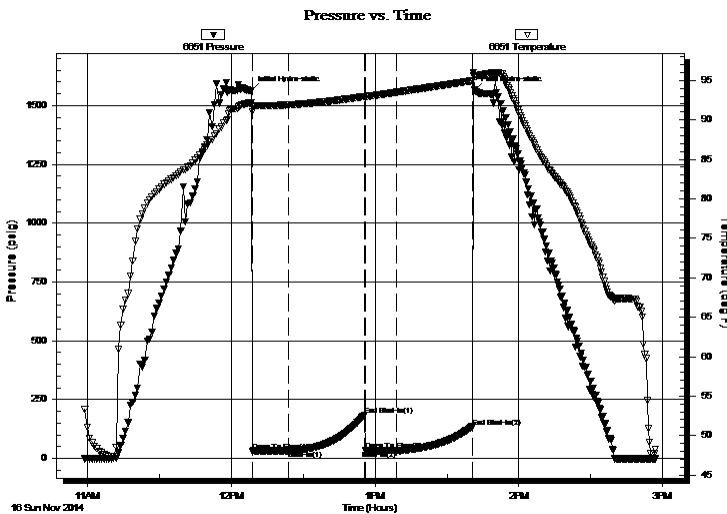
Start Time: 10:59:00 End Time: 14:57:00

Time On Btm: 2014.11.16 @ 12:08:30

Time Off Btm: 2014.11.16 @ 13:41:30

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 6 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes-No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1563.72	92.14	Initial Hydro-static
1	31.21	91.03	Open To Flow (1)
16	32.51	91.90	Shut-In(1)
47	183.66	92.96	End Shut-In(1)
48	32.69	92.87	Open To Flow (2)
61	32.81	93.50	Shut-In(2)
92	133.92	94.96	End Shut-In(2)
93	1565.43	95.45	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Drilling Mud	0.03

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 60398

**DST#: 2**

ATTN: Ryan Greenbaum

Test Start: 2014.11.16 @ 00:00:00

### 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:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4400.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Drilling Mud	0.028

Total Length: 2.00 ft      Total Volume: 0.028 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

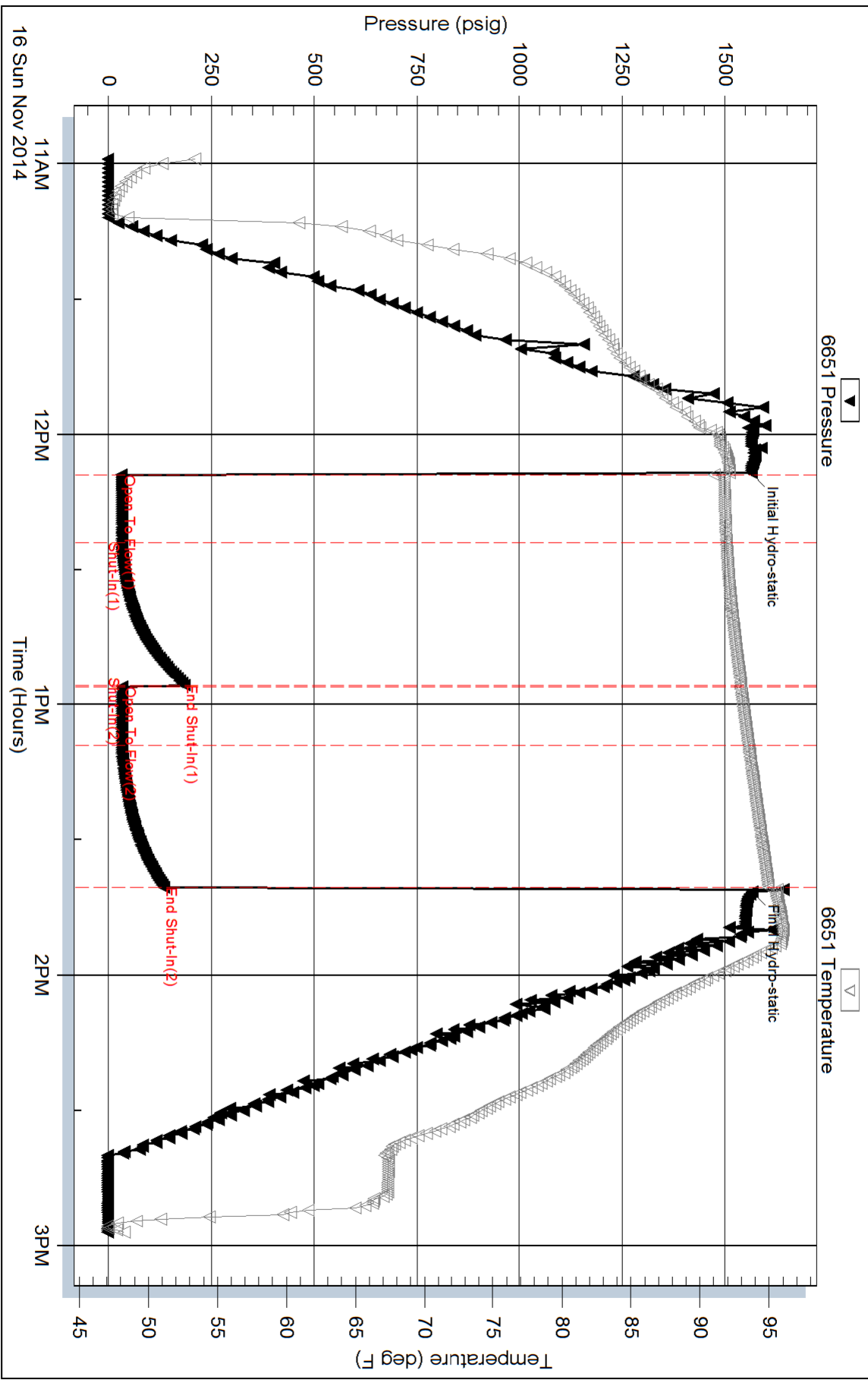
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 60399

**DST#: 3**

Test Start: 2014.11.17 @ 02:19:00

## GENERAL INFORMATION:

Formation: **Lansinf Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:54:00

Time Test Ended: 06:47:00

Test Type: Inflate Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4 16

**Interval: 3290.00 ft (KB) To 3325.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3325.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938**

**Inside**

Press@RunDepth: 29.00 psig @ 3320.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.17

End Date: 2014.11.17

Last Calib.: 2014.11.17

Start Time: 02:19:00

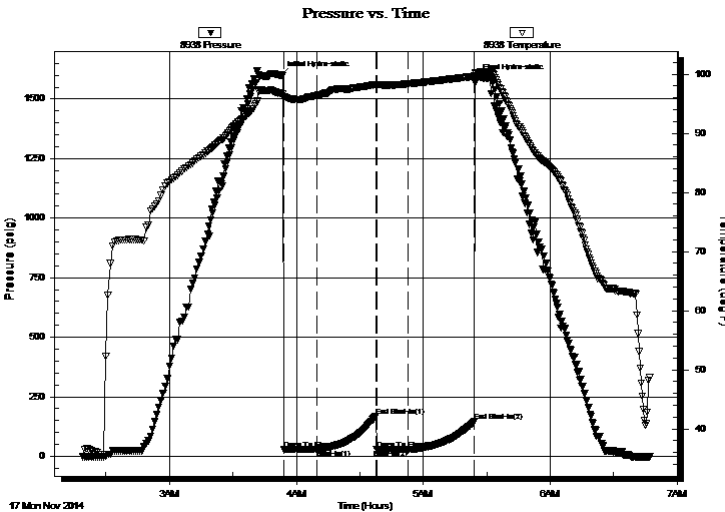
End Time: 06:47:00

Time On Btm: 2014.11.17 @ 03:52:30

Time Off Btm: 2014.11.17 @ 05:25:00

**TEST COMMENT:** 1st Opening 15 Minutes-Weak blow for 8 Minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes-No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1600.55	96.71	Initial Hydro-static
2	28.03	95.89	Open To Flow (1)
17	28.98	96.35	Shut-In(1)
45	169.25	98.25	End Shut-In(1)
46	28.81	98.25	Open To Flow (2)
61	29.00	98.37	Shut-In(2)
92	145.47	99.67	End Shut-In(2)
93	1585.98	100.04	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Drilling Mud	0.03

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 60399

**DST#: 3**

ATTN: Ryan Greenbaum

Test Start: 2014.11.17 @ 02:19:00

## 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:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4400.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Drilling Mud	0.028

Total Length: 2.00 ft      Total Volume: 0.028 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

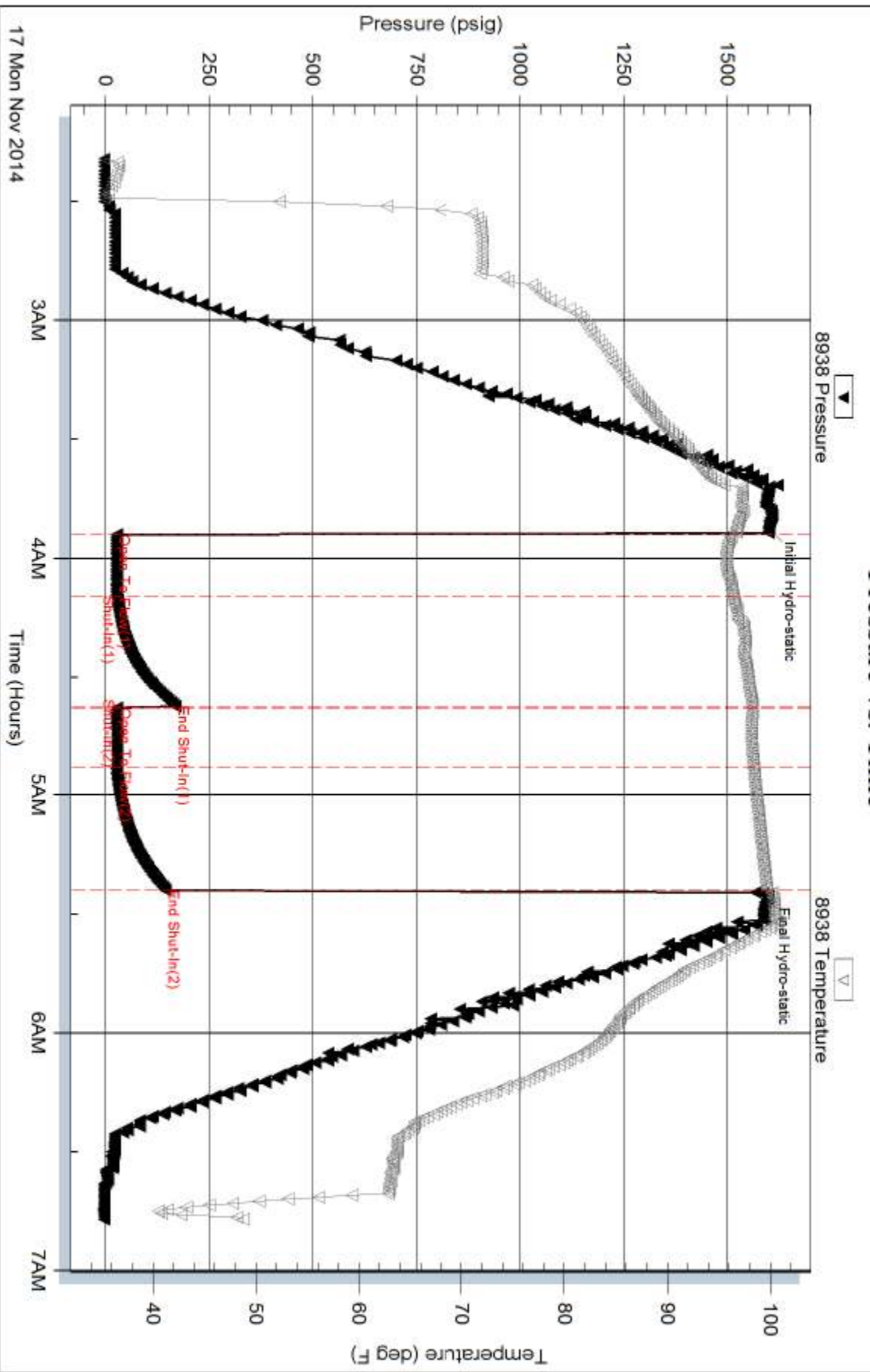
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.17 @ 00:00:00

End Date: 2014.11.17 @ 00:00:00

Job Ticket #: 60400                      DST #: 4

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.11.17 @ 18:09:26

F.G. Holl Company L.L.C.

31-18s-13w

Millard Trust #1-31

DST # 4

Lansing Kansas City

2014.11.17



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 60400

**DST#: 4**

Test Start: 2014.11.17 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3318.00 ft (KB) To 3340.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3340.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938 Inside**

Press @ Run Depth: 934.32 psig @ 3335.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.17 End Date: 2014.11.17

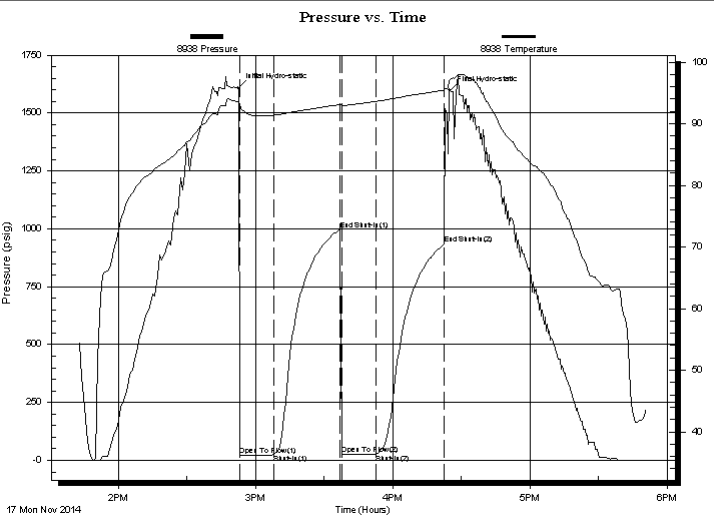
Last Calib.: 2014.11.17

Start Time: 13:42:00 End Time: 17:51:00

Time On Btm: 2014.11.17 @ 14:52:30

Time Off Btm: 2014.11.17 @ 16:25:00

**TEST COMMENT:** 1st Opening 15 Minutes-Weqk blow for 9 minutes and died  
1st Shut-in 30 Minutes  
2nd Opening 15 Minutes no blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1609.34	93.59	Initial Hydro-static
1	22.18	93.04	Open To Flow (1)
16	24.22	91.39	Shut-In (1)
45	996.75	93.11	End Shut-In (1)
45	24.69	92.91	Open To Flow (2)
60	26.24	93.61	Shut-In (2)
90	934.32	95.43	End Shut-In (2)
93	1597.71	97.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling Mud	0.07

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 60400

**DST#: 4**

Test Start: 2014.11.17 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3318.00 ft (KB) To 3340.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3340.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press @ Run Depth: 938.34 psig @ 3335.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.17 End Date: 2014.11.17

