

## DRILL STEM TEST REPORT

Prepared For: **Sam Gary**

1515 Wynkoop St. Ste 700  
Denver, CO  
80202

ATTN: Clayton Camozzi

**5-15-16/Ellis**

**Rajewski et al 1-5**

Start Date: 2011.04.17 @ 03:52:30

End Date: 2011.04.17 @ 10:11:29

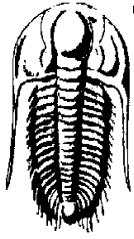
Job Ticket #: 41874                      DST #: 2

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









**TRILOBITE  
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**TOOL DIAGRAM**

Sam Gary  
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Job Ticket: 41874      **DST#: 2**  
Test Start: 2011.04.17 @ 03:52:30

**Tool Information**

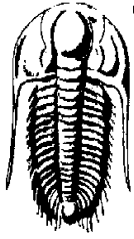
|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3166.00 ft | Diameter: 3.80 inches | Volume: 44.41 bbl              | Tool Weight: 2500.00 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: 31.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl               | Weight to Pull Loose: 48000.00 lb  |
|                           |                    |                       | <u>Total Volume: 44.56 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 11.00 ft           |                       |                                | String Weight: Initial 44000.00 lb |
| Depth to Top Packer:      | 3220.00 ft         |                       |                                | Final 44000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 48.00 ft           |                       |                                |                                    |
| Tool Length:              | 82.00 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

| <b>Tool Description</b> | <b>Length (ft)</b> | <b>Serial No.</b> | <b>Position</b> | <b>Depth (ft)</b> | <b>Accum. Lengths</b> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                 |       |      |         |         |                               |
|-----------------|-------|------|---------|---------|-------------------------------|
| Recorder        | 0.00  | 8365 | Fluid   | 3186.00 |                               |
| Blank Spacing   | 5.00  |      |         | 3191.00 |                               |
| Shut In Tool    | 5.00  |      |         | 3196.00 |                               |
| Sampler         | 2.00  |      |         | 3198.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 3203.00 |                               |
| Jars            | 5.00  |      |         | 3208.00 |                               |
| Safety Joint    | 2.00  |      |         | 3210.00 |                               |
| Packer          | 5.00  |      |         | 3215.00 | 34.00 Bottom Of Top Packer    |
| Packer          | 5.00  |      |         | 3220.00 |                               |
| Stubb           | 1.00  |      |         | 3221.00 |                               |
| Perforations    | 1.00  |      |         | 3222.00 |                               |
| Change Over Sub | 1.00  |      |         | 3223.00 |                               |
| Recorder        | 0.00  | 8372 | Inside  | 3223.00 |                               |
| Recorder        | 0.00  | 8734 | Outside | 3223.00 |                               |
| Blank Spacing   | 31.00 |      |         | 3254.00 |                               |
| Change Over Sub | 1.00  |      |         | 3255.00 |                               |
| Perforations    | 10.00 |      |         | 3265.00 |                               |
| Bullnose        | 3.00  |      |         | 3268.00 | 48.00 Bottom Packers & Anchor |

**Total Tool Length: 82.00**



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**FLUID SUMMARY**

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**Rajewski et al 1-5**  
**5-15-16/Ellis**  
Job Ticket: 41874      **DST#: 2**  
Test Start: 2011.04.17 @ 03:52:30

## Mud and Cushion Information

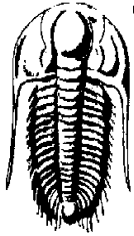
|                                  |                            |                 |         |
|----------------------------------|----------------------------|-----------------|---------|
| Mud Type: Gel Chem               | Cushion Type:              | Oil API:        | deg API |
| Mud Weight: 9.00 lb/gal          | Cushion Length: ft         | Water Salinity: | ppm     |
| Viscosity: 48.00 sec/qt          | Cushion Volume: bbl        |                 |         |
| Water Loss: 8.74 in <sup>3</sup> | Gas Cushion Type:          |                 |         |
| Resistivity: ohm.m               | Gas Cushion Pressure: psig |                 |         |
| Salinity: 5500.00 ppm            |                            |                 |         |
| Filter Cake: inches              |                            |                 |         |

