DOCKET NO.: 991437-WU - APPLICATION FOR INCREASE IN WATER RATES IN ORANGE COUNTY BY WEDGEFIELD UTILITIES, INC.

WITNESS: **DIRECT TESTIMONY OF ROBERT J. CROUCH,** APPEARING ON BEHALF OF THE STAFF OF THE FLORIDA PUBLIC SERVICE COMMISSION

DATE FILED: MAY 31, 2001

DIRECT TESTIMONY OF ROBERT J. CROUCH

Q. Please state your name and business address.

A. Robert J. Crouch. Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, FL 32399.

Q. Please state a brief description of your educational background and experience.

A. I received a B.S. in Engineering from the Air Force Institute of Technology in 1970. I completed post graduate work in Industrial Management from the Industrial College of the Armed Forces and graduated in 1976. I was certified as a Professional Engineer in March, 1976. I retired from the U.S. Air Force in 1979 as a Lieutenant Colonel after 23 years military service, primarily as an engineer and a manager. From 1979 to 1984, I was employed by Southwestern Bell Telephone Company as a circuit design engineer.

In September, 1984, I started working for the Florida Public Service Commission (PSC) as a supervisor of an engineering section in the Division of Communications. In April, 1987, I transferred to the Division of Water and Wastewater, now called the Division of Economic Regulation, where I supervise engineers in investigations of regulated water and wastewater utilities.

Q. What are your professional affiliations?

A. I am currently, or have been in the recent past, a member of the Florida Engineering Society, the Texas Society of Professional Engineers, National Society of Professional Engineers, Society of Military Engineers, American Water Works Association, Water Environment Federation, and the Florida Pollution Control Federation.

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

A. I am employed by the PSC as the Supervisor of Engineering in the Division of Economic Regulation (formerly Water and Wastewater). As I stated earlier, I have worked for the PSC for over sixteen years and have been in my current position for over fourteen years.

Q. What are your general responsibilities at the PSC?

A. As Supervisor of Engineering in the Bureau of Economic Regulation, I supervise assigned engineers who conduct field evaluations and prepare recommendations pertaining to rate cases and technical complaints for Commission review. The Engineering Section inspects and evaluates regulated water and wastewater utilities and makes recommendations to the Commission regarding utility compliance with applicable PSC rules and state and federal regulatory standards. The Engineering Section works with other staff in determining the rate base and/or value of the utility assets.

Q. Have you ever testified before as an expert witness?

A. Yes. I have been accepted and testified as an expert witness in two separate hearings held by the U.S. House of Representatives, Military Appropriations sub-committee. I testified before this Commission in Docket No. 910560-WS, application for a rate increase by Tamiami Village Utility, Inc.; Dockets Nos. 920733-WS and 920734-WS, application for a rate increase by General Development Utilities, Inc.; and Docket No.940847-WS, application for a rate increase by Ortega Utility Company. I also testified in Docket 950387-SU, the Florida Cities Water Company wastewater rate case for its North Ft Myers wastewater system.

I have also testified before the Division of Administrative Hearings (DOAH) in the challenge to proposed Rule 25-30.431 (Margin Reserve).

Q. What is the purpose of your testimony today?

A. The purpose of my testimony is to answer the specific issues raised by Wedgefield Utilities, Inc. (Wedgefield or utility) in its protest of the PAA order concerning:

1) The appropriate methodology for determining used and useful percentages for the source of supply, water pumping, water treatment, standing pipe and storage plant;

2) Whether used and useful percentages should be calculated on individual components or on the water treatment system as a whole;

3) The appropriate used and useful percentage, based upon the methodology determined in 1) above;

4) The appropriate period to consider customer demand (Peak day or Average of five maximum days);

5) The appropriate allowance for unaccounted for water for the Wedgefield system; and

6) The appropriate used and useful percentage for the land purchased on June 18, 1999, that should be included in rate base.