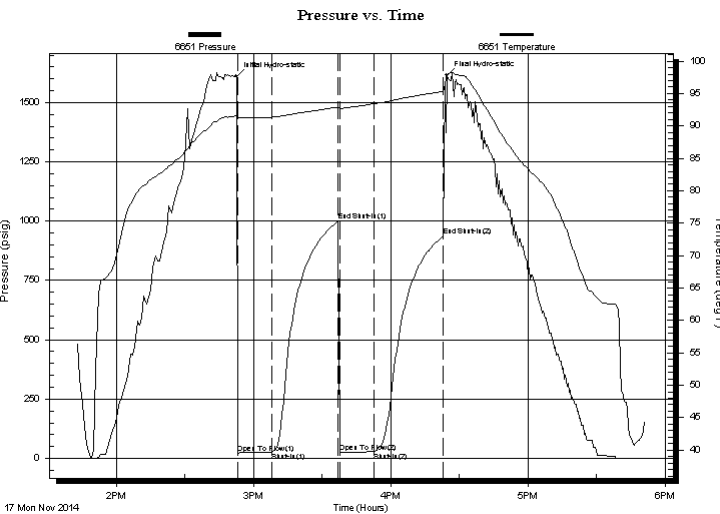
Last Calib.: 2014.11.17

Start Time: 13:42:00 End Time: 17:51:00

Time On Btm: 2014.11.17 @ 14:52:30

Time Off Btm: 2014.11.17 @ 16:24:30

**TEST COMMENT:** 1st Opening 15 Minutes-Weqk blow for 9 minutes and died  
1st Shut-in 30 Minutes  
2nd Opening 15 Minutes no blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1609.91	91.54	Initial Hydro-static
1	23.18	91.11	Open To Flow (1)
16	24.73	91.36	Shut-In(1)
45	999.55	92.92	End Shut-In(1)
45	25.72	92.59	Open To Flow (2)
60	27.48	93.41	Shut-In(2)
91	938.34	95.33	End Shut-In(2)
92	1615.22	97.94	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling Mud	0.07

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 60400

**DST#: 4**

ATTN: Ryan Greenbaum

Test Start: 2014.11.17 @ 00:00:00

## Tool Information

Drill Pipe:	Length: 3322.00 ft	Diameter: 3.80 inches	Volume: 46.60 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 46.60 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3318.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3303.00	
Hydraulic tool	5.00			3308.00	
Top Packer	5.00			3313.00	
Packer	5.00			3318.00	20.00 Bottom Of Top Packer
Anchor	17.00			3335.00	
Recorder	0.00	8938	Inside	3335.00	
Recorder	0.00	6651	Outside	3335.00	
Bullnose	5.00			3340.00	22.00 Anchor Tool

**Total Tool Length: 42.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 60400

**DST#: 4**

ATTN: Ryan Greenbaum

Test Start: 2014.11.17 @ 00:00:00

## 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:

ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.00 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Drilling Mud	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8938

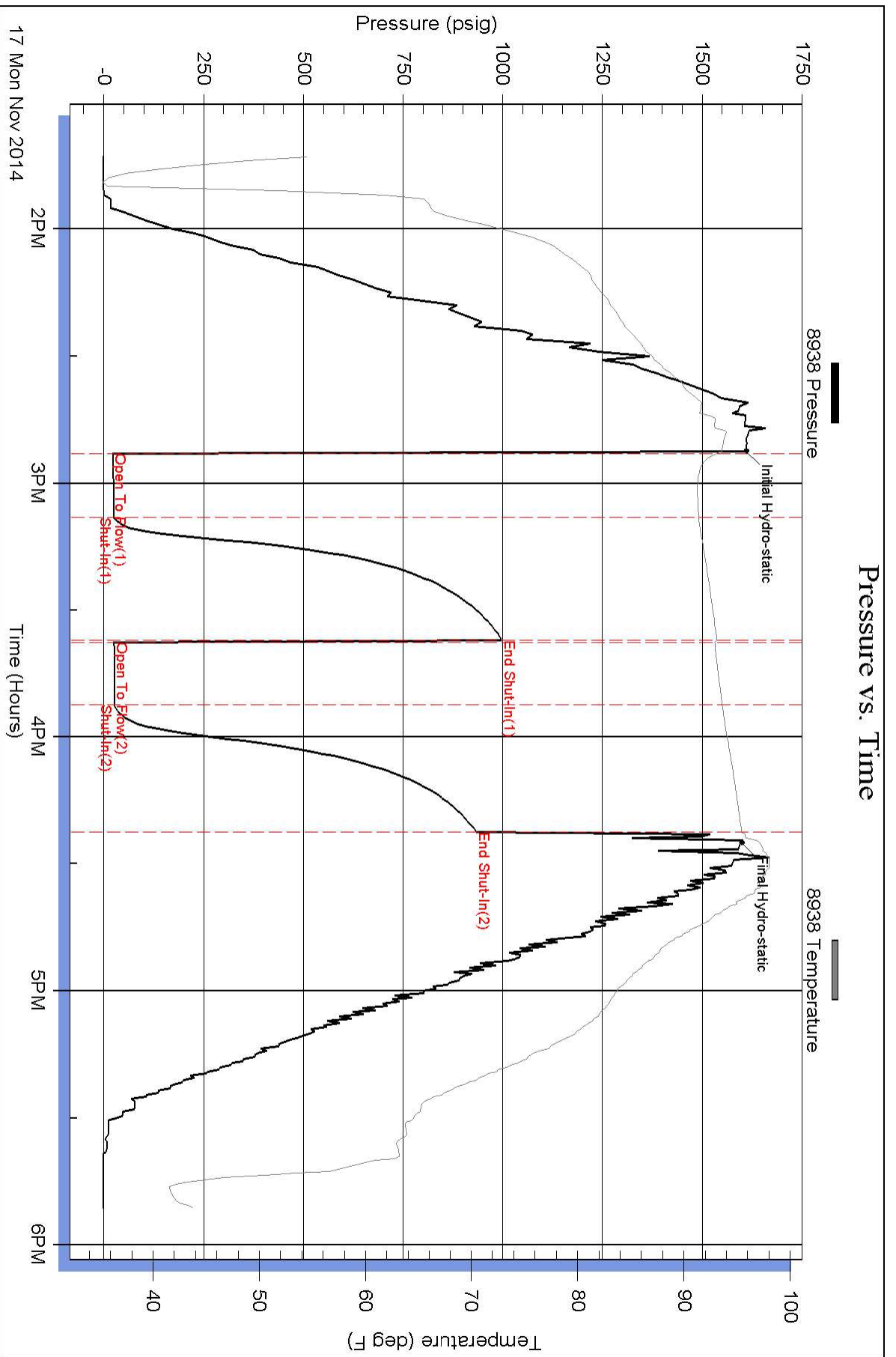
Inside

F.G. Holl Company L.L.C.

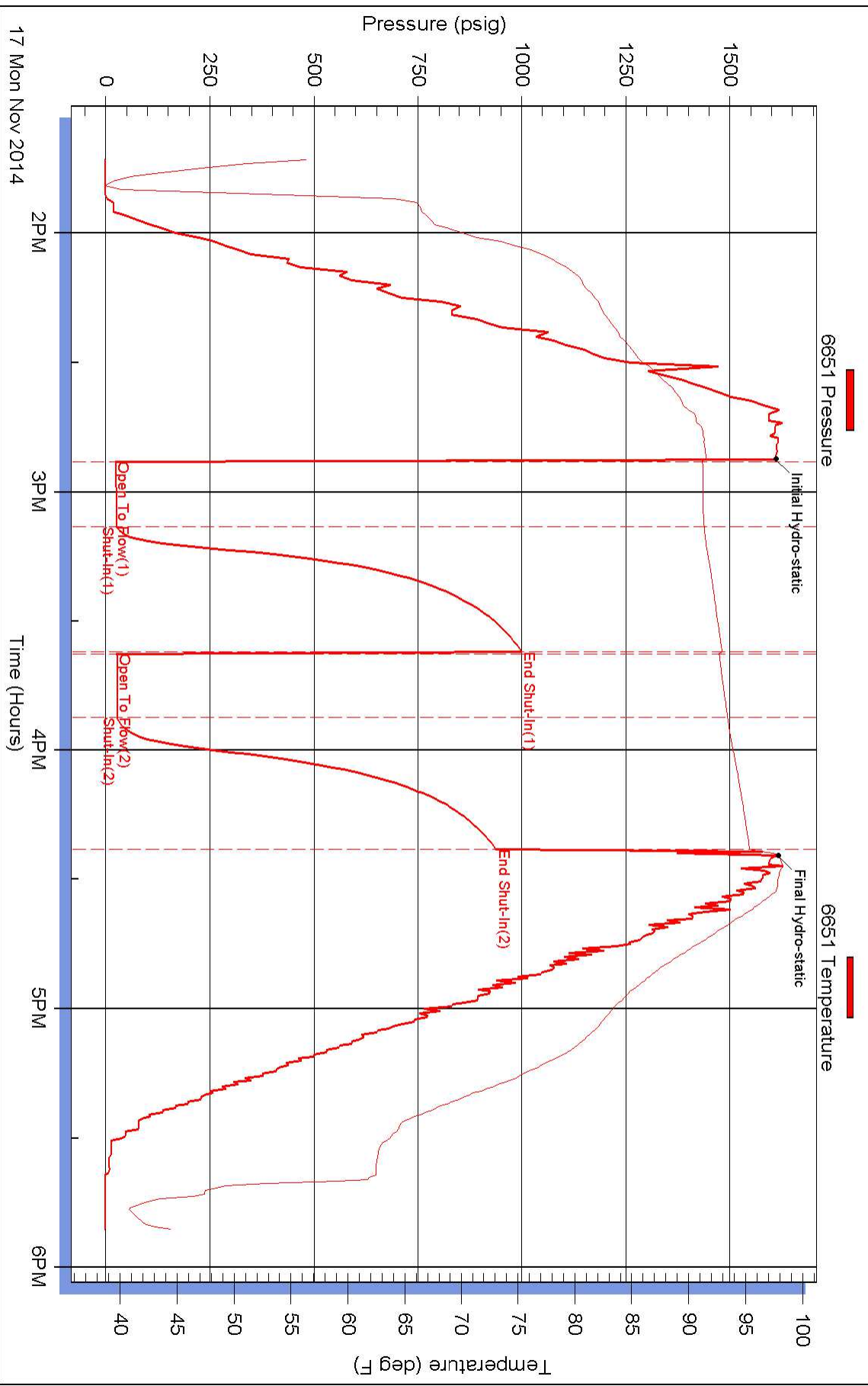
Millard Trust #1-31

DST Test Number: 4

# Pressure vs. Time



# Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.18 @ 02:28:00

End Date:

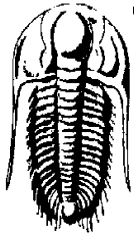
Job Ticket #: 00000

DST #: 5

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.11.18 @ 08:06:43





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.  
 9431 East Central Suite 100  
 Wichita, Kansas 67206 2563  
 ATTN: Ryan Greenbaum

**31-18s-13w**  
**Millard Trust #1-31**  
 Job Ticket: 00000 **DST#: 5**  
 Test Start: 2014.11.18 @ 02:28:00

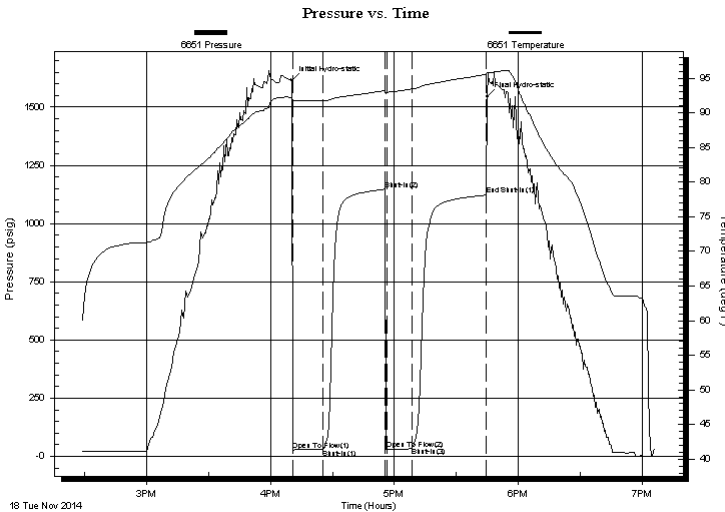
## GENERAL INFORMATION:

Formation: **Lansing Kansas City**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened:  
 Time Test Ended:  
 Interval: **3340.00 ft (KB) To 3370.00 ft (KB) (TVD)**  
 Total Depth: 3370.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Gene Budig  
 Unit No: S-4  
 Reference Elevations: 1888.00 ft (KB)  
 1880.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**  
 Press @ Run Depth: 1122.40 psig @ 3365.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.11.18 End Date: 2014.11.18 Last Calib.: 2014.11.18  
 Start Time: 14:29:00 End Time: 19:06:00 Time On Btm: 2014.11.18 @ 16:10:00  
 Time Off Btm: 2014.11.18 @ 17:45:00

**TEST COMMENT:** 1st Opening 15 Minutes weak blow for 12 minutes and died  
 1st Shut-In 30 Minutes  
 2nd Opening 15 Minutes No blow  
 2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1615.68	92.26	Initial Hydro-static
1	27.04	91.44	Open To Flow (1)
16	30.88	91.78	Shut-In(1)
46	1147.37	93.22	Shut-In(2)
47	31.83	92.95	Open To Flow (2)
59	38.92	93.46	Shut-In(3)
95	1122.40	95.55	End Shut-In(1)
95	1545.25	95.77	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Drilling Mud	0.14

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 00000

**DST#: 5**

Test Start: 2014.11.18 @ 02:28:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3340.00 ft (KB) To 3370.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3370.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938**

**Inside**

Press @ Run Depth: 1121.31 psig @ 3365.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.18 End Date: 2014.11.18

Last Calib.: 2014.11.18

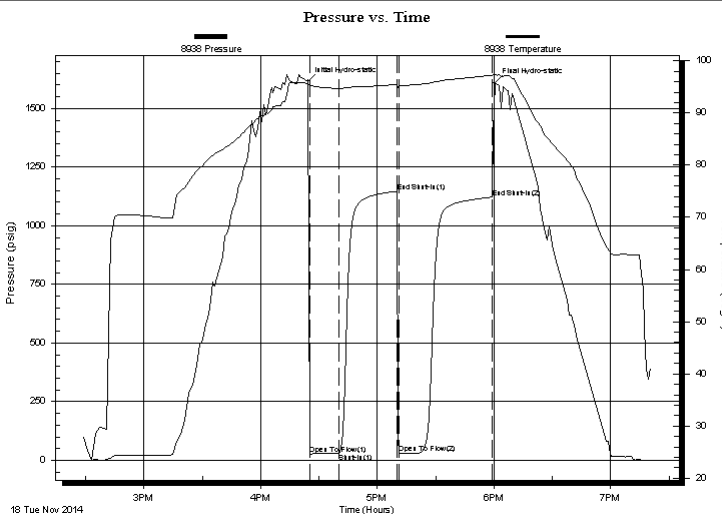
Start Time: 14:29:00 End Time: 19:20:30

Time On Btm: 2014.11.18 @ 16:24:30

Time Off Btm: 2014.11.18 @ 18:00:30

**TEST COMMENT:** 1st Opening 15 Minutes weak blow for 12 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1614.98	95.67	Initial Hydro-static
1	26.58	95.27	Open To Flow (1)
16	30.07	94.71	Shut-In(1)
46	1146.06	95.44	End Shut-In(1)
47	31.43	95.22	Open To Flow (2)
95	1121.31	97.25	End Shut-In(2)
96	1609.32	97.32	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Drilling Mud	0.14

