



## DRILL STEM TEST REPORT

Prepared For: **Samuel Gary Jr. & Associates, Inc.**

1515 Wynkoop Ste. #700  
Denver, CO 80202

ATTN: Tom Fertal

### **Shubert ET AL 1-31**

#### **31/11S/21W-Trego**

Start Date: 2012.03.09 @ 06:56:15

End Date: 2012.03.09 @ 14:20:15

Job Ticket #: 46925                      DST #: 3

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

Printed: 2012.03.10 @ 15:10:34



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

**31/11S/21W-Trego**

1515 Wynkoop Ste. #700  
Denver, CO 80202

**Shubert ET AL 1-31**

Job Ticket: 46925

**DST#: 3**

ATTN: Tom Fertal

Test Start: 2012.03.09 @ 06:56:15

## GENERAL INFORMATION:

Formation: **Basal Penn Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:05:45

Time Test Ended: 14:20:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Dustin Rash

Unit No: 38

**Interval: 3913.00 ft (KB) To 3967.00 ft (KB) (TVD)**

Reference Elevations: 2315.00 ft (KB)

Total Depth: 3967.00 ft (KB) (TVD)

2307.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8354**

**Inside**

Press @ Run Depth: 46.97 psig @ 3917.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.03.09

End Date:

2012.03.09

Last Calib.:

2012.03.09

Start Time: 07:06:15

End Time:

14:20:15

Time On Btm:

2012.03.09 @ 09:05:15

Time Off Btm:

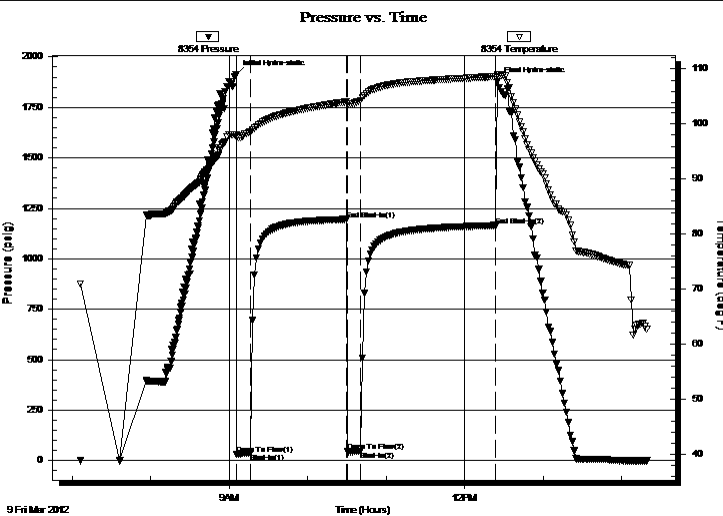
2012.03.09 @ 12:25:15

**TEST COMMENT:** IF-Very weak surface blow. Died @ 5 minutes.

ISI-No Return.

FF-Few surface bubbles.

FSI-No Return. Times-10-75-10-100



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1913.48	98.11	Initial Hydro-static
1	30.01	97.61	Open To Flow (1)
11	37.43	98.56	Shut-In(1)
85	1195.06	104.06	End Shut-In(1)
85	45.07	103.69	Open To Flow (2)
95	46.97	104.31	Shut-In(2)
199	1164.75	108.65	End Shut-In(2)
200	1877.23	109.03	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	90%Mud/10%Water	0.07

