

## DRILL STEM TEST REPORT

Prepared For: **Sam Gary**

1515 Wynkoop Ste 700  
Denver Co 80202

ATTN: Tom Fertal

**10-17-16-Rush-Ks**

**Brack et al # 1-10**

Start Date: 2010.08.03 @ 04:15:53

End Date: 2010.08.03 @ 12:07:08

Job Ticket #: 039912      DST #: 1

Trilobite Testing, Inc

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

Sam Gary

Brack et al # 1-10

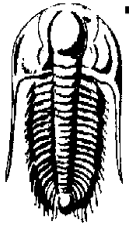
10-17-16-Rush-Ks

DST # 1

A-C

LKC

2010.08.03



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Sam Gary  
1515 Wynkoop Ste 700  
Denver Co 80202  
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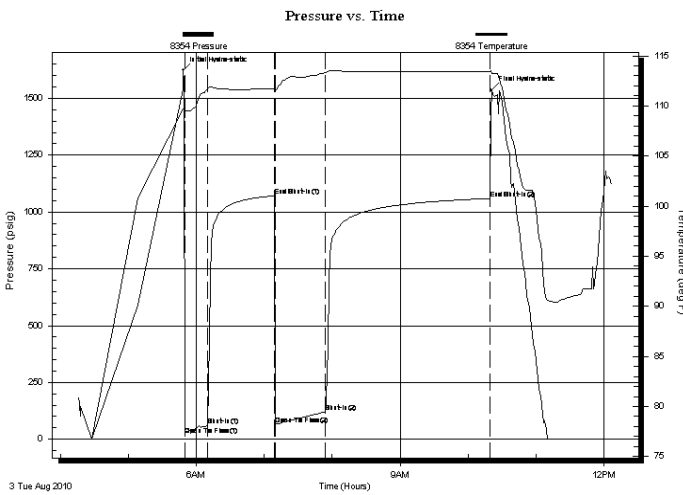
**Bracket # 1-10**  
**10-17-16-Rush-Ks**  
Job Ticket: 039912 **DST#: 1**  
Test Start: 2010.08.03 @ 04:15:53

## GENERAL INFORMATION:

Formation: **A-C LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 05:49:23  
 Time Test Ended: 12:07:08  
 Interval: **3254.00 ft (KB) To 3313.00 ft (KB) (TVD)**  
 Total Depth: 3313.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole  
 Tester: Dan Bangle  
 Unit No: 38  
 Reference Elevations: 2007.00 ft (KB)  
 1919.00 ft (CF)  
 KB to GR/CF: 88.00 ft

**Serial #: 8354 Inside**  
 Press@RunDepth: 120.93 psig @ 3257.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2010.08.03 End Date: 2010.08.03 Last Calib.: 2010.08.03  
 Start Time: 04:15:54 End Time: 12:07:08 Time On Btm: 2010.08.03 @ 05:48:08  
 Time Off Btm: 2010.08.03 @ 10:20:53

TEST COMMENT: IF-Weak building to 2"  
 FF-Weak building to 3"



## PRESSURE SUMMARY

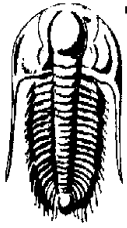
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1622.48	109.74	Initial Hydro-static
2	16.65	108.85	Open To Flow (1)
22	58.29	111.66	Shut-In(1)
81	1071.08	111.73	End Shut-In(1)
82	64.09	111.52	Open To Flow (2)
126	120.93	113.31	Shut-In(2)
272	1059.56	113.43	End Shut-In(2)
273	1536.40	113.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
185.00	Wtr Rw .08 @ 88 = 78000ppm	2.32
30.00	Mud w/ oil spots on top	0.42

## Gas Rates

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



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 Denver Co 80202  
 ATTN: Tom Fertal