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 00000

**DST#: 5**

ATTN: Ryan Greenbaum

Test Start: 2014.11.18 @ 02:28:00

## Tool Information

Drill Pipe:	Length: 3345.00 ft	Diameter: 3.80 inches	Volume: 46.92 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 46.92 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	3340.00 ft			Final	55000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	30.00 ft				
Tool Length:	58.00 ft				
Number of Packers:	2	Diameter: 675.00 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3317.00	
Hydraulic tool	5.00			3322.00	
Jars	6.00			3328.00	
Safety Joint	2.00			3330.00	
Top Packer	5.00			3335.00	
Packer	5.00			3340.00	28.00 Bottom Of Top Packer
Anchor	25.00			3365.00	
Recorder	0.00	8938	Inside	3365.00	
Recorder	0.00	6651	Outside	3365.00	
Bullnose	5.00			3370.00	30.00 Anchor Tool
<b>Total Tool Length:</b>	<b>58.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 00000

**DST#: 5**

ATTN: Ryan Greenbaum

Test Start: 2014.11.18 @ 02:28:00

## 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:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
10.00	Drilling Mud	0.140

Total Length: 10.00 ft      Total Volume: 0.140 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

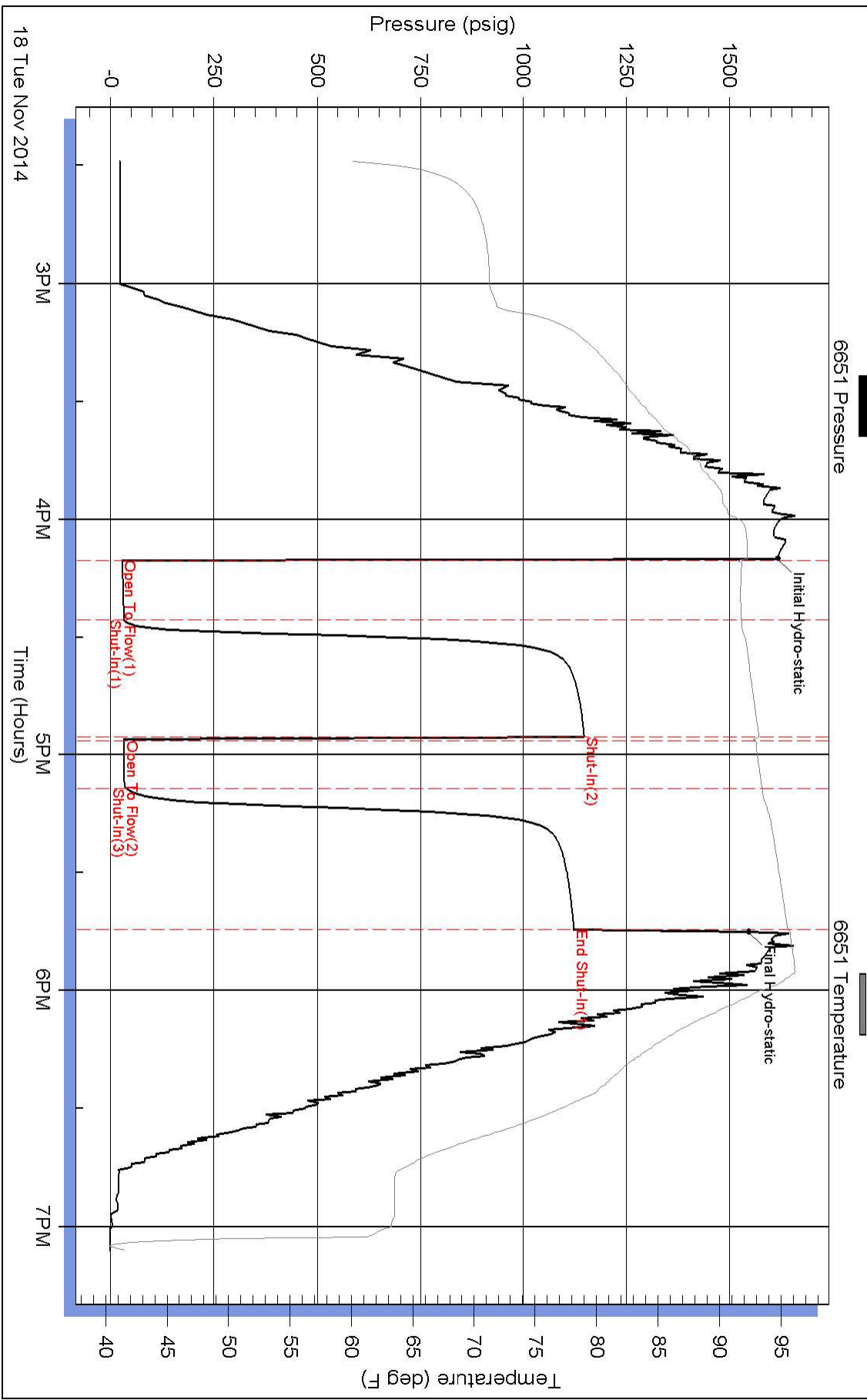
Serial #:

Laboratory Name:

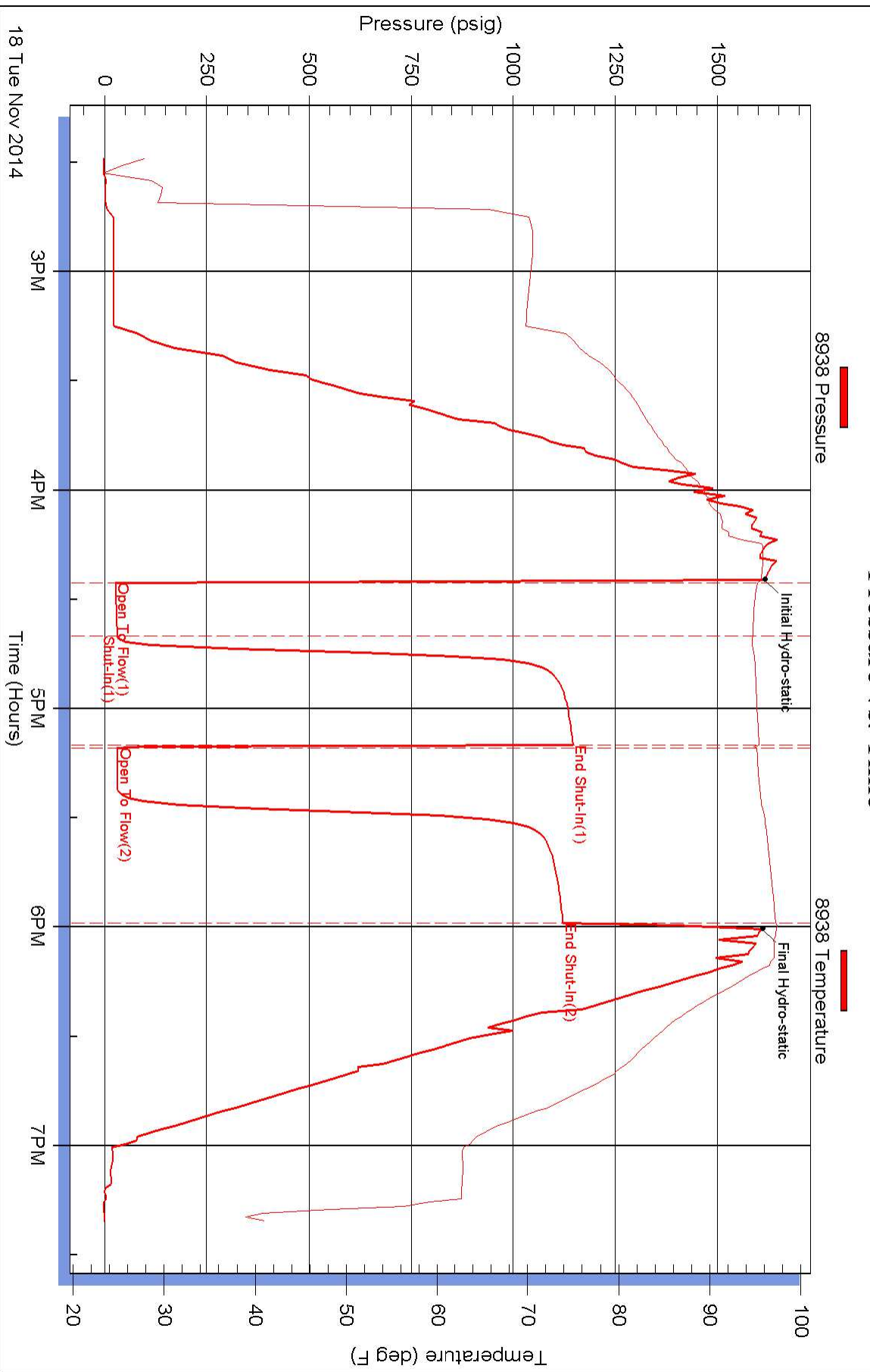
Laboratory Location:

Recovery Comments:

### Pressure vs. Time



# Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.18 @ 00:00:00

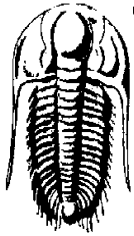
End Date:

Job Ticket #: 62053

DST #: 6

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.11.18 @ 19:54:47



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62053

**DST#: 6**

Test Start: 2014.11.18 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3365.00 ft (KB) To 3395.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3395.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press @ Run Depth: 503.70 psig @ 3390.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.18 End Date: 2014.11.18

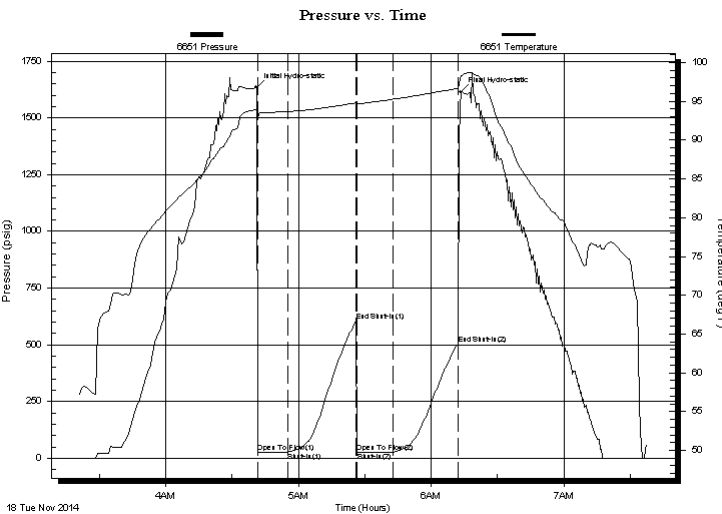
Last Calib.: 2014.11.18

Start Time: 03:20:00 End Time: 07:37:30

Time On Btm: 2014.11.18 @ 04:41:00

Time Off Btm: 2014.11.18 @ 06:13:30

**TEST COMMENT:** 1st Opening 17 Minutes Weak blow for 9 Minutes and died  
1st Shut-In 32 Minutes  
2nd Opening 16 minutes No blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1635.24	93.91	Initial Hydro-static
1	26.58	92.69	Open To Flow (1)
14	27.94	93.69	Shut-In(1)
45	605.28	94.81	End Shut-In(1)
46	27.12	94.52	Open To Flow (2)
62	27.07	95.26	Shut-In(2)
91	503.70	96.67	End Shut-In(2)
93	1614.02	98.26	Final Hydro-static

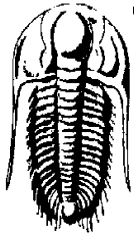
## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling mud	0.07

## Gas Rates

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





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62053

**DST#: 6**

Test Start: 2014.11.18 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Lansing Kansas City**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3365.00 ft (KB) To 3395.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3395.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938 Inside**

Press @ Run Depth: 504.02 psig @ 3390.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.18 End Date: 2014.11.18

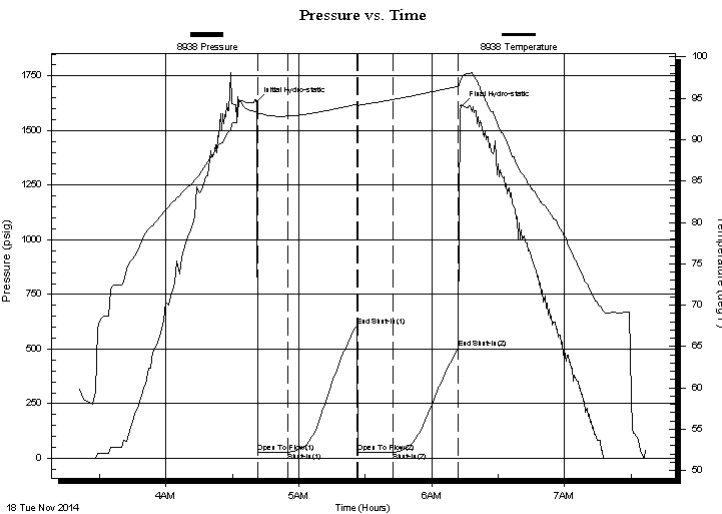
Last Calib.: 1899.12.30

Start Time: 03:20:00 End Time: 07:37:00

Time On Btm: 2014.11.18 @ 04:41:00

Time Off Btm: 2014.11.18 @ 06:13:30

**TEST COMMENT:** 1st Opening 17 Minutes Weak blow for 9 Minutes and died  
1st Shut-In 32 Minutes  
2nd Opening 16 minutes No blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1633.06	93.44	Initial Hydro-static
1	25.55	93.00	Open To Flow (1)
14	26.87	92.87	Shut-In(1)
45	605.74	94.27	End Shut-In(1)
46	26.22	94.15	Open To Flow (2)
62	26.40	94.87	Shut-In(2)
91	504.02	96.44	End Shut-In(2)
93	1611.90	97.63	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling mud	0.07

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62053

**DST#: 6**

ATTN: Ryan Greenbaum

Test Start: 2014.11.18 @ 00:00:00

## Tool Information

Drill Pipe:	Length: 3357.00 ft	Diameter: 3.80 inches	Volume: 47.09 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 47.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3365.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	50.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3350.00	
Hydraulic tool	5.00			3355.00	
Top Packer	5.00			3360.00	
Packer	5.00			3365.00	20.00 Bottom Of Top Packer
Anchor	0.00			3365.00	
Recorder	25.00	8938	Inside	3390.00	
Recorder	0.00	6651	Outside	3390.00	
Bullnose	5.00			3395.00	30.00 Anchor Tool

**Total Tool Length: 50.00**



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

# DRILL STEM TEST REPORT

## FLUID SUMMARY

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62053

**DST#: 6**

ATTN: Ryan Greenbaum

Test Start: 2014.11.18 @ 00:00:00

### 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:

ppm

Viscosity: 42.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Drilling mud	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

