ORIGINAL

TESTIMONY OF DAVID L. ORR

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REGARDING THE APPLICATION FOR INCREASE

IN WATER RATES IN ORANGE COUNTY

BY WEDGEFIELD UTILITIES, INC.

DOCKET NO. 991437-WU

Q. Please state your name and business address.

A. My name is David L. Orr and my business address is 200 Weathersfield Avenue, Altamonte Springs, FL 32714.

Q. By whom are you employed and in what capacity?

A. I am employed by Utilities, Inc., the parent company of Wedgefield Utilities, Inc. Presently, I serve as the Regional Operations Manager and I am responsible for the administration and operation of 36 water and wastewater systems in the counties of Lake, Marion, Orange, and Seminole in Florida. The systems serve from 39 connections up to almost 10,000 connections and are all subsidiaries of Utilities, Inc.

Q. State briefly your professional and educational experience.

A. I hold a Bachelor of Science degree in Environmental Engineering from the University of Central Florida. I am currently certified as an Engineer Intern (EI) in the State of Florida, and I am currently pursuing my Masters in Business Administration through Rollins College. Utilities, Inc. employed me in January 1997 in the capacity of Assistant Operations Manager. In that capacity my responsibilities included evaluating the operation of several systems in Florida, assisting in the assimilation of systems after acquisition, and completing special assignments under the direction of the Vice President, Don Rasmussen. In late 1998, I was promoted to the position of Regional Operations Manager assuming responsibility of managing the overall operation of four (4) affiliated companies. In March of 2000, I was asked to manage the 36 systems currently under my direction.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address Issues 3 and 5 as listed in Appendix A of Order No. PSC-00-1895-PCO-WU, the order establishing procedure for this case. These issues address the determination of used and useful for source of supply and pumping, water treatment, and storage plant as well as the appropriate allowance for unaccounted for water.

Q. Did you prepare, or have responsibility for the preparation of, any part of the Minimum Filing Requirement (MFR) filed in this docket?

A. Yes. I was responsible for the preparation of the Engineering, or "F" Schedules, as well as compiling some of the Additional Engineering Information required by PSC Rule 25-30.440, Florida Administrative Code and submitting the "F" schedules and Additional Engineering Information to our corporate office for inclusion into the final documents. I am co-sponsoring, along with Ms. Nicholas, the Engineering portions of the MFR, which are a part of Exhibit (ELN-1)_____.

Q. Are you familiar with the testimony filed by Mr. Seidman in this case that addresses Issue Nos. 1 and 2 as they regard the appropriate methods for determining used and useful for source of supply and pumping, for water treatment and for storage plant for Wedgefield?

A. Yes.

Q. Do you agree with Mr. Seidman's conclusions, and did you use the methods he recommended, in your calculations?

A. Yes to both questions. I compared the maximum level of demand against the firm reliable capacity for each major classification of plant facilities.

Q. Are you familiar with the testimony filed by Mr. Seidman in this case that addresses Issue No. 4 regarding the appropriate period to consider for customer peak demand?

A. Yes.

Q. And do you agree with Mr. Seidman's conclusion, and did you use the period he recommended in your calculations?

A. Again yes to both questions. I used a maximum day demand in my calculations.

ISSUE NO. 3

Q. Based on the methodologies determined in Issues one and two, what is the appropriate used and useful percentage for these components of the Wedgefield system?

A. The appropriate used and useful percentage for each of the components (source of supply and pumping, water treatment, and storage plant) is 100%.

Q. Are your calculations for the used and useful percentage included in the MFR?

A. Yes. They can be found at Schedule F-5. Schedule F-8 is the schedule supporting the calculation of customer growth that is an integral part of the used and useful calculation, and Schedule F-3 shows the information on customer demand.

