

WPX Energy
RWF Langstaff 724-16 HN2
DFIT Analysis

John Gilbert

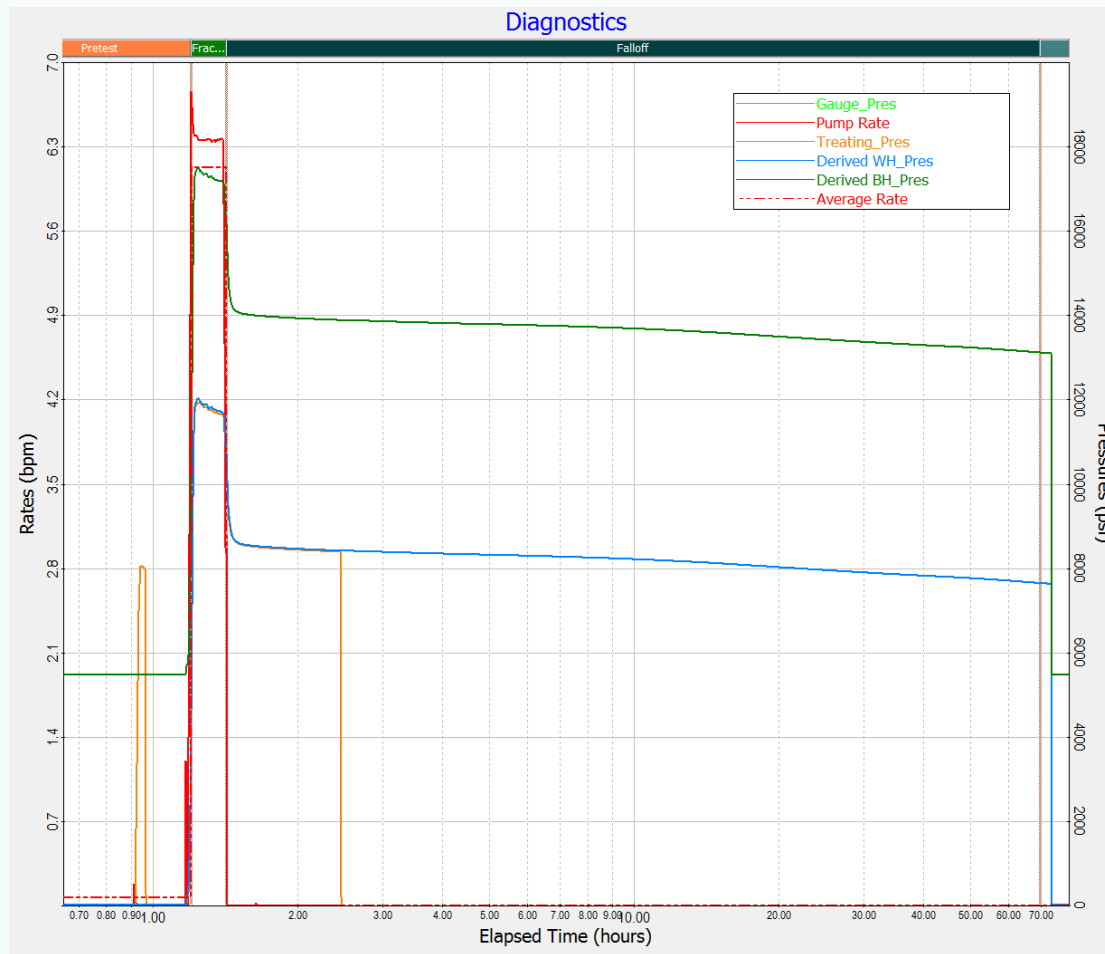
30 July 2014

Barree & Associates

DFIT Overview

- Injection of 3424 gals of brine at an average of 6.2 bpm into vertical wellbore
- 6 perforation at 12624 ft
- Hydrostatic offset of 5467 psi added to surface gauge pressure