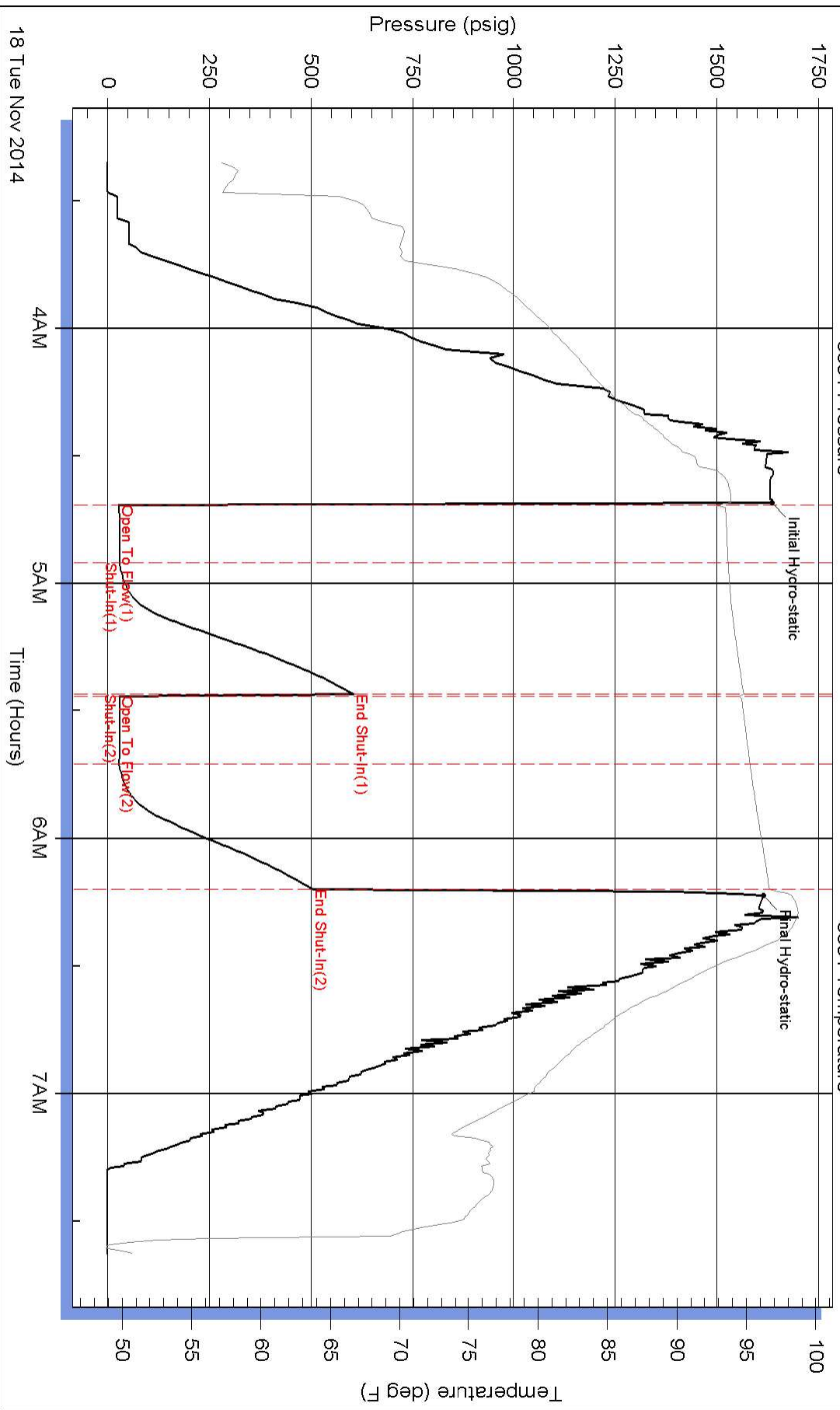
Serial #:

Laboratory Name:

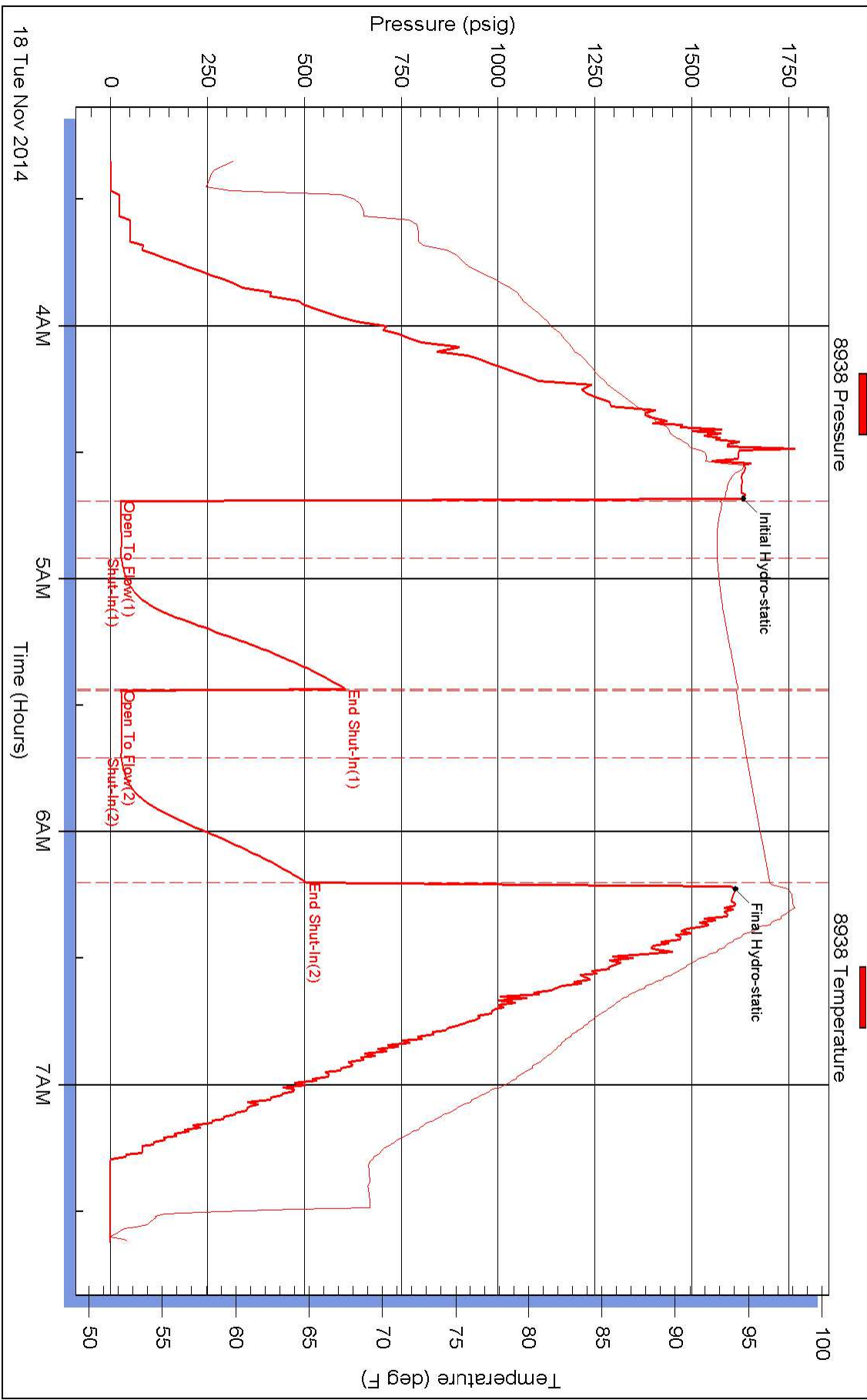
Laboratory Location:

Recovery Comments:

### Pressure vs. Time



### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

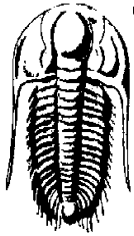
Start Date: 2014.11.19 @ 00:00:00

End Date: 2014.11.19 @ 00:00:00

Job Ticket #: 62055                      DST #: 7

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.11.19 @ 11:04:46



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62055

**DST#: 7**

Test Start: 2014.11.19 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3366.00 ft (KB) To 3430.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3430.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press @ Run Depth: 381.93 psig @ 3424.56 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.19 End Date: 2014.11.19

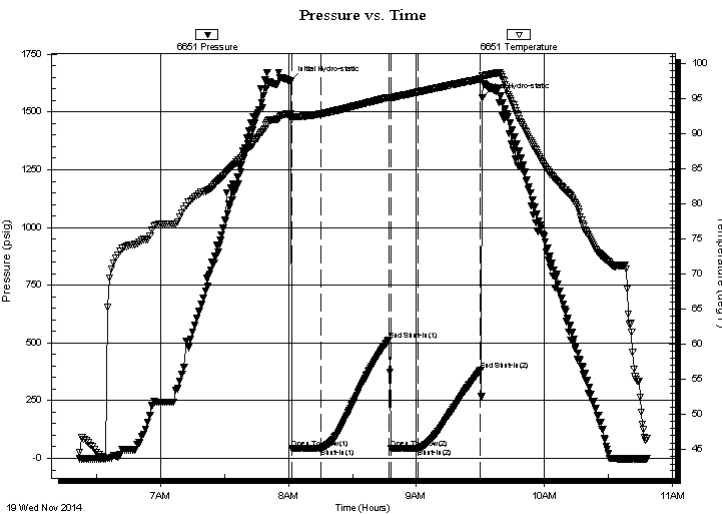
Last Calib.: 2014.11.19

Start Time: 06:20:59 End Time: 10:47:59

Time On Btm: 2014.11.19 @ 08:00:59

Time Off Btm: 2014.11.19 @ 09:30:59

**TEST COMMENT:** 1st Opening 15 Minutes-Weak blow for 6 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

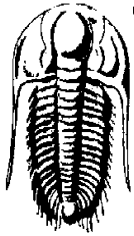
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1634.34	92.81	Initial Hydro-static
1	43.06	92.00	Open To Flow (1)
14	43.72	92.81	Shut-In(1)
46	513.13	95.17	End Shut-In(1)
47	44.30	95.09	Open To Flow (2)
60	44.70	95.94	Shut-In(2)
89	381.93	97.79	End Shut-In(2)
90	1561.86	98.20	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling mud	0.07

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62055

**DST#: 7**

Test Start: 2014.11.19 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3366.00 ft (KB) To 3430.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3430.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938 Inside**

Press @ Run Depth: 382.01 psig @ 3424.56 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.19 End Date: 2014.11.19

Last Calib.: 2014.11.19

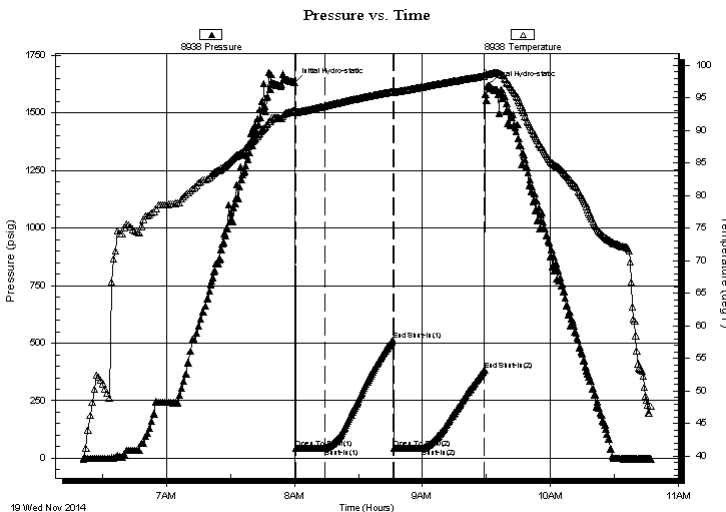
Start Time: 06:20:00 End Time: 10:47:00

Time On Btm: 2014.11.19 @ 08:00:00

Time Off Btm: 2014.11.19 @ 09:30:30

**TEST COMMENT:** 1st Opening 15 Minutes-Weak blow for 6 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1633.01	93.06	Initial Hydro-static
1	42.36	92.73	Open To Flow (1)
14	43.34	93.71	Shut-In(1)
46	513.14	95.96	End Shut-In(1)
47	43.47	95.79	Open To Flow (2)
60	44.41	96.68	Shut-In(2)
89	382.01	98.36	End Shut-In(2)
91	1619.75	98.61	Final Hydro-static

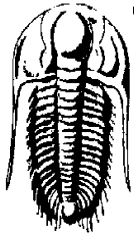
## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling mud	0.07

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62055

**DST#: 7**

ATTN: Ryan Greenbaum

Test Start: 2014.11.19 @ 00:00:00

## Tool Information

Drill Pipe:	Length: 3347.00 ft	Diameter: 3.80 inches	Volume: 46.95 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 46.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3366.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.56 ft			
Tool Length:	91.56 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			3343.00	
Hydraulic tool	5.00			3348.00	
Jars	6.00			3354.00	
Safety Joint	2.00			3356.00	
Top Packer	5.00			3361.00	
Packer	5.00			3366.00	28.00 Bottom Of Top Packer
Anchor	5.00			3371.00	
Change Over Sub	0.75			3371.75	
Drill Pipe	31.06			3402.81	
Change Over Sub	0.75			3403.56	
Anchor	21.00			3424.56	
Recorder	0.00	8938	Inside	3424.56	
Recorder	0.00	6651	Outside	3424.56	
Bullnose	5.00			3429.56	63.56 Anchor Tool

**Total Tool Length: 91.56**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62055

**DST#: 7**

ATTN: Ryan Greenbaum

Test Start: 2014.11.19 @ 00:00:00

## 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:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Drilling mud	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