Q. Please explain the used and useful calculation for Source of Supply and Pumping Plant (Supply Plant).

A. Used and Useful for Supply Plant was calculated by dividing customer demand by the firm reliable capacity of the supply plant. Public water systems are required to be able to operate with the largest well out of service. Wedgefield has two active wells. So the firm reliable capacity is the capacity of the smaller well, which is 400 gpm or 576,000 GPD for a 24-hour day. The customer demand is the sum of the maximum day demand plus fire flow demand plus an allowance for the demand associated with customer growth over the five years after the test year.

Q. What was the maximum day demand for the test year included in the MFR?

A. The maximum day demand for the test year was 583,000 GPD and occurred on July 2, 1998.

Q. Do you have any changes to that maximum day demand?

A. Yes. I reviewed the maximum day because it occurred in a different month and season than the

next five peak days. When I did so, I found the maximum day for the year occurred on a day when flows were being used for a fire. As Mr. Seidman pointed out in his testimony, the maximum day used for used and useful calculations should exclude any abnormal or unusual events. When that was taken into consideration, I determined that the maximum day, with no abnormal or unusual events, was 532,000 GPD and it occurred on April 13, 1999. That value should be substituted into my calculation on Schedule F-5.

Q. Did you make any adjustments for unaccounted for water in the customer demand?

A. No, I did not.

Q. **Would it be appropriate to do so?**

A. I believe it would. Since Wedgefield has been operating the system, we have made an effort to further identify sources of unaccounted for water and reduce it, if economically effective. I will address that subject later in my testimony with regard to Issue No. 5. But, as discussed by Mr. Seidman, we have concluded that a reasonable level of unaccounted for water for this system is

13%. This compares to an experienced level during the test year of 27.1%. The difference of 14.1% equates to 40,429 GPD "excess" unaccounted for water for the test year.

Q. With all of the factors you have discussed and taken into consideration, what is your calculation of used and useful for Source of Supply and Pumping Plant?

A. The used and useful for Source of Supply and Pumping Plant is 100%. A summary of the calculation, based on the restated Maximum Day Demand and an adjustment for unaccounted for water, is shown on my Exhibit (DLO-1)_____.

Q. Now, would you please explain your used and useful calculation for Water Treatment Plant?

A. The used and useful for Water Treatment Plant was calculated by dividing customer demand by the firm reliable capacity of the treatment plant, just as was done in calculating the Used and Useful for Supply Plant.

Q. Would you please describe the water treatment process at Wedgefield?

A. The water treatment process consists of pre-treatment chlorination of the raw water from the wells followed by aeration, ion exchange, post-treatment chlorination, and then corrosion control inhibitor addition before final distribution to the system. The aeration process performs several functions, the most noticeable to customers being the improvement to taste and odor by the removal of hydrogen sulfide from the water. Most people are familiar with sulfur as being the source of a rotten egg smell. The ion exchange process essentially "softens" the water by removing dissolved minerals. Hard water can have an unacceptable mineral taste and cause scaling on plumbing fixtures, within hot water heaters, and on dishes and glasses. The ion exchange process softens water completely to zero hardness. However, very soft water has its disadvantages also, such as causing corrosion to plumbing fixtures, washing machines and hot water heaters. Because of this, a balance must be maintained. Blending softened water with unsoftened water does this. Water with 150-300

mg/L of calcium carbonate ($CaCO_3$) is considered hard. At Wedgefield, the raw water has a hardness of approximately 270 mg/L. The water is treated and blended to a hardness of approximately 115 mg/L to 135 mg/L, which is considered to be moderately hard. Water with hardness below 75 mg/L is considered soft. Wedgefield keeps the hardness above that level to prevent corrosion problems. Also, we add a polyphosphate solution called Aquadene into the water to assist in providing adequate water quality for our Wedgefield customers.

Q. Do many homeowners at Wedgefield have their own personal water softeners?

A. Yes. A significant number of the homes that were built before Wedgefield took over operation have water softeners. These homeowners, if they still prefer to soften their water further, need to be sure that they don't over soften their water, or they will experience corrosion problems in their equipment. They should, therefore, try to keep their final water hardness between 75 mg/L and 100 mg/L.

