PRUE 2 #2 BOUNDARY GL07320

$$s = \frac{114.6\,Q}{T} W(u) \quad \text{if} \quad s = 8.8 \text{ ft}$$

~~$W(u) = \frac{114.6\,(225 \text{ gpm})}{5100 \text{ gpd/ft}}$~~

$$W(u) = \frac{T s}{114.6\,Q} = \frac{5100 \text{ gpd/ft}\,(8.8 \text{ ft})}{114.6\,(225 \text{ gpm})}$$

$W(u) = 1.74055$

$u = 1.0 \times 10^{-1} = 1.8229$

$1.1 = 1.7371$

0.0858

~~1.7371~~
~~1.6595~~
~~0.0776~~

1.8229
1.74055
0.08235

$$\frac{0.0824}{0.0858} = 0.960$$

$u = 1.096 \times 10^{-1}$

$$r^2 = \frac{u\,Tt}{1.87\,S} = \frac{(.1096)(5100 \text{ gpd/ft})(0.43 \text{ HR})}{1.87\,(5 \times 10^{-4})}$$

$r_{\pm 2} = 500$ ft

1st BOUNDARY AT 50 ft

2ND BOUNDARY AT ~~500~~ ft) 250 FT

PAGE 2 #2 BOUNDARY

DIFF IN DRAWDOWN ← IMAGE WELL = 3.5 → 8.8 psi

AFTER 1000 min (Iw pumping FOR 620 min)

8.8 ft = (3.5 psi)(0.513 ft/psi)

THEIS EQUATION $s = \frac{114.6\,Q}{T} W(u)$

$$u = \frac{1.87\, r^2 S}{Tt}$$

a) $Q = 225$ gpm

$T = 5300$ gpd/ft

$S = 5 \times 10^{-4}$

$t = 6.43$ HRS

If $r_I = 120$ ft

$$u = \frac{1.87 (120\text{ ft})^2 (5 \times 10^{-4})}{(5300\text{ gpd/ft})(6.43\text{ HRS})} = 1.0924 \times 10^{-3}$$

$W(u) = 6.2363$

$$s = \frac{114.6\,Q}{T} W(u) = \frac{114.6\,(225\text{ gpm})}{5300\text{ gpd/ft}} (6.2363)$$

$s = 30.3$ ft

PRUE-2 #2 BOUNDARY

if $r_I = 200$

$$u = \frac{1.87\,(200\,ft)^2\,(5\times10^{-4})}{(5100\,gpd/ft)(0.43\,hr)} = 3.03\times10^{-3}$$

$W(u) =$

if $r_I = 5000\,ft$

$$u = \frac{1.87\,(5000\,ft)^2\,(5\times10^{-4})}{(5100\,gpd/ft)(0.43)} = 1.9708$$

$W(u) = 0.04890$

$$A = \frac{114.6\,(225\,gpm)}{5100\,gpd/ft}\,(0.04890)$$

$A = 0.247$

ESTIMATE DISTANCE TO #2 BOUNDARY (380 min)

DATA ← NARI & WITHERSPOON

$$r_D = \sqrt{\frac{0.0002637\,\lambda\,\Delta t_p}{(\phi c)\,\Delta t_D}}$$

r = DISTANCE TO FIRST BOUNDARY

$$\lambda = \frac{k}{\mu} = \frac{94\,md}{0.18\,cp} = 522\,md/cp$$ } assume 500 FT = h

Δt_p = 6.3 hrs = $\frac{380\ min}{60\ min/hr}$

$\phi c = 2.38 \times 10^{-6}\ ft/psi/ft$ } Assumed 500 FT = h

$\Delta t_D = 100$ (DEVIATION FROM THEIS TYPE CURVE)

$$r_D = \sqrt{\frac{(0.0002637)(522\,md/cp)(6.3\,hrs)}{(2.38\times10^{-6}\ ft/psi/ft)(100)}}$$

r_D = 60 FT

RRGE 2 2ND BOUNDARY

AT 400 min $t = 20 \text{ min} = 0.013 \text{ hr}$

Δ_I 2367.5 − 2367.4 = 0.1 psi = 0.2513 ft

$$w(u) = \frac{T\Delta}{114.6Q} = \frac{5100 \text{ gpd/ft}(0.2513 \text{ ft})}{114.6(225 \text{ gpm})} = 0.0497$$

$u = 2 = 0.0489$

$u = 1.9 = 0.0562$

0.0073

0.0562
0.0497
0.0065

$u = 1.989$

$$r_I^2 = \frac{uTt}{1.87S} = \frac{(1.989)(5100 \text{ gpd/ft})(0.013)}{1.87(5 \times 10^{-4})} = 375$$

~~r =~~ 190 ft TO BOUNDARY

Minimum estimation of distance to IW & BOUNDARY

PAGE 2 #2 Boundary

AT 600 M/N DRAWDOWN ← IMAGE WELL

$t = 220 \text{ min} = 0.15 \text{ hrs}$

$s_I = 2364.5 - 2363.0 = 1.5 \text{ psi} \left(2.513 \frac{ft}{psi}\right)$

$= 3.77 \text{ ft}$

$T = 5100 \text{ gpd/ft}$

$r \approx 1600 \text{ ft}$

$$W(u) = \frac{Ts}{114.6Q} = \frac{5100 \text{ gpd/ft} (3.77 \text{ ft})}{114.6 (225 \text{ gpm})}$$

$W(u) = 0.7457$

$u = .37 = .7554$

$= .38 = .7371$

$.0183$

$.7557$

$.7457$

$.0100$

$\frac{100}{183} = 0.546$

$u = .37546$

$$r^2 = \frac{uTt}{1.87S} = \frac{(.37546)(5100 \text{ gpd/ft})(0.15)}{1.87 (5 \times 10^{-4})}$$

$r_I = 940$ ~~940~~ 560

Distance to Boundary 280 FT