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Charlie Beck
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November 5, 2007

Ms. Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0870

RE: Docket No. 070183-WS
In re: Proposed Adoption of Rule 25-30.4325, F.A.C., Water Treatment Plant Used and Useful Calculations.

Dear Ms. Cole:

Enclosed, for filing, on behalf of the Citizens of the State of Florida, is the original and 15 copies of the Testimony of Andrew T. Woodcock.

Please indicate the time and date of receipt on the enclosed duplicate of this letter and return it to our office.

Sincerely,

Stephen C. Reilly
Associate Public Counsel

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Enclosures
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cc: Parties of Record

CERTIFICATE OF SERVICE
DOCKET NO. 070183-WS

I HEREBY CERTIFY that a true and correct copy of the foregoing Testimony of Andrew T. Woodcock has been furnished by electronic mail and U.S. Mail to the following parties on this 5th day of November, 2007, to the following:

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Proposed Adoption of Rule 25-30.4325, F.A.C., Water Treatment Plant Used and Useful Calculations.	DOCKET NO. 070183-WS Date Filed: November 5, 2007

/

TESTIMONY

OF

ANDREW T. WOODCOCK, P.E., M.B.A

ON BEHALF OF

THE OFFICE OF PUBLIC COUNSEL

Respectfully Submitted,

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PREFILED TESTIMONY

AND EXHIBITS OF

ANDREW T. WOODCOCK, P.E., M.B.A.

ON BEHALF OF THE
OFFICE OF PUBLIC COUNSEL

In Re: Proposed adoption of Rule 25-30.4325, F.A.C.,
Water Treatment Plant Used and Useful Calculations

November 5, 2007

PREFILED TESTIMONY OF

ANDREW T. WOODCOCK PE, MBA

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is Andrew Woodcock. My business address is 201 East Pine St. Suite 1000, Orlando, Florida.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by Tetra Tech as a Professional Engineer and Senior Project Manager.

Q.WHAT IS YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE?

A. I graduated from the University of Central Florida in 1988 with a B.S. degree in Environmental Engineering and in 1989 with an M.S. degree in Environmental Engineering. In 2001, I graduated from Rollins College with an MBA degree. In 1990, I was hired at Dyer, Riddle, Mills and Precourt as an engineer. In May of 1991, was hired at Hartman and Associates Inc., which has since become Tetra Tech. My experience has been in the planning and design of water and wastewater systems with specific emphasis on utility valuation, capital planning, utility financing, utility mergers and acquisitions and cost of service rate studies. I have also served as utility rate regulatory staff for St. Johns and Collier Counties in engineering matters. Exhibit ATW-1 provides additional details of my work experience.

Q. WHAT ARE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a member of the American Water Works Association, Water Environment Federation and the Florida Stormwater Association.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A RATE REGULATORY BODY AS AN ENGINEERING WITNESS?

A. Yes, I testified in 2002 for the St. Johns County Regulatory Authority at a special hearing in an earnings case against Intercoastal Utilities. I have also testified, although not on engineering matters, before the Kentucky Public Service Commission. I provided prefiled direct testimony in the FPSC Docket No. 060368-WS with regard to Aqua Utilities Florida's application for a rate increase for systems located in 15 Florida Counties. This case was withdrawn before it went to hearing.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to offer my opinion on the FPSC staff proposed rule 25-30.4325 regarding Water Treatment and Storage Used and Useful Calculations. In addition I recommend revised language to the rule in the areas where changes are needed. My testimony begins with an overall discussion about the basis of my proposed changes to the used and useful rules. Then I specifically discuss in detail each subsection of the rule and any changes I recommend the Commission to make with regard to that subsection. A revised version of the rule with my recommended changes is attached as exhibit ATW-2.

Q. WHAT DOCUMENTS HAVE YOU REVIEWED AND WHAT INVESTIGATIONS AND ANALYSES HAVE YOU MADE IN PREPARATION FOR YOUR TESTIMONY?

A. I have consulted the current PSC Staff version of proposed rule 25-30.4325 Water Treatment and Storage Used and Useful Calculations. I have also reviewed the requirements for permitting and construction of public water systems embodied in Chapter 62-555, Florida Administrative Code (FAC). I have also reviewed the following documents which are considered engineering references for public water systems in Chapter 62-555, FAC:

(1) *Water Quality and Treatment: A Handbook of Community Water Supplies*, Fifth Edition, 1999, American Water Works Association. Published by McGraw-Hill, Post Office Box 182604, Columbus, OH 43218-2605.

(2) *Water Treatment Plant Design*, Third Edition, 1997, American Society of Civil Engineers and American Water Works Association. Published by McGraw-Hill, Post Office Box 182604, Columbus, OH 43218-2605.

(3) *Recommended Standards for Water Works*, 1997 Edition, Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers. Published by Health Research, Inc., Health Education Services Division, P. O. Box 7126, Albany, NY 12224

(4) *Water Distribution Systems Handbook*, 1999, Larry W. Mays, Editor in Chief. Published by McGraw-Hill, Post Office Box 182604, Columbus, OH 43218-2605.