Pressure Decline



Step Down Test

Step Rate Outputs

Holes open

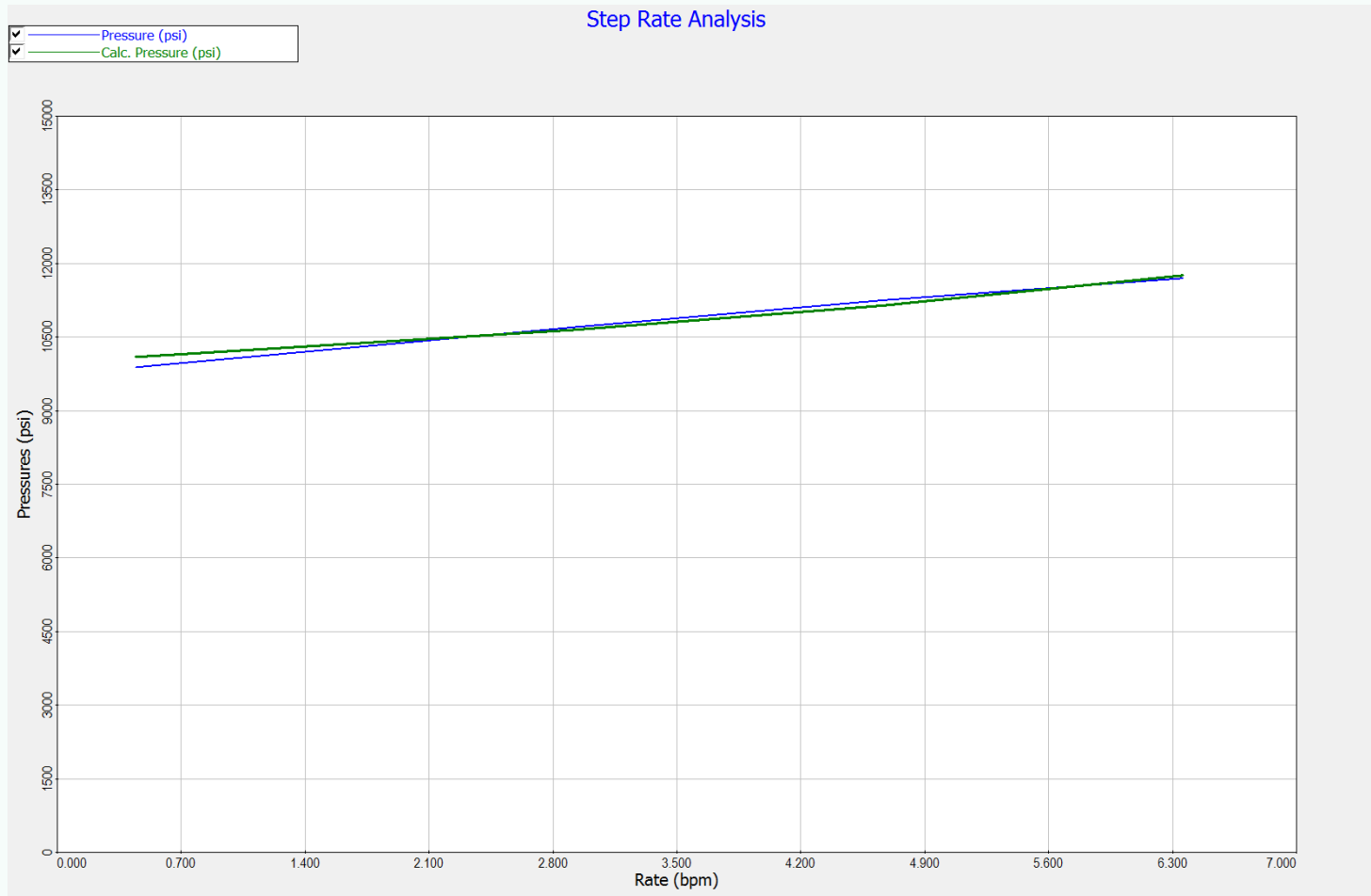
3.914

Tortuosity psi/sqrt(bpm)