## Gas Rates

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



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Denver, CO 80202

**Shubert ET AL 1-31**

Job Ticket: 46925

**DST#: 3**

ATTN: Tom Fertal

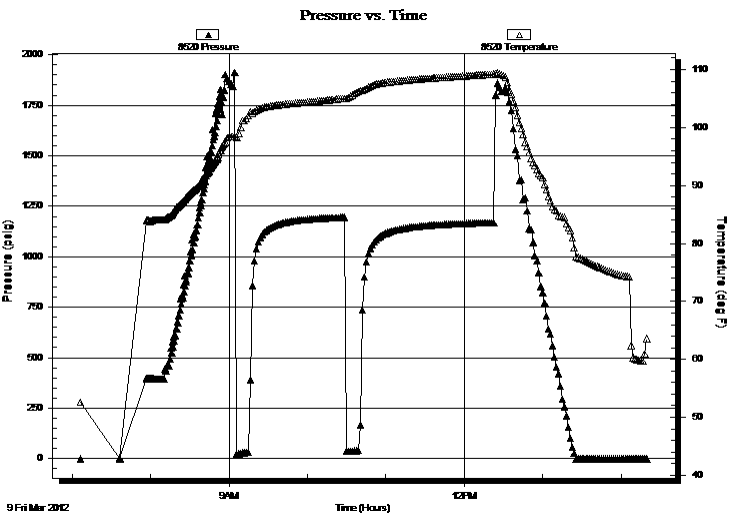
Test Start: 2012.03.09 @ 06:56:15

**GENERAL INFORMATION:**

Formation: <b>Basal Penn Sand</b>	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Dustin Rash
Time Tool Opened: 09:05:45	Unit No: 38
Time Test Ended: 14:20:15	
<b>Interval: 3913.00 ft (KB) To 3967.00 ft (KB) (TVD)</b>	Reference Elevations: 2315.00 ft (KB)
Total Depth: 3967.00 ft (KB) (TVD)	2307.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 8.00 ft

<b>Serial #: 8520</b>	<b>Outside</b>		
Press @ Run Depth: psig @ 3917.00 ft (KB)	Capacity: 8000.00 psig		
Start Date: 2012.03.09	End Date: 2012.03.09	Last Calib.: 2012.03.09	
Start Time: 07:06:30	End Time: 14:20:00	Time On Btm:	Time Off Btm:

**TEST COMMENT:** IF-Very weak surface blow. Died @ 5 minutes.  
 IS-No Return.  
 FF-Few surface bubbles.  
 FS-No Return. Times-10-75-10-100



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

**Recovery**

Length (ft)	Description	Volume (bbl)
15.00	90%Mud/10%Water	0.07

**Gas Rates**

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



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**31/11S/21W-Trego**

1515 Wynkoop Ste. #700  
Denver, CO 80202

**Shubert ET AL 1-31**

ATTN: Tom Fertal

Job Ticket: 46925

**DST#: 3**

Test Start: 2012.03.09 @ 06:56:15

## GENERAL INFORMATION:

Formation: **Basal Penn Sand**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 09:05:45  
 Tester: Dustin Rash  
 Time Test Ended: 14:20:15  
 Unit No: 38  
 Interval: **3913.00 ft (KB) To 3967.00 ft (KB) (TVD)**  
 Reference Elevations: 2315.00 ft (KB)  
 Total Depth: 3967.00 ft (KB) (TVD) 2307.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

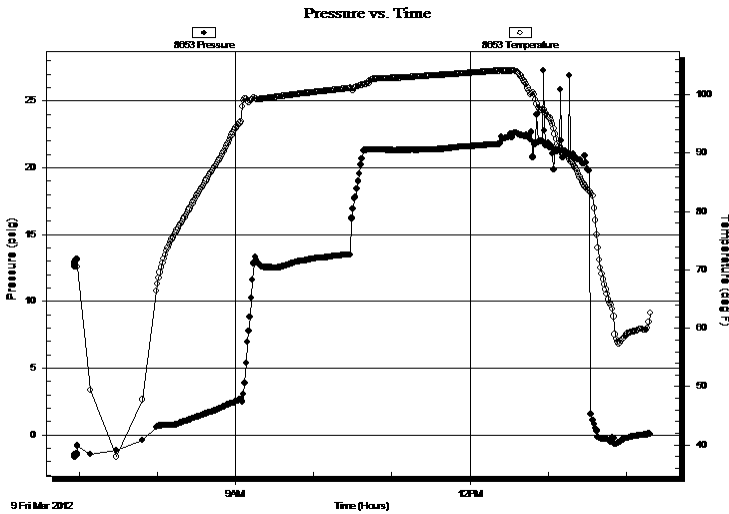
## Serial #: 8653

## Fluid

Press @ RunDepth: psig @ 3883.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.03.09 End Date: 2012.03.09 Last Calib.: 2012.03.09  
 Start Time: 06:56:46 End Time: 14:18:15 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF-Very weak surface blow. Died @ 5 minutes.  
 IS-No Return.  
 FF-Few surface bubbles.  
 FS-No Return. Times-10-75-10-100

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	90%Mud/10%Water	0.07

## Gas Rates

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



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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Samuel Gary Jr. & Associates, Inc.