Q. What is the Firm Reliable Capacity of the Treatment Plant as shown on Schedule F-5 of the MFR?

A. The Firm Reliable Capacity as shown on Schedule F-5 of the MFR is 500,000 GPD.

Q. How did you arrive at that amount?

A. The ion exchange units were refurbished in June, 1998, right at the beginning of the test year. The units had not been performing to our satisfaction and were not providing consistent treatment. At the time the MFR's were being prepared, we did not have sufficient operating experience for the refurbished units upon which to base the actual operating capacity. I determined capacity based upon the grains per gallon exchange rate capacity of the ion exchange media as specified by the manufacturer. The resulting capacity was 1,000,000 GPD for the two units, or 500,000 GPD of Firm Reliable Capacity.

Q. Has adequate time passed for you to verify the actual operating capacity of the units?

A. Yes. The actual hydraulic throughput capacity of the plant is 1,056,000 gallons per day and the Firm Reliable Capacity is 528,000 GPD.

Q. How did you arrive at the value of 528,000 gallons per day?

A. The operation of the ion exchange units has greatly improved since the refurbishment in June of 1998. Currently, we send approximately 200 gallons per minute through the ion exchange unit, which results in an output hardness at or near zero mg/L. We blend this with approximately 200 gallons per minute of water that bypasses the ion exchange units at a hardness of approximately 270 mg/L. We can therefore soften to our desired value of approximately 135 mg/L. This hardness level can be further reduced in the final blended output by throttling back on the bypass and increasing the flow through the ion exchange units. However, this reduces the total throughput of the units because you must increase the head on the pumps on the influent side of the water treatment system.

Based upon our operational experience, each unit has the ability to handle 400 gpm total throughput, or 576,000 GPD on a 24 hour basis. However, the resin used in the ion exchange process must be back washed, regenerated and rinsed regularly to remove the impurities collected on them and to maintain their function. These impurities are disposed of by piping them to the wastewater system for treatment. This process requires an average of two hours a day per unit. Therefore, a unit can be available only 22 hours a day, which limits the maximum available capacity of a unit to 528,000 GPD.

Q. Is the customer demand faced by the Treatment Plant the same as for the Supply Plant?

A. Yes, it is.

Q. With all of the factors you have discussed and taken into consideration, what is your calculation of used and useful for Treatment Plant?

A. The used and useful for Treatment Plant is 100%. A summary of the calculation, based on the restated Maximum Day Demand and Firm Reliable

Capacity, and an adjustment for unaccounted for water is shown on my Exhibit (DLO-1)_____.

Q. Now, please address your calculation of used and useful for the storage plant. First, would you describe the storage tank at Wedgefield?

A. The storage tank at Wedgefield is a little different from the typical tank. It is a double ringed plant. That is, it has an inner tank and an outer tank within the same structure. The inner tank holds the raw water from the wells after aeration and pre-chlorination. The water is then drawn from the inner ring, through the water treatment process and then deposited into the outer ring of the tank as finished water. The total capacity of the tank is 350,000 gallons.

Q. Why does it have two rings?

A. The inner ring is used to store water that has been aerated and pre-chlorinated, but not treated for hardness. The outer ring is used to store finished water. The purpose of storing pre-treated water is to provide a steady source of aerated and chlorinated water to the ion exchange

units. For purposes of emergencies however, the water in both rings is available.

Q. What is the Firm Reliable Capacity of the Storage Plant?

A. The Firm Reliable Capacity of the Storage Tank is 315,000 GPD, which is the total capacity of 350,000 GPD less 10% for dead storage. Dead storage is that portion of the bottom of the tank that is below the level of the outlet pipes and cannot be accessed.