Q. WILL YOU DESCRIBE THE STRUCTURE OF YOUR TESTIMONY?

A. In this testimony I address the issues in the order presented by the proposed rule. I refer to the rule as proposed by Staff and then provide my recommended language followed by supporting discussion. Throughout my testimony I will refer to the Staff's proposed rule as the "proposed rule". Any changes proposed as a part of this testimony is referred to as either a "recommendation" or "recommended language". In cases where I recommend additional paragraphs I will refer to them in the place where they would be logically incorporated into the rule.

Q. DESCRIBE YOUR OVERALL APPROACH FOR CALCULATING THE USED AND USEFUL PERCENTAGES FOR WATER TREATMENT SYSTEMS.

A. My methodology for calculating Used and Useful (U&U) for water treatment systems involves addressing the major components of 1) water treatment, 2) storage, and 3) high service pumping. Addressing the major components allows for a specific accounting of the U&U across the facilities, such that if there is a significant difference between the components, U&U it can be accounted for and adjusted accordingly.

The U&U for each component involves two primary pieces of information, a component capacity and a component demand. Component capacity refers to the amount of water

that the component can reliably deliver. Generally, I address component capacity for mechanical items as the total capacity less the highest capacity unit which is referred to as the firm reliable capacity. For example with three high service pumps with capacities of 200 gpm, 200 gpm and 300 gpm, I would consider the firm reliable capacity to be 400 gpm (the total capacity of 700 gpm less the 300 gpm largest capacity pump). Using firm reliable capacity allows for the component to continue to provide service to the customer in the event one of the units goes out of service. The concept of firm reliable capacity is a generally accepted design consideration and is a part of the Florida Department of Environmental Protection's (FDEP's) regulations provided by Rule 62-555, FAC, titled Design and Construction of Public Water Systems.

The component demand refers to the type of service the component provides and can actually change for a specific component based upon the water system configuration. The water treatment component is an example of a component that can change depending upon configuration. In a system where there is no storage the water treatment facilities must meet the daily peak hour demands the customers place on the system. In addition, if fire flow is required and is actually provided the water treatment system must also meet this peak. In the event storage is provided, which provides equalization volume for the daily peaks and fire flow, the water treatment component does not have to meet the peak hour and therefore provides service based on the maximum day demand.

As I go through my testimony specific discussions about the component capacities and demands are provided.

Q. DO YOU HAVE ANY GENERAL COMMENTS CONCERNING THE RULE?

A. Yes. I feel that the proposed rule should address the general methodology and guidelines by which U&U calculations are conducted for water systems. However, there certainly may be cases where alternative methodologies or modifications to the guidelines may be required. There is no way of accurately determining every water system's U&U percentages based upon a single inflexible set of guidelines. Therefore, it is important that the rule include a provision that allows for alternative calculations when they are justified and documented.

There are several instances where the proposed rule provides opportunities for a utility to make a case for a higher U&U percentage than the rule would otherwise provide. However, the rule as proposed does not offer OPC or customer groups the same opportunity to provide alternative U&U calculations when the specific case presents circumstances that might warrant a lower U&U percentage. In my testimony I recommend a more neutrally worded provision that allows the Utility and the Customers the opportunity to propose alternative U&U calculations, when the specific facts of the case require it. The party proposing the alternative calculation shall have the burden to prove that the alternative calculation is more appropriate for the specific case than application of the calculation provided by the rule.

Q. WHAT IS YOUR FIRST COMMENT ON THE PROPOSED RULE?

A. My first comment on the proposed rule concerns Sections (1)(a) and (1)(b). There should be a reference in the definition of a water treatment system to exclude high service pumps from the definition. I recommend the following wording for (1)(a):

> "(a) A water treatment system includes all facilities, such as wells and treatment facilities, excluding storage and high service pumping, necessary to produce, treat, and deliver potable water to a transmission and distribution system."

Furthermore, high service pumps should be considered separate from storage facilities, so I recommend the following wording for (1)(b):

> "(b) Storage facilities include ground or elevated storage tanks"

Finally to complete the definition of high service pumps I recommend the following new definition (1)(c):

> "(c) High service pumping includes those pumps after storage that deliver potable water to a transmission and distribution system."

Q. WHY DO YOU BELIEVE HIGH SERVICE PUMPS SHOULD BE CONSIDERED SEPARATELY IN USED AND USEFUL CALCULATIONS?

A. High service pumps after storage are separate and distinct components from both water treatment and storage. These pumps that deliver potable water to the transmission and distribution system and ultimately the customers, are required to meet the daily peak demands of the service area, and if provided fire flow. Combining high service pumps

with storage in used and useful calculations ignores the fundamental role that high service pumps play in a water treatment system. Unlike storage which is a fixed structure and is evaluated in terms of volume, high service pumps are machines and should be evaluated in terms of volume per unit of time such as gallons per minute.

Q. WHAT IS THE IMPACT OF INCLUDING HIGH SERVICE PUMPS WITH STORAGE AS IT IS CURRENTLY WRITTEN IN THE PROPOSED RULE?

A. The high service pumps would not be evaluated at all. They would simply be assigned the U&U percentage of the storage, the calculation of which has nothing to do with high service pumping. There will be instances when some capacity of the high service pumps will be considered U&U when in fact they are not. Conversely, there will be instances when some of the capacity of the high service pumps is considered non U&U, when in fact they are needed to provide service to the customers. Either way, evaluating high service pumps separate from storage is necessary to provide an accurate calculation of U&U.

