

Drill Stem Test - Buildup

Composite Oil Well Model

This well was completed due to significant oil recovery during the drill stem test. However, well test analysis indicated a nearly ten fold decrease in reservoir quality at a distance of 100 feet from the well-bore and the forecast indicates nearly zero oil rate after less than one month of production.

Model Parameters

Formation Parameters

Region 1

Region 2

Total Mobility (k/μ) ₁	519.55md/cp
Permeability (k) ₁	474.000md
Net Pay (h) ₁	15.00ft
Total Porosity (ϕ) ₁	18.00%
Viscosity (μ) ₁	0.912cp
Total Compressibility (c _t) ₁	2.096e-5psi ⁻¹
Region Radius (r) ₁	99.944ft
Skin (s)	0.620

Total Mobility (k/μ) ₂	55.33md/cp
Permeability (k) ₂	50.476md
Net Pay (h) ₂	15.00ft
Total Porosity (ϕ) ₂	18.00%
Viscosity (μ) ₂	0.912cp
Total Compressibility (c _t) ₂	2.096e-5psi ⁻¹
Region Radius (r) ₂	360.000ft

Oil Saturation (S _o)	80.00%
Gas Saturation (S _g)	0.00%
Water Saturation (S _w)	20.00%
Wellbore Radius (r _w)	0.33ft
Formation Temperature (188.0°F

Fluid Properties

Oil Compressibility (c _o)	2.06453e-5psi ⁻¹
Gas Compressibility (c _g)	8.97143e-4psi ⁻¹
Oil Formation Volume Factor (B _o)	1.172
Gas Formation Volume Factor (B _g)	0.002459bbl/scf
Oil Viscosity (μ_o)	0.912cp
Gas Viscosity (μ_g)	0.0141cp
Solution Gas Ratio (R _s)	197scf/bbl
Oil Gravity (γ _o)	36.00° API
PVT Reference Pressure (p _{pVT})	1198.75psi
Bubble Point Pressure (P _{bp})	1198.75psi

Production and Pressure

Q _{tBt}	115.097bbl/d
Final Oil Rate	98.200bbl/d
Final Flowing Pressure (p _{wfO})	1175.25psi
Final Measured Pressure	1198.75psi
Cumulative Oil Production During Test	22.291bbl

