



DRILL STEM TEST REPORT

Prepared For: **TYLUKA OERATIONS LLC**

P.O. BOX 1213
HAYS, KANSAS 67601

ATTN: JERAMY SCHWARTZ

AXMAN FARMS 1-18

18-17S-14W

Start Date: 2015.12.14 @ 17:49:00

End Date: 2015.12.15 @ 00:33:00

Job Ticket #: 01210 DST #: 4

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2015.12.15 @ 17:38:18

TYLUKA OPERATIONS LLC

18-17S-14W

AXMAN FARMS 1-18

DST # 4

KANSAS CITY H-K

2015.12.14



DRILL STEM TEST REPORT

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Job Ticket: 01210

DST#: 4

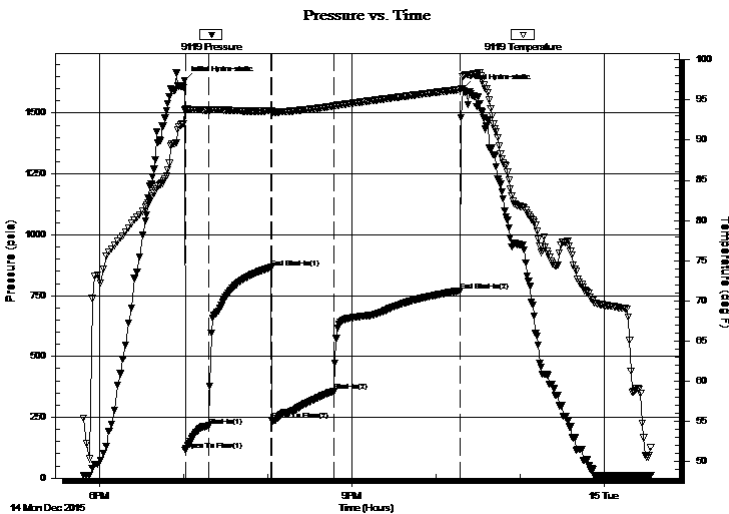
Test Start: 2015.12.14 @ 17:49:00

GENERAL INFORMATION:

Formation: **KANSAS CITY H-K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:01:30
 Time Test Ended: 00:33:00
 Interval: **3255.00 ft (KB) To 3265.00 ft (KB) (TVD)**
 Total Depth: 3365.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: GENE BUDIG
 Unit No: 1
 Reference Elevations: 1892.00 ft (KB)
 1884.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 9119 Inside
 Press@RunDepth: 355.40 psia @ 3359.96 ft (KB) Capacity: 5000.00 psia
 Start Date: 2015.12.14 End Date: 2015.12.15 Last Calib.: 2015.12.15
 Start Time: 17:49:00 End Time: 00:33:00 Time On Btm: 2015.12.14 @ 19:01:00
 Time Off Btm: 2015.12.14 @ 22:19:00

TEST COMMENT: 1ST OPENING 15 MINUTES FAIR BLOW BUILT TO THE BOTTOM OF A 5 GALOON BUCKET IN 3 MINUTES
 1ST SHUT-IN 45 MINUTES GOOD BLOW BACK
 2ND FLOW 45 MINUTES FAIR BLOW BUILT TO THE BOTTOM OF A 5 GALLON BUCKET IN 4 MINUTES
 2ND SHUT-IN 90 MINUTES GOOD BLOW BACK



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1633.77	93.81	Initial Hydro-static
1	114.12	93.80	Open To Flow (1)
17	214.92	93.67	Shut-In(1)
62	865.61	93.65	End Shut-In(1)
62	237.93	93.48	Open To Flow (2)
106	355.40	94.21	Shut-In(2)
196	770.33	96.29	End Shut-In(2)
198	1601.44	97.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
720.00	SLIGHTLY MUD CUT GASSY OIL	8.21
0.00	20 GAS 70 OIL 10 MUD	0.00
0.00	2100 GAS IN THE PIPE	0.00
0.00	GRAVITY 43 CORRECTED	0.00