## Recovery Information

Recovery Table

| Length<br>ft | Description | Volume<br>bbl |
|--------------|-------------|---------------|
| 45.00        | MUD 100%    | 0.349         |

Total Length: 45.00 ft      Total Volume: 0.349 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:



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## DRILL STEM TEST REPORT

**GAS RATES**

Sam Gary

**Rajewski et al 1-5**

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**5-15-16/Ellis**

Job Ticket: 41874

**DST#: 2**

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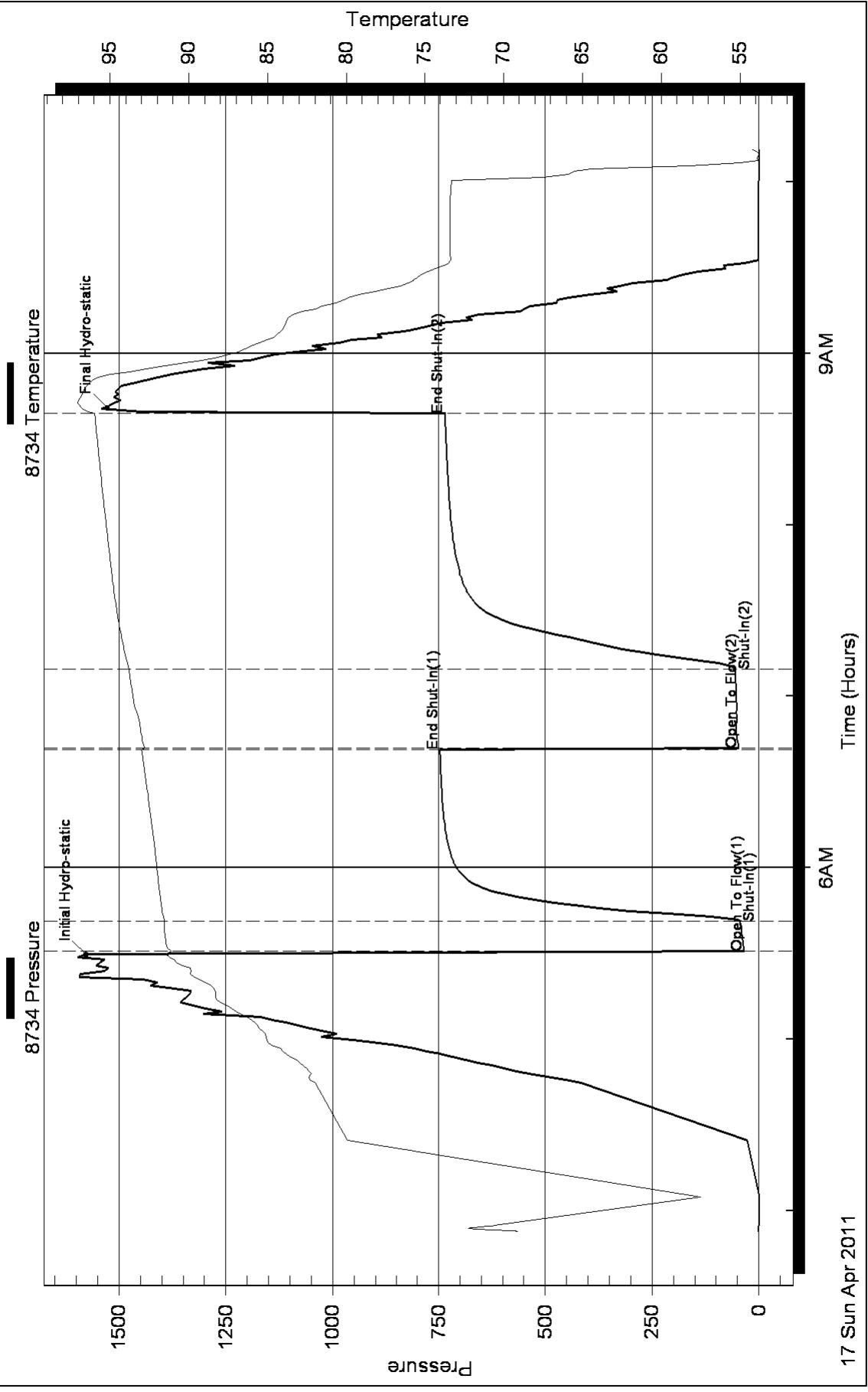
### Gas Rates Information