Q. DOESN'T EVALUATING HIGH SERVICE PUMPS SEPARATELY OVER COMPLICATE THE RULE WHICH IS DESIGNED IN PART TO STREAMLINE THE USED AND USEFUL CALCULATION PROCESS?

It does provide an additional set of calculations, but it is necessary to assure the accuracy of the U&U of the high service pumps. The recommended method of evaluating the U&U of high service pumps mostly relies on data that is already required in Staff's proposed rule. The only additional data that would be required is the capacity of the high

service pumps, which should be readily available. Adding this calculation to the rule is not unduly burdensome or complicated and is needed in order to produce an accurate U&U percentage.

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment regards paragraph (1)(c) of the proposed rule which defines the peak demand for a water treatment system as either the maximum hour or maximum day demand. I find that the wording in this paragraph is non-specific and therefore I recommend the following language that clarifies when maximum hour or maximum day demand should be used and how they should be used with systems with and without storage:

"Peak demand for a water treatment system includes:

1. For utilities without storage, the greater of:

(i) the utility's maximum hour demand, excluding excessive unaccounted for water, plus a growth allowance based on the requirements in Rule 25-30.431, Florida Administrative Code, or

(ii) the utility's maximum day demand, excluding excessive unaccounted for water plus a growth allowance based on the requirements in Rule 25-30.431, Florida Administrative Code, and if provided, a minimum of either the fire flow required by local government authority or 2 hours at 500 gallons per minute.

2. For utilities with storage, the utility's maximum day demand, excluding excessive unaccounted for water, plus a growth allowance based on the

requirements in Rule 25-30.431, Florida Administrative Code."

This wording provides for the specific cases of when maximum hour and maximum day demands should be used. The first point to consider is whether the water treatment system has storage. If it does not, the water treatment system must be sized to meet the daily peak demands of the service area, and if provided, a minimum of either the fire flow required by local government authority or 2 hours at 500 gallons per minute. Another way to look at this is the well pumps are the high service pumps for the system and the remainder of the treatment facilities must be sized accordingly. In evaluating pumps that provide high service, the demand of the service area is evaluated in two ways. The first way is to look at the maximum hour demand of the service area. The second way is used when fire flow is provided for the service area. In these situations the fire flow plus the maximum day demand of the service area provides a second calculation. The peak flow of the water treatment system would be the greater of the two. This is similar to the design standards for high service pumps stated in the FDEP rules for the design and construction of Public Water Systems. Subsection (15)(a) of FDEP rule 62-555.320, FAC, states in part:

"...the total capacity of all high service pumping stations connected to a water system....shall be sufficient to: 1. Meet at least the water system's...peak hour water demand (and if fire protection is being provided meet at least the water system's or the booster station services area's, design fire flow rate plus a background water demand equivalent to the maximum-day demand other than fire flow demand);"

Q. WHY DO YOU RECOMMEND TWO TESTS FOR PEAK FLOWS FOR WATER TREATMENT SYSTEMS WITH NO STORAGE?

A. For smaller systems where fire flow is provided the fire flow alone can be significantly greater than the maximum hour flow. So the maximum day plus fire flow test can give a better indication of the peak flows a water treatment system can experience for smaller systems where fire flow is provided.

Q. DESCRIBE THE PEAK DEMAND FOR WATER TREATMENT SYSTEMS WITH STORAGE.

A. Storage acts as an equalization volume for the peak demands that occur over the course of a day. It also provides volume for fire flow demands if provided by the system. Therefore, these peak demands are not placed upon the treatment facilities. In this situation the peak flow from a water treatment system would be the maximum day demand. The FDEP rule 62-555.315, FAC, provides that the total well capacity connected to a water system shall at least equal the system's design maximum day water demand.

Q. ARE THERE ANY OTHER COMMENTS YOU HAVE WITH RESPECT TO PARAGRAPH (1)(C) OF THE PROPOSED RULE?

A. Yes, I make a distinction regarding fire flow by adding "if provided" to the language. Even though there are local entities that may require fire flow, it is crucial before accepting fire flows into the U&U calculation that a determination be made that fire flows can actually be provided by the water system to the customers. This can be

evidenced by reviewing the water system maps that are required to be submitted as part of a rate case to determine if there are the appropriate number of fire hydrants and the system lines are sized to provide the required fire flow. This must be done on a case by case basis and it requires the reviewing engineer to make such a determination.

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment on the proposed rule is paragraph (1)(d) that defines the peak demand for storage. The paragraph states that the peak demand for storage should be equivalent to the maximum day demand of the utility. I find this to be excessive and recommend the following language:

> "Peak demand for storage includes 25% of the utility's maximum day demand, excluding excessive unaccounted for water, plus an allowance for fire flow, if provided, a minimum of either the fire flow required by local governmental authority or 2 hours at 500 gallons per minute, and a growth allowance based on the requirements in Rule 25-30.431, FAC."

This wording changes the definition of peak demand from the 100% maximum day to 25% of the maximum day. Subsection (19) of FDEP rule 62-555.320, FAC, states that the total useful finished water storage capacity (excluding any storage capacity for fire protection) connected to a water system shall at least equal 25 percent of the system's maximum day water demand, excluding any design fire flow demand. The revised paragraph above mirrors the concepts embodied in the FDEP design standards by which water systems are designed and constructed.