Gas Rates

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



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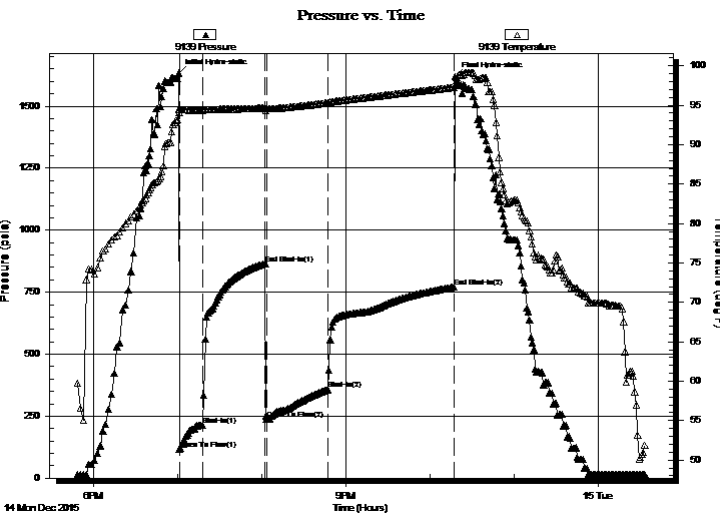
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 Test Type: Conventional Bottom Hole (Initial)
 Tester: GENE BUDIG
 Unit No: 1
 Reference Elevations: 1892.00 ft (KB)
 1884.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 770.84 psia @ 3359.96 ft (KB) Capacity: 5000.00 psia
 Start Date: 2015.12.14 End Date: 2015.12.15 Last Calib.: 2015.12.15
 Start Time: 17:49:00 End Time: 00:33:00 Time On Btm: 2015.12.14 @ 19:01:00
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 2ND FLOW 45 MINUTES FAIR BLOW BUILT TO THE BOTTOM OF A 5 GALLON BUCKET IN 4 MINUTES
 2ND SHUT-IN 90 MINUTES GOOD BLOW BACK



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1633.08	94.48	Initial Hydro-static
1	115.53	94.05	Open To Flow (1)
17	214.16	94.37	Shut-In(1)
62	865.66	94.69	End Shut-In(1)
63	239.46	94.54	Open To Flow (2)
107	357.51	95.31	Shut-In(2)
196	770.84	97.26	End Shut-In(2)
197	1620.42	97.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
720.00	SLIGHTLY MUD CUT GASSY OIL	8.21
0.00	20 GAS 70 OIL 10 MUD	0.00
0.00	2100 GAS IN THE PIPE	0.00
0.00	GRAVITY 43 CORRECTED	0.00

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

TYLUKA OPERATIONS LLC

18-17S-14W

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Job Ticket: 01210

DST#: 4

Test Start: 2015.12.14 @ 17:49:00

Tool Information

Drill Pipe:	Length: 2937.00 ft	Diameter: 3.80 inches	Volume: 41.20 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.86 inches	Volume: 2.47 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: 74000.00 lb
			Total Volume: 43.67 bbl	Tool Chased 3.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3255.00 ft			Final 47000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	109.96 ft			
Tool Length:	138.96 ft			
Number of Packers:	2	Diameter: inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3231.00	
Hydraulic tool	5.00			3236.00	
Jars	7.00			3243.00	
Safety Joint	2.00		Fluid	3245.00	
Top Packer	5.00			3250.00	
Packer	5.00			3255.00	29.00 Bottom Of Top Packer
Anchor	2.00			3257.00	
Change Over Sub	0.75			3257.75	
Drill Pipe	92.46			3350.21	
Change Over Sub	0.75			3350.96	
Anchor	9.00			3359.96	
Recorder	0.00	9119	Inside	3359.96	
Recorder	0.00	9139	Outside	3359.96	
Bullnose	5.00			3364.96	109.96 Anchor Tool

Total Tool Length: 138.96



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FLUID SUMMARY

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Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 40.00 sec/qt
Water Loss: 8.19 in³
Resistivity: ohm.m
Salinity: 6500.00 ppm
Filter Cake: 1.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psia
Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
720.00	SLIGHTLY MUD CUT GASSY OIL	8.208
0.00	20 GAS 70 OIL 10 MUD	0.000
0.00	2100 GAS IN THE PIPE	0.000
0.00	GRAVITY 43 CORRECTED	0.000