Temperature: 59 deg C  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

| Flow Period | Elapsed Time | Choke (mm) | Pressure (kPaa) | Gas Rate (m <sup>3</sup> /d) |
|-------------|--------------|------------|-----------------|------------------------------|
|             |              | 0.00       | 0.00            | 0.00                         |

### Pressure vs. Time



Serial #: 8365

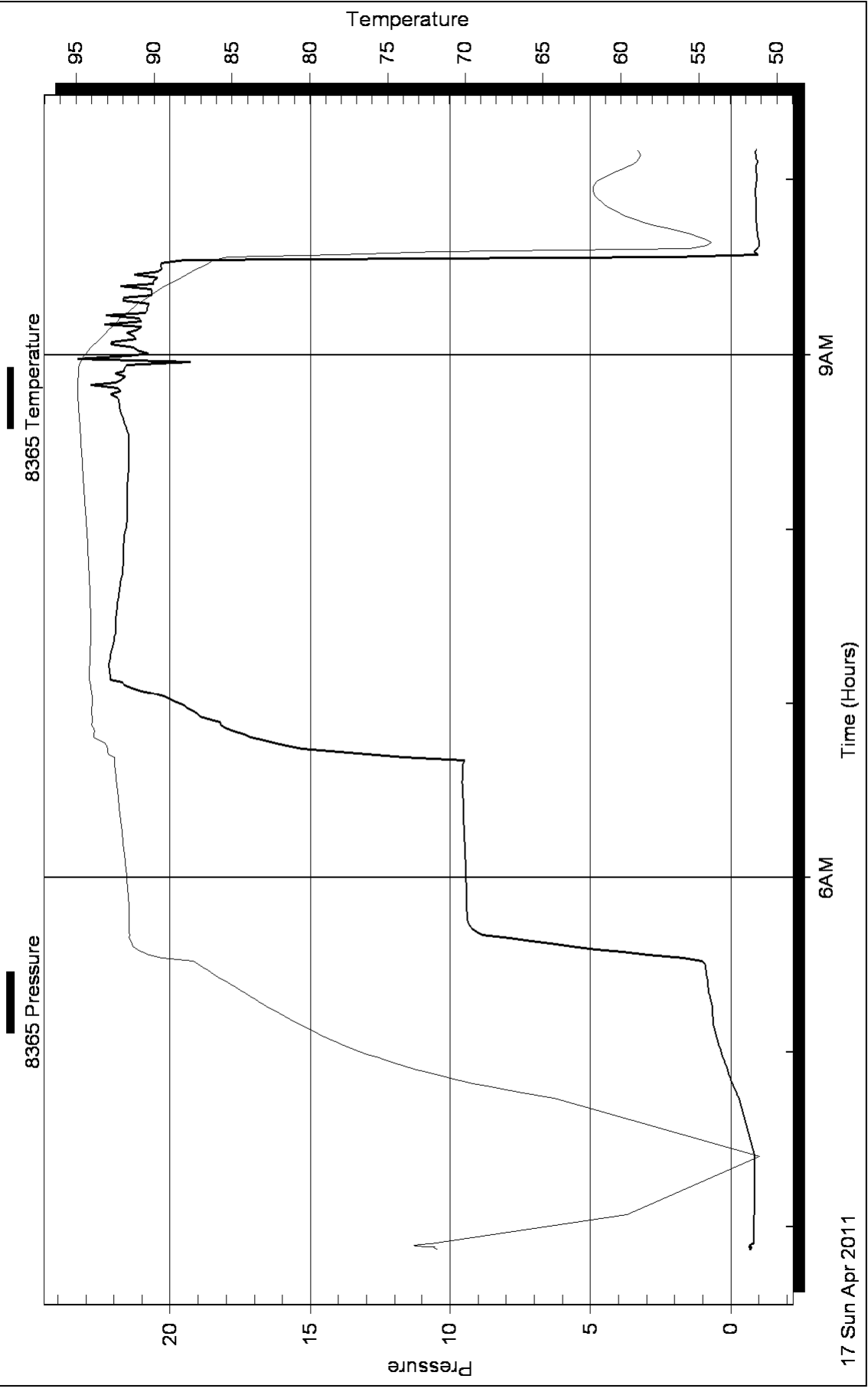
Fluid

Sam Gary

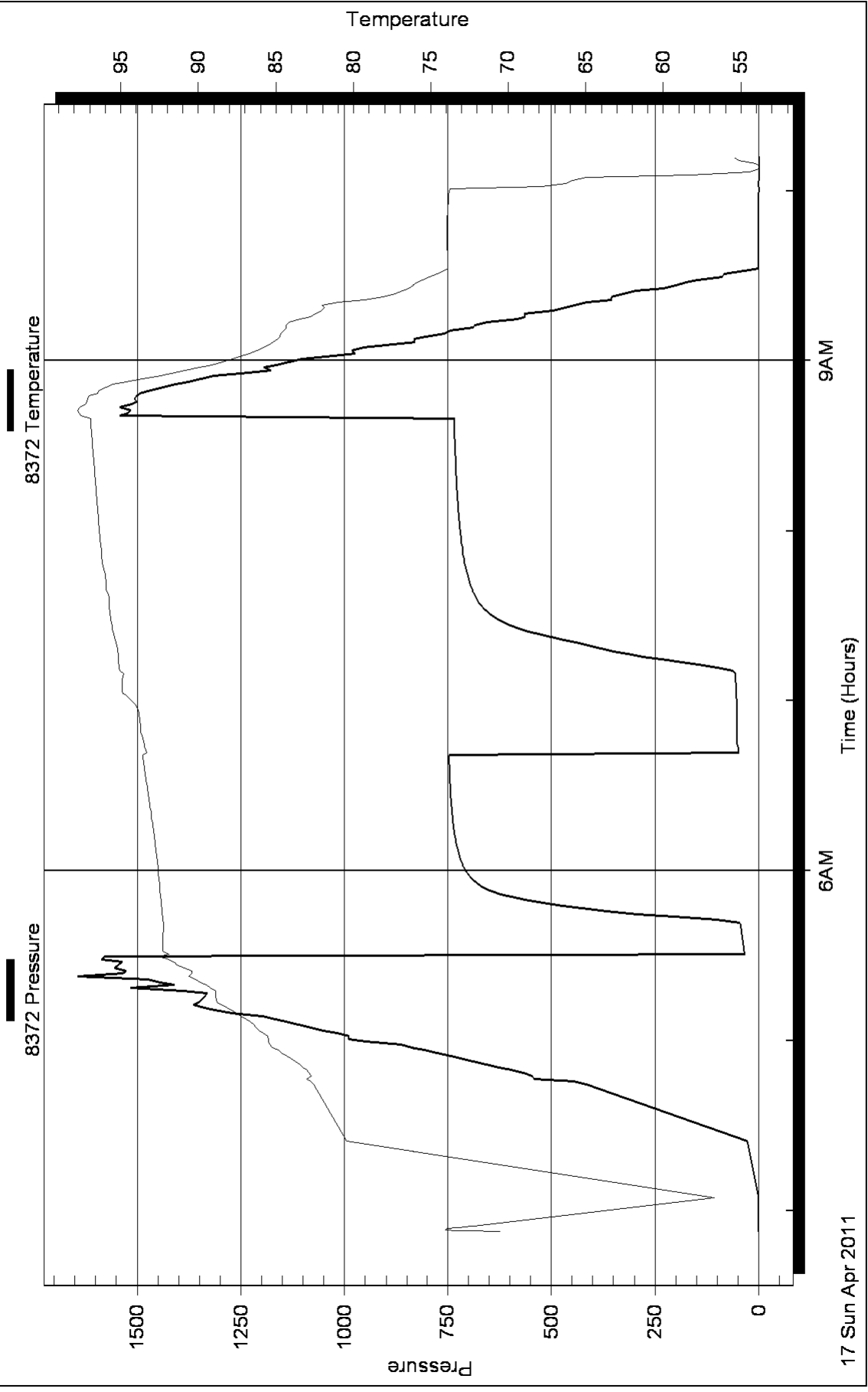
5-15-16/Ellis

DST Test Number: 2

### Pressure vs. Time

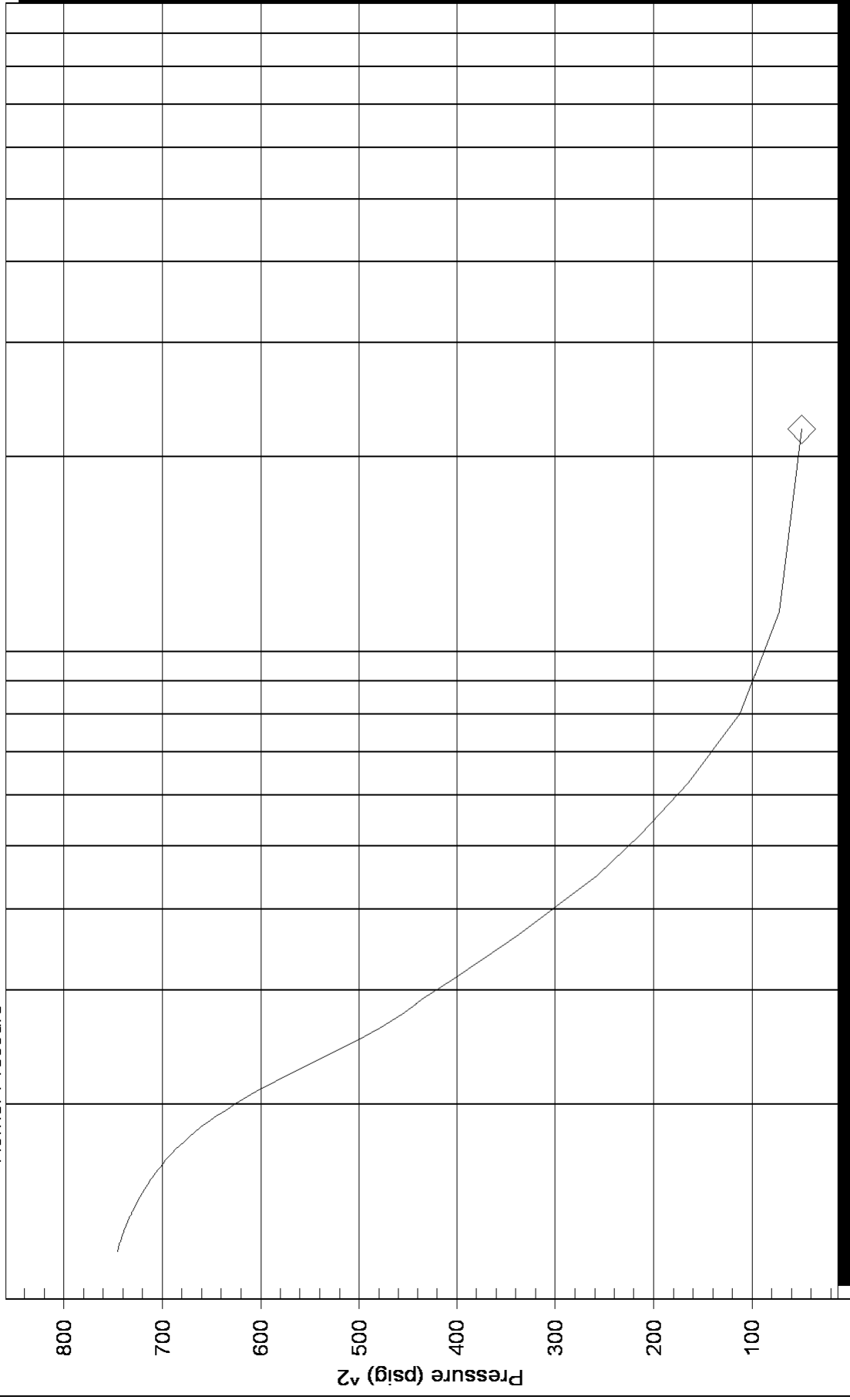


