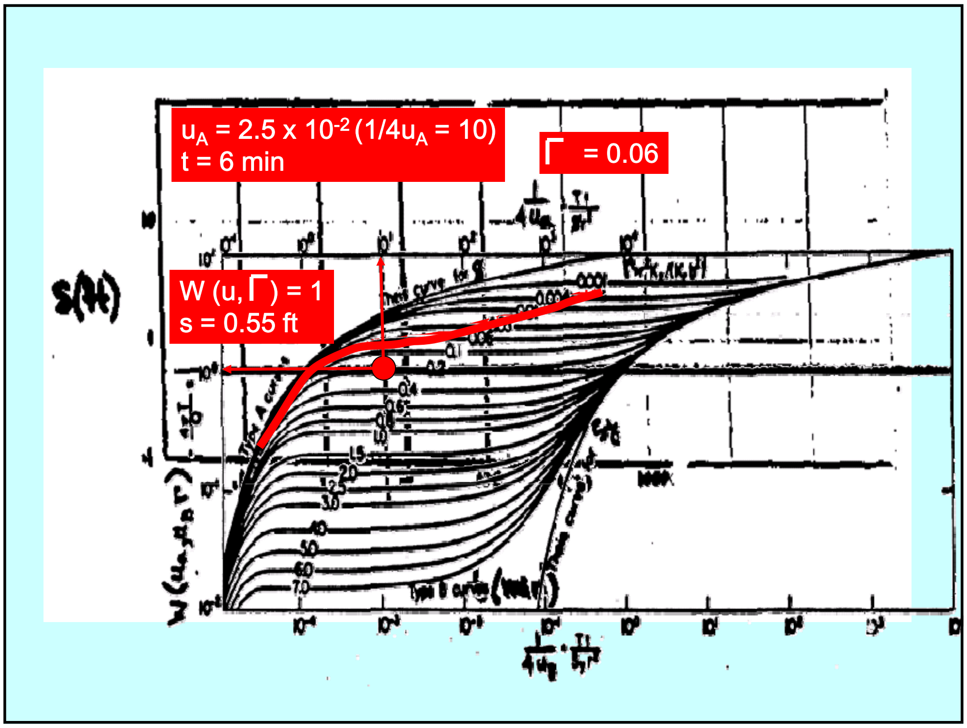
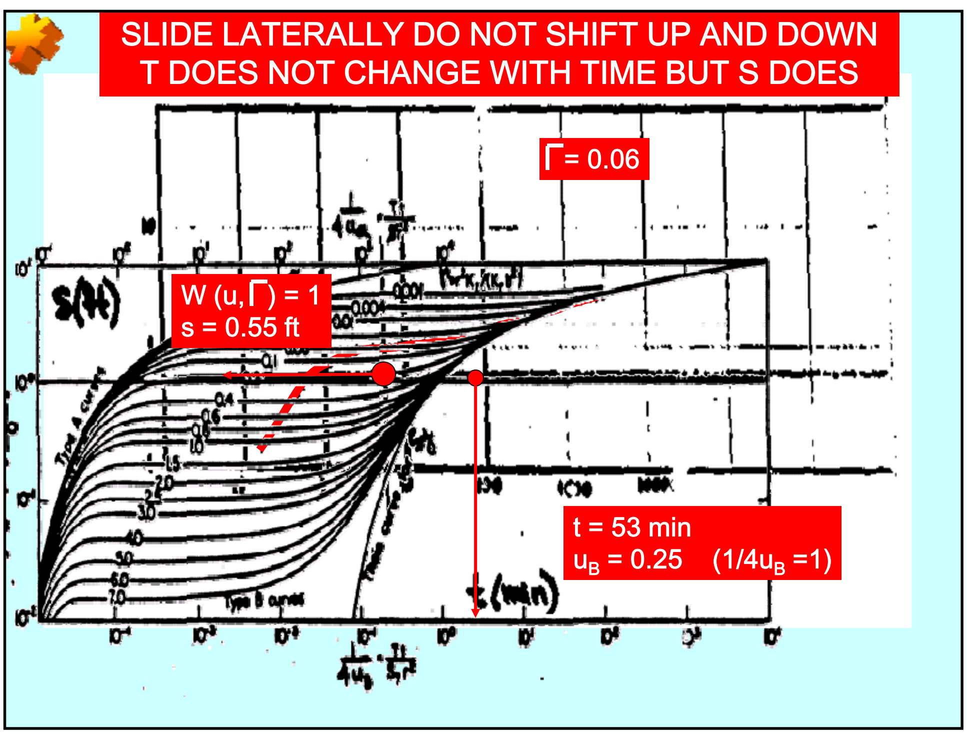

u_A = 2.5 x 10^{-2} ($1/4u_A$ = 10)
t = 6 min
Γ = 0.06
W (u, Γ) = 1
s = 0.55 ft


SLIDE LATERALLY DO NOT SHIFT UP AND DOWN
T DOES NOT CHANGE WITH TIME BUT S DOES
Γ = 0.06
W (u, Γ) = 1
s = 0.55 ft
t = 53 min
u_B = 0.25 ($1/4u_B$ =1)

