

St. Joseph Plant
Recommended Excess Capacity Disallowance

James A. Merciel, Jr.
Rebuttal Testimony
WR-2000-281

Historical usage from plant records

James A. Merciel, Jr.
Direct Testimony
WR-2003-0500
WC-2004-0168

	Pumped to system actual		Total production actual	
7/20/91	24,628,000	2.8%	25,328,000	gpd total production including plant use water
	actual		estimates	
1994 peak	21,204,000		21,790,023	
1995 peak	22,125,000		22,736,477	
1999 peak	21,880,000		22,484,706	

use 23 mgd

Filters 5.6 gpm/sqft 4 gpm/sqft initial approval

Of each of the 6 filters, each twin (1/2 filter) dimensions are 15 25 feet

375 sq ft

times 12 4500 sq ft total

Filters, 6 twin filters,	4500 sq feet
at 30 mgd	4.63 gpm/sqft
1 out of service	3750 sq feet
	5.56 gpm/sqft

Filters, 6 twin filters,	4500 sq feet
at 23 mgd	3.55 gpm/sqft
1 out of service	3750 sq feet
	4.26 gpm/sqft

NO EXCESS FILTER CAPACITY AT CURRENTLY APPROVED FILTER RATE

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Wellfield

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7 vertical wells 2650 gpm capacity of each vertical well
3 horiz pumps 4650 gpm capacity of each horizontal well pump

Run 6 wells
 2 horizontals
Produces 25200 gpm 36.3 mgd

Run 4 wells
 2 horizontals
Produces 19900 gpm 28.7 mgd

Run 4 wells
 1 horizontals
Produces 15250 gpm 22.0 mgd

Run 5 wells
 0 horizontals
Produces 13250 gpm 19.1 mgd

TWO VERTICAL WELLS MAY BE DISALLOWED FOR EXCESS CAPACITY

Vertical wells, total	\$	675,000	7 wells	
(rounded up to account for electrical, controls, pipe, etc.)	\$	96,429 each		
			2 wells	\$ 192,857

Estimated cost - well pumps \$ 800,000

7	300	\$	22,222	cost per 100 hp	
3	500				
				600 hp disallowance	\$ 133,333

Distributive Pumps

1 200hp	5560 gpm	8.0	
2 300hp	9730 gpm	14.0	
3 200hp	5560 gpm	8.0	
4 300hp	9730 gpm	14.0	
			observed flows
calculated flows:	3 and 4	22.0	21.2 mgd 3 and 4
	1, 2 and 3	30.0	28.6 mgd with 1,2,3
	1 and 3	16.0	
	2 and 4	28.0	

ONE 200 HP MAY BE DISALLOWED IF THE REMAINING 200 HP WERE REPLACED WITH A 300 HP

Using the same cost as well pumps,	
100 hp disallowance	\$ 22,222

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Clearwell

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WC-2004-0168

30 mgd	23 mgd
611000 CT	468433 CT
341600 wash	250000 wash
48000 plant	48000 plant
900000 eq	690000 eq

1,900,600 gallons	1,456,433 gallons	say two instead of two	750,000 units 1,000,000 units 500,000 gallon disallowance
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At a cost of	\$	1.00 per gallon	\$	500,000
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Clarifiers

	1 gpm/sqft	
	90 minutes detention	
	105 feet diameter	22 feet water depth
	3.5 feet dia center column	
	8649 settling area each	1,423,343 gallon volume each
30 MGD		
3 in service	0.80 gpm per sqft	205 minutes detention
2 in service	1.20 gpm per sqft	137 minutes detention
23 MGD		
2 in service	0.92 gpm per sqft	178 minutes detention
1 in service	1.85 gpm per sqft	89 minutes detention

ONE CLARIFIER COULD BE DISALLOWED FOR EXCESS CAPACITY

At a cost of	\$	1.00 per gallon	\$	1,423,343
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TOTAL RECOMMENDED EXCESS CAPACITY DISALLOWANCE	\$	2,271,756
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