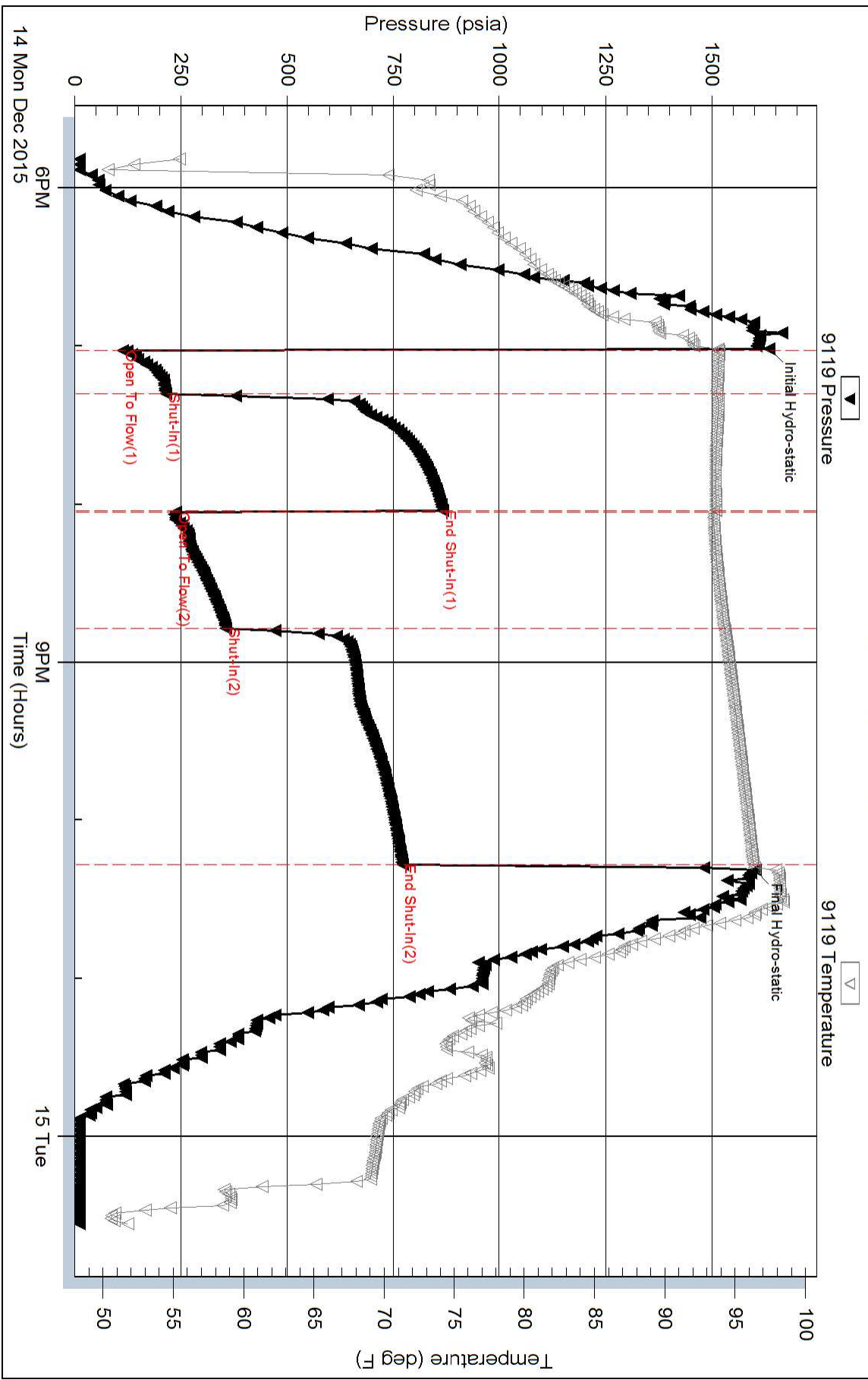
Total Length: 720.00 ft Total Volume: 8.208 bbl