Q. What information have you relied upon in preparing your testimony?

A. As stated earlier, I have been a registered professional engineer for more than 25 years and have worked as an engineer evaluating water and wastewater rate cases for over 14 years. My testimony is based upon a review of Engineering Guidelines such as those published by American Water Works Association (AWWA), Water Environment Federation (WEF), and Ten States Standards, plus research done by me and by staff engineers under my supervision, my knowledge and expertise in water and wastewater utility

economic regulation, testimony and discovery presented in this case, and past Commission decisions.

Q. What is the appropriate methodology for determining used and useful for the source of supply, water pumping, water treatment, standing pipe and storage plant?

A. The entire system, wells, treatment, storage, etc., should be considered a single system providing treated water to meet customer demand, including fire flow. Therefore, a used and useful percentage should be calculated for the system as a whole.

Q. How is the firm reliable capacity determined?

A. First, the actual or "firm reliable" capacity of the water treatment system must be determined. It should be understood that there is no "permitted capacity" established by DEP for a water treatment system. Therefore, staff calculates the "firm reliable capacity" of the treatment process as a single entity. This is accomplished by taking the capacity of the wells with the largest well out of service. Due to the possibility of depleting the drawdown area around a well, I have considered the wells pumping for 12 hours out of the 24 hour day. Admittedly, some wells could operate more than 12 hours for a few days but given the severe drought and low water table in most of Florida, 12 hours is considered a safe period. Next, any storage capacity is added. While NARUC lists storage under distribution in its system of accounts, storage is actually an integral part of the capability of the system to meet customer demand at any given moment. In fact, fire flow is drawn only from storage. If the storage is a ground storage tank, 10% of its capacity is subtracted as dead or unusable storage. Elevated storage is

calculated at the full storage capacity. This "firm reliable capacity" is used as the denominator of the used and useful equation. The numerator consists of the customer demand plus a 5 year growth allowance (formerly known as a Margin Reserve) plus fire flow, if required, and minus any excessive unaccounted for water. (10% of the water treated is allowed as non-revenue producing or unaccounted for water. More than 10% is examined on a case-by-case basis to determine what might be considered "excessive".) The customer demand is placed upon the entire treatment process, not each individual component. Customer demand and unaccounted for water are discussed later in my testimony. The resulting percentage is applied to the water treatment system as a single entity. There may be additional factors such as consumptive use limitations, filter capacity limitations, etc. which must be considered in determining the overall used and useful percentage of the treatment system.

Q. Should used and useful percentages be calculated on individual components or on the water treatment system as a whole?

A. As shown earlier, the entire system is necessary to meet customer demand (including fire flow). The system includes wells, treatment and storage. The used and useful percentage of the system illustrates the percentage of the system used by and useful to the existing customer base. Therefore, the used and useful percentage is normally calculated on the entire system and not by component.

Q. In your opinion, what is wrong with calculating used and useful percentage on each element of the water system?

A. Treating each component separately would result in abnormally high and

in many cases, misleading used and useful percentages, for individual components. Let me give an example: A system has two wells. The largest capacity well is considered out of service leaving the capacity of the smaller well as the Firm Reliable Capacity of the wells. If that Firm Reliable Capacity is used as the denominator and the customer demand, plus fire flow is used in the numerator of the used and useful equation, as Wedgefield proposes, it would indicate that the well, or source of supply has more than a 100 used and useful percentage. If this same customer demand plus fire flow (again) is applied to the individual treatment equipment, it is obvious that they also would have a very high used and useful percentage. Similarly, if the customer demand plus fire flow is divided by the storage tank capacity, that storage would also have a very high used and useful percentage. This is exactly what the utility is requesting. Realistically, however, the wells, treatment, and storage act as a system and meet demand <u>as a system</u>. Demand can come from storage without the wells pumping or the treatment equipment treating any water at that moment. Likewise, the pumps can be producing and the equipment treating water which is going into storage without any customer demand at that moment. It is obvious that the treatment process is not "treating" water unless it is being pumped at that moment. Therefore, the treatment element has no extra capacity. In his direct testimony, pages 9-12, Mr. Orr explains Wedgefield's treatment process including aeration, ion exchange, chlorination, and corrosion inhibitor. He concludes that the system has an hydraulic throughput of 1.056 million gallons per day (mgd) or with one unit out of commission, a throughput capacity of .528 mgd. That is exactly my point: the treatment process has a "throughput" capacity. It does not

