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September 30, 1998

ORIGINAL

Blanca S. Bayo, Director
Division of Records & Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

VIA HAND DELIVERY

Re: Docket No. 950387-SU (Remand)
Application of Florida Cities Water Company - North Ft. Myers Division - for increased wastewater rates in Lee County.

Dear Ms. Bayo:

Enclosed on behalf of Florida Cities Water Company, for filing in the above docket, are an original and fifteen (15) copies of following:

1. Remand Testimony of Mike Acosta, along with exhibits (MA-1) through (MA-4); 10756-98
2. Remand Testimony of Larry Coel, along with exhibit (LC-1); 10757-98
3. Remand Testimony of Thomas A. Cummings, along with exhibits (TAC-01) and (TAC-2); and 10758-98
4. our Certificate of Service.

Please acknowledge receipt of the foregoing by stamping the enclosed extra copy of this letter and returning same to my attention. Thank you for your assistance.

Sincerely,

B. Kenneth Gatlin

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for a rate increase for North Ft. Myers Division in Lee County by Florida Cities Water Company - Lee County Division.	DOCKET NO. 950387-SU Filed: September 30, 1998

Certificate of Service

I HEREBY CERTIFY that a true and correct copy of Remand Testimonies and Exhibits of Mike Acosta, Larry Coel, and Thomas A. Cummings have been furnished by U.S. Mail this 30th day of September, 1998 to:

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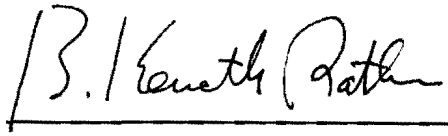

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TAL:18784:1

ORIGINAL

FLORIDA CITIES WATER COMPANY

REOPENING OF RECORD WATERWAY ESTATES

ADVANCED WASTEWATER TREATMENT PLANT

DOCKET NO. 950387 - SU

REMAND TESTIMONY OF MICHAEL ACOSTA

Q. Please state your name and business address.

A. Michael Acosta, 4837 Swift Road, Suite 100, Sarasota, Florida 34231.

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

A. I am employed by Florida Cities Water Company (FCWC) as Vice President, Engineering & Operations.

Q. Please describe your educational background and professional qualifications.

A. I received my Bachelor of Science degree in Environmental Engineering from the University of Florida in 1985. I have been a registered professional engineer in the State of Florida since 1991.

Q. Please describe your professional engineering experience concerning wastewater treatment facilities.

A. I have 13 years of continuous experience in the planning, design, permitting and construction of wastewater treatment facilities. I have been involved in the planning, design, permitting and construction of 11 upgrades and/or expansions of wastewater treatment plants. This includes completion of capacity analysis reports, all aspects of process design, advanced treatment process design, effluent disposal including reuse of reclaimed water and land disposal systems and all

associated permitting.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain why average daily flow in the maximum month (ADFMM) should not be ignored by the Public Service Commission (Commission) in determining the percentage of the Waterway Estates Advanced Wastewater Treatment Plant (Waterway) that is used and useful.

Q. Please explain the Commission's traditional method of determining used and useful for wastewater treatment plants.

A. The Commission has historically used the ADFMM, for the test year in question, plus the margin reserve flow equivalent divided by the design treatment plant capacity. The formula used is as follows: U&U Percentage=ADFMM+Margin Reserve Flow/ Design Capacity. The use of ADFMM recognizes the inevitable peaks in treatment plant flows that the plant experiences and that must be treated to water quality standards established by the Florida Department of Environmental Protection (FDEP). The Margin Reserve Flow accounts for the changing demands of existing customers and growth expected within the service area. Finally, the Design Capacity of the plant is the flow at which the plant can consistently meet the water quality standards mandated by FDEP.

Q. Did the Commission follow this methodology of using ADFMM in the numerator of its used and useful calculation in Florida Cities Water Company (FCWC), North Fort Myers Division's previous rate case, Docket 910756-SU?

A. Yes.

Q. Did the Commission use ADFMM to calculate how much treatment capacity was used and useful in other FCWC rate cases?

A. Yes. These include, most recently, in re: Application FCWC (Golden Gate Division), 92 F.P.S.C. 8:270, 291 (1992); in re: Application of FCWC (South Ft. Myers System), 92 F.P.S.C. 4:547, 551-552 (1992); and in re: Application of FCWC, (Barefoot Bay Division), 97 F.P.S.C. 2:561, 566-68 (1997).

Q. Did the Commission change its methodology for calculating used and useful for wastewater treatment plant in this docket?

A. Yes, sometime between the Proposed Agency Action Order and the Final Order in this case the Commission changed the flow used in the numerator of the used and useful formula from ADFMM to annual average daily flow (AADF).

Q. Do you know why the Commission changed the flow from ADFMM to AADF?

A. In the Final Order, PSC-96-1133-FOF-SU, the Commission states "The flows to be considered should be annual average flows, as specified in the DEP permit" and "Flows shown in the MFRs for the used and useful calculations are not annual average flows, but instead are average flows from the peak month. These flows do not match the plant design [nor] the permitting considerations in the DEP construction permit. For these reasons, the flows shown in the MFRs are rejected." The Commission apparently believes that because the basis of design of the plant is AADF that all peak flows should be

ignored. The Commission has also relied upon a change in the permit application form used by FDEP for wastewater treatment facilities as a reason to change the methodology.

