



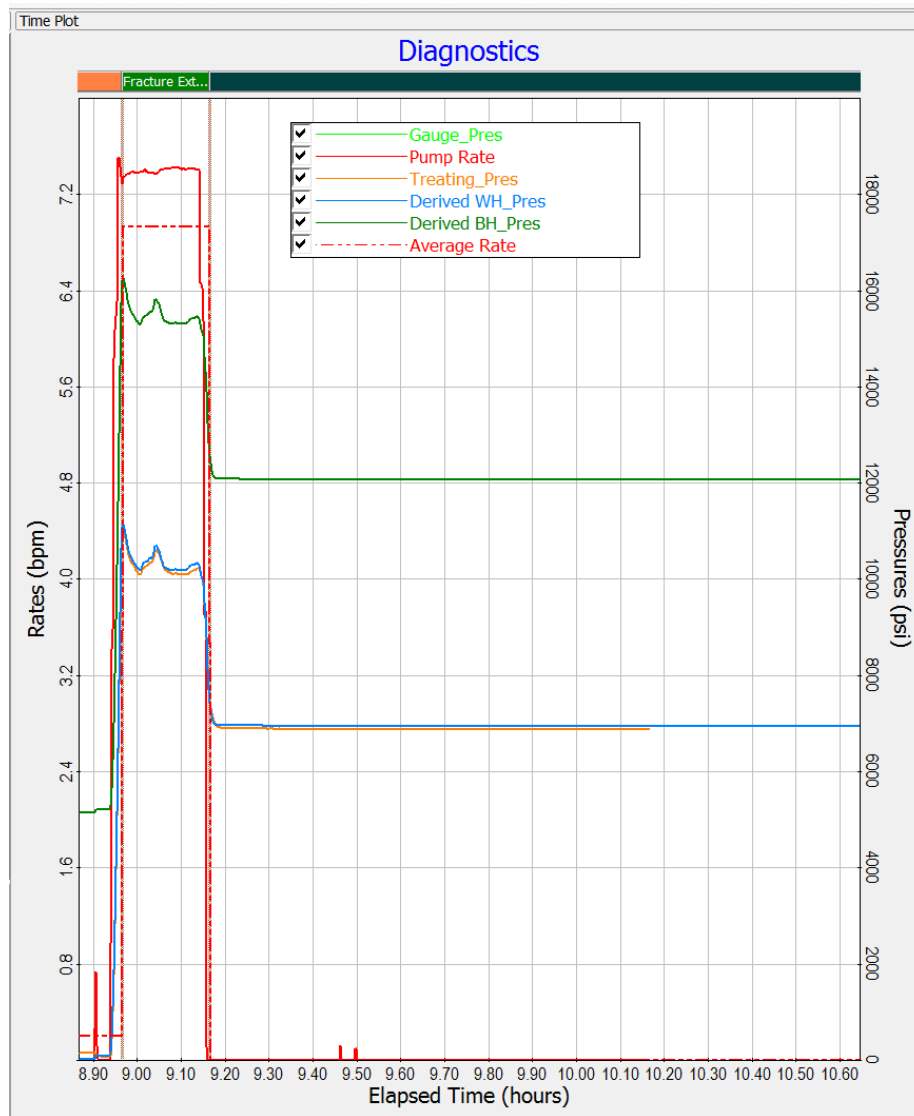
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RWF 724-16 Mancos B2 DFIT Analysis