# Pressure vs. Time



### Homer Plot

Horner Pressure



10<sup>0</sup>

10<sup>1</sup>

Horner Time: (Twf + dt) / dt

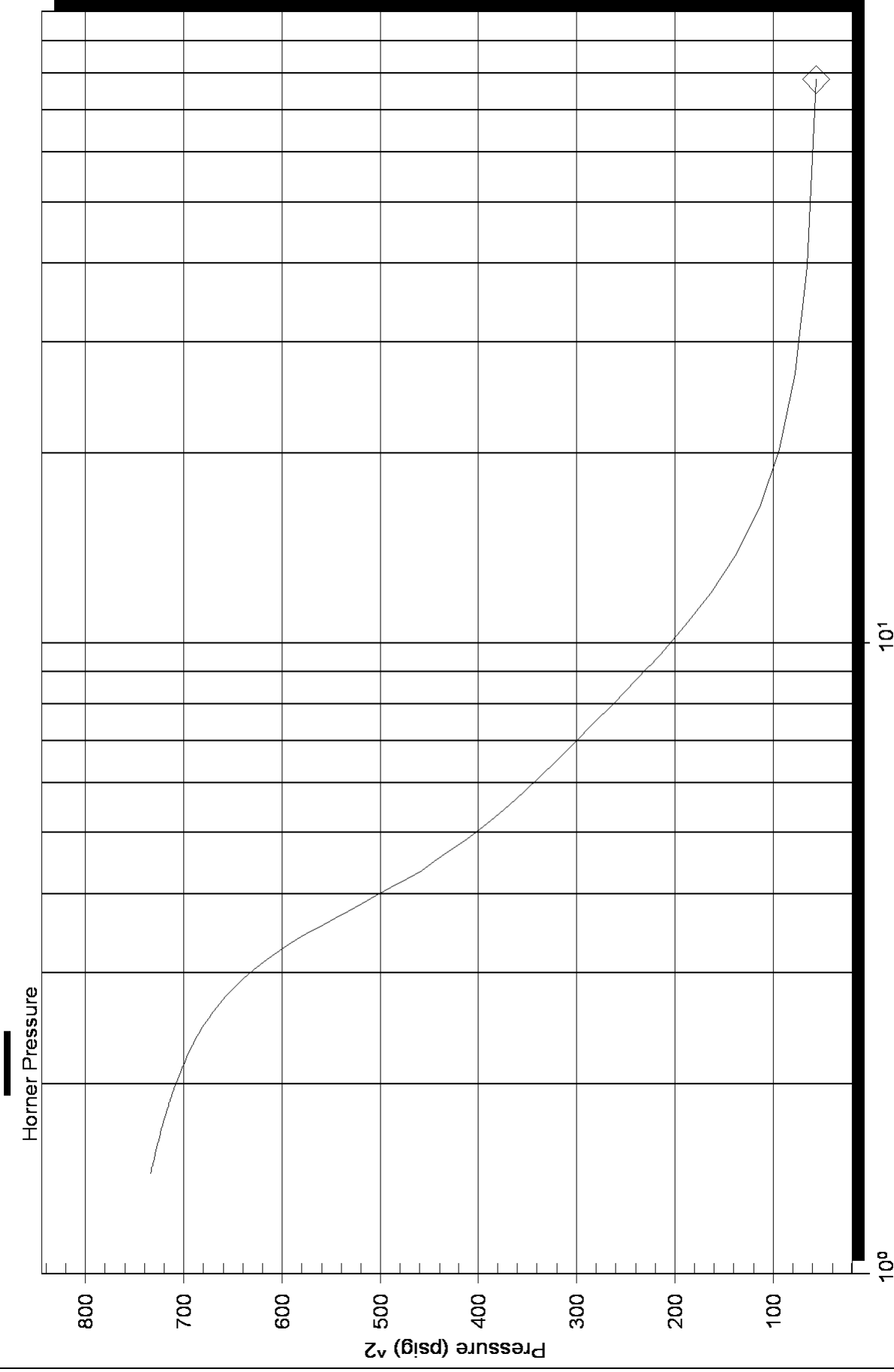
Slope (m) : kpa/log cycle

P\* :