Q. What is the demand the storage tank must be ready to serve?

A. Storage serves several functions. It provides equalization of flow. It provides capacity during an emergency, such as during a plant shut down. And it provides for fire flows that require gpm capacity greater than can be provided directly by the wells and treatment plant. This combined demand is represented by an equalization component equal to one-half of the maximum day demand, an emergency component represented by one-quarter of the maximum day demand and a fire flow component. As with the other components

discussed, these demand components are adjusted for growth, fire demand, and unaccounted for water factors.

Q. With all of the factors you have discussed and taken into consideration, what is your calculation of used and useful for Storage Plant?

A. The used and useful for Storage Plant is 100%. A summary of this calculation, based on the restated Maximum Day Demand and an adjustment for unaccounted for water is shown on my Exhibit (DLO-1)_____.

ISSUE NO. 5

Q. Both you and Mr. Seidman have recommended that a 13% level of unaccounted for water is appropriate for Wedgefield. Do you have some information to support that recommendation?

A. Yes. As Mr. Seidman mentioned, we initiated a leak detection program because of our concern that the unaccounted for water level was historically in the 20-30% range. That program included not only leak detection, but also a search for un-metered uses of water. As indicated on Schedule F-1 of the MFR, since the test year

we have metered previously un-metered uses that account for about 3% of the gallons pumped. We were also able to detect and repair a significant major leak. We will continue to monitor the system. However, monthly water audits since the end of the test year reflect what has been a reasonable and attainable ongoing level of unaccounted for water. That is a known factor that can now be taken into consideration in the used and useful plant determinations and in adjustments to chemical and electric expenses that are consumption related. I have prepared Exhibit (DLO-2)_____, which summarizes the unaccounted for water levels for the test year, updated for the months since the end of the test year.

Q. Have you calculated the volume of "excess" unaccounted for water to be used as an adjustment to the demand flows?

A. Yes. Consistent with the approach used by the PSC Staff, I multiplied the difference between the 27.1 % actual unaccounted for water and the 13% "reasonable" unaccounted for water, times the average daily flow of 286,731 GPD. For purposes

of determining used and useful, the "excess" unaccounted for water is 0.141 x 286,731 GPD, or 40,429 GPD.

Q. Does that conclude your direct testimony?

A. Yes it does.

Docket No.: 991437-WU
David L. Orr, EI
(DLO-1) Exhibit No.: _____
Restated Used and Useful Calculations

Restated Used and Useful Calculations for Source of Supply and Pumping Plant, Storage Plant and Water Treatment Plant.

			Test Year	
1	**Source of Supply and Pumping Plant:**			
2	Capacity:			
3	Well No. 1:	(400 gpm)	576,000	GPD
4	Well No. 2:	(600 gpm)	864,000	GPD
5	Total	(1000 gpm)	1,440,000	GPD
6	Largest Well out of Service		(864,000)	GPD
7	Firm Reliable Capacity		576,000	GPD
8	Demand:			
9	Maximum Day Demand	(4/13/99)	532,000	GPD
10	Property needed, Rule 25-30.431	(5 Year = 13.05%)	69,426	GPD
11	Fire Demand	(500 gpm x 2 hours)	60,000	GPD
	Unaccounted For Water Allowance		(40,429)	
12	Total		620,997	GPD
13				
14	Used & Useful %		108%	
15				
16	**Storage Plant:**			
17	Capacity:			
18	Ground Storage Tank		350,000	gallons
19	Less 10% Dead Storage		35,000	gallons
20	Firm Reliable Capacity		315,000	gallons
21	Demand:			
22	Emergency	(1/2 Maximum Day Demand)	266,000	
23	Equilization	(1/4 Maximum Day Demand)	133,000	
24	Property needed, Rule 25-30.431	(5 Year=13.05%x(Emerg + Equal)	52,070	
25	Fire Demand	(500 gpm x 2 hours)	60,000	
	Unaccounted For Water Allowance		(40,429)	
26	Total		470,641	
27				
28	Used & Useful %		149%	
29				
30	**Water Treatment Plant:**			
31	Capacity:			
32	Ion Exchange Unit No. 1	(400 gpm x 1320 minutes)	528,000	
33	Ion Exchange Unit No. 2	(400 gpm x 1320 minutes)	528,000	
34	Total	(800 gpm)	1,056,000	
35	Largest Unit out of Service		(528,000)	
36	Firm Reliable Capacity		528,000	
37	Demand:			
38	Maximum Day Demand	(4/13/99)	532,000	
39	Property needed, Rule 25-30.431	(5 Year = 13.05%)	69,426	
40	Unaccounted For Water Allowance		(40,429)	
	Fire Demand	(500 gpm x 2 hours)	60,000	
41	Total		620,997	
42				
43	Used & Useful %		118%	
44				