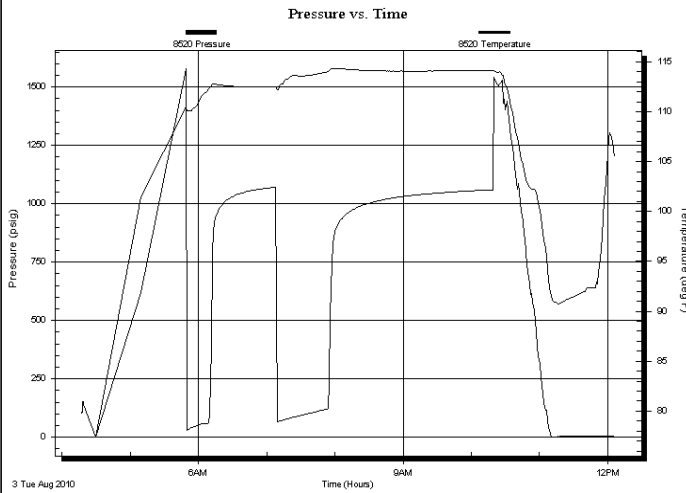
**Brack et al # 1-10**  
**10-17-16-Rush-Ks**  
 Job Ticket: 039912 **DST#: 1**  
 Test Start: 2010.08.03 @ 04:15:53

## GENERAL INFORMATION:

Formation: **A-C LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 05:49:23  
 Time Test Ended: 12:07:08  
 Test Type: Conventional Bottom Hole  
 Tester: Dan Bangle  
 Unit No: 38  
 Interval: **3254.00 ft (KB) To 3313.00 ft (KB) (TVD)**  
 Total Depth: 3313.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Reference Elevations: 2007.00 ft (KB)  
 1919.00 ft (CF)  
 KB to GR/CF: 88.00 ft

**Serial #: 8520 Outside**  
 Press@RunDepth: psig @ 3257.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2010.08.03 End Date: 2010.08.03 Last Calib.: 2010.08.03  
 Start Time: 04:17:09 End Time: 12:06:53 Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF-Weak building to 2"  
 FF-Weak building to 3"



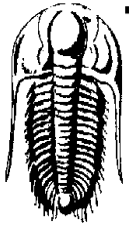
PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
185.00	Wtr Rw .08 @ 88 = 78000ppm	2.32
30.00	Mud w/ oil spots on top	0.42

## Gas Rates

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



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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Sam Gary  
1515 Wynkoop Ste 700  
Denver Co 80202  
ATTN: Tom Fertal

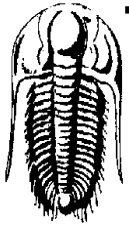
**Bracket # 1-10**  
**10-17-16-Rush-Ks**  
Job Ticket: 039912      **DST#: 1**  
Test Start: 2010.08.03 @ 04:15:53

**Tool Information**

Drill Pipe:	Length: 3209.00 ft	Diameter: 3.80 inches	Volume: 45.01 bbl	Tool Weight: 2800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 45.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3254.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	59.00 ft			
Tool Length:	87.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3227.00	
Shut In Tool	5.00			3232.00	
Hydraulic tool	5.00			3237.00	
Jars	5.00			3242.00	
Safety Joint	3.00			3245.00	
Packer	5.00			3250.00	28.00      Bottom Of Top Packer
Packer	4.00			3254.00	
Stubb	1.00			3255.00	
Perforations	1.00			3256.00	
Change Over Sub	1.00			3257.00	
Recorder	0.00	8354	Inside	3257.00	
Recorder	0.00	8520	Outside	3257.00	
Drill Pipe	31.00			3288.00	
Change Over Sub	1.00			3289.00	
Perforations	21.00			3310.00	
Bullnose	3.00			3313.00	59.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>87.00</b>				



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Sam Gary  
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ATTN: Tom Fertal

**Brack et al # 1-10**  
**10-17-16-Rush-Ks**  
Job Ticket: 039912      **DST#: 1**  
Test Start: 2010.08.03 @ 04:15:53

## 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: 78000 ppm	
Viscosity: 43.00 sec/qt	Cushion Volume: bbl		
Water Loss: 9.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
185.00	Wtr Rw .08 @ 88 = 78000ppm	2.322
30.00	Mud w/ oil spots on top	0.421