**31/11S/21W-Trego**

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Denver, CO 80202

**Shubert ET AL 1-31**

Job Ticket: 46925

**DST#: 3**

ATTN: Tom Fertal

Test Start: 2012.03.09 @ 06:56:15

## Tool Information

Drill Pipe:	Length: 3860.00 ft	Diameter: 3.80 inches	Volume: 54.15 bbl	Tool Weight: 3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 31.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 20000.00 lb
			<u>Total Volume: 54.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	3913.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	54.00 ft			
Tool Length:	84.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Recorder	0.00	8653	Fluid	3883.00	
Change Over Sub	1.00			3884.00	
Shut In Tool	5.00			3889.00	
Sampler	2.00			3891.00	
Hydraulic tool	5.00			3896.00	
Jars	5.00			3901.00	
Safety Joint	3.00			3904.00	
Packer	5.00			3909.00	30.00 Bottom Of Top Packer
Packer	4.00			3913.00	
Stubb	1.00			3914.00	
Perforations	3.00			3917.00	
Recorder	0.00	8354	Inside	3917.00	
Recorder	0.00	8520	Outside	3917.00	
Change Over Sub	1.00			3918.00	
Drill Pipe	31.00			3949.00	
Change Over Sub	1.00			3950.00	
Perforations	14.00			3964.00	
Bullnose	3.00			3967.00	54.00 Bottom Packers & Anchor

**Total Tool Length: 84.00**



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**FLUID SUMMARY**

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Denver, CO 80202

**Shubert ET AL 1-31**

Job Ticket: 46925

**DST#: 3**

ATTN: Tom Fertal

Test Start: 2012.03.09 @ 06:56:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	90%Mud/10%Water	0.074

Total Length: 15.00 ft      Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

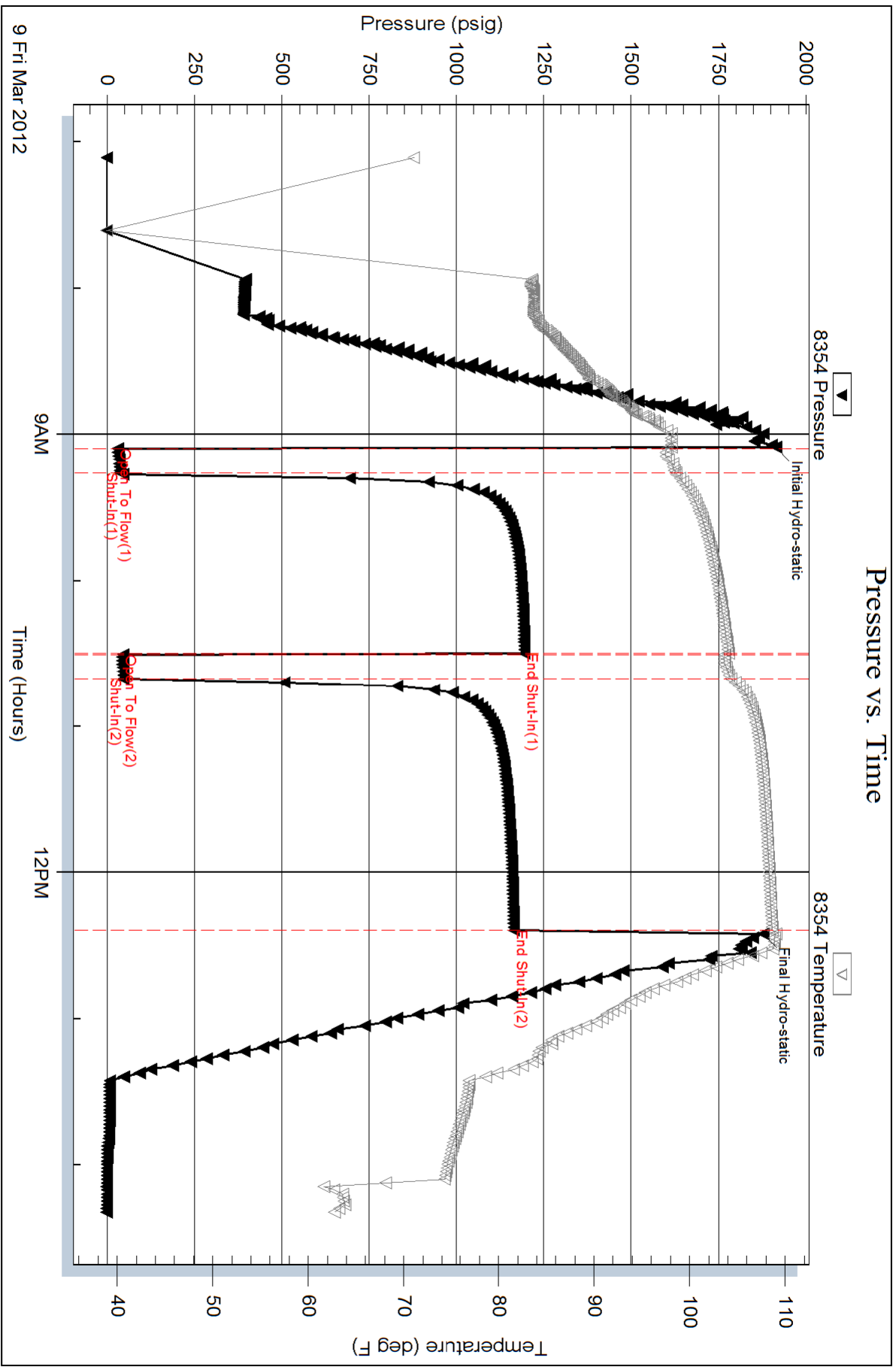
Laboratory Name:

Laboratory Location:

Recovery Comments: Sampler-4000 ML Total. 2000 ML Water. 2000 ML Mud.

150# Pressure.

Resistivity- .272 @ 64= 28000 chlorides.

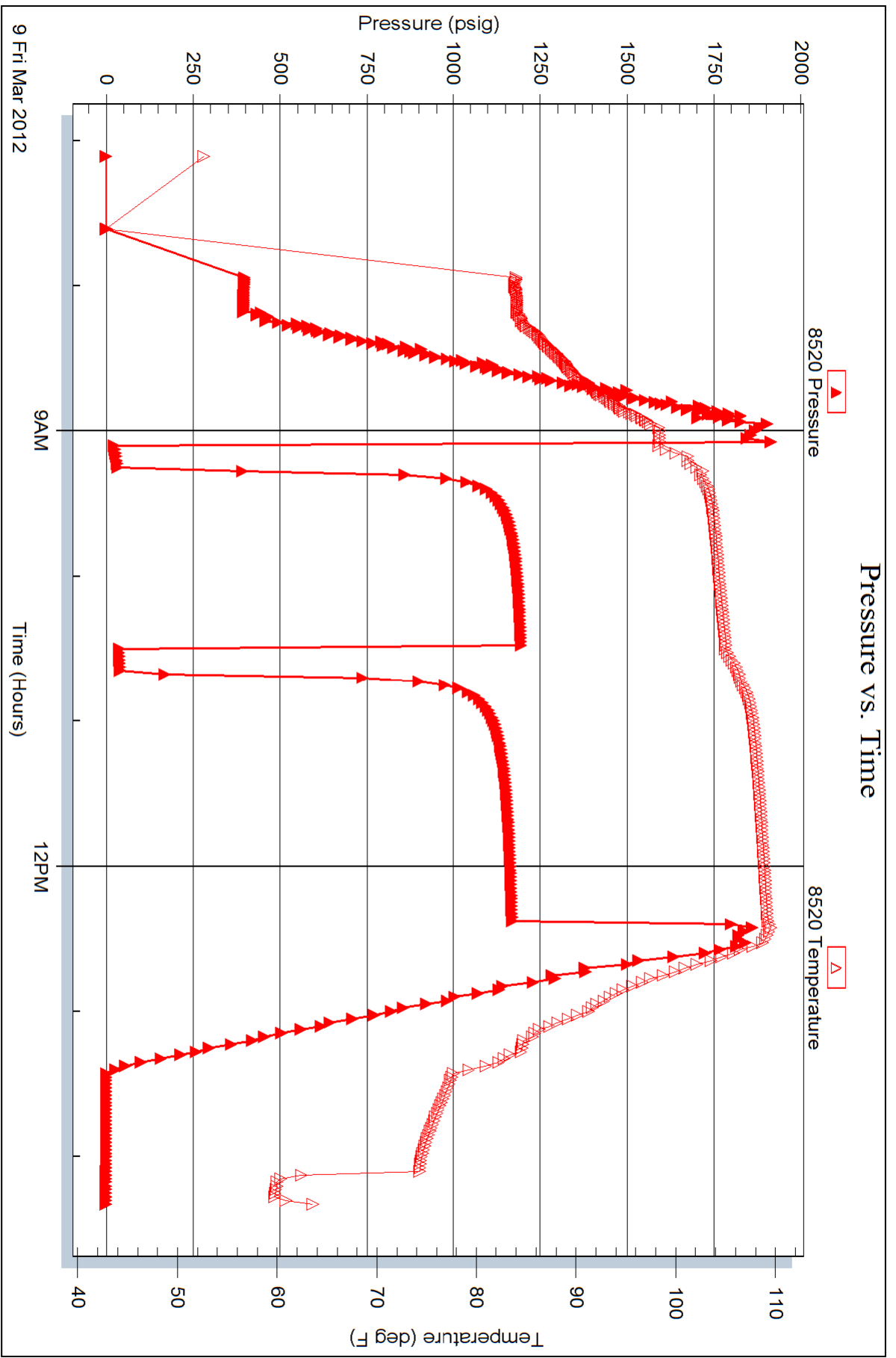


Serial #: 8520

Outside Samuel Gary Jr. & Associates, Inc.