Analysis by Kristin Trahan



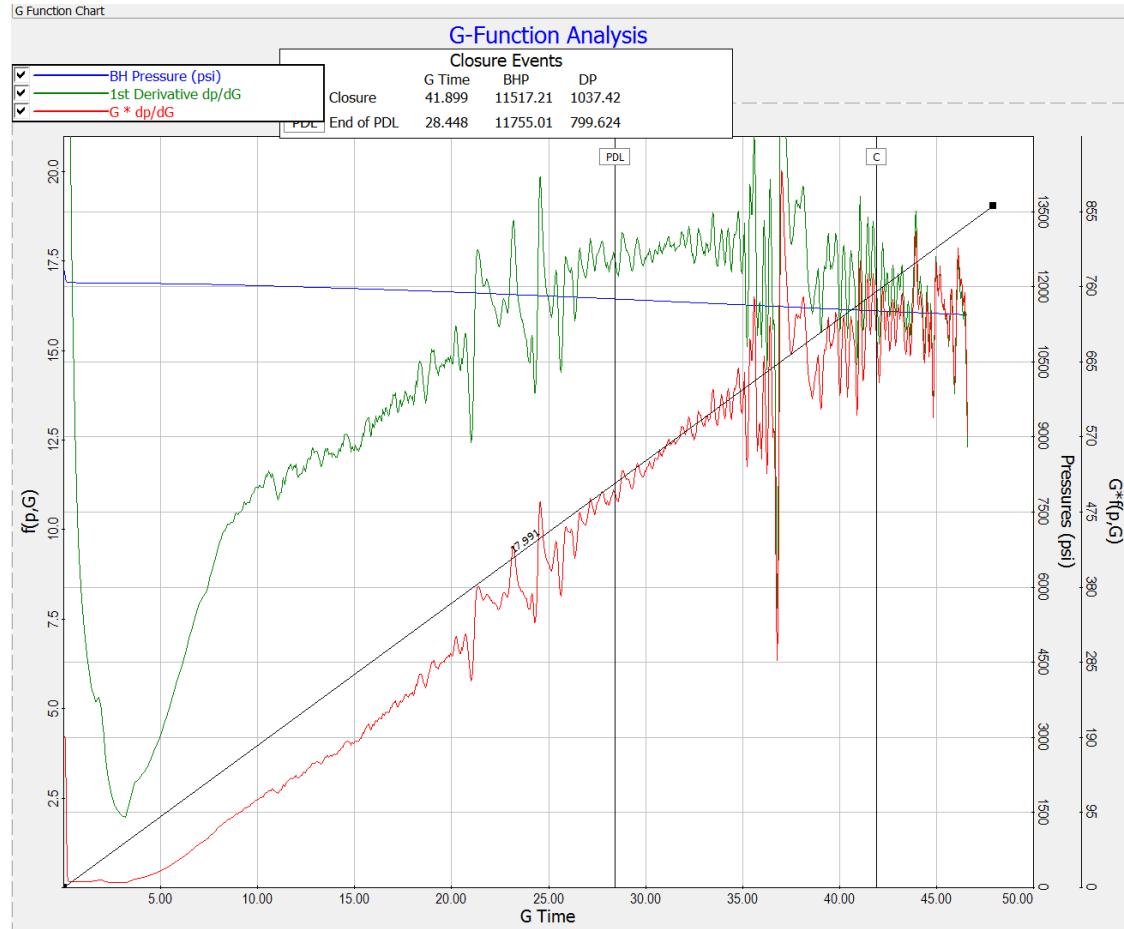
Job Data



Toe DFIT

- 4 holes total
 - 11,828'
- 3460 gal produced water
 - .439 fluid gradient
- 7 bpm pump rate
- 15k gauges