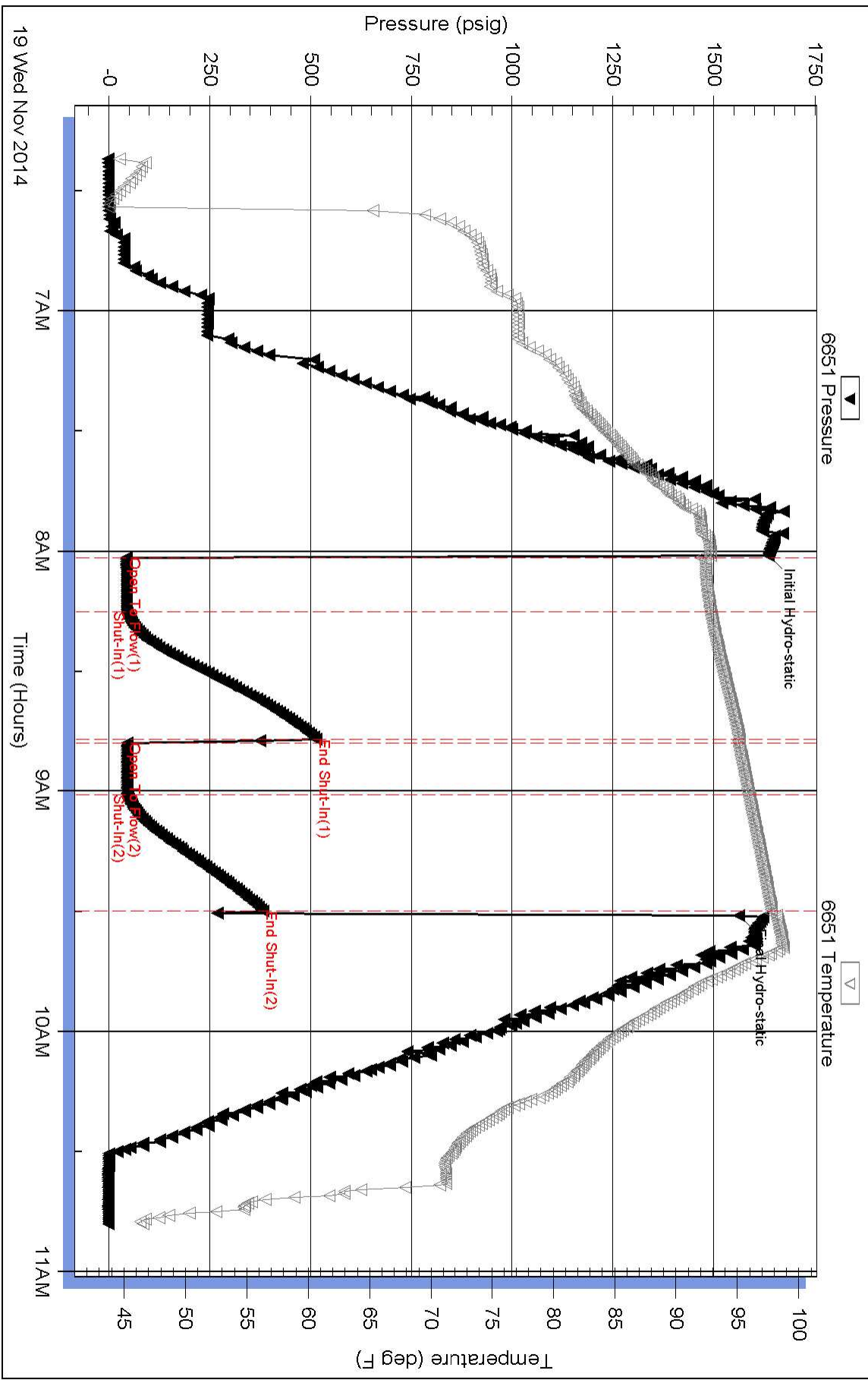
Serial #:

Laboratory Name:

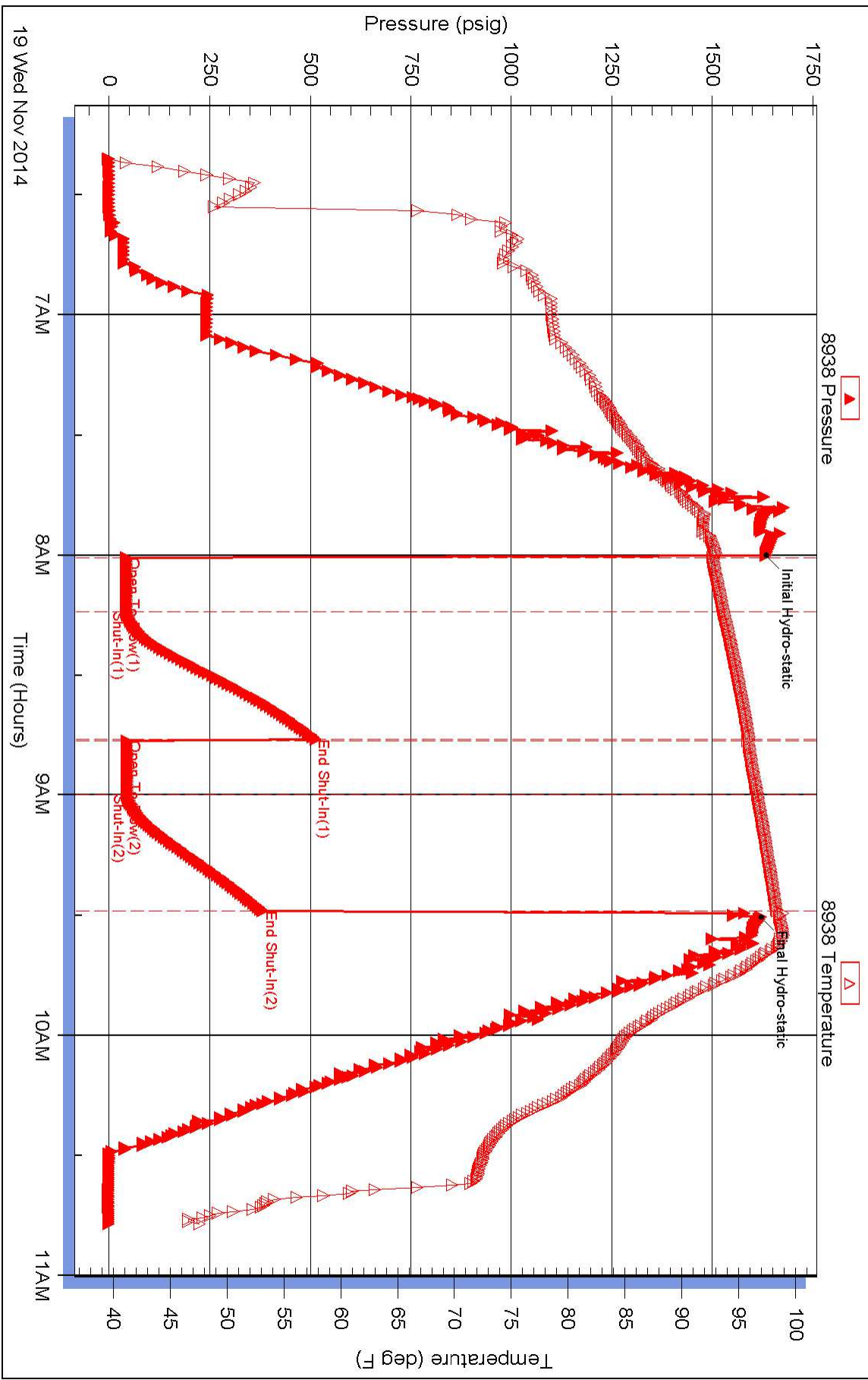
Laboratory Location:

Recovery Comments:

### Pressure vs. Time



### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.19 @ 00:00:00

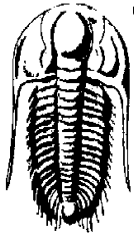
End Date:

Job Ticket #: 62054

DST #: 8

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.11.19 @ 22:31:38



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62054

**DST#: 8**

ATTN: Ryan Greenbaum

Test Start: 2014.11.19 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3426.00 ft (KB) To 3435.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 2325.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938**

**Inside**

Press @ Run Depth: 649.66 psig @ 3430.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.19 End Date: 2014.11.19

Last Calib.: 2014.11.19

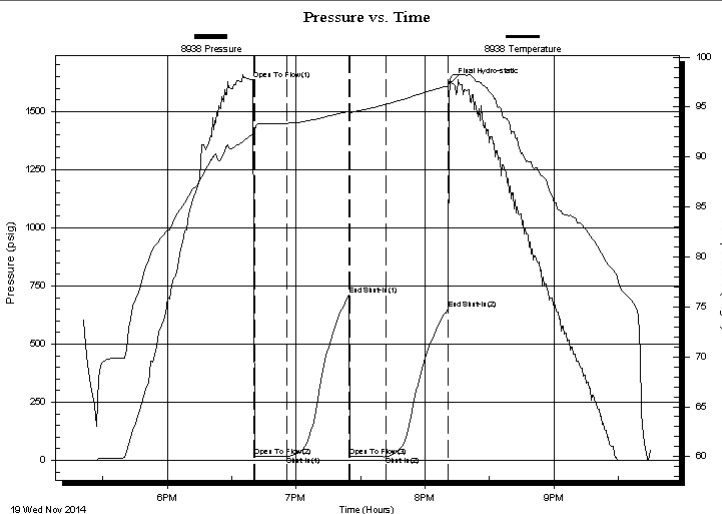
Start Time: 17:21:00 End Time: 21:45:00

Time On Btm:

Time Off Btm: 2014.11.19 @ 20:12:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 11 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



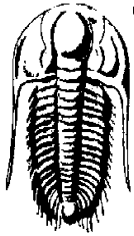
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1636.82	92.31	Open To Flow (1)
1	16.08	92.66	Open To Flow (2)
16	16.36	93.39	Shut-In(1)
45	709.61	94.59	End Shut-In(1)
45	16.15	94.30	Open To Flow (3)
62	16.22	95.27	Shut-In(2)
91	649.66	97.12	End Shut-In(2)
92	1624.76	98.09	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling Mud	0.07

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62054

**DST#: 8**

Test Start: 2014.11.19 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3426.00 ft (KB) To 3435.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 2325.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press @ Run Depth: 649.52 psig @ 3430.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.19 End Date: 2014.11.19

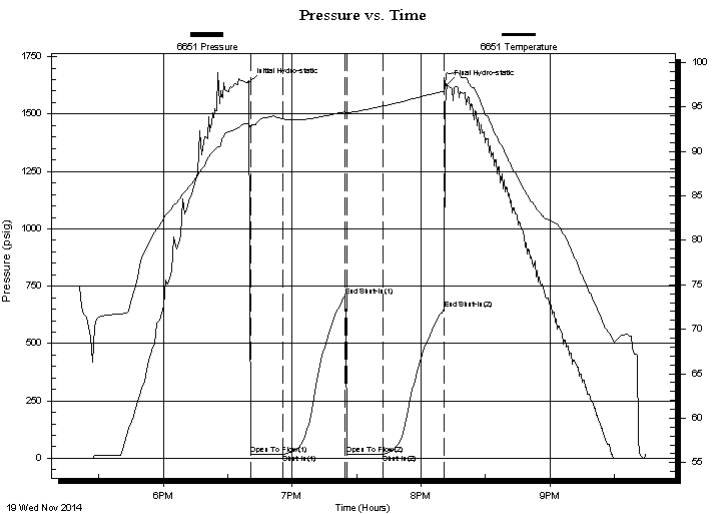
Last Calib.: 2014.11.19

Start Time: 17:20:00 End Time: 21:45:00

Time On Btm: 2014.11.19 @ 18:40:00

Time Off Btm: 2014.11.19 @ 20:12:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 11 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

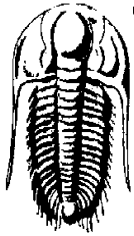
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1637.68	93.12	Initial Hydro-static
1	16.82	92.58	Open To Flow (1)
16	17.27	93.64	Shut-In(1)
45	709.29	94.45	End Shut-In(1)
46	17.28	94.29	Open To Flow (2)
62	17.95	95.09	Shut-In(2)
91	649.52	96.77	End Shut-In(2)
92	1626.21	98.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Drilling Mud	0.07

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62054

**DST#: 8**

ATTN: Ryan Greenbaum

Test Start: 2014.11.19 @ 00:00:00

## Tool Information

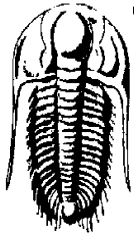
Drill Pipe:	Length: 3408.00 ft	Diameter: 3.80 inches	Volume: 47.81 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 47.81 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	3426.00 ft			Final	55000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	9.00 ft				
Tool Length:	37.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

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

Shut In Tool	5.00			3403.00	
Hydraulic tool	5.00			3408.00	
Jars	6.00			3414.00	
Safety Joint	2.00			3416.00	
Top Packer	5.00			3421.00	
Packer	5.00			3426.00	28.00 Bottom Of Top Packer
Anchor	4.00			3430.00	
Recorder	0.00	8938	Inside	3430.00	
Recorder	0.00	6651	Outside	3430.00	
Bullnose	5.00			3435.00	9.00 Anchor Tool
<b>Total Tool Length:</b>	<b>37.00</b>				





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62054

**DST#: 8**

ATTN: Ryan Greenbaum

Test Start: 2014.11.19 @ 00:00:00

### 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:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Drilling Mud	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

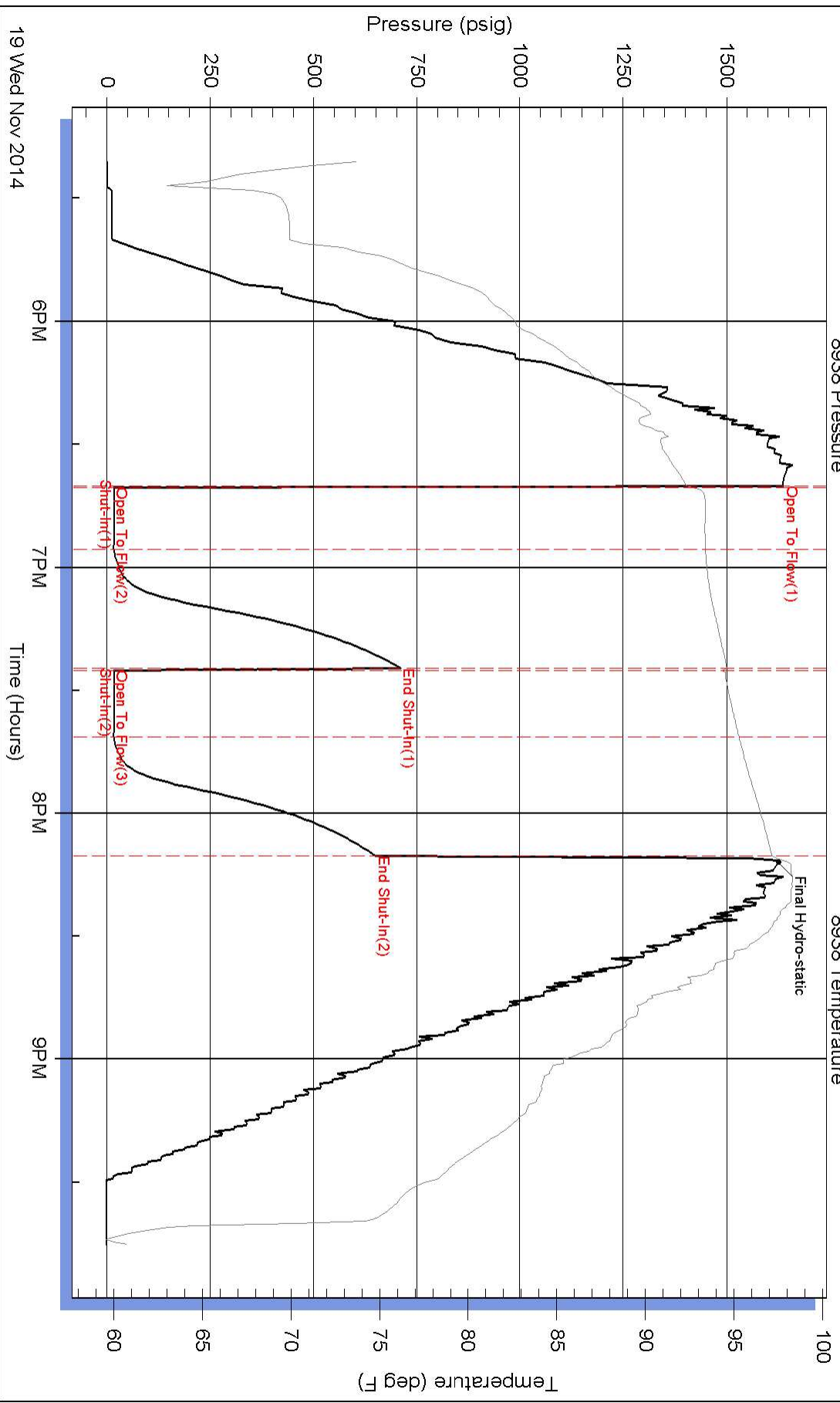
Serial #:

Laboratory Name:

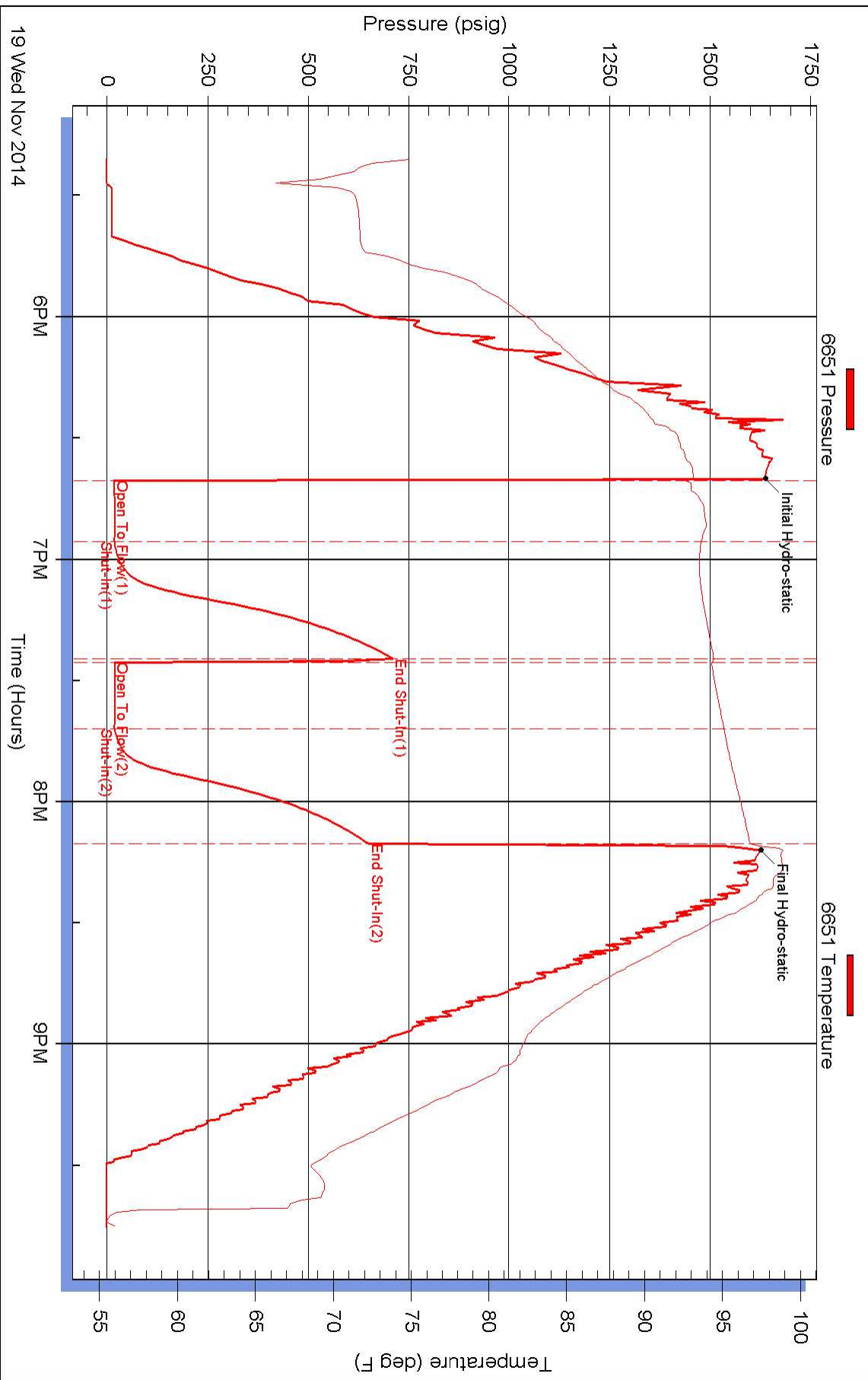
Laboratory Location:

Recovery Comments:

# Pressure vs. Time



### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.20 @ 00:00:00

End Date:

Job Ticket #: 62056

DST #: 9

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

Printed: 2014.11.20 @ 11:29:43



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62056

**DST#: 9**

Test Start: 2014.11.20 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3430.00 ft (KB) To 3440.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3440.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938**

**Inside**

Press@RunDepth: 1074.56 psig @ 3435.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.20 End Date: 2014.11.20

Last Calib.: 2014.11.20

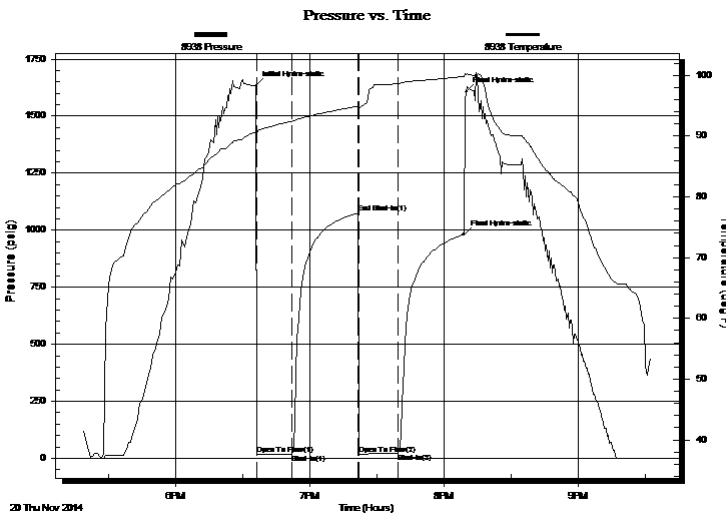
Start Time: 17:18:00 End Time: 21:32:30

Time On Btm: 2014.11.20 @ 18:36:00

Time Off Btm: 2014.11.20 @ 20:09:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 8 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes no blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



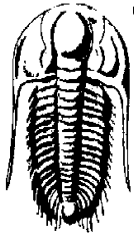
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1632.63	90.71	Initial Hydro-static
1	16.76	90.44	Open To Flow (1)
16	18.46	92.42	Shut-In(1)
46	1074.56	94.91	End Shut-In(1)
46	18.95	94.63	Open To Flow (2)
64	21.06	98.71	Shut-In(2)
93	980.80	99.80	Final Hydro-static
94	1606.11	100.19	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	drilling mud with a few spots of oil	0.14
0.00	betw een the tools	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62056

**DST#: 9**

ATTN: Ryan Greenbaum

Test Start: 2014.11.20 @ 00:00:00

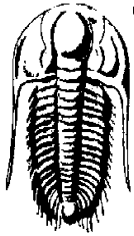
## Tool Information

Drill Pipe:	Length: 3408.00 ft	Diameter: 3.80 inches	Volume: 47.81 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: 47.81 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3430.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3407.00	
Hydraulic tool	5.00			3412.00	
Jars	6.00			3418.00	
Safety Joint	2.00			3420.00	
Top Packer	5.00			3425.00	
Packer	5.00			3430.00	28.00 Bottom Of Top Packer
Anchor	5.00			3435.00	
Recorder	0.00	8938	Inside	3435.00	
Recorder	0.00	6651	Outside	3435.00	
Bullnose	5.00			3440.00	10.00 Anchor Tool
<b>Total Tool Length:</b>	<b>38.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62056

**DST#: 9**

ATTN: Ryan Greenbaum

Test Start: 2014.11.20 @ 00:00:00

## 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:

ppm

Viscosity: 41.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	drilling mud with a few spots of oil	0.140
0.00	between the tools	0.000

Total Length: 10.00 ft      Total Volume: 0.140 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

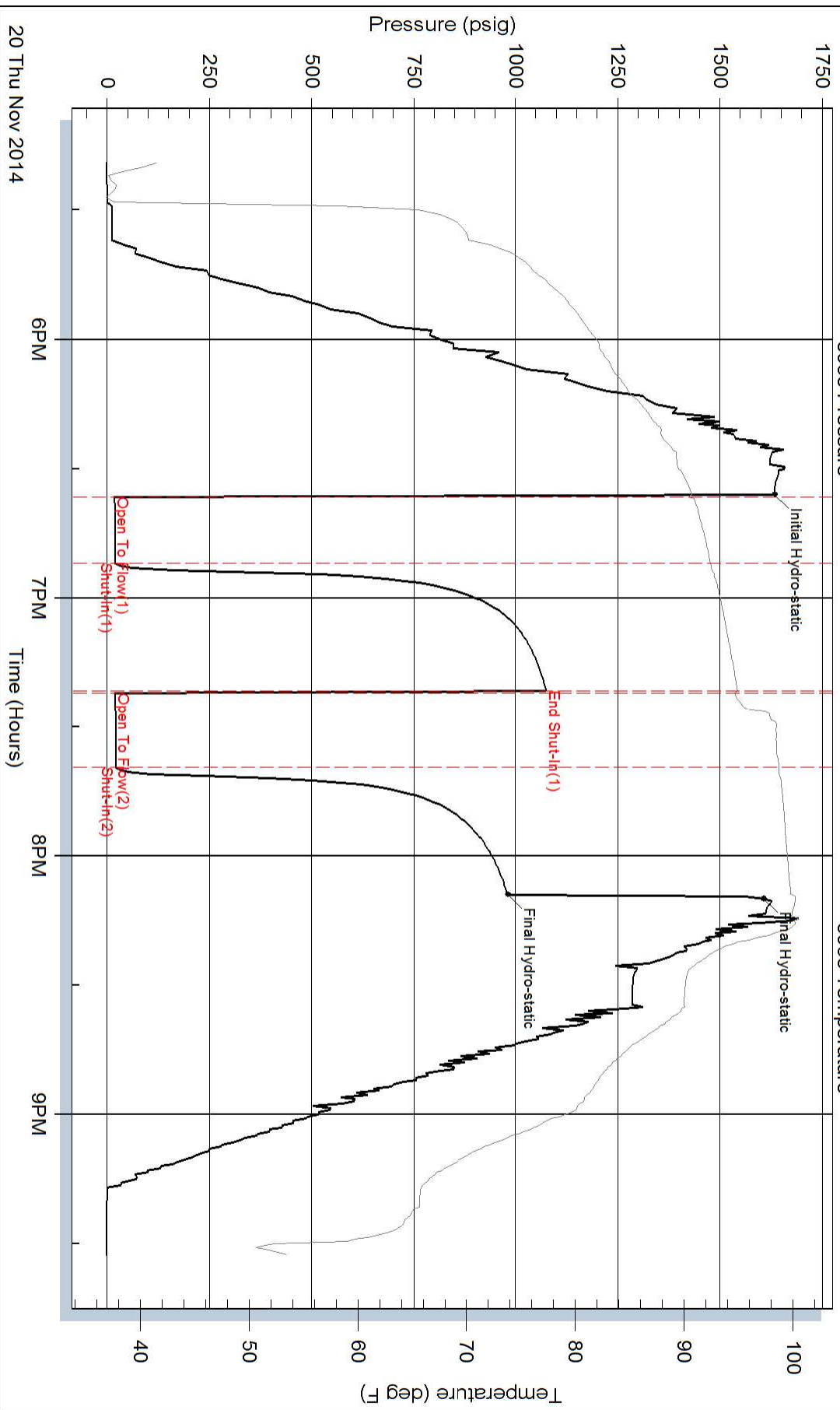
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

### **Millard Trust #1-31**

#### **31-18s-13w**

Start Date: 2014.11.20 @ 16:18:00

End Date: 2014.11.20 @ 00:00:00

Job Ticket #: 62076                      DST #: 10

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

Printed: 2014.11.20 @ 23:35:56



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62076

**DST#: 10**

ATTN: Ryan Greenbaum

Test Start: 2014.11.20 @ 16:18:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:54:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3433.00 ft (KB) To 3443.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3443.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press@RunDepth: 985.02 psig @ 3440.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.20 End Date: 2014.11.20

Last Calib.: 2014.11.20

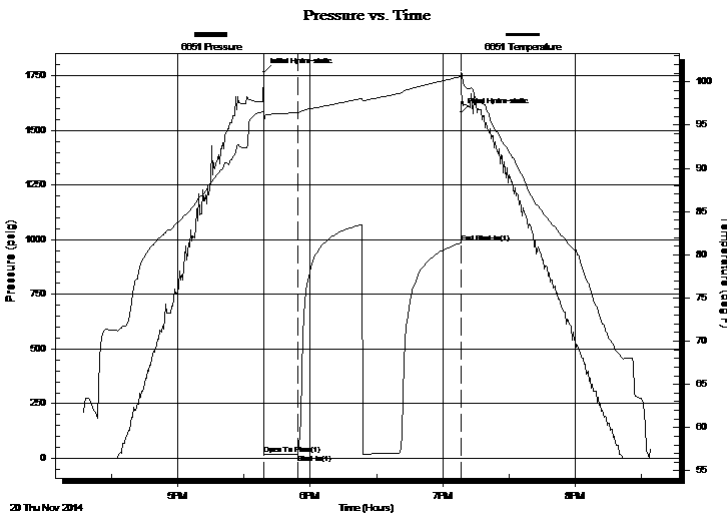
Start Time: 03:35:00 End Time: 20:34:32

Time On Btm: 2014.11.20 @ 17:38:58

Time Off Btm: 2014.11.20 @ 19:08:25

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 13 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1765.12	96.64	Initial Hydro-static
1	17.85	95.21	Open To Flow (1)
16	19.94	96.46	Shut-In(1)
90	985.02	100.61	End Shut-In(1)
90	1581.49	101.09	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	Drilling Mud with a slight show of oil between the tools	0.21

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

ATTN: Ryan Greenbaum

Job Ticket: 62076

**DST#: 10**

Test Start: 2014.11.20 @ 16:18:00

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Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:54:00

Time Test Ended: 00:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3433.00 ft (KB) To 3443.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3443.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938 Inside**

Press@RunDepth: 983.96 psig @ 3439.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.20 End Date: 2014.11.20

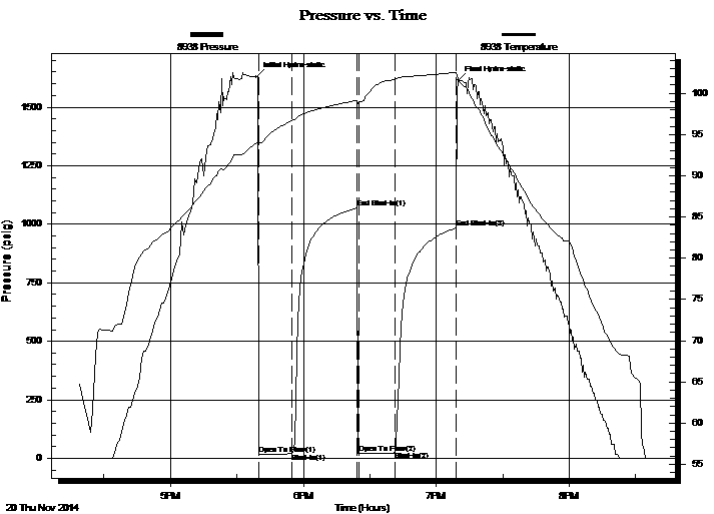
Last Calib.: 2014.11.20

Start Time: 16:18:00 End Time: 20:35:00

Time On Btm: 2014.11.20 @ 17:39:00

Time Off Btm: 2014.11.20 @ 19:10:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak blow for 13 minutes and died  
1st Shut-In 30 Minutes  
2nd Opening 15 Minutes No blow  
2nd Shut-In 30 Minutes