Shubert ET AL 1-31

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 46925

Printed: 2012.03.10 @ 15:10:35



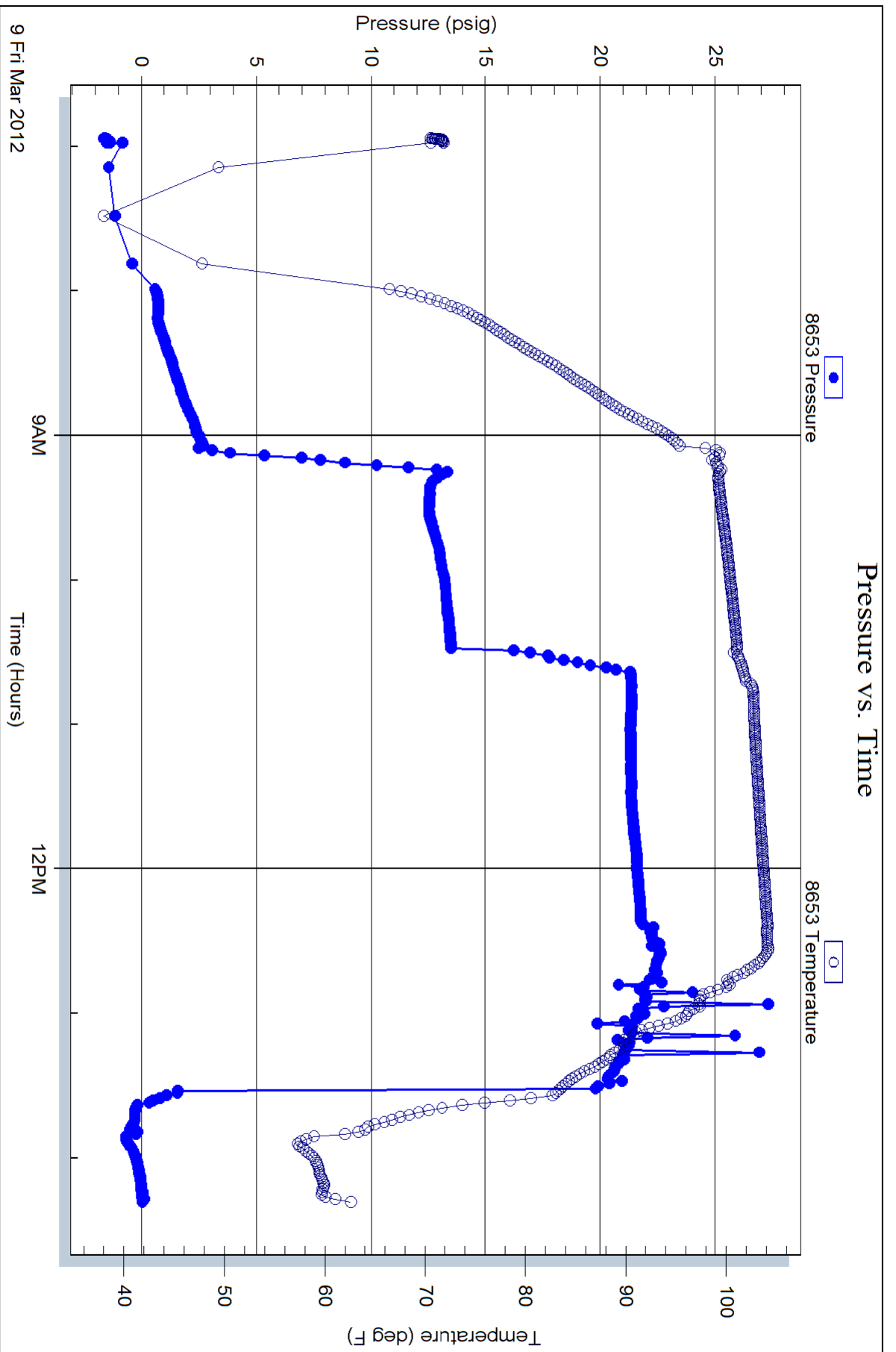
Serial #: 8653

Fluid

Samuel Gary Jr. & Associates, Inc.

Shubert ET AL 1-31