provide any capacity in and of itself, but acts as a part of the overall system. During periods of high demand, the system meets the demand as a system, with the pumps pumping, the treatment equipment treating and the storage tank storing at the same time. Individual components, by themselves, may not be able to meet the momentary peak demand but the system as a whole is designed to meet demand. If each element of the system were treated individually, the customer could end up paying for individual components which were much larger than needed to meet the overall demand placed upon the system by existing customers.

Q. Is it valid to apply Fire Flow requirements to each separate component as proposed by Wedgefield Utilities?

A. In my opinion, no. It is interesting to note that "fire flow" cannot be provided by the well standing alone; storage adequate to meet fire flow demands is specified by planning guides such as "Recommended Standards for Water Works", also known as the 10 States Standard and AWWA Manual of Water Supply Practices-M32, Distribution Network Analysis for Water Utilities.

Q. What is the appropriate Fire Flow for Wedgefield Utilities?

A. In this specific case, the one well, by itself, pumps 400 gallons per minute (gpm) and cannot meet minimum fire flow requirements (according to the Insurance Services Office) of 500 gpm (120,000 gallons over a 4 hour period). Storage must be included.

Q. Have there been circumstances where staff has recommended calculating used and useful percentage by component?

A. Yes. There are unique cases where components were evaluated separately. If a utility has a well field consisting of numerous wells, it is possible

that some of these wells were not needed by current customers. Therefore, a used and useful percentage was calculated for the well field alone. Likewise, there have been some utilities such as Palm Coast, which have installed far more treatment equipment than was needed by current customers. In Docket No. 920199-WS, Southern States Utilities Corporation, staff was combining the analysis of over 90 separate and distinct water systems. Some systems had storage, some had only hydropneumatic tanks, some had complex treatment facilities while others only pumped and chlorinated. Due to the wide variety of systems, staff took each system by component. A careful analysis of staff's recommendation will show that many systems had the same used and useful percentage for all components which actually meant that staff looked at the entire water facility as a system even though a separate used and useful percentage may have been calculated for the treatment components. In Wedgefield's case, there are only two wells and a treatment process which depends upon the wells providing raw water to be treated. This raw water flows through the treatment process with no inherent storage within the treatment chain. The treated water is then stored in the ground storage tank.

Q. Based upon the methodology that you recommend, what is the appropriate used and useful percentage?

A. I recommend that, consistent with Commission decisions for similar utilities, (Order No. PSC-94-0075-FOF-WS, issued January 21, 1994, in Docket No. 921261-WS, Harbor Utilities Company, Inc., and Order No. PSC-97-0847-FOF-WS, issued July 15, 1997, in Docket Nos. 960329-WS and 960234-WU, Gulf Utility Company), the water treatment system be treated as a single entity and the used and useful percentage be calculated on that single system.