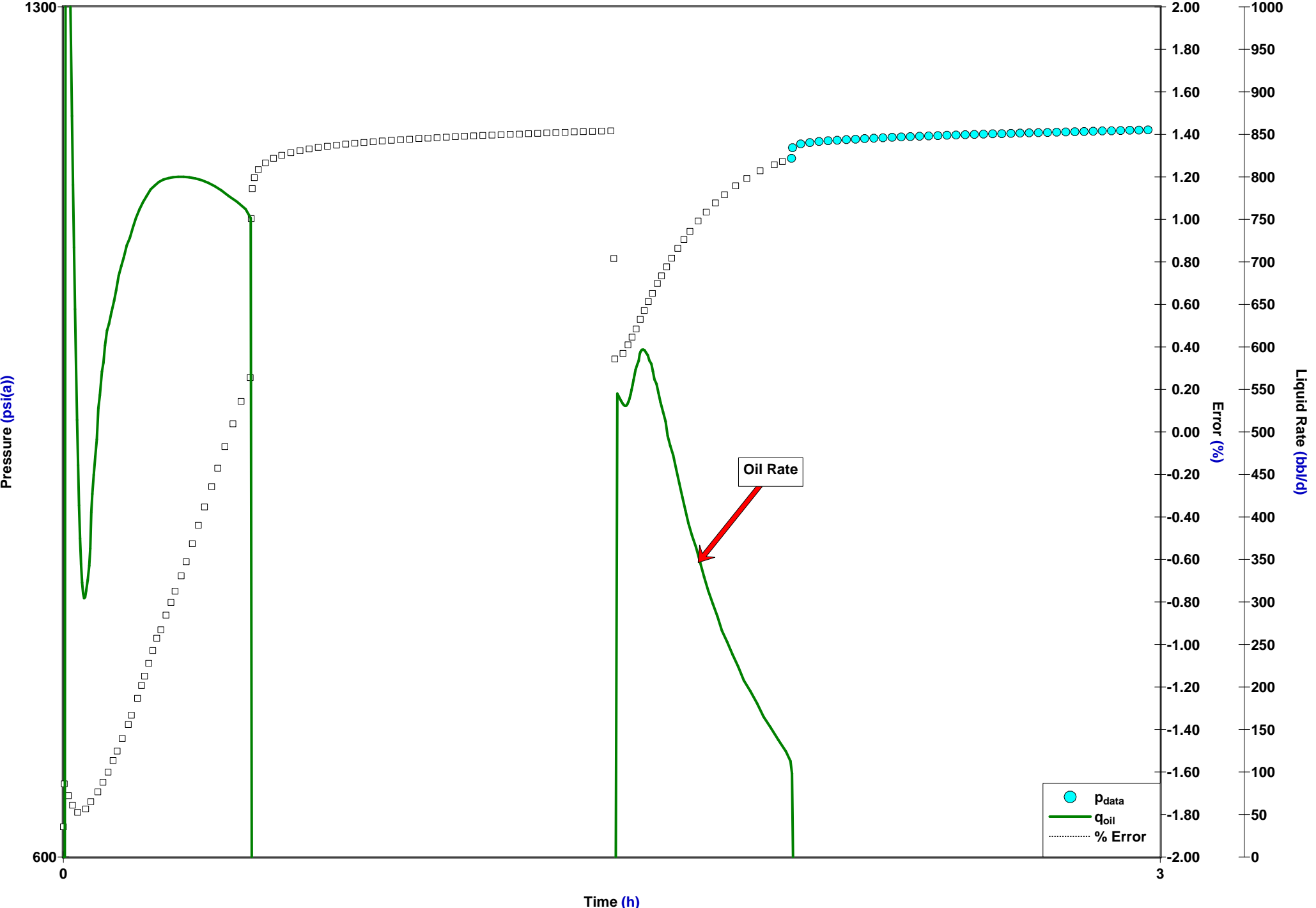
Forecasts

Forecast Flowing Pressure (P _{flow})	1175.25psi
3 - Month Constant Rate Forecast @ Curr. Skin	1.269bbl/d
6 - Month Constant Rate Forecast @ Curr. Skin	0.638bbl/d
Forecast Flow Duration (t _{flow})	12.00month
Constant Rate Forecast @ Curr. Skin	0.320bbl/d
PI / II (Total Liquids - Actual)	3.904bbl/d/psi
Constant Rate Forecast @ Skin=0	0.320bbl/d
PI / II (Total Liquids - Ideal)	4.115bbl/d/psi
Constant Rate Forecast @ Skin=-4	0.320bbl/d

Synthesis Results

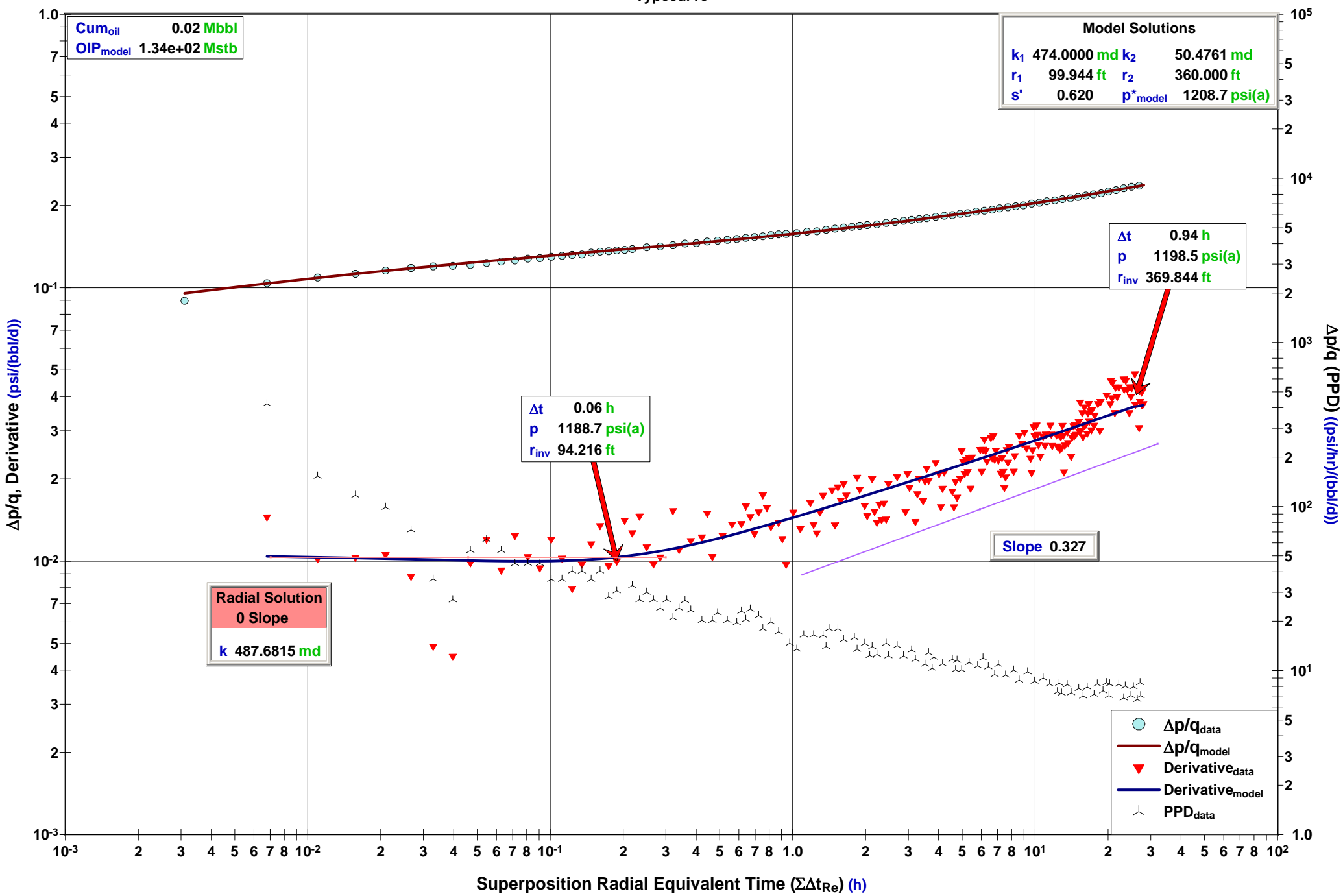
Average Error	5.64e-3%
Synthetic Initial Pressure (p _i)	1215.04psi
Extrapolated Pressure at Specified Time	1208.68psi
Pressure Drop Due To Skin (Δp _s)	1.29psi
Flow Efficiency (FE)	0.961
Damage Ratio (DR)	1.040

Total Test



Composite Model - Shut In 2

Typecurve



Transient Forecast