Docket No.: 991437-WU
David L. Orr, EI
(DLO-2) Exhibit No.:_____
Unaccounted for Water Calculations

Updated Unaccounted for Water Calculation showing the improvement since previously unmetered uses have been added to the billing system and the effect of repairing the major leak in August 1999.

Month/ Year	(1) Total Gallons Pumped (000,000's)	(2) Gallons Purchased (000,000's)	(3) Gallons Sold (000,000's)	(4) Other Uses (000,000's)	(5) Unaccounted For Water (1)+(2)-(3)-(4) (000,000's)	(6) % Unaccounted For Water
Jul-98	9.195	0	7.114	0.630	1.451	15.8%
Aug-98	7.197	0	5.233	0.004	1.960	27.2%
Sep-98	6.870	0	5.869	0.007	0.994	14.5%
Oct-98	7.688	0	5.832	0.006	1.850	24.1%
Nov-98	7.953	0	6.800	0.002	1.151	14.5%
Dec-98	8.235	0	5.700	0.000	2.535	30.8%
Jan-99	7.852	0	5.689	0.004	2.159	27.5%
Feb-99	7.871	0	5.282	0.006	2.583	32.8%
Mar-99	10.750	0	7.402	0.004	3.344	31.1%
Apr-99	12.256	0	8.551	0.021	3.684	30.1%
May-99	9.892	0	6.047	0.021	3.824	38.7%
Jun-99	8.898	0	6.106	0.004	2.788	31.3%
Total	104.657	0	75.625	0.709	28.323	27.1%

Upon detection of the high unaccounted for water use, a leak detection program was initiated. To date approximately 3% of the annual total gallons pumped has been accounted for through the metering of previously unmetered uses.
In August 1999 a substantial leak was located and repaired. An audit of the system is ongoing.

Jul-99	10.496	0	6.341	0.009	4.146	39.5%
Aug-99	10.070	0	6.524	0.004	3.542	35.2%
Total	20.566	0	12.865	0.013	7.688	37.4%

Since the metered uses were added to the system and the leak fixed in August of 1999.

Sep-99	6.859	0	5.836	0.000	1.023	14.9%
Oct-99	6.541	0	4.581	0.044	1.916	29.3%
Nov-99	6.676	0	6.102	0.004	0.570	8.5%
Dec-99	6.490	0	5.671	0.005	0.814	12.5%
Jan-00	7.003	0	6.884	0.020	0.099	1.4%
Feb-00	7.086	0	7.028	0.023	0.035	0.5%
Mar-00	9.097	0	7.254	0.046	1.797	19.8%
Apr-00	9.442	0	8.635	0.037	0.770	8.2%
May-00	10.926	0	10.199	0.064	0.663	6.1%
Jun-00	10.260	0	8.373	0.014	1.873	18.3%
Jul-00	8.438	0	7.863	0.066	0.509	6.0%
Aug-00	9.120	0	7.519	0.048	1.553	17.0%
Sep-00	7.599	0	5.866	0.000	1.733	22.8%
Total	105.537	0.000	91.811	0.371	13.355	12.7%