DST Test Number: 3

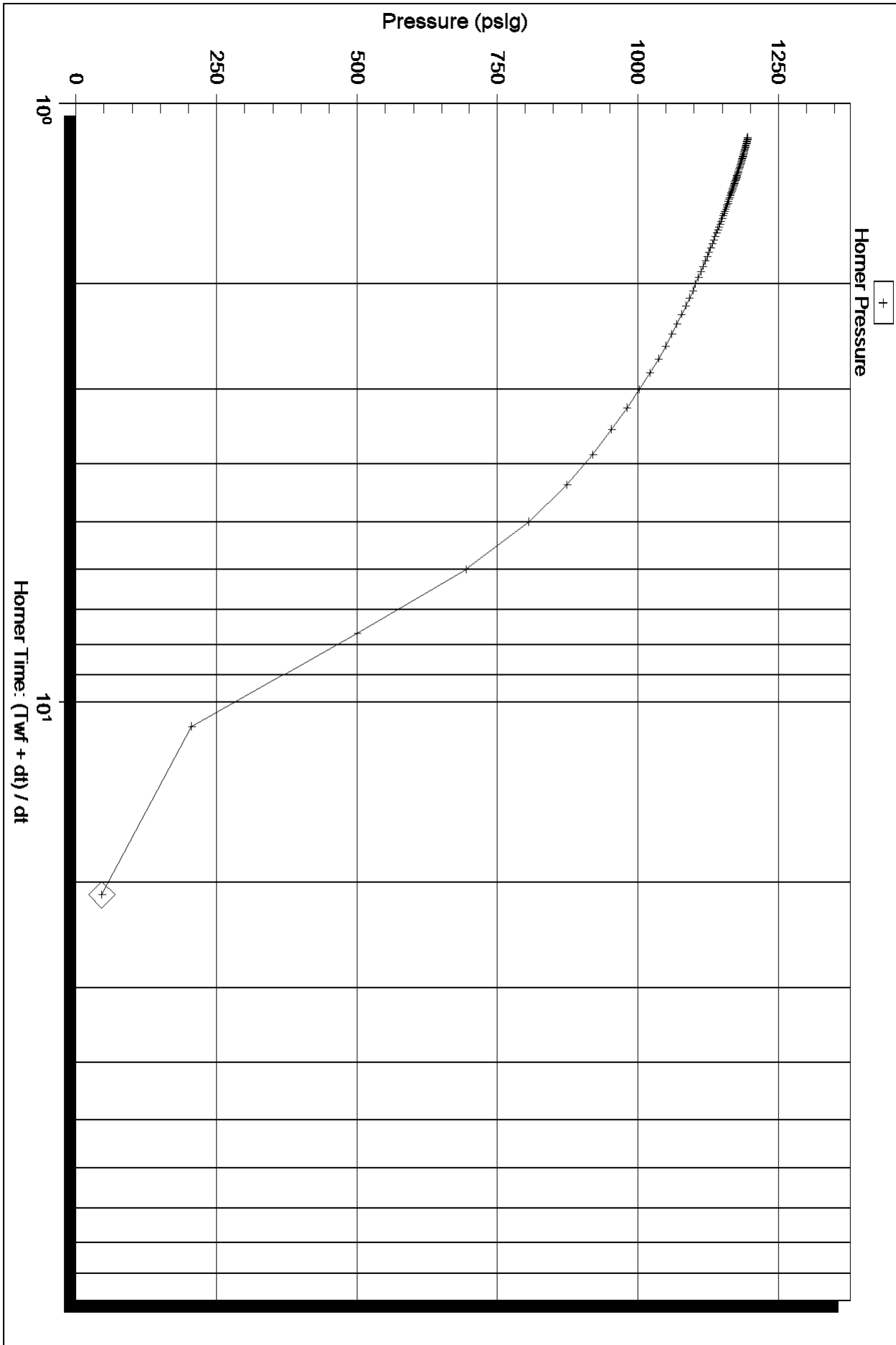


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Ref. No: 46925

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### Horner Plot



Serial Number: 8354 (Inside)