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.13	94.03	Initial Hydro-static
1	17.01	93.76	Open To Flow (1)
16	19.71	96.71	Shut-In(1)
45	1068.40	99.14	End Shut-In(1)
46	20.05	98.94	Open To Flow (2)
63	31.87	101.74	Shut-In(2)
90	983.96	102.54	End Shut-In(2)
91	1614.99	101.62	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	Drilling Mud with a slight show of oil between the tools	0.21

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62076

**DST#: 10**

ATTN: Ryan Greenbaum

Test Start: 2014.11.20 @ 16:18:00

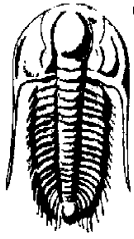
## Tool Information

Drill Pipe:	Length: 3408.00 ft	Diameter: 3.80 inches	Volume: 47.81 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 47.81 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3433.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3410.00	
Hydraulic Tool	5.00			3415.00	
Jars	6.00			3421.00	
Safety Joint	2.00			3423.00	
Top Packer	5.00			3428.00	
Packer	5.00			3433.00	28.00 Bottom Of Top Packer
Anchor	5.00			3438.00	
Recorder	1.00	8938	Inside	3439.00	
Recorder	1.00	6651	Outside	3440.00	
Bull Plug	3.00			3443.00	10.00 Anchor Tool
<b>Total Tool Length:</b>	<b>38.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62076

**DST#: 10**

ATTN: Ryan Greenbaum

Test Start: 2014.11.20 @ 16:18:00

## 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:

ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.00 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Drilling Mud with a slight show of oil between the tools	0.210

Total Length: 15.00 ft      Total Volume: 0.210 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

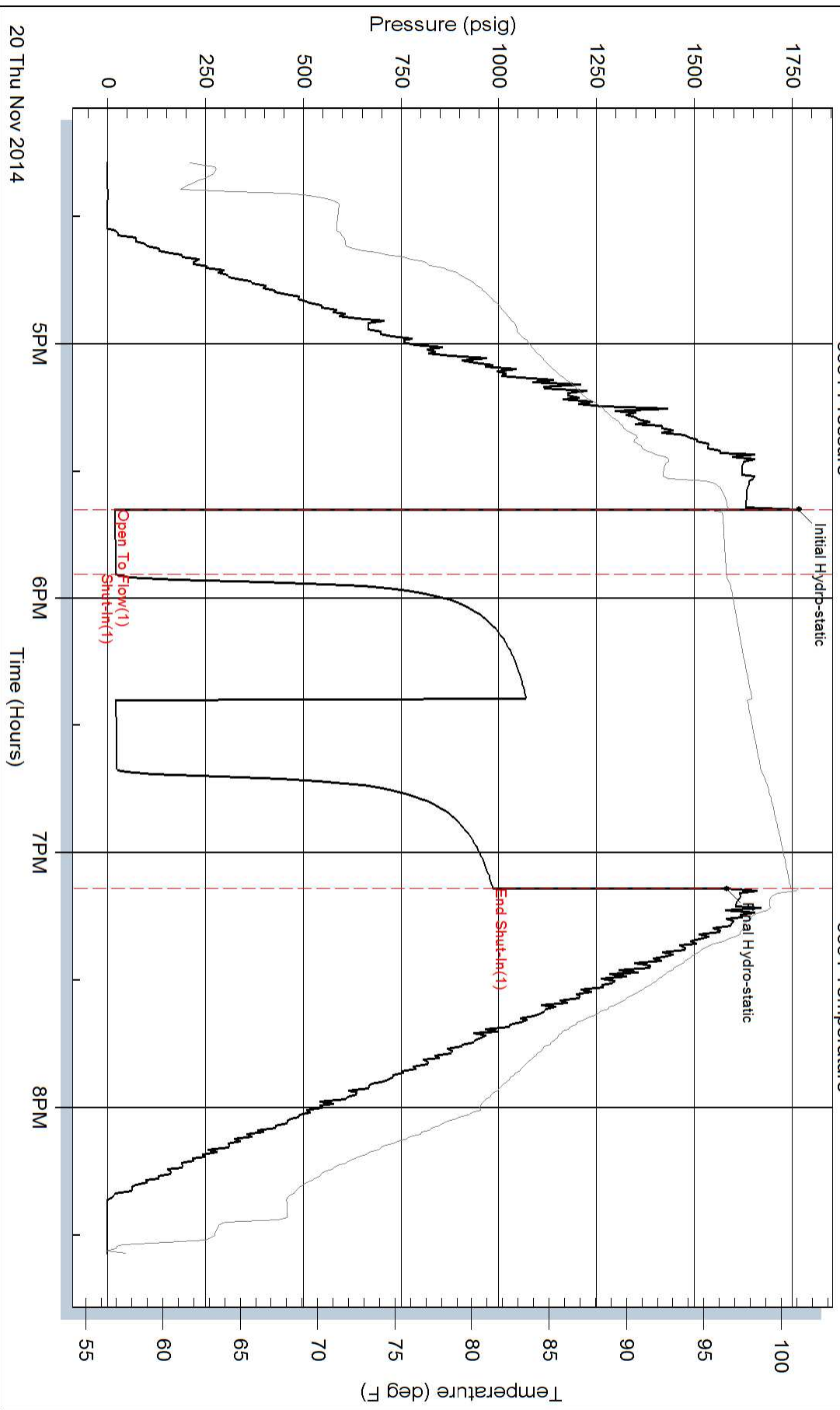
Serial #:

Laboratory Name:

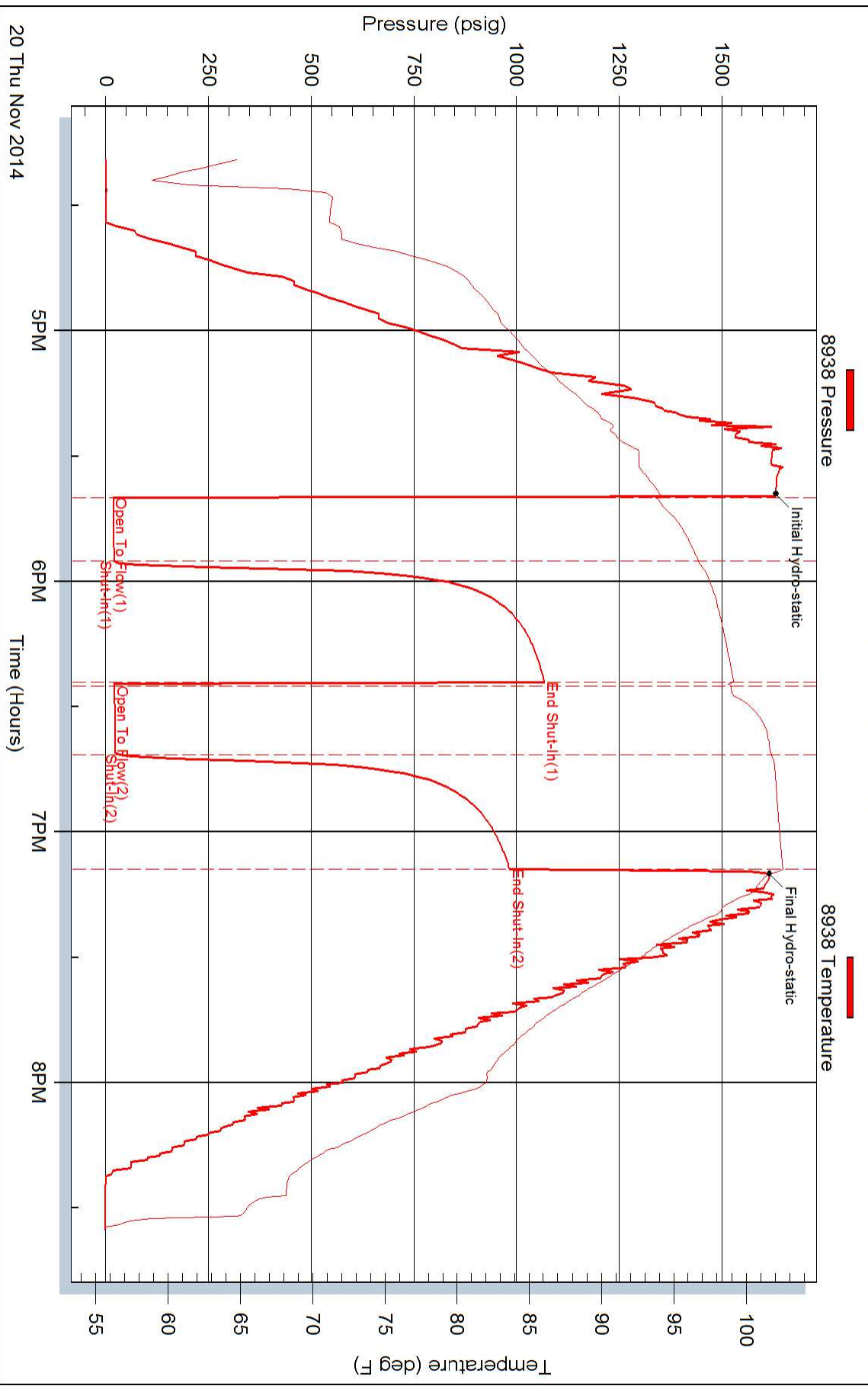
Laboratory Location:

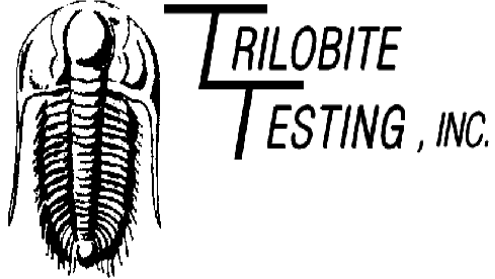
Recovery Comments:

### Pressure vs. Time



# Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **F.G. Holl Company L.L.C.**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

ATTN: Ryan Greenbaum

**Millard Trust #1-31**

**31-18s-13w**

Start Date: 2014.11.21 @ 00:00:00

End Date:

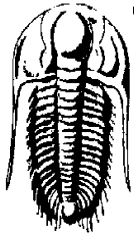
Job Ticket #: 62057

DST #: 11

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

Printed: 2014.11.21 @ 12:59:53





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62057

**DST#: 11**

ATTN: Ryan Greenbaum

Test Start: 2014.11.21 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3440.00 ft (KB) To 3450.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3450.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8938**

**Inside**

Press@RunDepth: 1165.34 psig @ 3446.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.21

End Date: 2014.11.21

Last Calib.: 2014.11.21

Start Time: 04:24:00

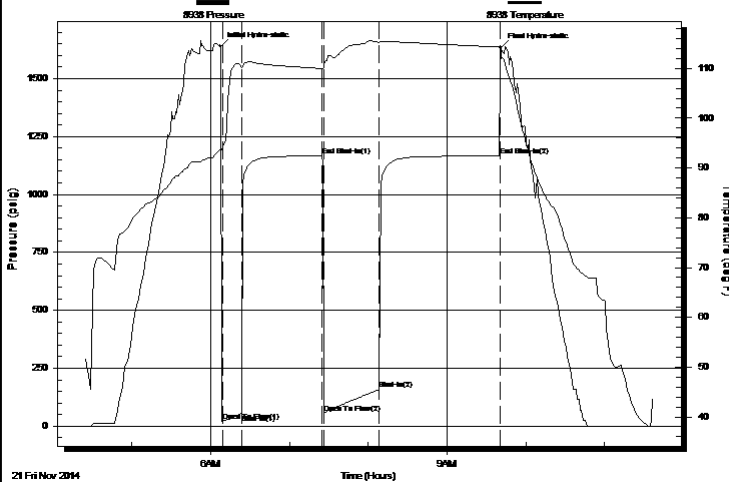
End Time: 11:36:30

Time On Btm: 2014.11.21 @ 06:07:30

Time Off Btm: 2014.11.21 @ 09:41:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak building blow bob in 12 minutes  
1st Shut-In 60 Minutes-No blow back  
2nd Opening 45 Minutes-Weak building blow bob in 12 minutes  
2nd Shut-In 90 Minutes-No blow back

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1639.54	93.67	Initial Hydro-static
2	21.37	94.14	Open To Flow (1)
16	53.69	110.10	Shut-In(1)
78	1165.66	110.00	End Shut-In(1)
79	57.71	110.11	Open To Flow (2)
121	159.49	115.26	Shut-In(2)
213	1165.34	114.29	End Shut-In(2)
214	1635.37	112.83	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
400.00	Slightly muddy water 2%Mud 98%Water chlorides 19,000	5.61

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62057

**DST#: 11**

ATTN: Ryan Greenbaum

Test Start: 2014.11.21 @ 00:00:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended:

Test Type: Conventional Bottom Hole (Initial)

Tester: Gene Budig

Unit No: S-4

**Interval: 3440.00 ft (KB) To 3450.00 ft (KB) (TVD)**

Reference Elevations: 1888.00 ft (KB)

Total Depth: 3450.00 ft (KB) (TVD)

1880.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6651 Outside**

Press@RunDepth: 1165.88 psig @ 3447.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.21

End Date: 2014.11.21

Last Calib.: 2014.11.21

Start Time: 04:24:00

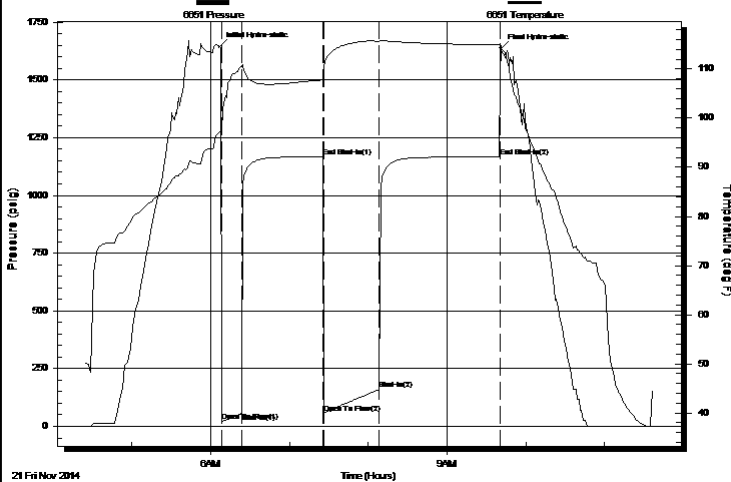
End Time: 11:36:30

Time On Btm: 2014.11.21 @ 06:07:00

Time Off Btm: 2014.11.21 @ 09:41:00

**TEST COMMENT:** 1st Opening 15 Minutes Weak building blow bob in 12 minutes  
1st Shut-In 60 Minutes-No blow back  
2nd Opening 45 Minutes-Weak building blow bob in 12 minutes  
2nd Shut-In 90 Minutes-No blow back

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.26	97.16	Initial Hydro-static
2	19.72	97.29	Open To Flow (1)
17	54.51	110.52	Shut-In(1)
79	1166.27	107.78	End Shut-In(1)
79	57.19	108.26	Open To Flow (2)
122	159.90	115.57	Shut-In(2)
213	1165.88	114.90	End Shut-In(2)
214	1637.23	114.82	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
400.00	Slightly muddy water 2% Mud 98% Water chlorides 19,000	5.61

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62057

**DST#: 11**

ATTN: Ryan Greenbaum

Test Start: 2014.11.21 @ 00:00:00

## Tool Information

Drill Pipe:	Length: 3438.00 ft	Diameter: 3.80 inches	Volume: 48.23 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.86 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 48.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3440.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3417.00	
Hydraulic Tool	5.00			3422.00	
Jars	6.00			3428.00	
Safety Joint	2.00			3430.00	
Top Packer	5.00			3435.00	
Packer	5.00			3440.00	28.00 Bottom Of Top Packer
Anchor	5.00			3445.00	
Recorder	1.00	8938	Inside	3446.00	
Recorder	1.00	6651	Outside	3447.00	
Bull Plug	3.00			3450.00	10.00 Anchor Tool
<b>Total Tool Length:</b>	<b>38.00</b>				



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

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

F.G. Holl Company L.L.C.

