EVE 290
Introduction to Environmental Engineering
Fall 2010
Homework #16

1. An unconfined aquifer is 10 m thick and is being pumped so that one observation well placed at a distance of 76 m shows a drawdown of 0.5 m. On the opposite side of the extraction well is another observation well, 100 m from the extraction well, and this well shows a drawdown of 0.3 m. Assuming that the coefficient of permeability is 50 m/day…

    a. What is the aquifer material?
    b. Determine the discharge of the extraction well.

2. A 0.1 m diameter well fully penetrates an unconfined aquifer 20 m deep. The permeability is 2 x 10^{-3} m/s. What volumetric flow can be pumped until the drawdown at the well reaches 20 m and the well starts sucking air? *Hint: Assume that the water table 50 m from the well is unaffected by the drawdown.*