Q. HOW DOES YOUR RECOMMENDED LANGUAGE CHANGE THE U&U CALCULATION FOR STORAGE FACILITIES?

A. As an example, if a system that does not provide fire flow has a design maximum day of 500,000 gpd and the storage facilities are sized per the FDEP requirement of 25% of that demand, the system would have 125,000 gallons of storage. If after several years the system maximum day demand, as adjusted for unaccounted for water and growth, is 250,000 gpd, under the proposed rule the facilities would be over 100% U&U (250,000 divided by 125,000 gal) even though only half of the design demand is being applied in the calculation. With my recommended wording using 25% of the adjusted maximum day demand, the U&U would be calculated at 50% (0.25 times 250,000 gpd divided by 125,000 gal) which more accurately reflects the tank's usage.

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment on the proposed rule is to add a definition for the peak demand for high service pumps to correspond with the requirement that high service pumps be evaluated separately. The wording is in fact very similar to what is proposed for water treatment facilities without storage and reads as follows:

"Peak demand for high service pumping includes the greater of:

1. The utility's maximum hour demand, excluding excessive unaccounted for water, plus a growth allowance based on the requirements in Rule 25-30.431, FAC, or

2. The utility's maximum day demand, excluding excessive unaccounted for water plus a growth allowance based on the requirements in Rule 25-30.431,

FAC, and if provided, a minimum of either the fire flow required by local government authority or 2 hours at 500 gpm."

This language is also similar to the requirements of FDEP for high service pumps as detailed in subsection (15) of FDEP rule Chapter 62-555.320, FAC.

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment is on paragraph (1)(g) regarding unaccounted for water. I recommend the following sentence be added to the end of the paragraph:

"Any water claimed as accounted for that was used for flushing, fire fighting and water lost through line breaks must be documented by complete records of these flow losses."

This additional sentence requires the utility to provide records documenting the other water used in a system. If there are no records available describing the volume of water used for flushing, fire fighting or line breaks the water can hardly be considered accounted for and would therefore be considered as unaccounted for. This language requires that documentation be provided to justify these other uses.

Q. WHAT IS YOU NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment concerns paragraph (2) of the proposed rule which states the Commission's U&U calculations shall include a determination of prudence of investment and consideration of economies of scale. This paragraph has two parts, the first of which

is consideration of prudence of investment, which is already an issue in rate cases separate of U&U and therefore, not required in the proposed rule. The second issue concerns consideration of economies of scale. I recognize that economies of scale may be present in a facility that may affect used and useful, however this paragraph provides no clear direction or insight on how such issues should be addressed or calculated in U&U calculations it merely raises the point. Therefore, my recommendation is that this paragraph is not necessary and can be removed. I would point out, however, that my recommended paragraph (3) to the proposed rule will provide for alternate methodologies or revisions to U&U calculations that would allow for the flexibility for economies of scale to be considered.

Q. DO YOU HAVE ANY CONCERNS WITH PARAGRAPH (3) OF THE PROPOSED RULE?

A. Yes I do. This paragraph gives the utility the ability to provide alternative calculations, along with supporting documentation if the utility believes it is appropriate. As previously mentioned I agree with the issue that there may be instances where the standard U&U calculations may not be appropriate or may not provide an accurate U&U percentage. In fact, it would be difficult to craft a rule with strict calculations that would accurately calculate used and useful for all cases. Some level of flexibility is desirable in order to produce more accurate U&U percentages for some cases. However, with the way this paragraph is worded only the utility has that ability to propose such calculations. The recommended rewrite of this paragraph is:

"If any party believes a used and useful calculation should be utilized in a specific

case which differs from the provisions of this rule, such calculation may be provided along with supporting documentation. The party proposing the alternative calculation shall have the burden to prove that the alternative calculation is more appropriate for the specific case than application of the calculation provided by this rule. Examples of such specific cases that might warrant the use of alternative U&U calculations include but are not limited to: economies of scale, service area restrictions, factors involving treatment capacity, well drawdown limitations, and changes in flow due to conservation or a reduction in number of customers."

Under this paragraph any party has the ability to propose alternative calculations if it is deemed necessary given the specifics of the water system in question.

My additional comment to this paragraph is that it should give flexibility to the proposed rule such that many of the specific potential exceptions to normal U&U calculation provided by the proposed rule do not have to be stated elsewhere in the proposed rule.

Q. WHAT IS YOUR NEXT COMMENT TO THE PROPOSED RULE?

A. My next comment is with proposed paragraph (4) which addresses special cases where a water treatment system should be considered 100% used and useful. In my opinion, if a water treatment system has a set of special circumstances that would allow one to consider it to be 100% used and useful other than through the calculations presented in the proposed rule, it would be addressed by the recommended language presented in revised paragraph (3).

In the case where the system is built out and there is no potential for a service area expansion there may be a case for departing from the established U&U calculations. However, this can easily be addressed in my recommended paragraph (3).

Proposed subparagraph (c) allows for 100% U&U if a system is served by one well. While the concept of firm reliable capacity (total capacity of all units less the capacity of the largest) implies that there will always be more than one well, in fact, there are instances where water systems are designed and permitted with a single well, as provided in FDEP rule 62-555.315, FAC. When there is only one well the U&U calculation should be based on the capacity of that single well. Under the proposed rule a single well can be operating within a system that is 50% built out and operating at 50% capacity and yet be considered, inaccurately, as 100% used and useful.