The used and useful percentage for the water treatment system as a single entity is 76%. This is calculated by adding the capacity of the ground storage tank (350,000 gal) less dead storage (35,000 gpd) to the well capacity with the largest well out of service (576,000 gpd) or 891,000 gpd total. This goes in the denominator of the used and useful equation as the Firm Reliable Capacity of the system. Next, add the average of five maximum day customer demand (507,000 gpd) to fire flow (120,000 gpd) and add growth allowance for 5 years (33 ERCs or 97,350 gpd) and subtract excessive unaccounted for water (49,031 gpd). The result goes in the numerator: 675,319 gpd/891,000 gpd = 76%

Q. What is the appropriate period to consider when determining customer demand (peak day or average of five peak days)?

A. Again, the Commission's past decisions have normally been based upon the average of the five peak days. (See Order No. PSC-96-1320-FOF-WS, issued October 30, 1996 in Docket No. 950495-WS.) This compensates for a single or individual "peak" day where anomalies such as line breaks, fire flow needs, or other unique flow requirements might inflate the customer demand. In virtually every case for the past 15 years, staff has recommended and the Commission has agreed that the average of the five peak days be used for customer demand. The few cases where the single maximum day was used were where anomalies had already been excluded and the single maximum day reflected realistic customer demand. The minimum filing requirements (MFRs) ask for the maximum day flow as well as the average of the five maximum days so that the two flows, maximum day and five day average, can be compared.

Q. What period of customer demand did the utility propose in this case?

A. In this specific case, Wedgefield proposed using a single maximum day

of 583,000 gpd which was significantly greater than the average of five days: 507,000 gpd and the utility gave no explanation or assurance that anomalies had been excluded. According to the MFRs, Schedule F-3, the single maximum day was 7/2/98 and was not even in the maximum month (April, 1998). It is curious to note that in his testimony, Mr. Orr admitted that the maximum day the utility specified in its MFRs, July 2, 1998, with 583,000 gallons, was in fact invalid since the utility now finds that there was an anomaly, a fire, on that day which greatly increased demand, rendering the 583,000 gallons an invalid figure. Now, after the fact, the utility has suggested that staff consider another day, April 13, 1999, and 532,000 as the "peak" demand.

Q. In your opinion, what is the appropriate period of customer demand to use in this case?

A. The example shown above is exactly why I recommend that the average of the 5 maximum days be used in arriving at a reliable, realistic indication of customer demand.

Q. What is staff's normal procedure for calculating excessive unaccounted for water?

A. First, staff determines the quantity of water treated (or purchased) by the utility for distribution to its customers. Second, staff determines the amount of water that is actually revenue producing (sold to customers). There is an amount of treated water which is used by the utility for non-revenue producing purposes such as back flushing filters, line flushing, and cleaning fire hydrants, etc. A well run utility documents these uses and lists them in its annual reports as "other uses" (W-11 col d) and in the MFRs (Schedule F-1) filed for a rate proceeding. As shown in the MFRs: gallons pumped plus

gallons purchased minus gallons sold minus these other uses results in unaccounted for water. As shown in the staff recommendation and the PAA Order issued in this docket, it is Commission practice to allow 10% or the total water treated (or purchased) as acceptable unaccounted for water caused by stuck meters, line breaks or other, undocumented purposes. Amounts over that 10% would indicate a possible lack of record keeping or poor maintenance and would be considered excessive. Therefore, in my opinion it is appropriate to deduct the costs of chemicals and electricity used to pump and treat that excessive amount from allowable expenses.

Q. Why does staff recommend this procedure?

A. As shown above, a well managed utility should be able to document the majority of its non-revenue producing uses leaving a small percentage of its treated water as "unaccounted for". Ten percent should be more than sufficient to cover those unaccounted for quantities. The customer should not be required to pay for electricity or chemicals used to treat excessive unaccounted for water.

Q. Does Wedgefield have excessive unaccounted for water?

A. Yes. Wedgefield, in its MFRs, reported 104,657,000 gallons of water treated during the test year of which the utility reported 28,323,000 gallons (27.1%) as unaccounted for. In accordance with established Commission practice, 17.1% would be considered excessive and electrical expenses of $2,565 and chemical expenses of $8,643 would be disallowed. Again, I note on pages 16-17, lines 25-2, of his testimony, Mr. Orr states that "...since the test year we have metered previously un-metered uses that account for about 3% of the gallons pumped." And Mr. Seidman states, on page 14, lines 8-10,

"Within two months after the end of the test year, a substantial leak was located and repaired." Mr. Orr and Mr. Seidman now suggest that, due to corrections made after the test year excessive unaccounted for water should be reduced from 17.1% to 13%. Again, calculations are based upon quantities, numbers, and flow amounts provided by the utility for the test year.