Total Length: 215.00 ft      Total Volume: 2.743 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

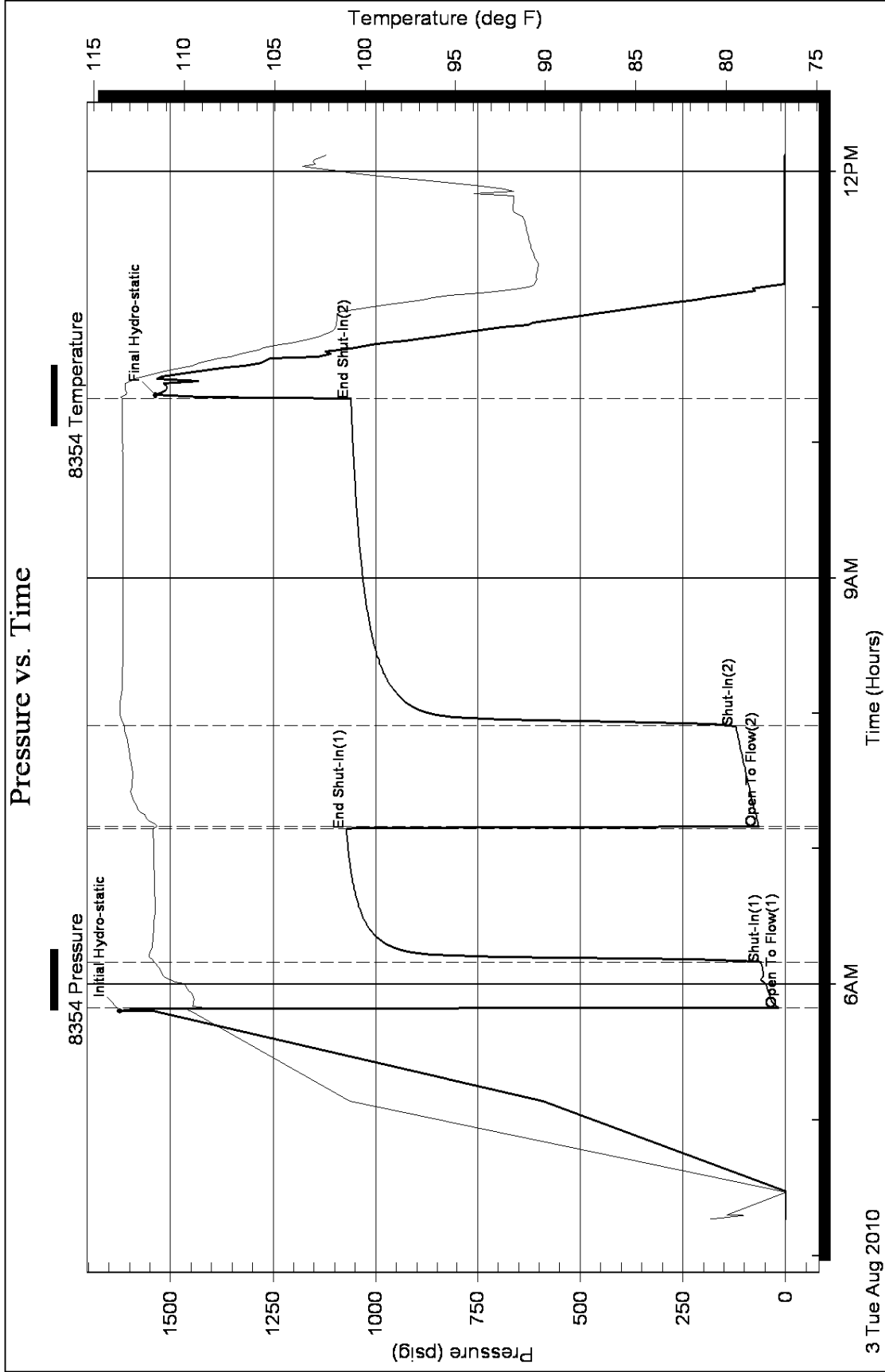
