APPENDIX 8B

Dimensionless Pressure for Finite and Infinite Aquifers*

The regression equation is given as:

$$p_D = a_0 + a_1 t_D + a_2 \ln t_D + a_3 (\ln t_D)^2 \quad \textbf{(8B.1)}$$

The derivative p'_D can be obtained from differentiation of Eq. (8B.1).

Case	Regression Coefficients				Correlation Range of	Standard Error of Estimate	Average Deviation From Actual
r_a/r_R	a_0	a_1	a_2	a_3	t_D	σ	(%)
1.5	0.10371	1.66657	–0.04579	–0.01023	0.06 to 0.6	0.00032	0.06
2.0	0.30210	0.68178	–0.01599	–0.01356	0.22 to 5.0	0.00140	0.16
3.0	0.51243	0.29317	0.01534	–0.06732	0.52 to 5.0	0.00091	0.09
4.0	0.63656	0.16101	0.15812	–0.09104	1.5 to 10.0	0.00058	0.03
5.0	0.65106	0.10414	0.30953	–0.11258	3.0 to 15.0	0.00041	0.02
6.0	0.63367	0.06940	0.41750	–0.11137	4.0 to 30.0	0.00081	0.04
8.0	0.40132	0.04104	0.69592	–0.14350	8.0 to 45.0	0.00047	0.02
10.0	0.14386	0.02649	0.89646	–0.15502	12.0 to 70.0	0.00043	0.01
∞	0.82092	–3.68E-4	0.28908	0.02882	0.01 to 1000.0	0.01710	1.50

*From Fanchi

Dimensionless Pressure for Infinite Aquifers*

For $0.01 < t_D < 500$;

$$p_D = \frac{370.529\sqrt{t_D} + 137.582t_D + 5.69549t_D\sqrt{t_D}}{328.834 + 265.488\sqrt{t_D} + 45.2157t_D + t_D\sqrt{t_D}} \quad \textbf{(8C.1)}$$

$$p'_D = \frac{716.441 + 46.7984\sqrt{t_D} + 270.038t_D + 71.0098t_D\sqrt{t_D}}{1269.86\sqrt{t_D} + 1204.73t_D + 618.618t_D\sqrt{t_D} + 538.072t_D^2 + 142.410t_D^2\sqrt{t_D}} \quad \textbf{(8C.2)}$$

*From Edwardson et al