Q. Is it appropriate to consider any improvements that the utility may have made to correct its excessive unaccounted for water after the test year?

A. While corrective measures taken by the utility after the test year are commendable, staff has no way of knowing what has transpired after the test year and must base our engineering calculations and recommendations on test year figures filed by the utility in its MFRs.

Q. What is the appropriate used and useful percentage for the land purchased June 18, 1999, that should be included in rate base?

A. In Issue 6, Wedgefield questioned staff's recommendation that only 25% of the cost of the land purchased June 18, 1999, be considered used and useful and allowed in rate base. The utility requested that 100% of the land be considered used and useful and that the entire purchase price be allowed in rate base. In its response to a staff audit report dated May 6, 2000, the utility stated that the purchase of the parcel provides sufficient land on which to locate additional wells and storage. I agree and recommend that land for additional wells and storage is actually land held for future use and NOT used by or useful to existing customers. Staff applied the DEP required "Wellhead Protection" of 100 ft radius around the existing well site for safety. Only a segment of this 100 ft radius circle actually lies within the purchased land and staff recommended that this segment, 9,500 square feet, be

considered used and useful. Staff also considered the fact that accessibility to the well site was needed. Therefore, an easement 10 feet wide was allowed as used and useful. The remaining land, approximately 75%, is actually land held for future use and is therefore not used and useful.

Q. In your opinion, is it appropriate to use a "non-traditional" used and useful analysis for this land?

A. No. Mr. Seidman claims, on page 15, lines 12-14, of his testimony, that ". . . I do not believe that land should be subjected to the traditional used and useful analysis." I agree with Mr. Seidman that the timing of the purchase of land and the quantity purchased is one of opportunity and cost. I also agree that the purchase of the land was timely and practical. However, I am confident that current customers would not appreciate having to pay now for the purchase of land which has no current use and, as admitted in the utility's audit response, is to be used for future wells and storage which is obviously land held for future use.

Q. What is the correct number of equivalent residential corrections (ERCs) available for service to Wedgefield's certificated area?

A. While not included as an issue in either the utility's or the Office of Public Counsel's protests, there was some question as to how staff arrived at the number of lots available in the distribution system. The number 1,323 was derived by staff by physically inspecting the service area and then inspecting the map of the service area provided by the utility and actually counting the lots which have a water main passing in front (or in back) of the lot. There are several lots in the service area which, according to Wedgefield's map, DO NOT have a main available to that particular lot. Consequently, that lot is

not counted as available for service.

Q. Does this conclude your testimony?

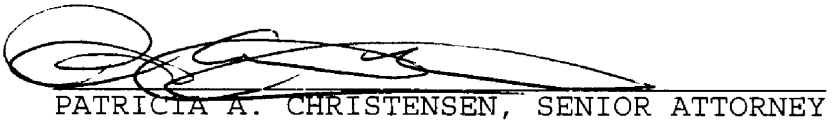
A. Yes.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for increase in water rates in Orange County by Wedgefield Utilities, Inc.	DOCKET NO. 991437-WU FILED: May 31, 2001

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Direct Testimony of Robert J. Crouch was furnished to **Ben Girtman, Esquire**, 1020 East Lafayette Street, #207, Tallahassee, Florida 32301-4552, and **Charlie Beck, Esquire**, Office of the Public Counsel, c/o The Florida Legislature, 111 West Madison Street, Room 812, Tallahassee, Florida 32399-1400, by U.S. Mail, on this 31st day of May, 2001.



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