**31-18s-13w**

9431 East Central Suite 100  
Wichita, Kansas 67206 2563

**Millard Trust #1-31**

Job Ticket: 62057

**DST#: 11**

ATTN: Ryan Greenbaum

Test Start: 2014.11.21 @ 00:00:00

## 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:

ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.00 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
400.00	Slightly muddy water 2%Mud 98%Water chlorides 19,000	5.611

Total Length: 400.00 ft

Total Volume: 5.611 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

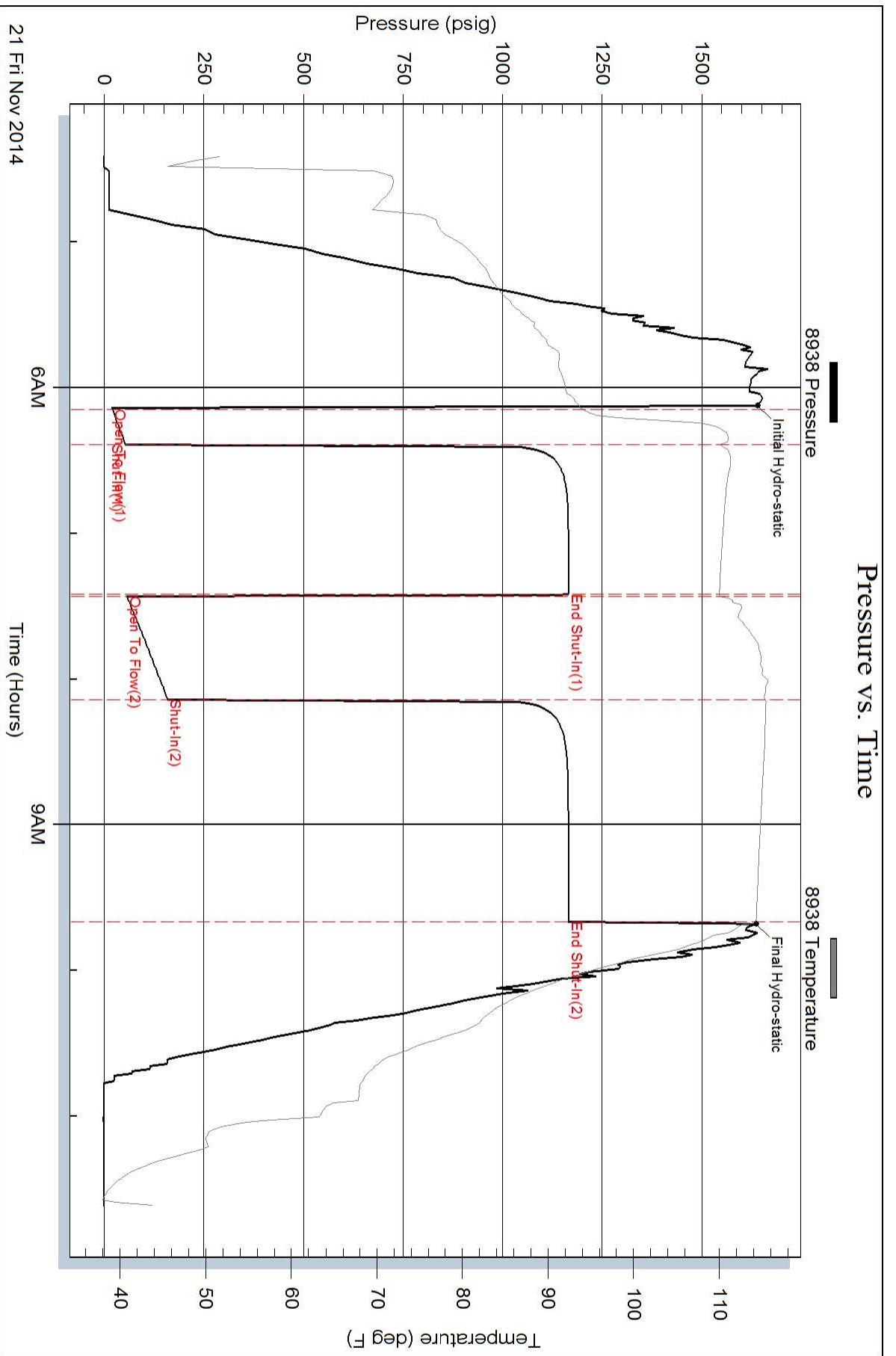
Serial #:

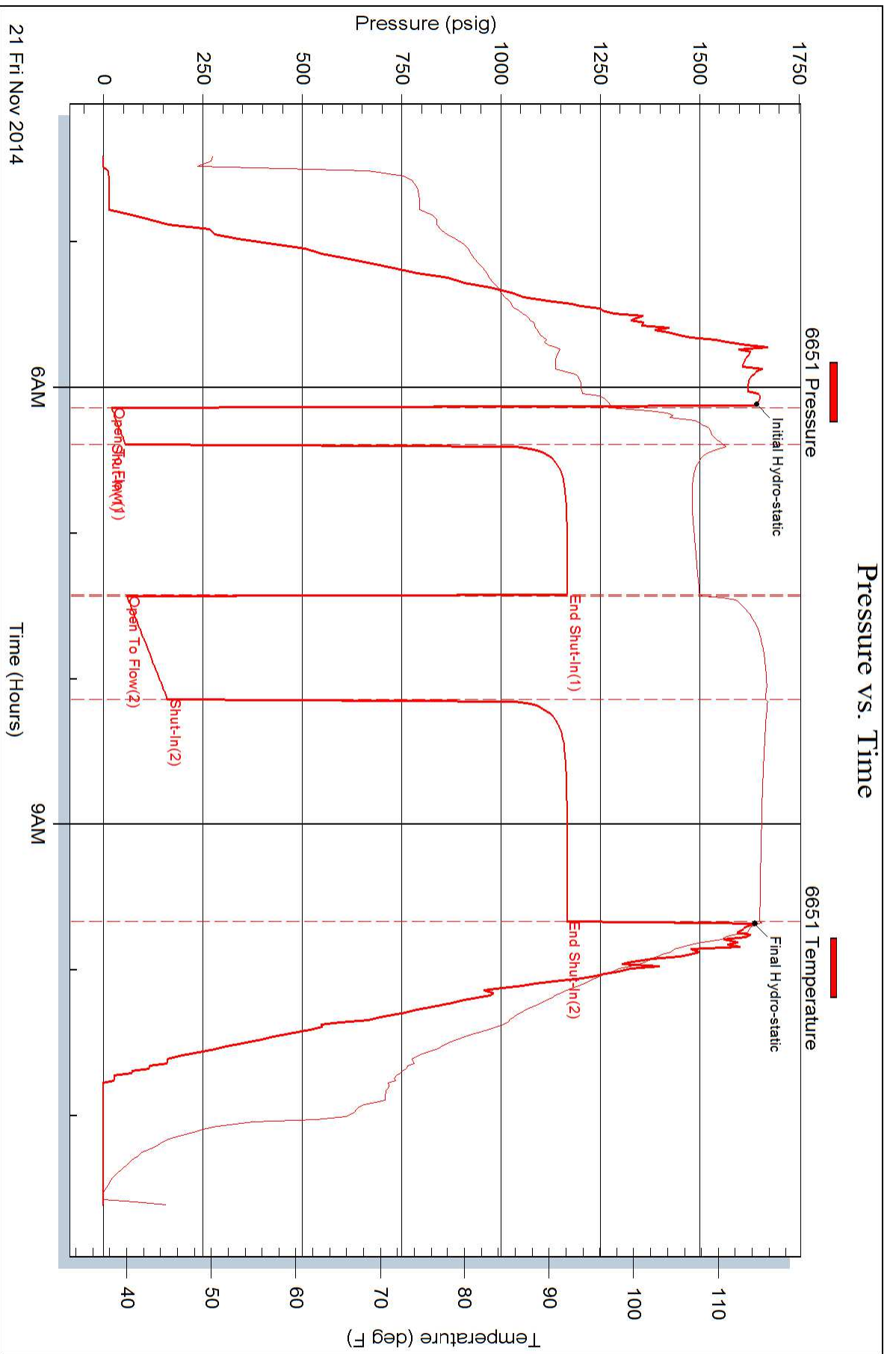
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







**BASIC**<sup>SM</sup>  
ENERGY SERVICES  
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61  
P.O. Box 8613  
Pratt, Kansas 67124  
Phone 620-672-1201

FIELD SERVICE TICKET

1718 11785 A

DATE \_\_\_\_\_ TICKET NO. \_\_\_\_\_

DATE OF JOB: 11/11/14		DISTRICT: Pratt		NEW WELL <input checked="" type="checkbox"/>		OLD WELL <input type="checkbox"/>		PROD <input type="checkbox"/>		INJ <input type="checkbox"/>		WDW <input type="checkbox"/>		CUSTOMER ORDER NO.:	
CUSTOMER: F. S. Hill				LEASE: PULLMAN TREAT 1				WELL NO.:							
ADDRESS:				COUNTY: Pratt				STATE: KS							
CITY:				STATE:				SERVICE CREW: Sullivan, Hagan, Gibson							
AUTHORIZED BY:				JOB TYPE: new 8 1/2" SURFACE											
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM	PM	TIME					
27684-1740	50						11/11/14								
11785-1100	10									2:40					
27684										11:00					
										12:00					
										12:30					
						MILES FROM STATION TO WELL				6.5					

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: \_\_\_\_\_  
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
171	hourly rate	hr	17		
172	hourly rate	hr	17.5		
173	hourly rate	hr	9.5		
174	hourly rate	hr	5.25		
175	hourly rate	hr	1		
176	hourly rate	hr	3		
177	hourly rate	hr	6.5		
178	hourly rate	hr	1.25		
179	hourly rate	hr	10.75		
180	hourly rate	hr	3.5		
181	hourly rate	hr	1		
182	hourly rate	hr	1		

SUB TOTAL

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON \$
MATERIALS	%TAX ON \$
TOTAL	

SERVICE REPRESENTATIVE: _____	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: _____
FIELD SERVICE ORDER NO. _____	(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

Customer <i>F. G. Hill</i>	Lease No.	Date <i>11-11-14</i>
Lease <i>WALWIND-Trust</i>	Well # <i>1</i>	
Field Order # <i>11795</i>	Station <i>Pratt KS</i>	Casing <i>8 5/8</i>
Type Job <i>CNW 8 5/8 Surface</i>	Formation	Depth <i>215</i>
		County <i>BARTON</i>
		State <i>KS</i>
		Legal Description <i>31/18-13</i>

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size <i>8 5/8</i>	Tubing Size	Shots/Ft		Acid		RATE	PRESS <i>700</i>	ISIP
Depth <i>215</i>	Depth	From	To	Pre Pad	Max			5 Min.
Volume <i>50</i>	Volume	From	To	Pad	Min			10 Min.
Max Press <i>350</i>	Max Press	From	To	Frac	Avg			15 Min.
Well Connection <i>P.C</i>	Annulus Vol.	From	To		HHP Used			Annulus Pressure
Plug Depth <i>795</i>	Packer Depth	From	To	Flush	Gas Volume			Total Load

Customer Representative	Station Manager <i>DAVE SETH</i>	Treater <i>Robert Hill</i>
Service Units <i>37900</i>	<i>77686</i>	<i>19905</i>
Driver Names <i>Sullivan</i>	<i>HARRISON</i>	<i>Gibson</i>
	<i>19889</i>	<i>19862</i>

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<i>9:40</i>					<i>on loc</i>
					<i>RUN 8 5/8 casing</i>
					<i>CASING ON BOTTOM</i>
<i>11:10</i>					<i>Hook Rig cnc csg</i>
<i>11:20</i>			<i>3</i>	<i>3</i>	<i>4 SPACED</i>
			<i>71</i>	<i>4.5</i>	<i>mix 175 st A-Gem cont 3% cc 1/4 ct</i>
			<i>31</i>		<i>mix 125 st Gem. cont 2% cc 1/4 ct</i>
					<i>cont mixed shut down</i>
					<i>Release Plug</i>
					<i>St. Deep</i>
<i>12:00</i>	<i>300</i>		<i>50</i>		<i>plug down</i>
					<i>chc 15 BAL cont Pit</i>
					<i>JOB COMPLETE</i>
					<i>THANK YOU</i>





Customer F.G. Hall CO LLC	Lease No.	Date 11-22-14
Lease Mallard TRUST	Well # 1	
Field Order # 11534	Station Pratt	Casing
		Depth
Type Job Cnw PTA	Formation	County Barton
		State KS
		Legal Description 25-20S-16W

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft		Acid	RATE	PRESS	ISIP	
Depth	Depth	From	To	Pre Pad	Max		5 Min.	
Volume	Volume	From	To	Pad	Min		10 Min.	
Max Press	Max Press	From	To	Frac	Avg		15 Min.	
Well Connection	Annulus Vol.	From	To		HHP Used		Annulus Pressure	
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load	

Customer Representative: *Deon* Station Manager: *Sevin* Treater: *J/J*

Service Units	77686	19905	19959	73768	92911				
Driver Names	<i>McLaur</i>	<i>Gibson</i>			<i>JOE</i>				

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
1800					on loc / safety meeting
1930	200		20	4	Plug 1 set @ 3420'
			12		H2O SPACER
			5		Mix 50 SK of 60/40 P02 @ 13.8
1950	100		40	4	H2O SPACER
					Mud
2149			10	4	Plug 2 set @ 331'
			12		H2O SPACER
					Mix 50 SK of 60/40 P02 @ 13.8
2155			2	4	H2O SPACER
					Plug 3 set @ 338'
2213			5	4	H2O SPACER
			19	4	Mix 75 SK of 60/40 P02 @ 13.8
2225			1	4	H2O SPACER
					Plug 4 set @ 40'
2350			3	3	Mix 10 SK of 60/40 P02 @ 13.8
1200			7/6		Plug BH + MN
					JAP com ALBERT
					Thank you JO