Q. Has the FDEP changed the method by which plant capacity is determined?

A. No.

Q. What did the FDEP do regarding operating permits that is different than before?

A. In approximately 1991, the FDEP changed the permit application form. This change required the permittee to designate the basis of design, as AADF, ADFMM, three-month average daily flow or other of the treatment plant, Exhibit___ (MA-1) shows the designation on the Waterway permit application. This change bears no relationship to, nor does it change, the capacity of Waterway or any other wastewater treatment plant.

Q. Prior to the new form designating basis of design, what was the basis of design used for Waterway and where was it noted.

A. The basis of design for Waterway and almost all domestic municipal wastewater treatment plants is AADF. This was typically noted in the engineering report that was submitted with the permit application.

Q. Why was AADF and not ADFMM chosen as the basis of design?

A. As in the previous answer, AADF is almost exclusively the basis of design flow for domestic municipal wastewater treatment plants. A basis of design of ADFMM is usually reserved for highly seasonal treatment plants, plants whose flow is received over a condensed

portion of the year such as a campground or recreational vehicle park. In these cases, flow may not be received by the plant year round and the use of AADF would give an artificially low flow. The use ADFMM as the basis of design does not preclude the use of peak flow in the design of the treatment plant. Indeed, peak flows must be incorporated and would be calculated in a similar fashion as if the basis of design were AADF. The peak flow design for plant using ADFMM as the basis of design would approximate a peak day or peak several days. In designing Waterway, using AADF, peak flows were accounted for as discussed in more detail in the remand testimony of Thomas A. Cummings in this docket.

Q. Did the FDEP change in format change the plant capacity of Waterway prior to expansion.

A. No.

Q. Did the FDEP permit application form change affect the design of the expansion of Waterway?

A. No, since the basis of previous design of Waterway was already AADF, the design was unaffected by the change.

Q. Should the Commission change the traditional method of determining used and useful so that the flows used in the numerator of the used and useful formula (that is, use of ADFMM or peak flows) depends upon (and "matches") the flows shown on the FDEP permit as the permitted plant capacity (that is AADF or ADFMM)?

A. No, peak flows (ADFMM) should always be considered. While the basis of design flow may be AADF, the hydraulic component is but one

of the considerations in the design of a wastewater treatment plant. The biological process design is equally, if not more, important than the hydraulic component. To look at only the AADF without regard for peak flows misses the important biological process design, hydraulic peaks and other important permitting or design considerations. As stated in the recognized authority Design of Municipal Wastewater Treatment Plants, Manual of Practice No. 8, Vol. I, Water Environment Federation, Alexandria, VA, 74 (1992), "Wastewater treatment plants and their processes are commonly discussed and defined in terms of their average day capacity. As a practical matter, average day conditions are points on a curve of events that may not be observed on a daily basis. Sound design practice does not use average day condition for anything except as a convenient point of reference for peaking factors that are actually of interest in the design. Conceptually, preferred practice applies two peaking factors: a hydraulic peak and a process peak." In reality a plant's capacity is its ability to (1) pass a specific instantaneous flow rate (gallon per minute or million gallons per day), (2) satisfy a specific biochemical oxygen demand (pounds per hour or day), (3) remove specific amounts of suspended solids (pounds per day), and (4) remove specific amounts of dissolved mineral and organic compounds (pounds per day). Characterizing capacity in terms of these parameters would be much more accurate but obviously too cumbersome for practical use. Each component and process unit must be designed to meet the expected peak pollutant and hydraulic loading. Failure to select the

most sever combination would result in hydraulic backup in the wastewater collection system or spills from treatment units and/or failure to meet effluent quality standards. Obviously, any of these events is serious since environmental regulations would likely be violated and the ability to provide continuous quality service is jeopardized. Again, from Design of Municipal Wastewater Treatment Plants, Manual of Practice No. 8, Vol. I, Water Environment Federation, Alexandria, VA, 74-75 (1992), "Process design should be based on required performance attainment at maximum process loading conditions. Before Public Law 92-500 (*Clean Water Act*) and its implementing regulations, performance and the loading basis on which performance was to be measured were considered in terms of seasonal or annual average conditions. Now, a minimum definition for this condition of design corresponds with the compliance interval included in the plant's National Pollutant Discharge Elimination System permit. This interval typically represents the maximum month and week period of compliance as noted in Chapter 2." Exhibit ___(MA-2)

The Commission's simplistic approach is inappropriate and leads to erroneous conclusions that could jeopardize both continuous quality service and the environment.

Q. Is it good engineering practice to design all the components of a wastewater treatment plant on an AADF basis?

A. No. By the very definition of average, if all components were designed on an annual average basis, peak flows could not be contained and

peak organic loadings could not be treated to the water quality standards required in the FDEP permit. It should be noted that peak flows and peak organic loadings do not necessarily occur simultaneously. A peak organic loading can upset the biological process very quickly, much quicker than a peak flow. If treatment plants were designed to only meet the AADF any flow in excess of the AADF would result in overflows or in effluent that did not meet all water quality standards.

