

Surficial Aquifer Drawdown - 1 ft from well pumping 1,000 gpm - Basecase

$s_1 = (Q_2/2\pi(T_1 + T_2))(\ln(r_e/r) - K_0(\beta) - K_0(\beta\epsilon)I_0(\beta)/I_0(\beta\epsilon))$			Upper Floridan Aquifer	$Q_2/2\pi(T_1 + T_2)$	Surficial Aquifer	Floridan Aquifer
Parameter	Value	Units	Pumping (Q_2 in gpm)	(ft)	Drawdown (s_1 in feet)	Drawdown (s_2 in feet)
Time since beginning of pumping (t)	4.0	years	1000	1.52549067	1.57E-01	17.64
Radial distance from Lower Floridan aquifer pumping well (r)	1	feet				
Transmissivity of surficial aquifer (T_1)	1,500	ft ² /day				
Specific Yield of surficial aquifer (S_1)	0.30000					
Transmissivity of Upper Floridan aquifer (T_2)	18,585	ft ² /day				
Storativity of Upper Floridan aquifer (S_2)	0.00115					
Hydraulic conductivity of confining unit (K')	1.00E-04	ft/day				
Thickness of confining unit (b')	325	feet				
$v_1 = T_1/S_1$	5,000	ft ² /day				
$v_2 = T_2/S_2$	16,160,870	ft ² /day				
$v_v = 2v_1v_2/(v_1 + v_2)$	9,997	ft ² /day				
$r_e = 1.5(v_v t)^{1/2}$ not used, chosen to be 44,608 ft	44,608	feet				
$B_1 = (T_1/(K'/b'))^{1/2}$	69,821	feet				
$B_2 = (T_2/(K'/b'))^{1/2}$	245,767	feet				
$\beta_1 = r/B_1$	0.00001432					
$\beta_2 = r/B_2$	0.00000407					
$\beta^2 = \beta_1^2 + \beta_2^2$	0.00000000					
β	0.00001489					
$\beta\epsilon_1 = re/B_1$	0.63888905					
$\beta\epsilon_2 = re/B_2$	0.18150550					
$\beta\epsilon^2 = \beta\epsilon_1^2 + \beta\epsilon_2^2$	0.44112346					
$\beta\epsilon$	0.66417126					
$\ln(r_e/r)$	10.706					
$K_0(\beta)$	11.231					
$K_0(\beta\epsilon)$	0.699587159					
$I_0(\beta\epsilon)$	1.113358811					
$I_0(\beta)$	1					
$\delta_1 = T_1/T_2$	0.08071025					