Serial #: 8354

Inside

Sam Gary

10-17-16-Rush-Ks

DST Test Number: 1

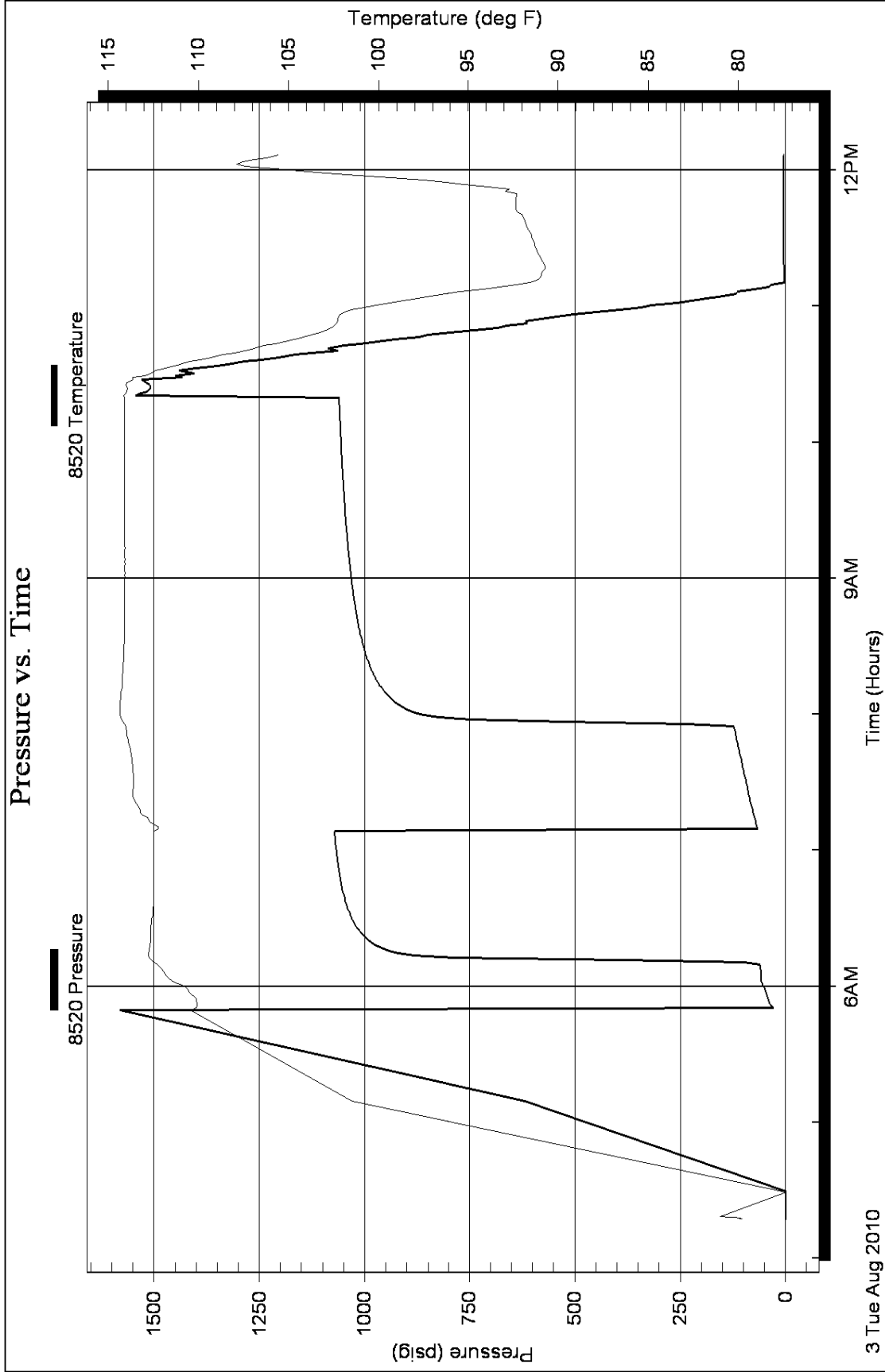


Serial #: 8520