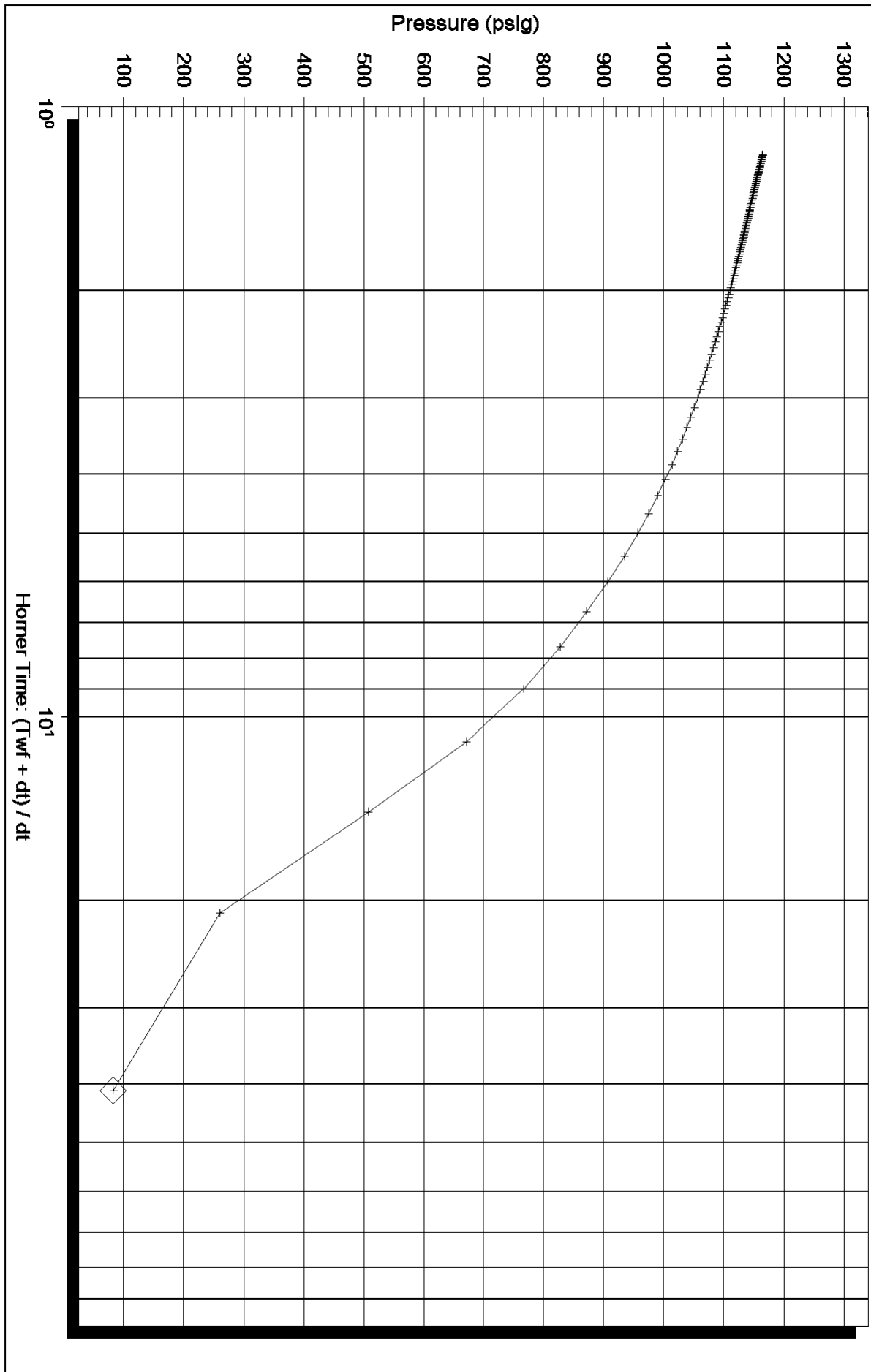
P\* :

