NOMENCLATURE

B	=	Formation Volume Factor	(Res Vol/Std Vol)
c_t	=	System Total Compressibility	(Vol/Vol)/psi
DR	=	Damage Ratio	
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
	=	(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
m(P*)	=	Real Gas Potential at P*	MM psi^2/cp
$m(P_i)$	=	Real Gas Potential at P_i	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_t	=	Theoretical Liquid Production w/Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity (fraction)	
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{md\text{-}ft}{cp}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\,\mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151\left[\frac{P^*-P_f}{m} - LOG\left(\frac{k\,(t/60)}{\phi\,\mu\,c_t r_w^2}\right) + 3.23\right]$	
Damage Ratio	$DR = \frac{P^* - P_f}{P^* - P_f - 0.87\,mS}$	
Theoretical Potential w/Damage Removed	$Q_t = Q\,DR$	BPD
Approx. Radius of Investigation	$r_i = 0.032\sqrt{\frac{k\,(t/60)}{\phi\mu c_t}}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{.001637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151\left[\frac{m(P^*)-m(P_i)}{m} - LOG\left(\frac{k\,(t/60)}{\phi\,\mu\,c_t r_w^2}\right) + 3.23\right]$	
Damage Ratio	$DR = \frac{m(P^*) - m(P_i)}{m(P^*) - m(P_i) - 0.87\,mS}$	
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\,m(P^*)}{m(P^*) - m(P_i)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g\sqrt{\frac{m(P^*)}{m(P^*) - m(P_i)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032\sqrt{\frac{k\,(t/60)}{\phi\,\mu\,c_t}}$	ft