Removing the largest well from service is an acceptable way to calculate the U&U for multiple well systems, however, for single well systems there is not a redundant, standby well that can be removed. In these cases the U&U should be evaluated on the single well in service.

Q. DO YOU HAVE ANY COMMENTS ON PARAGRAPH (5) OF THE PROPOSED RULE?

A. I agree with the language of paragraph (5) as proposed.

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment concerns paragraph (6) of the proposed rule regarding the firm reliable capacity of a water treatment system. This paragraph is overly complex with respect to the definition of firm reliable capacity by bringing in several unique, specific cases that can be addressed in the alternative methodology paragraph previously mentioned. My recommended language for this paragraph is:

> "The firm reliable capacity of a water treatment system is equivalent to the pumping capacity of the wells, excluding the largest well for those systems with more than one well. "

This wording simplifies the definition of firm reliable capacity as the capacity with the largest well out of service for multiple well systems. Single well systems are evaluated based the capacity of the single well as mentioned previously.

Q. WHAT SPECIFICALLY WITH THIS PARAGRAPH DID YOU FIND TO ADDRESS UNQUE CASES?

A. There are a few. The first deals with setting the capacity of the water treatment system based on a limiting factor such as treatment capacity or drawdown limitation. Secondly, there is a sentence that allows the utility to take more than one well out of service if the utility believes there is justification. Both of these provisions over complicate the capacity issue. I recognize that there may be cases where this can be a concern, however, they are not so common place as to require specific treatment in the proposed rule.

With respect to limiting treatment capacity there may be a case where a relatively small part of a water treatment plant unreasonably limits the entire water treatment component to a much less capacity than would otherwise be the case, which would automatically cause the U&U to be higher than if the components were all properly sized. Ultimately the customers would bear the impact of U&U for water treatment capacity that is under utilized. Similarly, simply removing additional wells from the U&U calculation if the utility believes there is justification also causes the U&U percentage to be higher.

In the event that there is a documented, valid, case for addressing a limiting capacity issue, or removing more than one well from service it can be addressed by my neutrally worded recommended paragraph (3).

Q. DO YOU HAVE ANY CONCERNS WITH SUBPARAGRAPH (6)(a)?

A. Subparagraph (6)(a) speaks to the units of expressing the firm reliable capacity of systems with no storage capacity in terms of gpm. I believe that as long as the units of the U&U calculation are consistent gpm, gph or gpd can be used. That being said I do not object to the wording of the subparagraph (6)(a).

Q. DO YOU HAVE ANY CONCERNS WITH SUBPARAGRAPH (6)(b)?

A. I have an issue with subparagraph (6)(b) regarding the firm reliable capacity of wells for water treatment systems with storage capacity. I recommend the following wording:

> "(b) For systems with storage, the firm reliable capacity shall be expressed as gallons per day, based upon 24 hours of pumping, unless there is documented

restrictions to the hours of pumping as required by the Water Management District or other regulatory body, in which case the restriction shall apply."

The way the proposed rule is written there are different firm capacity criteria depending on whether the water treatment facilities have storage or not. Paragraph (6)(b) states that well capacity for systems with storage should only be evaluated for the wells pumping for 12 hours instead of 24 hours. The number of hours a well can be pumped is completely independent of the downstream components of a water treatment system including, storage. The FDEP rules for public water supply wells make no specific reference to a requirement that would require that well pumps be limited to 12 hours of pumping per day if the system includes storage. In fact, prudent and efficient design of a well system would seek to maximize the pumping time to the daily maximum of 24 hours.

The maximum capacity a well can produce in one day is equivalent to the amount of water it can produce in 24 hours regardless of the type of treatment, presence of storage or characteristics of the service area. Basing the reliable capacity on 12 hours of pumping AFTER removing the largest well for service pursuant to paragraph (6) above essentially doubles the U&U of a water treatment system for no reason other than it has storage.

Q. WOULDN'T YOU AGREE THAT THERE ARE INSTANCES WHERE DUE TO AQUIFER LIMITATIONS OR PERMIT CONDITIONS THAT WELLS SHOULD BE EVALUATED ON LESS THAN 24 HOUR PUMPING?

A. Yes absolutely. I recognize that in Florida the production capacity of wells can change

not only with geography but also can change over time as aquifers are stressed or salt water intrusion becomes a concern. When this is an issue the solution is generally an amount of reduced pumping or relocation of wells. In no way is the solution something as simple as reducing well pumping to 12 hours a day. In order to address these issues when they arise a more accurate U&U percentage can be derived by evaluating the specific system in detail. I also believe my recommended language concerning consideration of limiting factors required by the Water Management District or other regulatory body helps address this issue.

Q. WHAT IS YOUR NEXT ISSUE WITH THE PROPOSED RULE?

A. My next issue is with proposed subparagraph (7)(a)1.and 2. concerning the factor to be used to determine peak hour demand of a water system. I propose the following language:

> "1. The single maximum day (SMD) in the test year where there is no unusual occurrence on that day, such as a fire or line break, less excessive unaccounted for water, divided by 1440 minutes in a day, times a peaking factor ranging between 1.5 to 2 [((SMD-EUW)/1,440) x 1.5 to 2], or
>
> 2. The average of the 5 highest days (AFD) within the maximum month of the test year, less excessive unaccounted for water, divided by 1440 minutes in a day, times a peaking factor ranging between 1.5 to 2 [((AFD-EUW)/1,440) x 1.5 to 2].
>
> 3. In determining an appropriate peaking factor in the range for a specific system, consideration shall be given to the size and character of the system service area. For larger systems with a diverse customer base a lower peaking factor shall be

used, and conversely, for smaller systems with a uniform customer base a higher peaking factor shall be used."