G – Function Analysis



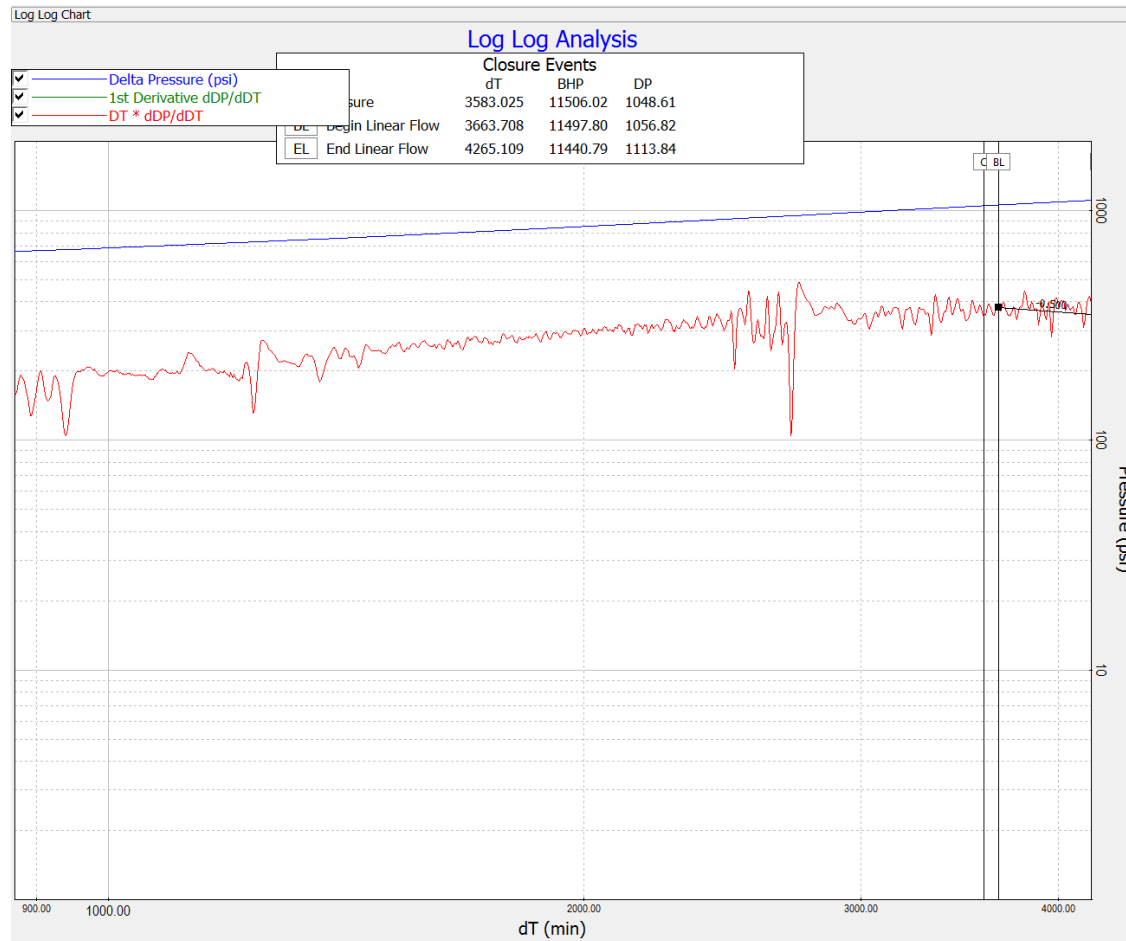
Closure was identified when the tangent line through the axis departs from the superposition curve.

- Bottom hole pressure at closure was 11,517 psi
- Superposition curve appears to be rolling over, but could be insufficient data
 - Closure is a high estimate

Transverse Storage was observed from the concave shape of the superposition curve under the tangent line from the axis