Match

early time $\Gamma = 0.06$

$W(u, \Gamma) = 1$

$u_A = 2.5 \times 10^{-2}$ $(1/4u_A = 10)$

t = 6 min

s = 0.55 ft

Q = 144.4 ft^3/min

r = 73 ft

b = 100 ft

late time same Γ

slide horizontally

same s = 0.55

t = 53 min

$u_B = 0.25$ $(1/4u_B = 1)$

Calculate T S K_v K_h S_y

Early time match results:

$$T = \frac{Q}{4\pi s} W(u_A, \Gamma) = \frac{144.4 \frac{ft^3}{min}}{4\pi(0.55ft)}(1) = 20.9 \frac{ft^2}{min}$$

$$S = \frac{4u_A Tt}{r^2} = \frac{4(2.5x10^{-2})\left(20.9 \frac{ft^2}{min}\right)6\,min}{(73ft)^2} = 2x10^{-3}$$

Late time match results:

T .... Same (match by sliding horizontally)

$$S_y = \frac{4u_B Tt}{r^2} = \frac{4(0.25)\left(20.9 \frac{ft^2}{min}\right)53\,min}{(73ft)^2} = 0.21$$

$$K_H = \frac{T}{b} = 2x10^{-1} \frac{ft}{min}$$

$$K_V = \frac{\Gamma b^2 K_H}{r^2} = \frac{0.06(100ft)^2 0.2 \frac{ft}{min}}{(73ft)^2} = 2x10^{-2} \frac{ft}{min}$$

$u_1 = (r^2 S) / (4\,T\,t)$ = ((100ft)^2 1x10^{-5}) / (4 1 ft^2/day 10day))

= ((100)^2 * 2.5x10^{-7}

= 2.5x10^{-3}

$W(u)_1 \sim 5.44$

$s_1 = (Q\,W(u)) / (4\pi T)$ = (40 ft^3/day 5.44) / (4 π1 ft^2/day)

= 5.44 * 3.183 ft

s_1 = 17.3 ft

u_2 = ((500)^2 * 2.5x10^{-7}

= 6.25x10^{-2}

$W(u)_2 \sim 2.34$

s_2 = 2.34 * -3.183 ft

s_2 = -7.45 ft

TOTAL s = 9.85 ft

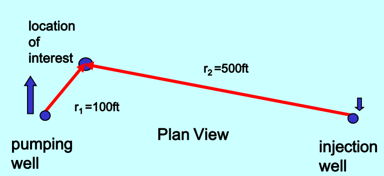
T= 1x10^0 ft^2/day

S = 1x10^{-5}

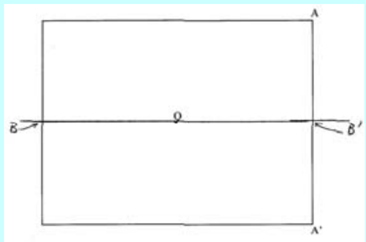
Q @ r_1 = 40 ft^3/day

Q @ r_2 = -40 ft^3/day

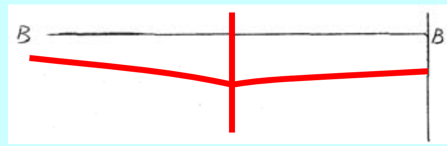
What is the drawdown at the location of interest after 10 days?



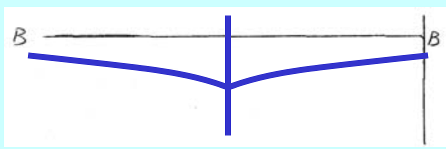
For the following situation with pumping well Q make your qualitative estimates of the relative drawdown.