This language provides for a peaking factor that can range from 1.5 to 2.0 rather than the 2.0 that is reflected in the proposed rule, and provides guidelines for the use of a higher or lower peaking factor. Generally, as water systems get bigger and have a more diverse customer base the peak hour demand factor decreases. Rarely is the peaking factor the same from system to system. Industry guidelines indicate that there is a range of typical peaking factors and FDEP in its August 2006 comments to the proposed rule states that the peak hour demand is about 1.4 times the maximum day demand. This recommended change to the rule provides for peaking factors less than 2.0 should the nature of the service area warrant it.

Q. WHAT IS YOUR OTHER CHANGE TO PROPOSED PARAGRAPH (7)?

A. I have a recommended change to the wording of subparagraph (7)(a)2. concerning the use of the average of five highest days as an approximation of maximum day flow. I recommend changing the wording from "in a 30 day period" to "within the maximum month" of the test year. This provides for a somewhat easier calculation, in that water utility flow data is provided on a calendar month basis. It is also consistent with the method that has been used by the FPSC in the past.

Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING PARAGRAPH (7)?

A. My final comment concerns subparagraph (7)(a)3. which refers to using 1.1 gpm/ERC

in the event that actual maximum flow data is not available. I believe this should be eliminated as it attempts to generalize an uncommon occurrence that could be addressed under my recommended alternative methodology paragraph (3). Although it may occasionally occur that a utility may not have the data that is typically required for a water system to be in compliance with industry standard practice and regulatory requirements, there are a myriad of ways a peak demand could be generated. Arbitrarily applying a demand factor ignores the fact that some data may be available that could be utilized to produce a reasonable demand number and that number may be higher or lower than the proposed 1.1 gpm/ERC. It is quite likely that a water system will have a peak demand that can be lower than 1.1 gpm /ERC, particularly in service areas where there is not wide spread irrigation or a low ratio of persons to ERC. It is impossible to specifically pin down how maximum day demands may be determined from a utility that does not have good records, but the records that are available or other data could be used on a system specific basis that would be more accurate than 1.1gpm/ERC.

Furthermore, this subparagraph would seem to reward utilities for not keeping good flow records for rate proceedings, if their actual flows are less than 1.1 gpm/ERC.

Q. DO YOU HAVE ANY COMMENTS REGARDING PARAPGRAPH (7)(b)?

A. Yes. I have a comment on (7)(b)2. similar to my comment on (7)(a)2. concerning the use of the average of five highest days as an approximation of maximum day flow. I recommend changing the wording from "in a 30 day period" to "within the maximum month" of the test year for the reasons stated above.

Also similar to my comment on (7)(a)3. I believe (7)(b)3. should be removed. This subparagraph attempts to assign a blanket value of 787.5 gpd per ERC as the maximum day demand to be used for systems that do not have actual maximum day flow data. As I mentioned in my testimony on (7)(a)3. I believe such a generalized factor ignores the possibility that some system specific data may be available that could result in a more accurate U&U percentage.

Q. DO YOU HAVE ANY COMMENTS REGARDING PARAGRAPHS (8) AND (9) OF THE PROPOSED RULE?

A. I agree with the language of proposed paragraphs (8) and (9).

Q. WHAT IS YOUR NEXT COMMENT ON THE PROPOSED RULE?

A. My next comment has to do with adding language to include the U&U calculation of high service pumps. I recommend the following be added:

> "(x) The used and usefulness of high service pumping is determined by dividing the peak demand for high service pumping as defined in this rule by the firm reliable capacity of the high service pumps.
>
> (x2) The firm reliable capacity of high service pumping is equivalent to the pumping capacity of the high service pumps, excluding the largest high service pump for those systems with more than one high service pump."

These paragraphs simply identify the method of calculating the U&U for high service pumps and incorporates the firm reliable capacity concept for high service pumps.

Q. DO YOU HAVE ANY COMMENTS ON PARAGRAPHS (10) AND (11) OF THE PROPOSED RULE?

A. Yes. Both paragraphs state issues for the Commission to consider and do not specifically provide any guidelines or recommendations for calculation of U&U. Paragraph (10) concerns consideration of an adjustment to plant operating and maintenance expenses as a result of unaccounted for water. Since this refers to an adjustment to operations and maintenance expenses and not U&U I recommend it be removed from the proposed rule.

Paragraph (11) also states the Commission will consider other relevant factors in the U&U calculations such as decrease in flow. Once again this may sometimes arise as an issue, however, it can be addressed in the alternative methodology calculation in my recommended paragraph (3).

Q. HAVE YOU PREPARED A COPY OF PROPOSED RULE 25-30.4325 INCORPORATING YOUR RECOMMENDED WORDING?

A. Yes I have and it is attached as Exhibit ATW-2

Q. DOES THAT CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes it does.

EXHIBIT ATW-1

RESUME

ANDREW T. WOODCOCK, P.E., M.B.A.