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

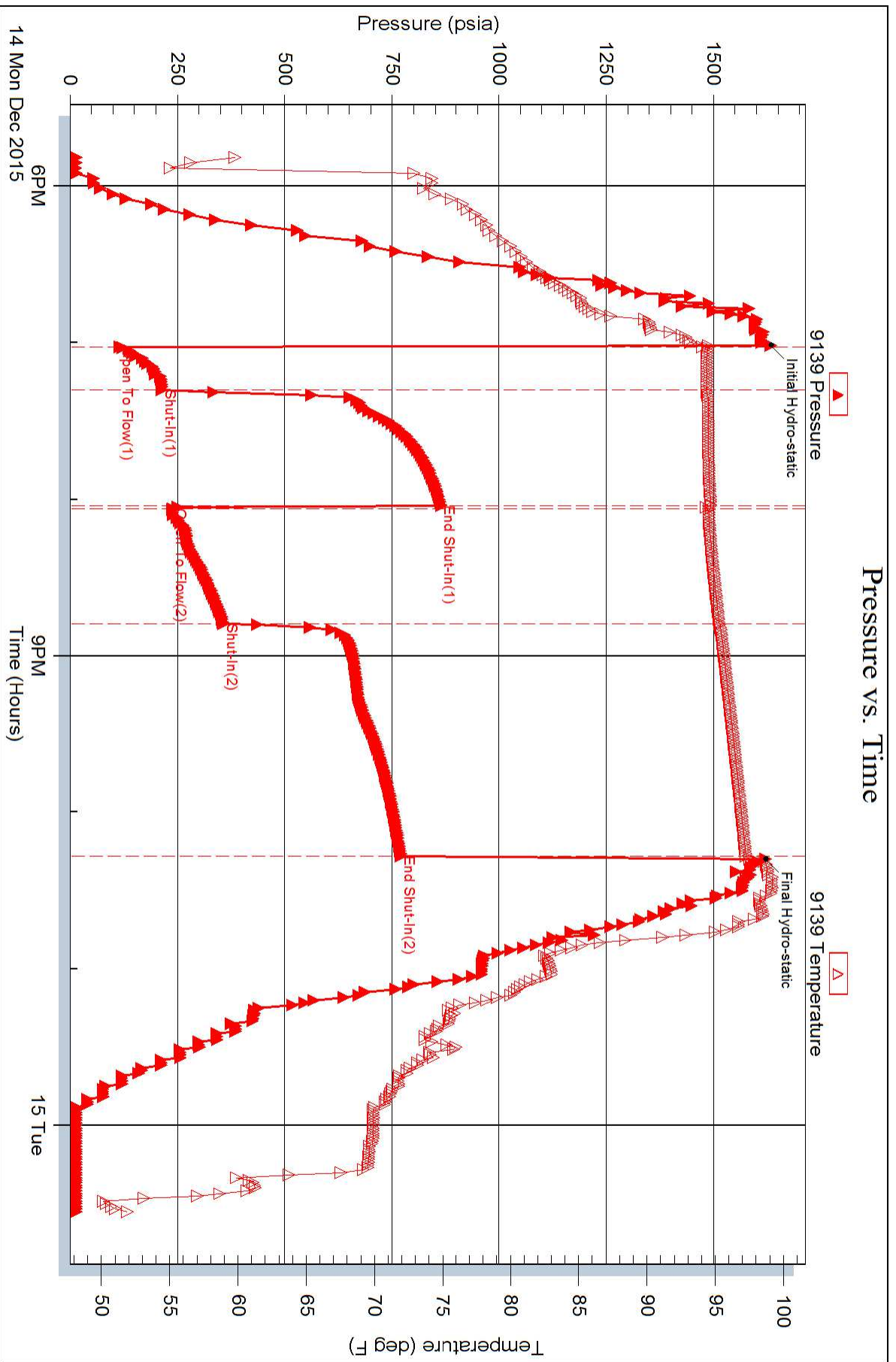
Laboratory Name: Laboratory Location:

Recovery Comments:

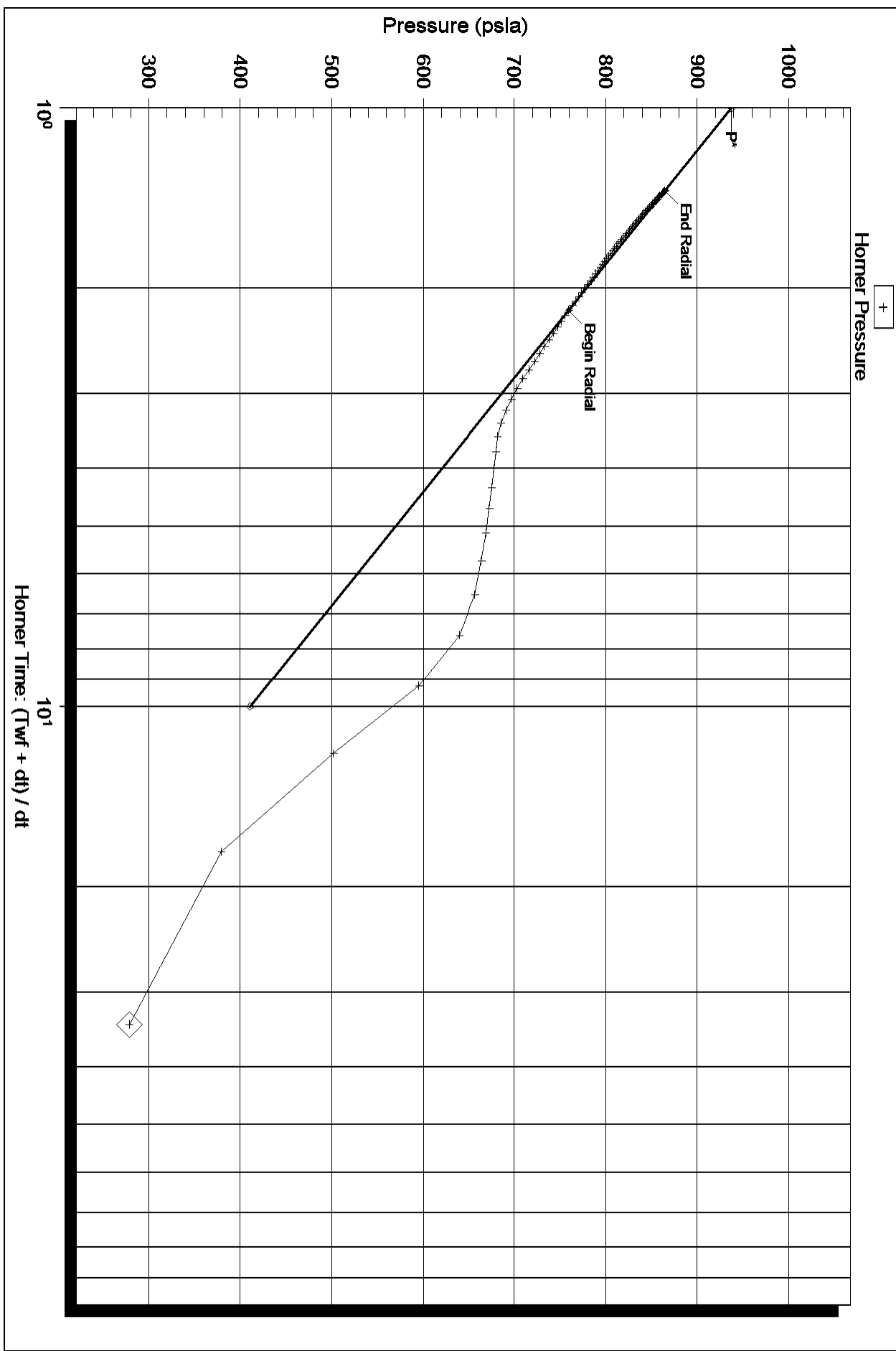
Pressure vs. Time



Pressure vs. Time



