

25-4/96

Flow rate calculations:

An energy efficiency evaluation was done by Energy Division in 1994. The efficiency for wells #1 and #2 were found to be low. For the purpose of determining the flow rate for these pumps when they were first put to beneficial use in 1953, I will assume a higher efficiency than what was found in the 1994 test. It will assume a 60% efficiency for well #1 and 70% for well #2.

$$\text{PWL calculation: } \frac{(3960)(20)(0.452)}{(59 \times 2.31) + \text{PWL}} = 217 \text{ GPM}$$

$$\text{PWL} = 29'$$

$$\text{WELL \#1 } \frac{3960(20)(0.60)}{(59 \times 2.31) + 29} = 287 \text{ GPM}$$

$$\text{WELL \#2 } \frac{3960(50)(0.70)}{(79 \times 2.31) + 29} = 655 \text{ GPM}$$

$$= 942 \text{ GPM}$$

$$= 2.10 \text{ CFS}$$

2014-25

Water Use Summary

WMIS

City of Kirie

George Frank

538-5548

525-1187 pager

Max Flow Rate

1479 GPM

peak demand

list on wells

600 gpm

1/7/2004

25-4196
25-7325

Talked with George Frank, Public Works Director for the City of Rivie this morning. A well test for the city was done in 1994 (will fax) and the following info is gleaned from the well test report:

WELL #1 - Drilled in 1936. 20 HP pump installed in 1953, 16" casing, 120' deep, SWL = 10.5', 217 GPM @ 59 psi. Motor is vertical turbine.

WELL #2 - Drilled in 1953. 50 HP, 16" casing, 117' deep, SWL = 11', 210 GPM @ 79 psi. George said this well was abandoned in 1996.

WELL #3 - Drilled in 1972. 7.5 HP submersible, designed for 350 GPM, PWL = 42.6', 12" casing, 334 GPM @ 10 psi. Pumps to 70,000 gal tank. PWL = 48.5' per well log.

WELL #4 - Drilled in 1995. 65 HP submersible pumps open discharge to 280,000 gal tank. Highest flows observed around 1500 GPM, pressure maintained at 65-67 psi in system.

4196
7325

City of Rivie

E0007452 4N 40E 32 NWSE WELL #1

20 HP main backup well

N 283616.10
E 679741.60

$$\frac{(20 \text{ HP})(3960)(0.70)}{(2.31 \times 59 \text{ psi}) + 11'} = 376 \text{ gpm}$$

E0007453 4N 40E 32 NWSE WELL #2

This well is abandoned.

$$\frac{50 \times 3960 \times 0.70}{(79 \times 2.31) + 11} = 716 \text{ GPM}$$

E0007454 4N 40E 32 SESW WELL #4

MAIN WELL

E 679405.20
N 283278.30

$$\frac{65 \times 3960 \times 0.70}{23 + 15} = 4741 \text{ GPM}$$

E0007455 3N 40E 5 L1 NENE WELL #3 (RESERVE WELL)

E 680127.20
N 283031.20

$$\frac{(7.5)(3960)(0.70)}{(2.31 \times 10) + 48.5} = 290 \text{ GPM}$$

Emergency use only. Well pumps into tank

12/29/2003 George will call me next Tuesday.