

12 July 78

PREDICT BUILDUP PRGE-1 CAUSED BY INJECTING

2500 wpm INTO U.S.G.S. #2

t = 182.5

$$u = \frac{1.87 r^2 S}{Tt} = \frac{1.87 (7200)^2 (5 \times 10^{-4})}{(7500 \text{ spd/ft})(182.5 \text{ d})} = 0.03541$$

u	W(u)
.035	2.8099
.036	2.7827
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	0.0272
0.03541	2.7987

$$A = \frac{114.6 Q}{T} W(u) = \frac{114.6 (2500)}{7500} (2.7987)$$

A = 107 ft = 42.8 psi

t = 1825

$$u = \frac{1.87 (7200)^2 (5 \times 10^{-4})}{(7500 \text{ spd/ft})(1825 \text{ d})} = 3.541 \times 10^{-3}$$

u	W(u)
3.5 x 10 <sup>-3</sup>	5.0813
3.6 x 10 <sup>-3</sup>	5.0532
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	0.0281
3.541 x 10 <sup>-3</sup>	5.07

$$A = \frac{114.6 Q}{T} W(u) = \frac{114.6 (2500 \text{ ft})}{7500 \text{ spd/ft}} (5.07)$$

A = 194 ft = 77.5 psi

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PREDICT INTERFERENCE AT RRGE-1

RRWP-5 AT 182.5 DAYS  $Q = 550 \text{ gpm}$

$$u = \frac{1.87 S r^2}{Tt} = \frac{1.87 (5 \times 10^{-4}) (2530 \text{ FT})^2}{(10,000 \text{ gpd/ft}) (182.5 \text{ DAYS})}$$

$$u = 3.279 \times 10^{-3}$$

$u$	$W(u)$
3.2	5.1700
3.3	5.1399
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	0.0301
3.279	5.1462

$$r = \frac{114.6 (550 \text{ gpm})}{T} W(u) = 32.4 \text{ ft} = 13 \text{ psi}$$

RRWP-5 AT 182.5 DAYS  $Q = 650 \text{ gpm}$

$$r = \frac{114.6 (650 \text{ gpm})}{10,000 \text{ gpd/ft}} W(u) = 38.3 = 15.3 \text{ psi}$$

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PREDICT INTERFERENCE AT PRGP-1

PRGP-4 Q = 550 AT 182.5 DAYS

$$\Delta = \frac{114.6 Q}{T} w(u) = \frac{114.6 (550 \text{ gpm})}{10,000 \text{ gpd/ft}} (6.1134)$$

$$\Delta = 38.5 \text{ ft} = 15.4 \text{ psi}$$

PRGP-4 Q = 650 AT 182.5 DAYS

$$\Delta = \frac{114.6 (650 \text{ gpm})}{10,000 \text{ gpd/ft}} (6.1134) = 45.5 \text{ ft} = 18.2 \text{ psi}$$

PRGP-5 Q = 550 AT 1825 DAYS

$$u = \frac{1.87 r^2 S}{Tt} = \frac{(1.87)(2530 \text{ ft})^2 (5 \times 10^{-4})}{(10,000 \text{ gpd/ft})(1825 \text{ d})} = 3.279 \times 10^{-4}$$

u	w(u)
3.2	7.4703
3.3	7.4395
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	0.0308
3.279	7.4460

$$\Delta = \frac{114.6 Q}{T} w(u) = \frac{114.6 (550 \text{ gpm})}{10,000 \text{ gpd/ft}} (7.4460)$$

$$\Delta = 46.9 \text{ ft} = 18.8 \text{ psi AT 1825 DAYS}$$

PRGP-5 Q = 650 AT 1825 DAYS

$$\Delta = \frac{114.6 Q}{T} w(u) = \frac{114.6 (650 \text{ gpm})}{10,000 \text{ gpd/ft}} (7.4460)$$

$$\Delta = 55.5 \text{ ft} = 22.2 \text{ psi}$$

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PREDICT INTERFERENCE RRUE-1

RRUE-2 PUMPING 400 GPM AT 182.5 DAYS

$$u = \frac{S(1.87)^2 r^2}{Tt} = \frac{(5 \times 10^{-4})(1.87)(3,918 \text{ FT})^2}{(10,000 \text{ gpd/ft})(182.5 \text{ DAYS})}$$

$$u = 7.864 \times 10^{-3}$$

u	W(u)
7.8 $\times 10^{-3}$	4.2842
7.9 $\times 10^{-3}$	4.2716
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7.864 $\times 10^{-3}$	0.0126
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	4.2761

$$s = \frac{114.6 Q}{T} W(u) = \frac{114.6 (400 \text{ gpm})}{10,000 \text{ gpd/ft}} (4.2761)$$

$$= 19.6 \text{ FT} = 7.8 \text{ psi}$$

GRAPH EXTRAPOLATION  $\rightarrow s = 7 \text{ psi}$

RRUE-2 PUMPING 400 GPM AT 1825 DAYS

$$u = \frac{S(1.87)^2 r^2}{Tt} = \frac{(5 \times 10^{-4})(1.87)(3,918 \text{ FT})^2}{(10,000 \text{ gpd/ft})(1825 \text{ d})} = 7.864 \times 10^{-4}$$

u	W(u)
7.8 $\times 10^{-4}$	6.5798
7.9 $\times 10^{-4}$	6.5671
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7.864 $\times 10^{-4}$	0.0127
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	6.5717

$$s = \frac{114.6 Q}{T} W(u) = \frac{114.6 (400 \text{ gpm})}{10,000 \text{ gpd/ft}} (6.5717)$$

$$s = 30.1 \text{ ft} = 12 \text{ psi}$$

$\rightarrow$  L EXTRAP  $\rightarrow s = 16 \text{ psi}$

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PREDICT INTERFERENCE RRGE-1 ← RRGP-4

Q =

[CONSIDER NO INTERFERENCE FROM RRGE-3]

Q = 550 gpm AT 1825 DAYS

$$u = \frac{5 \cdot 1.87 r^2}{Tt} = \frac{(5 \times 10^{-4})(1.87)(1559 \text{ FT})^2}{(10,000 \text{ gpd/ft})(1825 \text{ DAYS})} = 1.245 \times 10^{-4}$$

u	w(u)
$1.245 \times 10^{-4}$	8.4509
$1.3 \times 10^{-4}$	8.3709
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	0.08
1.245	8.4149

$$r = \frac{114.6 Q}{T} w(u) = \frac{114.6 (550 \text{ gpm})}{10,000 \text{ gpd/ft}} (8.4149) = 53 \text{ ft}$$

$$r = 21.2 \text{ psi at 5 yrs}$$

Q = 650 gpm

$$r = \frac{114.6 (650 \text{ gpm})}{10,000 \text{ gpd/ft}} (8.4149) = 62.7 \text{ ft} = 25.1 \text{ psi at 5 yrs}$$

Q = 550 gpm AT 182.5 DAYS

$$u = \frac{5 \cdot 1.87 r^2}{Tt} = \frac{(5 \times 10^{-4})(1.87)(1559 \text{ FT})^2}{(10,000 \text{ gpd/ft})(182.5)} = 1.245 \times 10^{-3}$$

u	w(u)
$1.2 \times 10^{-3}$	6.1494
$1.3 \times 10^{-3}$	6.0695
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	0.0799
1.245	6.1134