Mr. Woodcock has been involved with many different facets of environmental engineering including planning, design, and permitting of both water and wastewater treatment facilities, wastewater collection systems, pipeline systems, pumping stations and effluent disposal systems. He has special expertise in utility due diligence investigations, utility valuations, financial feasibility analyses and business plans. He is also experienced in the preparation and review of capital improvement programs, master planning and water and wastewater impact fees.

EXPERIENCE

Mr. Woodcock's major design and planning experience includes the design, and permitting functions associated with several water and wastewater projects. Representative water projects include the Venice Gardens Utilities Center Road WTP 0.6 MGD RO facility expansion and the City of Port St. Lucie wellfield expansion. Wastewater design projects include the 0.5 MGD expansion to the Deltona Lakes WWTP and the 1.6 MGD expansion to the City of Sanibel's WWTP both of which include treatment to public access reuse standards.

Mr. Woodcock's water and wastewater utility planning experience includes several master plans and capital improvements programs. Recent planning projects include the City of Winter Haven Water Master Plan, the Town of Palm Beach Water Capital Improvements Program, and the Marion County Utility Consolidation Program.

Mr. Woodcock has participated in over 60 water and wastewater utility valuations and acquisitions for utility systems located throughout the Southeast United States. The acquisition projects cover a wide range of utility system configurations and sizes and include engineering due diligence inspections, valuations, and financing activities associated with the transactions. Major projects include the City of Peachtree City GA acquisition of Georgia Utilities Company, the City of Winter Haven FL acquisition of Garden Grove Water Company and the acquisition of the Deltona and Marion County systems from Florida Water Services Corp.

Additionally, Mr. Woodcock has experience in the review and analysis of water and wastewater utility impact fees and utility financial feasibility studies in support of capital funding including studies for the Cities of Apopka, Brooksville, and Bartow, Pasco County and the Tohopekaliga Water Authority.

Title:
Senior Project Manager

Education:
B.S.E., University of Central Florida, 1988

M.S.E., University of Central Florida, 1989

M.B.A., Rollins College, 2001

Registrations/ Certifications:
Professional Engineer, Florida, No. 47118

Professional Affiliations:
Water Environment Federation

American Water Works Association

Office:
Orlando, Florida

Years of Experience:
1990 – Present

Years with Tetra Tech:
1991 – Present

Specific Recent Project Experience Includes:

Deltona, Florida
Utility Acquisition of Florida Water Services Corp (2003)
Consulting Engineers Report, Series 2003; Utility System Revenue Bonds, $81.72 million.
Water and Wastewater Impact Fee Study (2005)
Water and Wastewater Rate Study (2006)
Utility Replacement Cost Study (2004)

Marion County Florida
Water and Wastewater Impact Fee Study (2005)
Utility Acquisition of Florida Water Services (2003)
Utility Acquisition of AP Utilities, Palm Bay Utilities, Oak Run Utilities, Pine Run Utilities, Quail Meadow Utilities
Consulting Engineering Report, Series 2003; Utility System Revenue Bonds, $40.19 million
Consulting Engineers Report, Series 2001; Utility System Revenue Bonds, $27.27 million
Water and Wastewater Utility Master Plan (2005)

City of Orlando, Florida
Research Park Economic Impact Evaluation (2005)

Collier County, Florida
Utility Regulatory Services – Orangetree Utilities (2004)

St. Johns County, Florida
Utility Regulatory Services – Intercoastal Utilities (2002, 2005)

Pasco County, Florida
Acquisition Feasibility Program (2001)
Acquisition of East Pasco Utilities and Forrest Hills Utilities (2002)
Utility Valuation of Lindrick Utilities and Hudson Utilities (2004)
Comprehensive Water, Wastewater and Reclaimed Water Rate and Charge Study (2003, 2007)
Reclaimed Water Rate Study (2005)
Water, Wastewater, and Reclaimed Water Impact Fee Review (2005)
Series 2006 Water and Sewer Refunding Revenue Bonds, $71.16 million

City of Orange City, Florida
Impact Fee Review (2004)
Revenue Sufficiency Study (2006)

City of Naples Florida
Reclaimed Water Project Assessment and Funding Program (2006)
Comprehensive Water, Wastewater and Reclaimed Water Rate Study (2007)
Stormwater Utility Financial Review (2007)

City of Minneola, Florida
Water Impact Fee Update (2006)
Stormwater Utility Rate Study (2006)

Florida Office of Public Counsel
Utility Regulatory Services – Aqua America Utilities (2007)

Henry County Water District No 2. – KY
Utility Regulatory Services

PAPERS AND PRESENTATIONS

"Water and Wastewater Impact Fees: An Overview" Florida Rural Water Association, Utility Management Training, April 4, 2005.

EXHIBIT ATW-2

OPC RECOMMENDED RULE NO. 25-30.4325, FAC

25-30.4325 Water Treatment, Storage and High Service Pumping Used and Useful Calculations

(1) Definitions.

(a) A water treatment system includes all facilities, such as wells and treatment facilities, excluding storage and high service pumping, necessary to pump and treat potable water .

(b) Storage facilities include ground or elevated storage tanks.

(c) High service pumping includes those pumps after storage that deliver potable water to a transmission and distribution system.