- End of Transverse Storage was 11,755 psi

Log – Log Plot

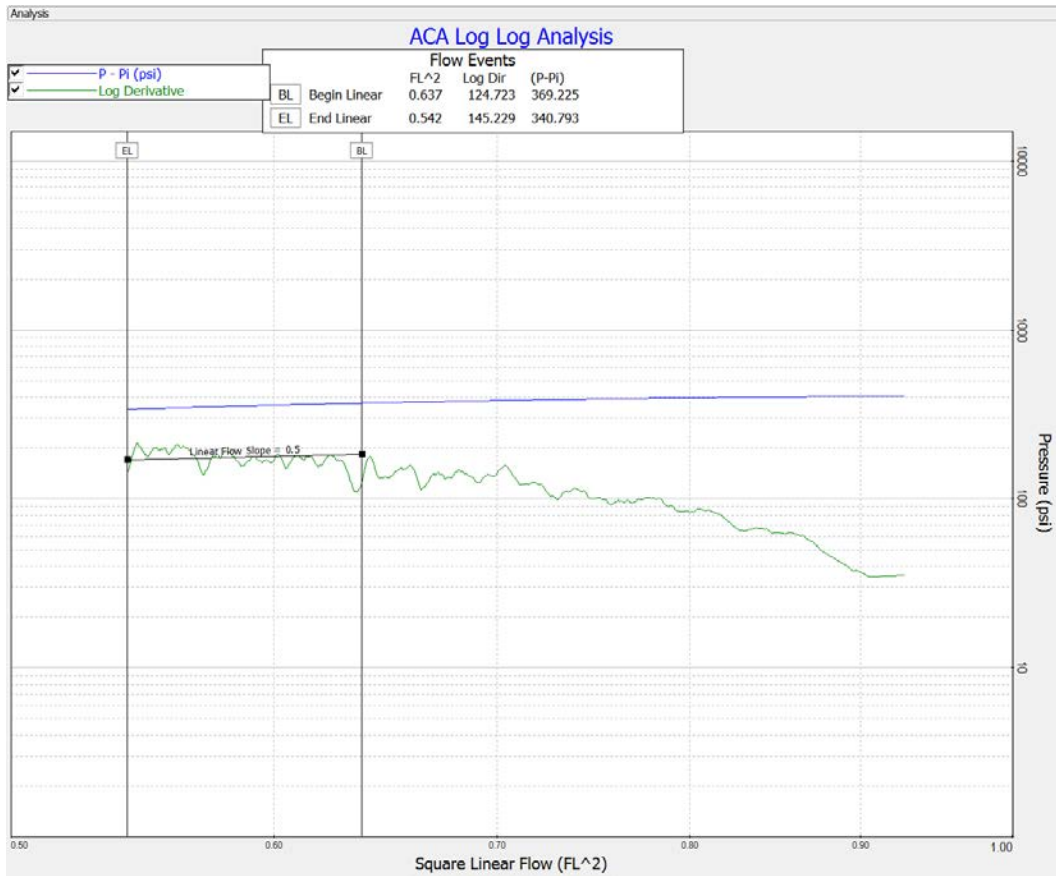


Closure is identified when the superposition curve changes from a positive slope to a negative slope

Linear flow observed

- Identified from -0.5 slope of the superposition curve after closure
- Insufficient data to confirm closure*

