Hydrogeology Exam 1

Equations

$$\mathrm{Re} = \frac{\rho u L}{\mu} = \frac{u L}{\nu} \tag{1}$$

$$R_n = R_s(1-\alpha) + \varepsilon_s R_{ld} - R_{lu} \tag{2}$$

$$R_{lu} = \varepsilon_s \sigma T_s^4 \tag{3}$$

$$R_{ls} = \varepsilon_a \sigma T_a^4 \tag{4}$$

$$R_n = G + H + L_e E \tag{5}$$

$$\mathrm{Bo} = \frac{H}{L_e E} \tag{6}$$

$$E = \frac{(1-c_R)\frac{R_n}{L_e}}{1+\mathrm{Bo}} \tag{7}$$

$$T_v = T(1+0.61q) \tag{8}$$

$$\overline{u} = \frac{R_H^q S_0^{1/2}}{n} \tag{9}$$

where $q = \frac{2}{3}$

$$P_e = \frac{(P-0.2S)^2}{P+0.8S} \tag{10}$$

$$S = \frac{1000}{CN} - 10 \tag{11}$$

$$\mathrm{CN(I)} = \frac{4.2\ \mathrm{CN(II)}}{10 - 0.058\ \mathrm{CN(II)}} \tag{12}$$

$$\mathrm{CN(III)} = \frac{23\ \mathrm{CN(II)}}{10 + 0.13\ \mathrm{CN(II)}} \tag{13}$$