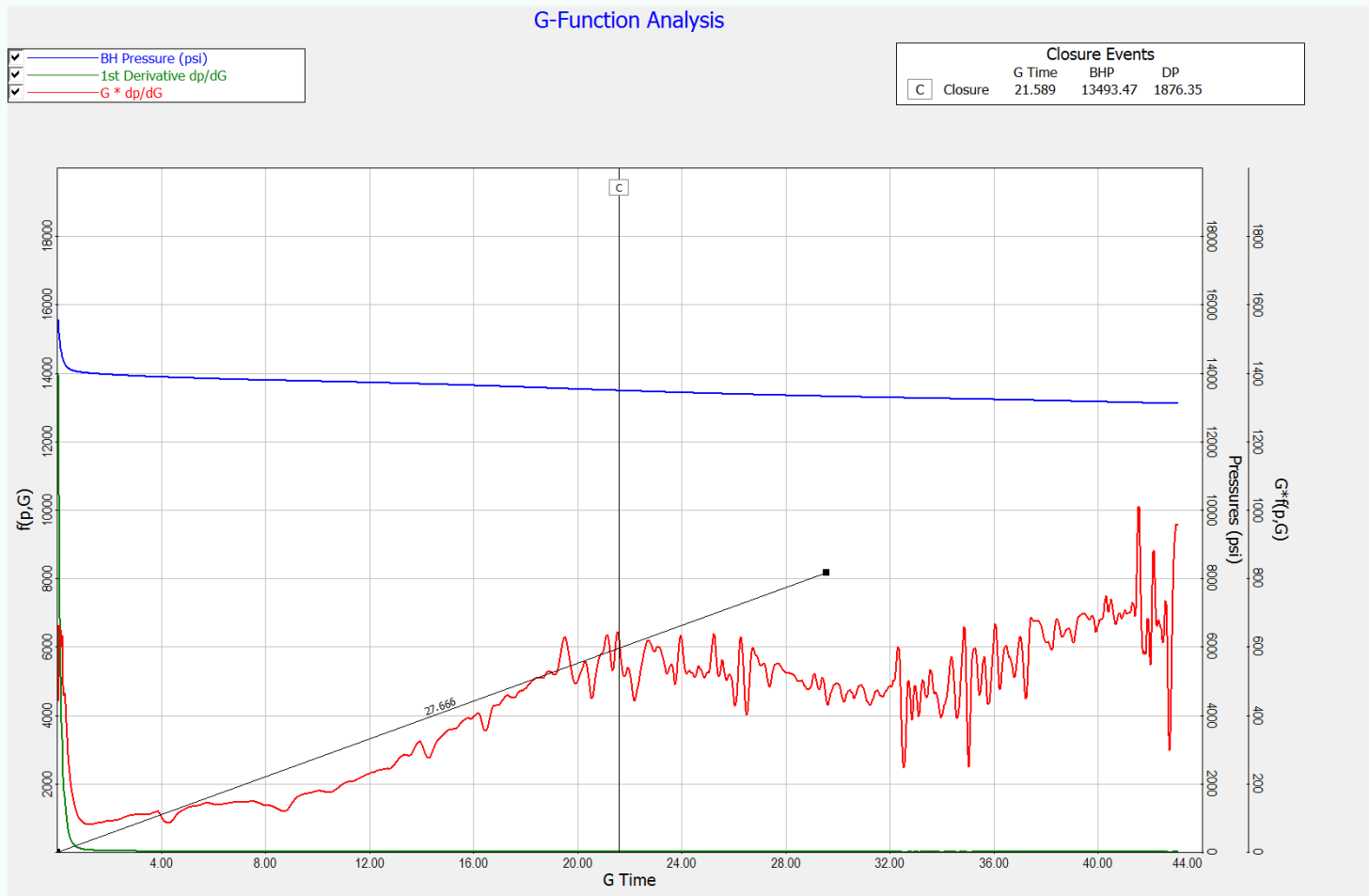
316.751

Rate (bpm)	Pressure (psi)	Perf Friction (psi)	Pipe Friction (psi)	Near Wellbore Friction (psi)
0.44	9878.0	4.6	0.6	210.1
2.93	10699.0	203.5	25.6	542.2
4.66	11243.0	514.8	64.7	683.8
6.36	11692.0	958.9	120.5	798.8