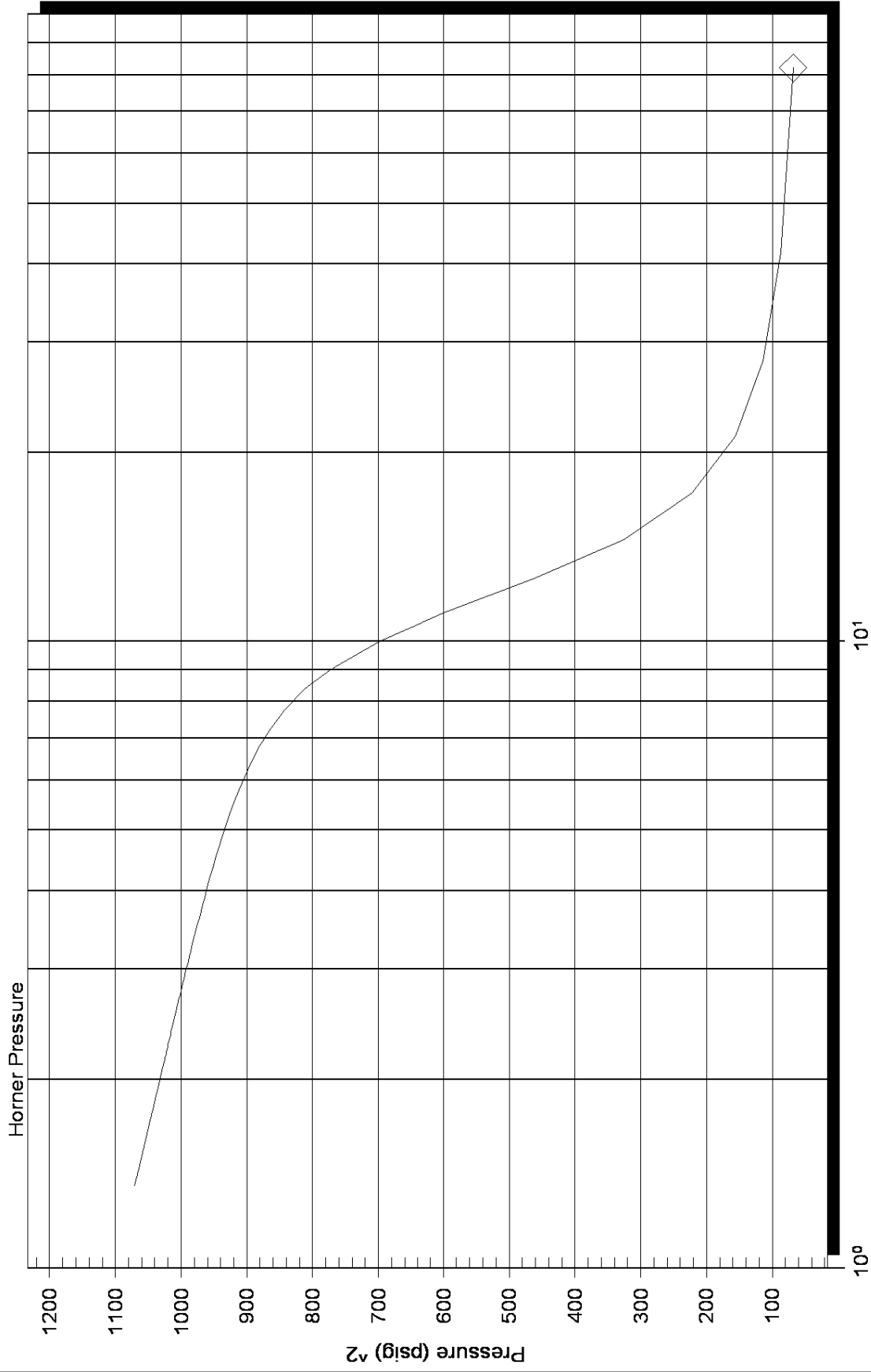
Outside Sam Gary

10-17-16-Rush-Ks

DST Test Number: 1



# Homer Plot



Serial Number: 8354 (Inside)