Q. Do you agree with the Commission that the type of flows used in the numerator and denominator of the used and useful formula must both be peak flows or both be annual average flows, that is, that the flows must "match"?

A. No, I do not. A determination of used and useful must be concerned with the maximum flows the treatment plant may experience in order to allow for such an event. This is the only way to ensure that safe, adequate service is continuously provided. In Florida, large seasonal population fluctuations contribute to widely varying use patterns for water, and therefore wastewater, service. Using the AADF completely misses these seasonal fluctuations. The use of AADF is analogous to a person having one foot in freezing water and one foot in boiling water and saying that on average the person is comfortable. Obviously, this analogy shows that widely varying peaks are ignored by an average. The same is true of the use of AADF. A treatment plant design based on solely the AADF would lead to a plant that could not provide service during peak flow and/or peak organic

loading periods. There is no "matching" used in the design of a wastewater treatment plant. To use such a concept in the determination of used and useful for a plant is improper. A plant designed on an AADF basis must also be able to contain and treat the ADFMM when it arrives. To ignore this basic design principle is simply wrong.

Q. Does the margin reserve calculation allow any recognition into rate base of facilities required to accommodate maximum flows experienced in connection with current customers?

A. Generally no.

Q. Please explain your answer.

A. Assuming existing customers do not increase their usage, margin reserve would be used by future customers. The maximum flows associated with current customers would not be accounted for within the margin reserve calculation.

Q. Does AFPI allow any recognition into rate base of facilities required to accommodate maximum flows experienced in connection with current customers?

A. No, it does not.

Q. Please explain your answer.

A. AFPI does not allow facilities into rate base. AFPI is associated with prudently constructed plant that is deemed non-used and useful plant, which is associated with future customers. As such, AFPI makes no accommodation for maximum flows experienced in connection with current customers.

Q. Please set forth the manner in which used and useful should be determined in this case.

A. First, the reuse facilities used and useful determination should be determined separately from the rest of the facilities, pursuant to the Court's interpretation of 367.0817 in Southern States Utilities v. Florida Public Service Commission, et. al., Case No. 96-4227 (June 10, 1998) (Fla. 1st DCA 1998). These facilities as well as the Lochmoor site were found by the Commission to have been prudently incurred (Order No. PSC-96-1133-FOF-SU, pg. 39). They must therefore be considered 100% used and useful in rate base.

Second, use of the ADFMM in the numerator and the plant capacity of 1.25 mgd, as ordered by the court in Florida Cities Water Co. v. Florida Public Service Commission, 705 So. 2d 620 (Fla. 1st DCA 1998) results in a 100% used and useful determination:

%U&U=[(1.1753+0.0573)/1.25][100]=98.61, say 100%

Q. What would the result be if the Commission used AADF in the numerator of the equation instead of ADFMM?

A. Use of AADF in the numerator would yield a used and useful determination of 80%, as follows:

%U&U=[(0.9421+0.0573)/1.25][100]=79.94, say 80%

It is interesting to note that the AADF during the test year was ~~under~~ less than the permitted capacity of the plant (0.9421 mgd compared to 1.0 mgd) yet FDEP, under the requirements of 62-600 FAC, required that the plant be expanded Exhibit ___ (MA-3). Using the Commission's methodology (AADF), the calculated used and useful

percentage for the Waterway Estates Advanced Wastewater Treatment Plant prior to expansion would have 99.94%. Clearly, any additional plant capacity would yield a result of less than 100 percent used and useful. This is a clear indication that the use of AADF does not recognize what is happening at the treatment plant (peak flows) and is not consistent with Chapter 62-600 FAC.

Q. Please describe the requirements of Chapter 62-600 FAC as it relates to wastewater treatment plant planning and construction.

A. Chapter 62-600.405 requires utilities to initiate planning via an initial Capacity Analysis Report (CAR) upon the tree-month average daily flow exceeding 50% of the permitted capacity of the treatment plant. If the CAR indicates that capacity will be equaled or exceeded withing the next five years preliminary design must be initiated. If the capacity will be equaled or exceeded with the next four years plans and specifications for the necessary expansion must begin to be prepared. If capacity will be equaled or exceeded within the next three years a complete construction permit application must be submitted to the FDEP within 30 days of submission of the CAR. If capacity will be equaled or exceeded within the next six months an operation permit application for the expanded facility must be submitted to the FDEP. Exhibit___(MA-4)

Q. Does Commission's used and useful percentage (80%) accurately represent the percentage of facilities which are needed to provide service to current customers?

A. No, it does not.

Q. Please explain your answer.

A. Under this determination, sufficient capacity to accommodate the maximum month flows is not recognized. The plant is required, by regulation, to not only accept these flows but also to biologically treat the flows sufficiently to meet effluent water quality standards established and enforced by the FDEP. A plant designed both biologically and hydraulically to accommodate AADF without regard to peak flows will not meet these requirements.

Q. Does this conclude your testimony?

A. Yes.

For exhibit:
See Hearing Exh. 33