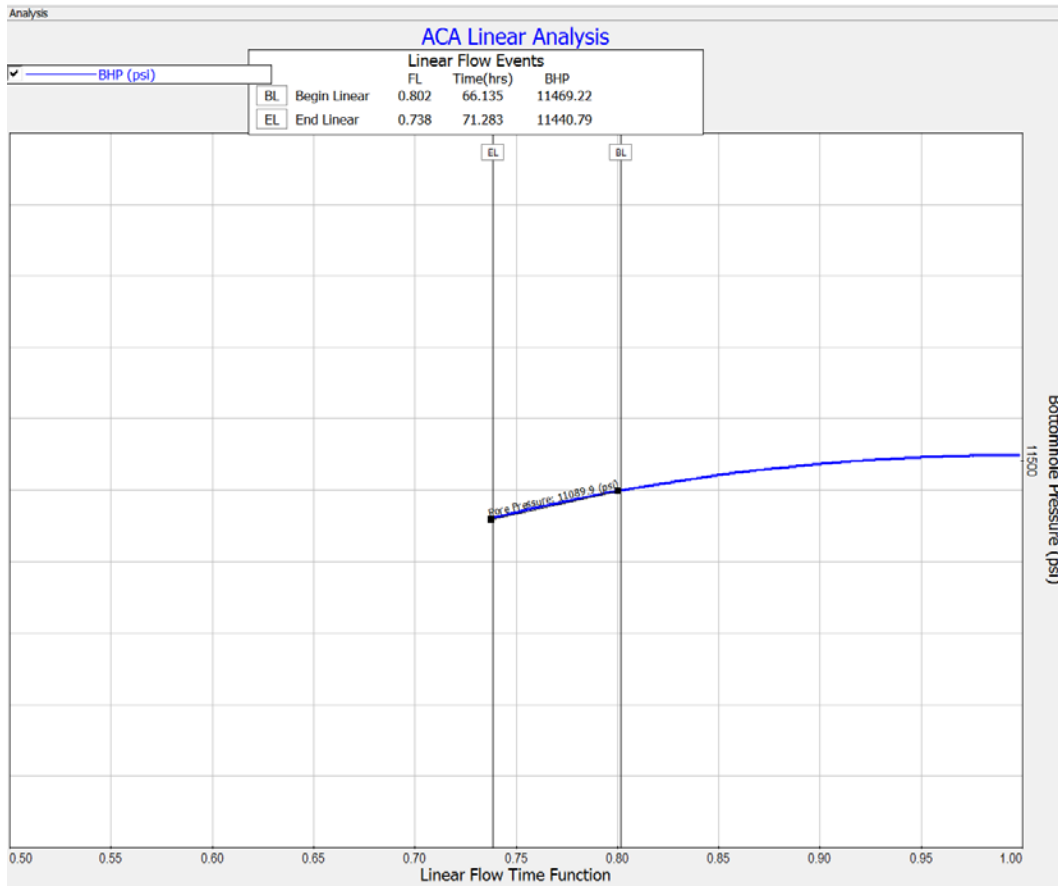
ACA Log-Log Plot



After closure analysis shows the pressure differential curve and log derivative fall on the same 0.5 slope and are separated by 2x

- Estimated reservoir pressure 11,100 psi

ACA Linear Analysis



ACA Linear Analysis estimates the pore pressure to be 11,089 psi.

- Identified by drawing a tangent line between beginning and end of linear flow and extrapolating to the y-axis (bottom hole pressure)

After Closure Summary

Diagnostic Results

Event Times		Pressures		Reservoir	
Begin linear flow time (min)	3968.13	PDL coefficient of leakoff (1/psi)	0.00755	ACA Radial Kh (md ft)	0.000
Begin radial flow time (min)	0.000	BHP at end of PDL (psi)	11755.01	ACA Radial Kh/mu (md ft/cp)	0.000
End linear flow time (min)	4276.98	Closure gradient (psi/ft)	0.973	ACA Radial permeability (md)	0.000
Fracture initiation time (min)	0.000	Process Zone Stress (psid)	1048.61	ACA Radial reservoir pressure (psi)	0.000
G time at closure (G time)	42.571	dP at end of PDL (psid)	799.624	Horner Kh (md ft)	0.000
G time at end of PDL (G time)	28.448	Total Closure Stress (psi)	11506.02	Horner Kh/mu (md ft/cp)	0.000
Pump stop time (min)	11.875	Fissure opening pressure (psi)	248.990	Horner permeability (md)	0.000
Test end time (min)	4277.98	Fluid gradient (well) (psi/ft)	0.433	Horner reservoir pressure (psi)	0.000
Time at closure (min)	3594.90	Fracture gradient (psi/ft)	1.061	Horner slope	0.000
Time at end of PDL (min)	1670.19	Est. Net pay height (ft)	10.000	Permeability from G closure time (md)	5.764E-04
		ISIP (surface) (psi)	7431.85	ACA Linear reservoir pressure (psi)	11089.86
				Pore pressure (psi)	11089.86
				Res pressure gradient (psi/ft)	0.938
Test		Fracture		Other	
Avg. pump rate (bpm)	6.931	Fluid efficiency (%)	95.513	Closure found	True ...
Holes open	4.000	Rp area ratio	0.902	Linear Flow Found	True ...
Minimum test pressure (psi)	6317.88	PDL coefficient of leakoff (1/psi)	0.00755	PDL found	True ...
Minimum test pressure time (min)	4277.27			Radial Flow Found	False ...
Relative Pump time (min)	11.875			Reservoir pore pressure found	True ...
Tortuosity psi/sqrt(bpm)	766.534				

DFIT Summary

- Surface ISIP 7,431 psi Bottom Hole ISIP 12,553 psi
 - Fracture gradient of 1.061 psi/ft
- Bottom hole closure pressure was 11,506 psi
 - Closure gradient of .973 psi/ft.
- Reservoir pressure 11,089 psi
 - Pore pressure gradient .94 psi/ft
- Net pressure was observed at 1048 psi
- Transverse Storage observed
 - Could be masking PDL