Horner Time: (Twf + dt) / dt

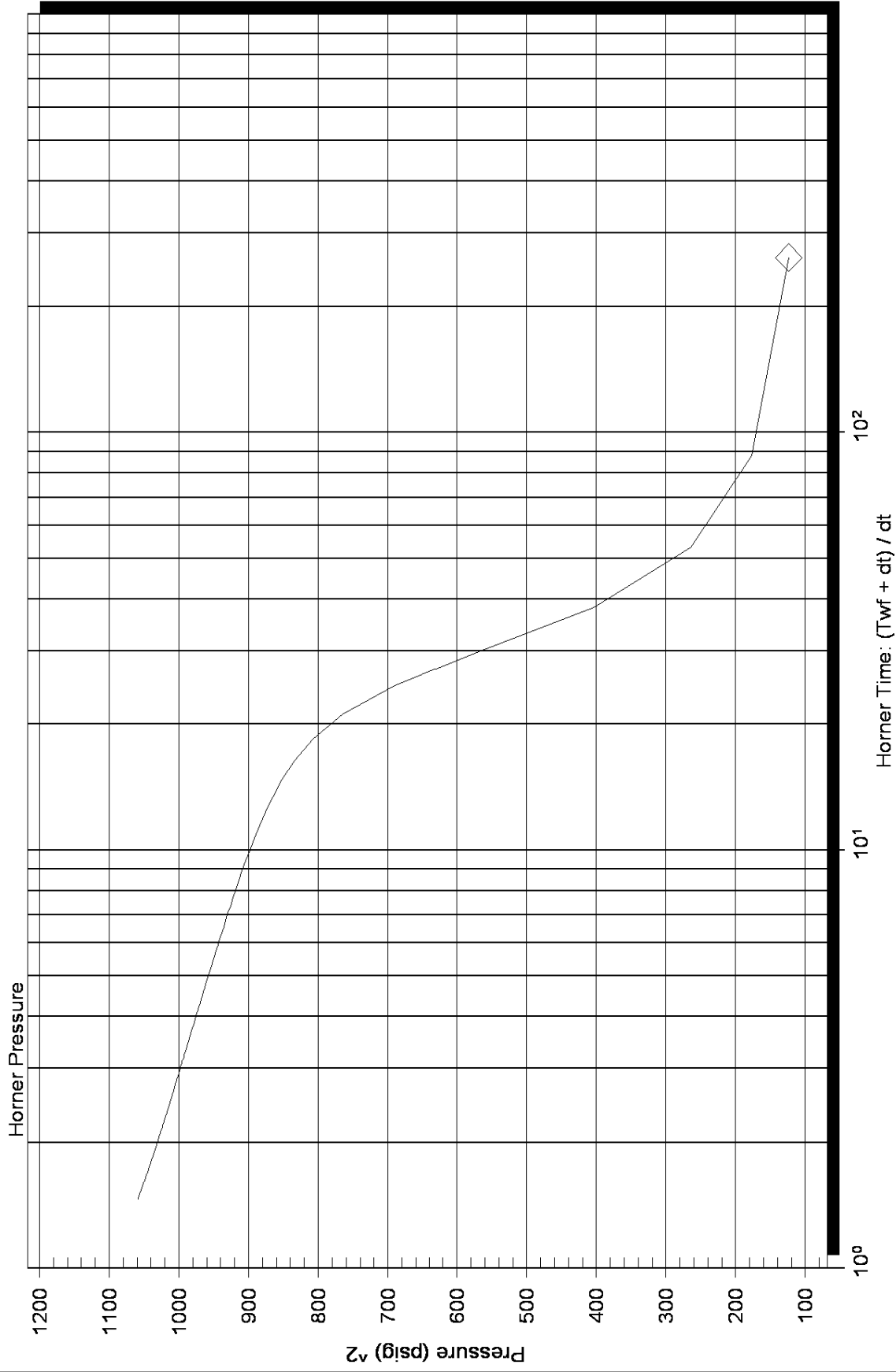
Slope (m) : kpa/log cycle

P\* :