Slope (m) : kpa/log cycle

Flow Cycle: 1

### Horner Plot

Horner Pressure



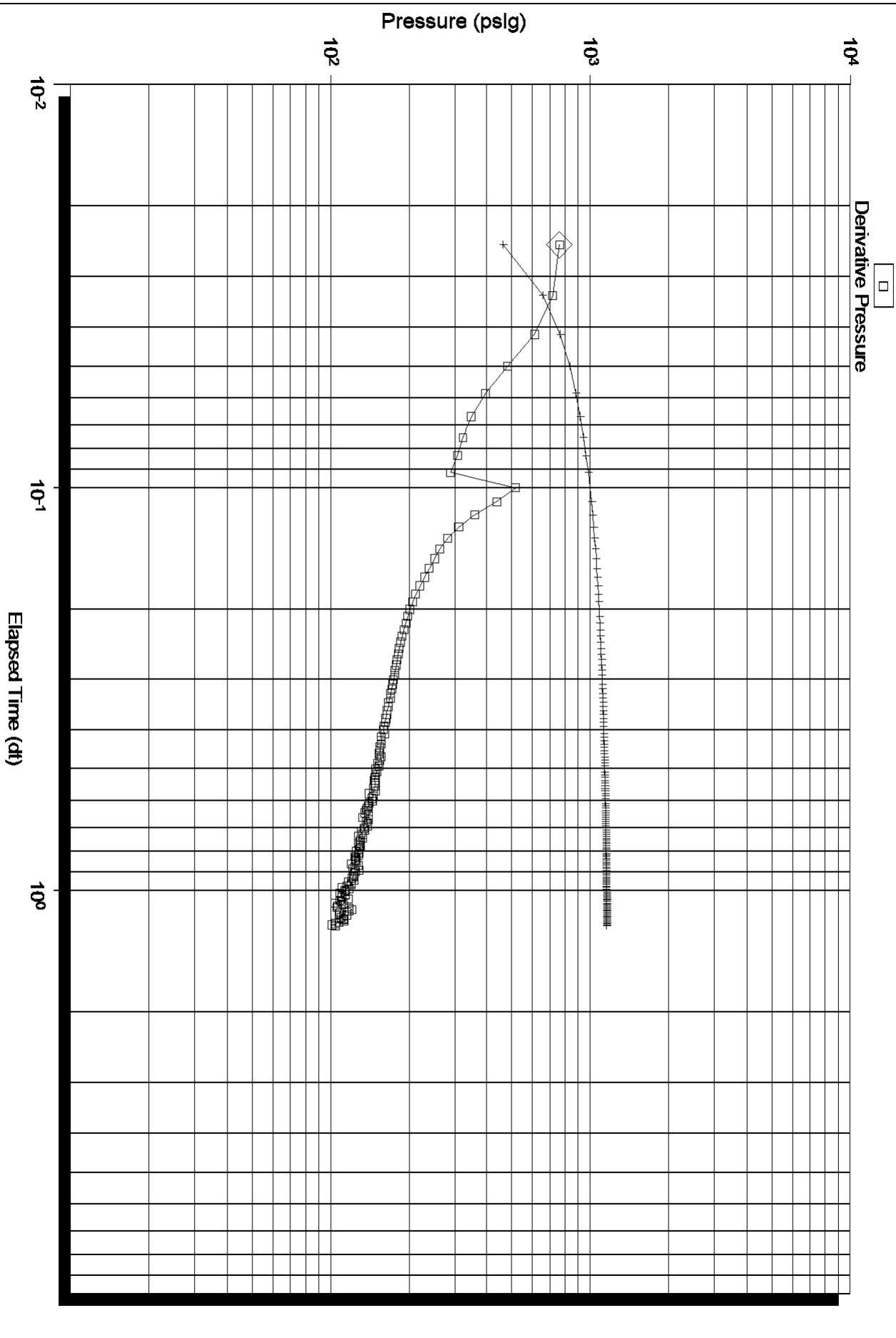
Serial Number: 8354 (Inside)

P\* :

Slope (m) : kpa/log cycle

Flow Cycle: 2

# Log-Log and Pseudo-Derivative



# Log-Log and Pseudo-Derivative