Horner Plot



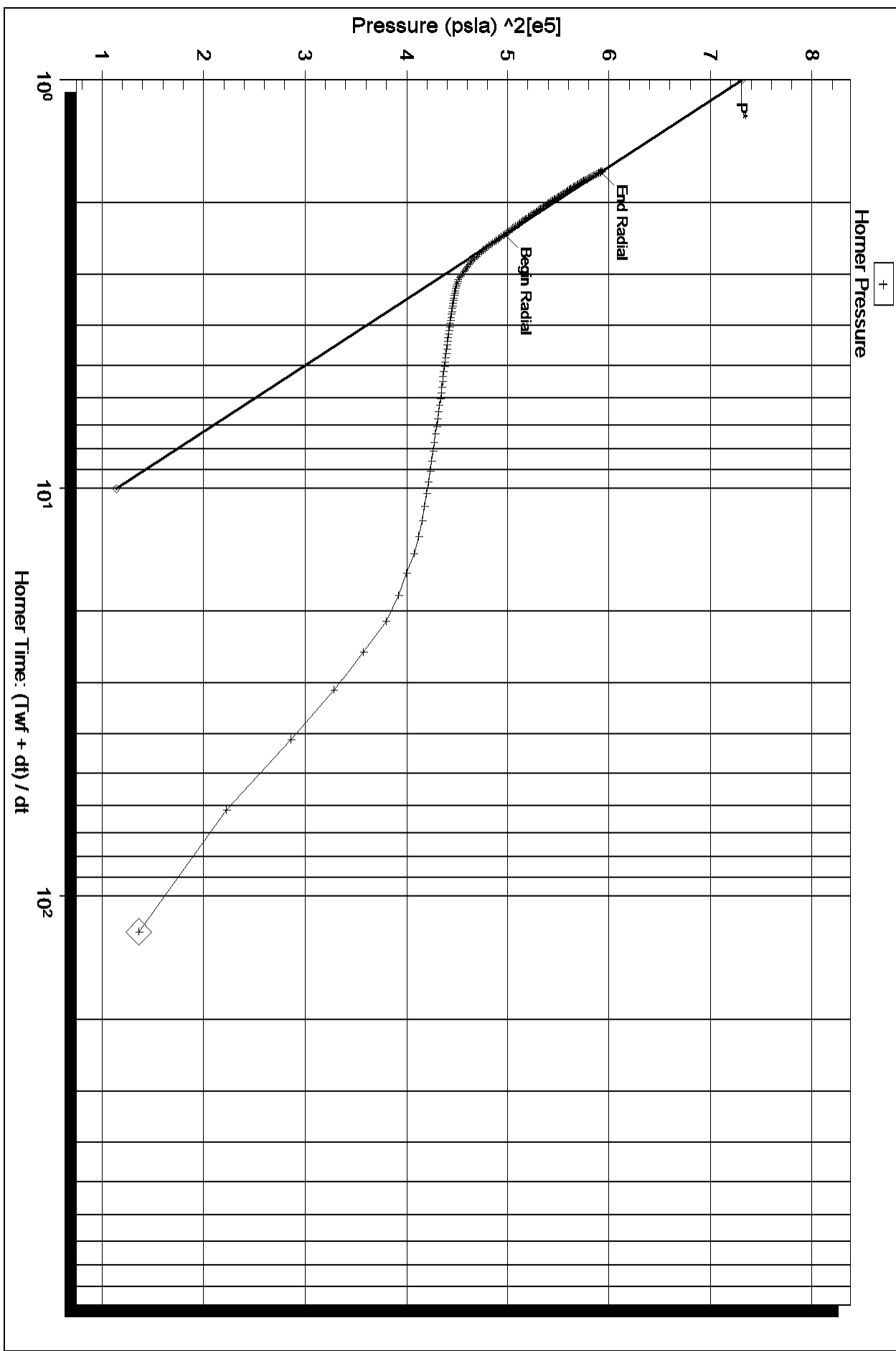
Serial Number: 9119 (Inside)