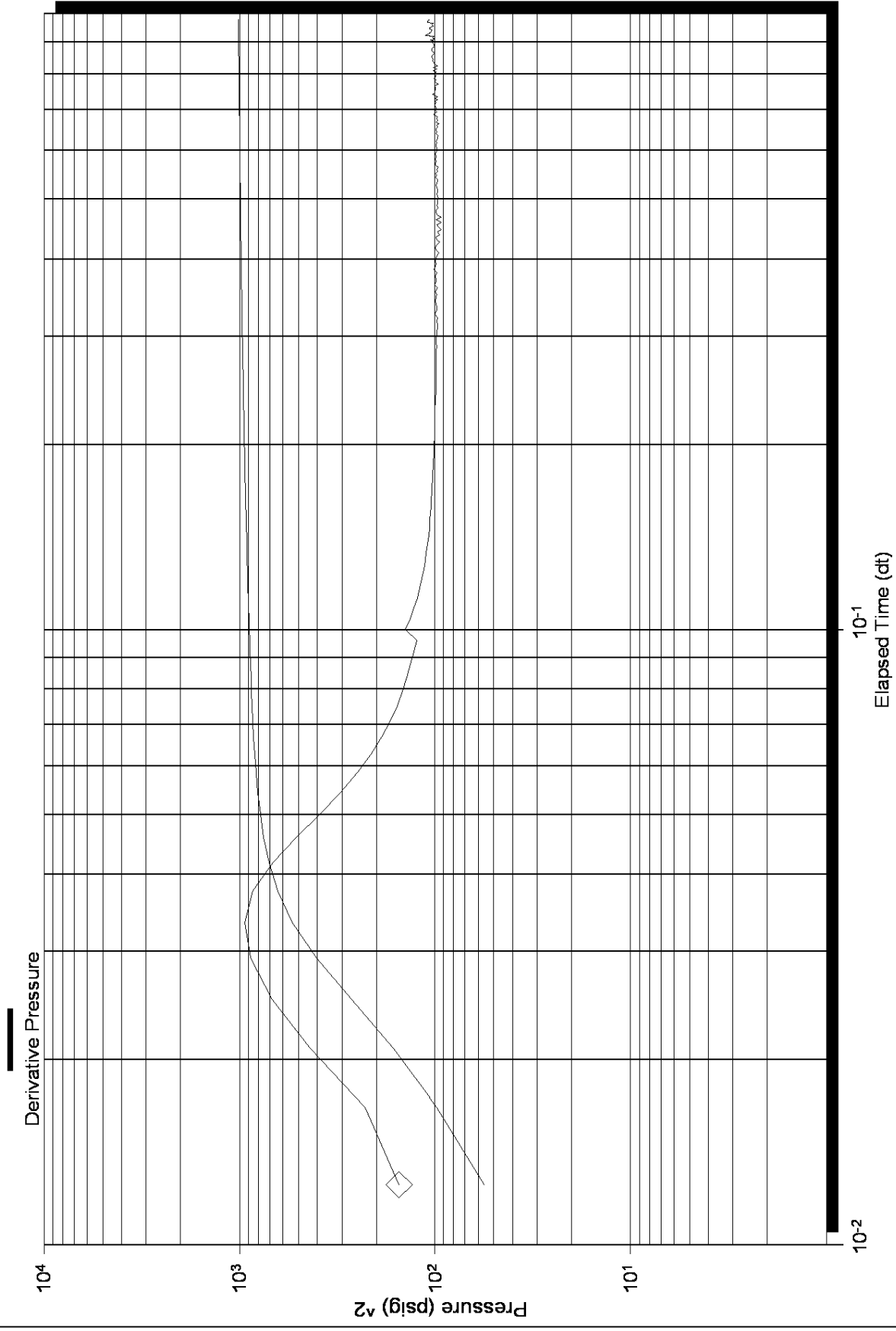
Flow Cycle: 1



# Homer Plot



# Log-Log and Pseudo-Log-Log



# Log-Log and Pseudo-Log-Log