Step Rate Pressure Match

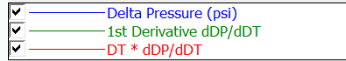


G-Function Plot

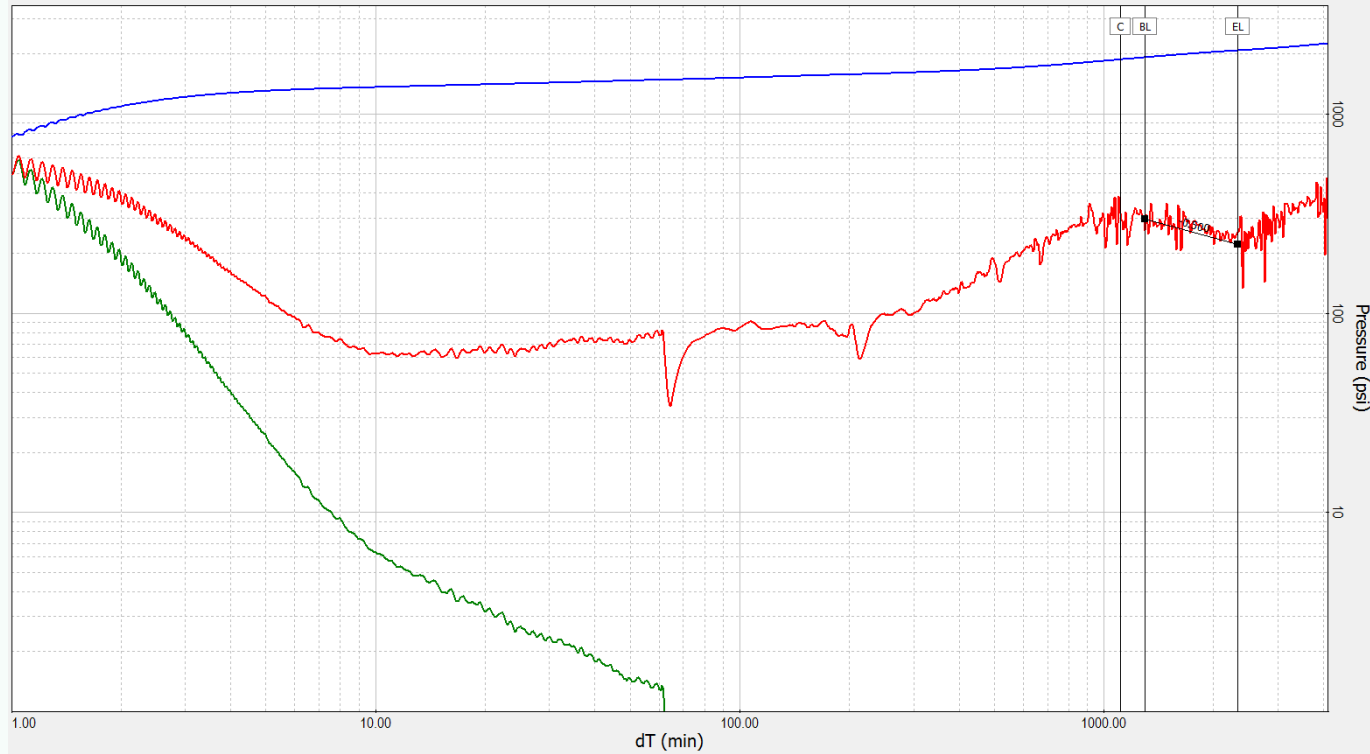


Log Log Plot

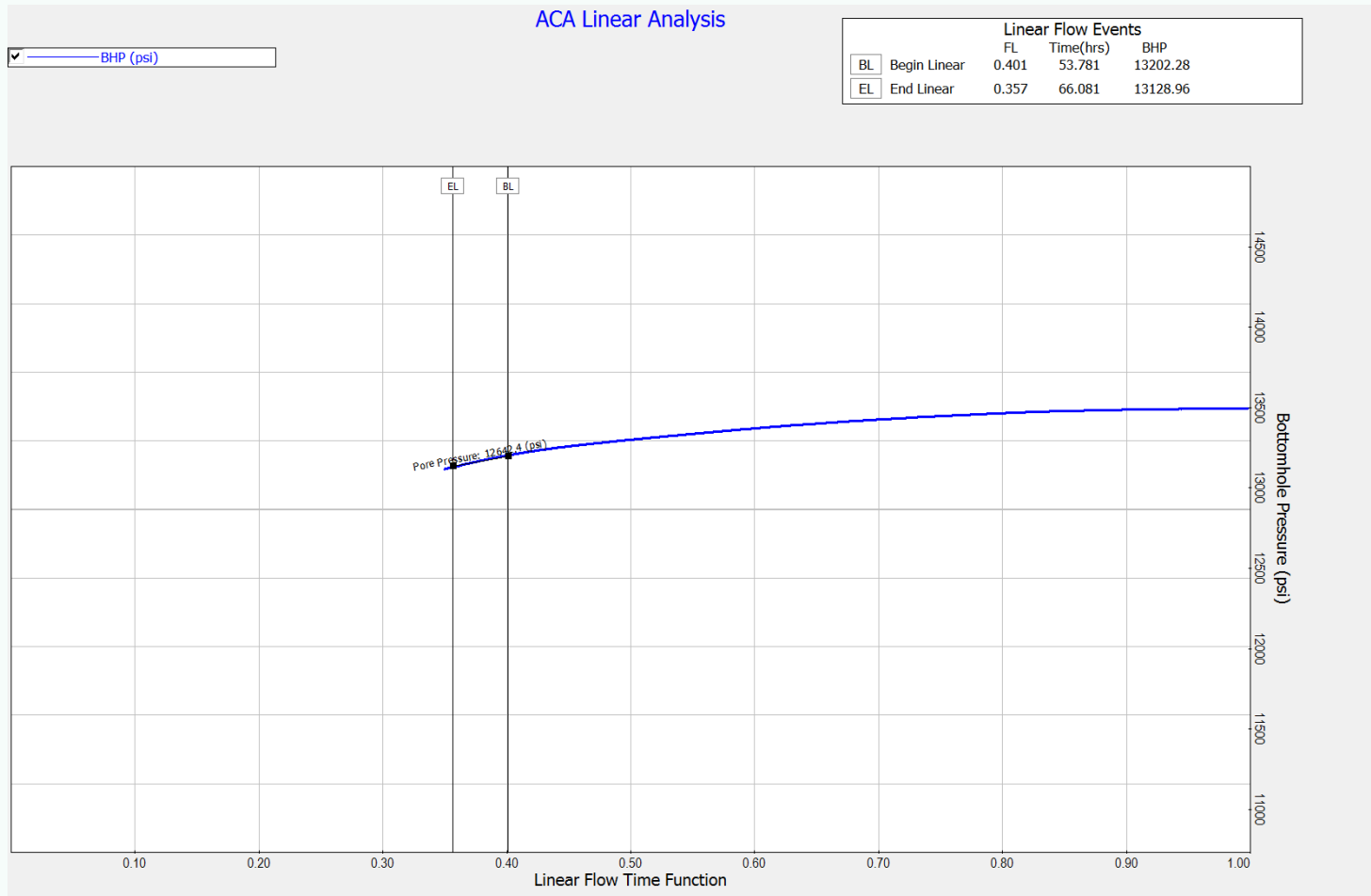
Log Log Analysis



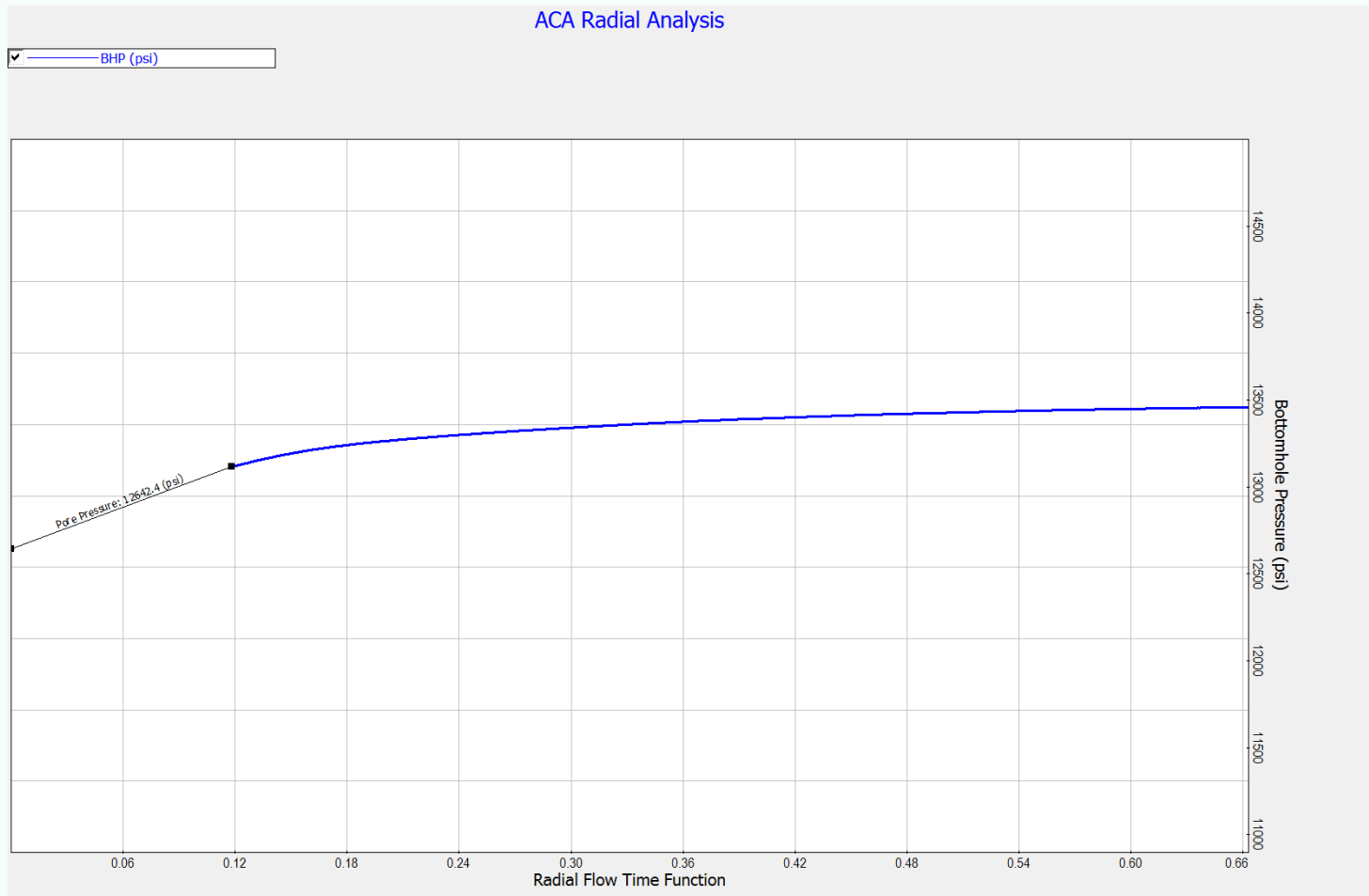
Closure Events			
	dT	BHP	DP
C	1106.428	13493.47	1876.35
BL	1293.901	13447.75	1922.07
EL	2316.360	13290.00	2079.82



Linear Flow Plot



Radial Flow Plot



DFIT Summary

- Fracture extension pressure approximately 15369 psi or a fracture gradient of 1.22 psi/ft – near wellbore tortuosity masks an accurate determination of fracture gradient
- Near wellbore pressure loss from 4 effective perforations and 316 psi/bpm^{1/2} tortuosity
- Transverse storage with fracture closure of 13493 psi or a gradient of 1.069 psi/ft
- Linear flow post closure with a pore pressure of 12642 psi or a gradient of 1.01 psi/ft
- No radial flow but anchoring on the pore pressure gives a maximum flow capacity of 0.076 md.ft