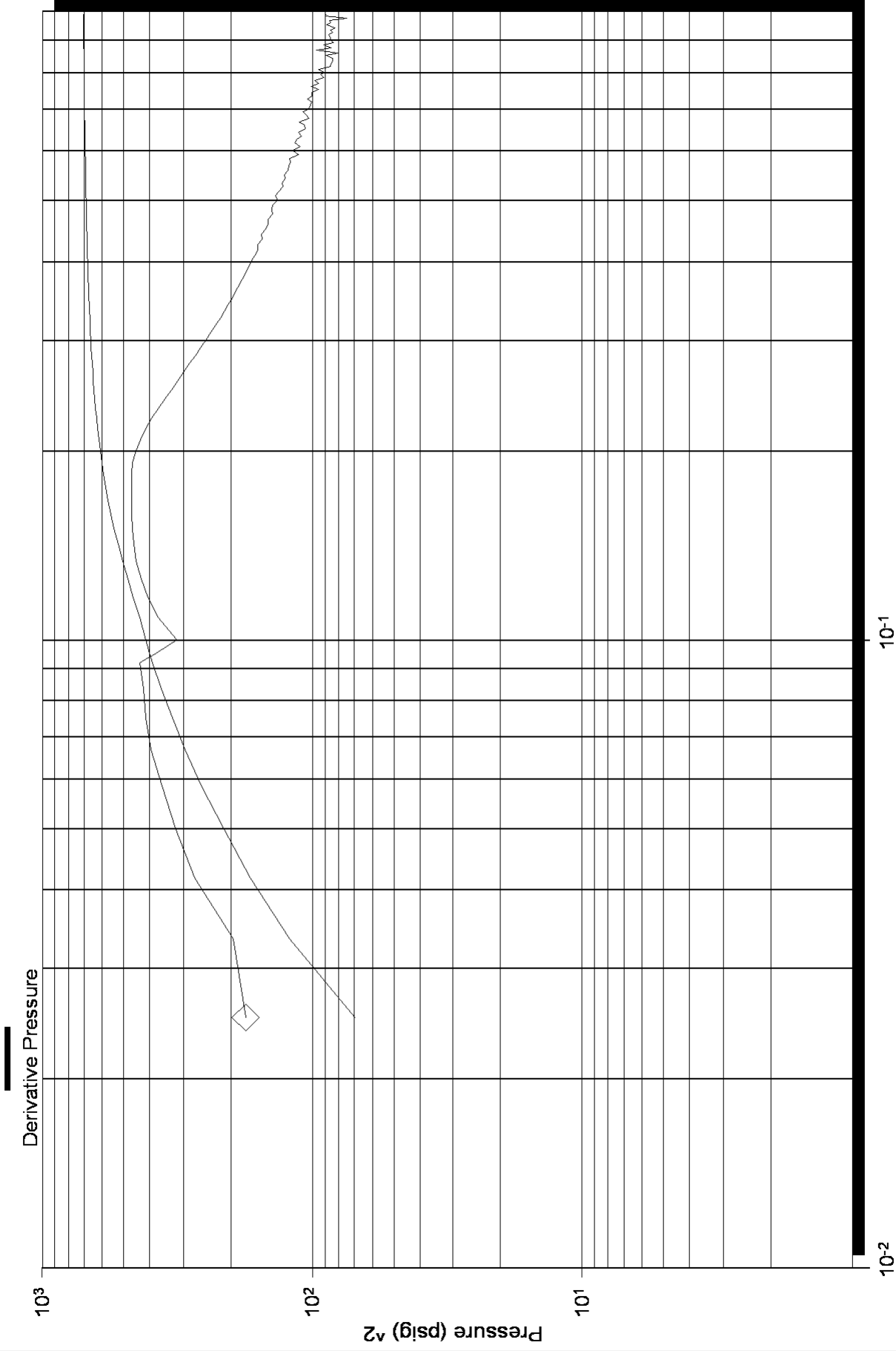
Serial Number: 8734 (Outside)

Flow Cycle: 1

### Homer Plot



# Log-Log and Pseudo-Log-Derivative



# Log-Log and Pseudo-Derivative