(d) Peak demand for a water treatment system includes:

1. For utilities without storage, the greater of:

(i) the utility's maximum hour demand, excluding excessive unaccounted for water, plus a growth allowance based on the requirements in Rule 25-30.431, FAC, or

(ii) the utility's maximum day demand, excluding excessive unaccounted for water plus a growth allowance based on the requirements in Rule 25-30.431, FAC, and if provided, a minimum of either the fire flow required by local government authority or 2 hours at 500 gpm.

2. For utilities with storage, the utility's maximum day demand, excluding excessive unaccounted for water plus a growth allowance based on the requirements in Rule 25-30.431, FAC.

(e) Peak demand for storage includes 25% of the utility's maximum day demand, excluding excessive unaccounted for water, plus an allowance for fire

flow, if provided, a minimum of either the fire flow required by local governmental authority or 2 hours at 500 gallons per minute, and a growth allowance based on the requirements in Rule 25-30.431, FAC.

(f) Peak demand for high service pumping includes the greater of:

1. The utility's maximum hour demand, excluding excessive unaccounted for water, plus a growth allowance based on the requirements in Rule 25-30.431, FAC, or

2. The utility's maximum day demand, excluding excessive unaccounted for water plus a growth allowance based on the requirements in Rule 25-30.431, FAC, and if provided, a minimum of either the fire flow required by local government authority or 2 hours at 500 gpm.

(g) Excessive unaccounted for water (EUW) is potable water produced in excess of 110 percent of the accounted for usage, including water sold, water used for flushing or fire fighting, and water lost through line breaks. Any water claimed as accounted for that was used for flushing, fire fighting and water lost through line breaks must be documented by complete records of these flow losses.

(2) The used and usefulness of a water treatment system shall be calculated separately from the storage facilities. If any party believes a used and useful calculation should be utilized in a specific case which differs from the provisions of this rule, such calculation may be provided along with supporting documentation. The party proposing the alternative calculation shall have the burden to prove that the alternative calculation is more appropriate for the specific case than application of the calculation

provided by this rule. Examples of such specific cases that might warrant the use of alternative U&U calculations include but are not limited to: economies of scale, service area restrictions, factors involving treatment capacity, well drawdown limitations, and changes in flow due to conservation or a reduction in number of customers.

(3) The used and usefulness of a water treatment system is determined by dividing the peak demand by the firm reliable capacity of the water treatment system.

(4) The firm reliable capacity of a water treatment system is equivalent to the pumping capacity of the wells, excluding the largest well for those systems with more than one well.

(a) For systems with no storage, the firm reliable capacity shall be expressed in gallons per minute.

(b) For systems with storage, the firm reliable capacity shall be expressed as gallons per day, based upon 24 hours of pumping, unless there is documented restrictions to the hours of pumping as required by the Water Management District or other regulatory body, in which case the restriction shall apply.

(5) Peak demand includes peak hour demand for a water treatment system with no storage capacity and a peak day demand for a water treatment system with storage capacity.

(a) Peak hour demand, expressed in gallons per minute, shall be calculated as follows:

1. The single maximum day (SMD) in the test year where there is no unusual occurrence on that day, such as a fire or line break, less excessive unaccounted for water divided by 1440 minutes in a day

times a peaking factor ranging between 1.5 to 2 [((SMD-EUW)/1,440) x 1.5 to 2], or

2. The average of the 5 highest days (AFD) within the maximum month of the test year less excessive unaccounted for water divided by 1440 minutes in a day times a peaking factor ranging between 1.5 to 2 [((AFD-EUW)/1,440) x 1.5 to 2], or

3. In determining an appropriate peaking factor in the range for a specific system consideration shall be given to the size and character of the system service area. For larger systems with a diverse customer base a lower peaking factor shall be used and conversely for smaller systems with a uniform customer base a higher peaking factor shall be used.

(b) Peak day demand, expressed in gallons per day, shall be calculated as follows:

1. The single maximum day in the test year, if there is no unusual occurrence on that day, such as a fire or line break, less excessive unaccounted for water (SMD-EUW), or

2. The average of the 5 highest days within the maximum month of the test year less excessive unaccounted for water (AFD-EUW).

(6) The used and usefulness of storage is determined by dividing the peak demand for storage as defined in this rule by the usable storage of the storage tank. Usable storage capacity less than or equal to the peak demand shall be considered 100 percent used and useful. A hydropneumatic tank is not considered usable storage.

(7) Usable storage determination shall be as follows:

(a) An elevated storage tank shall be considered 100 percent usable.

(b) A ground storage tank shall be considered 90 percent usable if the bottom of the tank is below the centerline of the pumping unit.

(c) A ground storage tank constructed with a bottom drain shall be considered 100 percent usable, unless there is a documented limiting factor, in which case the limiting factor will be taken into consideration.

(8) The used and usefulness of high service pumping is determined by dividing the peak demand for high service pumping as defined in this rule by the firm reliable capacity of the high service pumps.

(9) The firm reliable capacity of high service pumping is equivalent to the pumping capacity of the high service pumps, excluding the largest high service pump for those systems with more than one high service pump.

Specific Authority: 350.127(2), 367.121(1)(f) FS.

Law Implemented: 367.081(2), (3) FS.

History: New .

Rule 25-30-4325.ldh.doc