P* : 937.62

Slope (m) : 526.57 kpa/log cycle

Flow Cycle: 1

Horner Plot



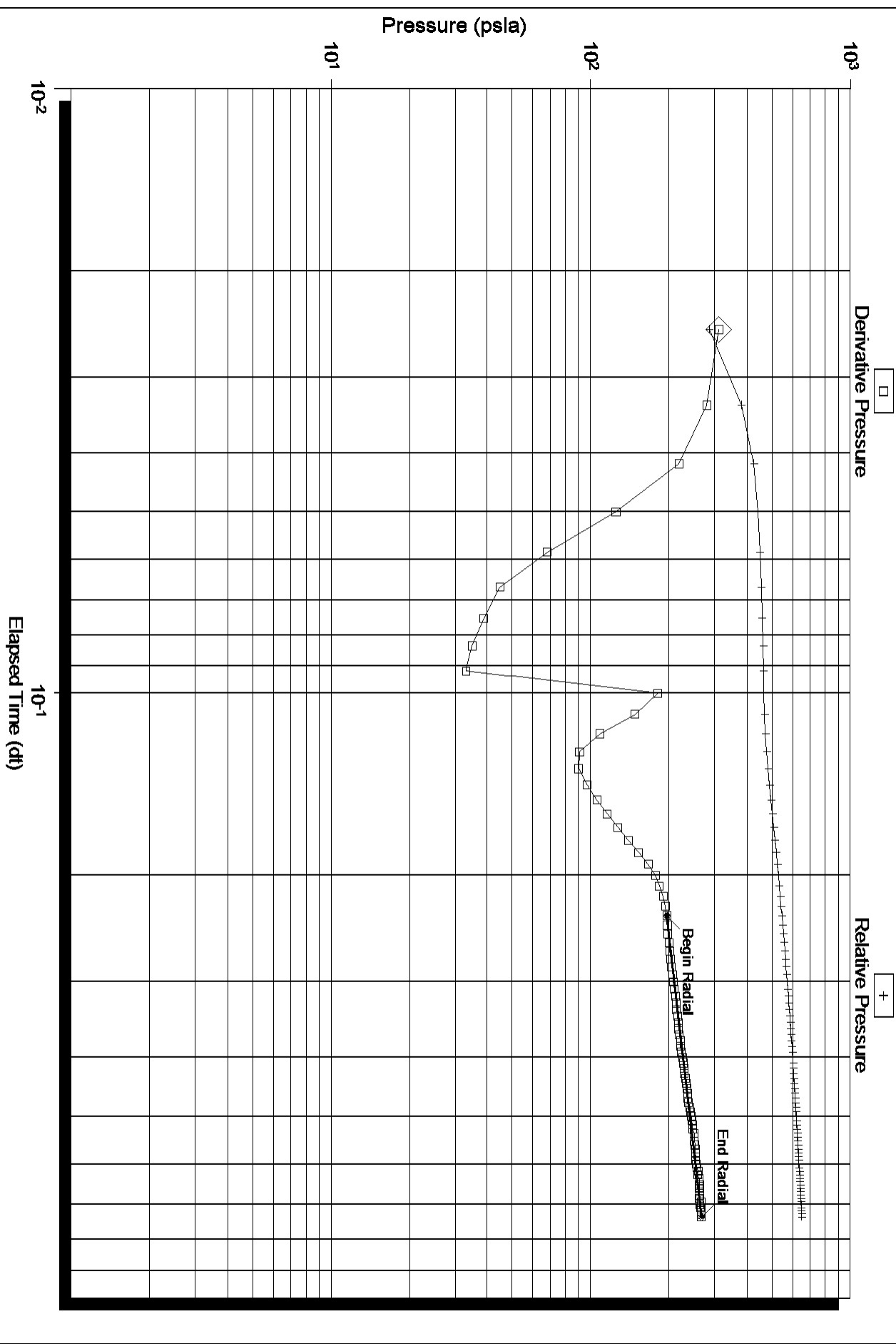
Serial Number: 9119 (Inside)

P* : 854.89

Slope (m) : 6.17 kpa^2[e5]/log cycle

Flow Cycle: 2

Log-Log and Pseudo-Derivative



Log-Log and Pseudo-Derivative