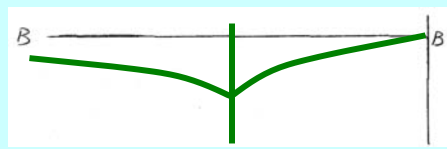
Sketch the cone of depression due to pumping of well Q assuming
A-A' is a no flow boundary

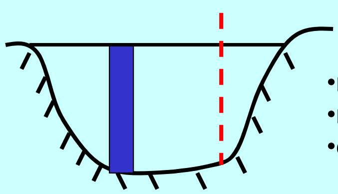


Sketch the cone of depression due to pumping of well Q assuming the
aquifer is infinite



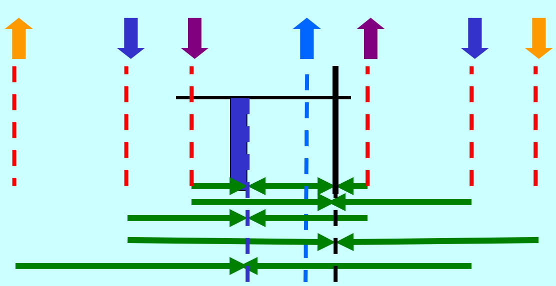
Sketch the cone of depression due to pumping of well Q assuming
A-A' is a constant head boundary



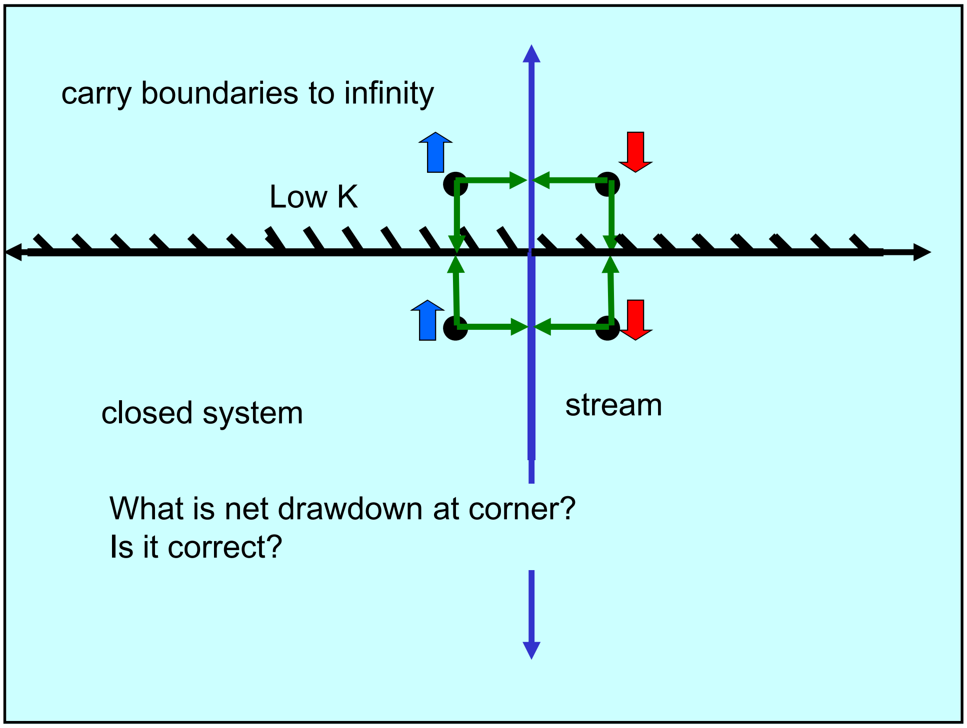


- multiple boundaries require multiple reflections
- reflect image wells also
- each boundary should be drawn to infinity and all reflections made

recharge opposite sign   no-flow same sign



etc etc until the addition is insignificant at the time of interest



After 10 days

u_{10days} = $(r^2 S) / (4T\ t)$ = $((100ft)^2\ 1x10^{-5}) / (4\ 1\ ft^2/day\ 10day))$

= $2.5x10^{-3}$

$W(u)_{10days}$ ~ 5.44

$s_{40cfd10days}$ = $(Q\ W(u)) / (4\pi T)$ = $(40\ ft^3/day\ 5.44) / (4\ \pi 1\ ft^2/day)$

$s_{40cfd10days}$ = 17.3 ft

After 5 days

u_{5days} = $(r^2 S) / (4\ T\ t)$ = $((100ft)^2\ 1x10^{-5}) / (4\ \ 1\ ft^2/day\ 5day))$

= $((100)^{2*}\ 5x10^{-7}$

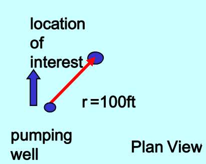
= $5x10^{-3}$

$W(u)_{5days}$ ~ 4.73

$s_{-30cfd5days}$ = $(Q\ W(u)) / (4\pi T)$ = $(-30\ ft^3/day\ 4.73) / (4\ \pi 1\ ft^2/day)$

$s_{-30cfd5days}$ = -11.3 ft

$S_{40cfd5days\&10cfd5days}$ = 6 ft



T= $1x10^0\ ft^2/day$ S = $1x10^{-5}$

Q = 40 ft^3/day for 5 day

Q = 10 ft^3/day for the next 5 days

Pumping continues for 10 days