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ORIGINAL
FILE COPY

April 3, 1996

HAND DELIVERY

Ms. Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

RE: Docket No. 950387-SU
Application of Florida Cities Water Company, North Ft. Myers Division,
for an Increase in Wastewater Rates in Lee County, Florida

Dear Ms. Bayo:

Enclosed for filing are an original and fifteen copies of our Certificate of Service and Rebuttal Testimony with Exhibits of the following persons:

1) Michael Acosta; 03833-96
2) Julie L. Karleskint with the following exhibit: 03834-96
   Exhibit ___ (JLK-4) Letter to Jim Bishop, Lochmoor Country Club, with signed Reuse Agreement;
3) Robert Dick; 03835-96
4) Douglas R. Young; 03836-96
5) Larry N. Coel, with the following exhibits: 03837-96
   Exhibit ___ (LC-3) Affiliate Transactions Audit Report
   Exhibit ___ (LC-4) Letter from Charles Hill dated May 23, 1995 establishing the MFRs filing date
   Exhibit ___ (LC-5) Rate Case Expenses (Through HEARING); and
6) Joseph Schifano; 03838-96
7) Thomas A. Cummings, with the following exhibit: 03839-96
   Exhibit ___ (TAC-1) Notification of completion of construction

ACK ✓
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RECEIVED & FILED
FPSC-BUREAU OF RECORDS

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

Very truly yours,

B. Kenneth Gatlin

BKG/met
Enclosures

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Re: Application of Florida Cities Water Company, North Ft. Myers Division, for an increase in wastewater rates in Lee County, Florida	Docket No. 950387-SU Filed: April 3, 1996

CERTIFICATE OF SERVICE

I HERBY CERTIFY that a true and correct copy of the following Rebuttal Testimony and Exhibit:

1) Michael Acosta;

2) Julie L. Karleskint with the following exhibit:
   Exhibit ___ (JLK-4) Letter to Jim Bishop, Lochmoor Country Club, with signed Reuse Agreement;

3) Robert Dick;

4) Douglas R. Young;

5) Larry N. Coel, with the following exhibits:
   Exhibit ___ (LC-3) Affiliate Transactions Audit Report
   Exhibit ___ (LC-4) Letter from Charles Hill dated May 23, 1995 establishing the MFRs filing date
   Exhibit ___ (LC-5) Rate Case Expenses (Through HEARING)

6) Joseph Schifano;

7) Thomas A. Cummings, with the following exhibit:
   Exhibit ___ (TAC-1) Notification of completion of construction

has been furnished by hand delivery to Mr. Ralph Jaeger, Esquire, Division of Legal Services, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, and to Harold McLean, Esquire, Office of Public Counsel, 111 W. Madison Street, Room 812, Claude Pepper Building, Tallahassee, Florida 32399-1400, and by regular U.S. Mail on this 3rd day of April, 1996 to:

Harry Bowne
4274 Harbour Lane
N. Ft. Myers, FL 33903

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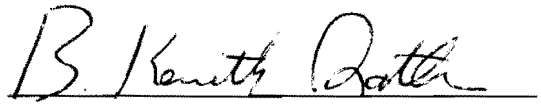
Respectfully submitted



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Attorneys for
FLORIDA CITIES WATER COMPANY

FLORIDA CITIES WATER COMPANY

NORTH FORT MYERS DIVISION

REBUTTAL TESTIMONY OF THOMAS A. CUMMINGS

TO DIRECT TESTIMONY OF KIMBERLY DISMUKES

AND BENNIE T. SHOEMAKER

Docket No. 950387-SU

Q. Please state your name and business address.

A. My name is Thomas A. Cummings. My business address is Black & Veatch, 2701 North Rocky Point Drive, Suite 960, Tampa, Florida 33607.

Q. Could you briefly describe your educational background and your professional qualifications?

A. I received my Bachelor of Science degree in Civil Engineering from Purdue University in 1979, and have completed Master of Science degree course work in Environmental Engineering and Science from the University of Missouri through 1985. I am a registered professional engineer in the States of Florida and Kansas. I was originally registered in Kansas, in March, 1984, after passing the examination in sanitary engineering, and registered in Florida in August, 1990.

Q. Please describe your professional engineering experience concerning water and wastewater utilities?

A. I have over 12 years continuous experience as a

registered professional engineer specializing in studying, planning, designing, permitting and managing the construction of water and wastewater facilities for public and private investor-owned utilities in the State of Florida. I have been engineer-of-record for the design and permitting of five wastewater and/or water treatment plants, and assisted with the design, permitting and construction management of numerous others. I have studied and designed water treatment facilities utilizing biological and chemical treatments. I have been involved in the hydraulic model analysis and mechanical review of over fifteen water and wastewater systems and the preparation of over 25 water and/or wastewater treatment plant facility designs. My design and permitting experience also includes over 30 miles of raw water mains, potable water mains and force mains ranging in size from 4 inches to 60 inches.

Q. By whom are you presently employed?

A. I am currently employed by Black & Veatch.

Q. Can you briefly describe the services that Black & Veatch provides?

A. Yes. Black & Veatch is a professional engineering and consulting firm that has 80 offices and over 6,000 employees. The services that Black & Veatch can

provide are capabilities in the environmental, civil, electric, power, building, process, and management consulting fields as well as procurement and construction.

Q. Has Florida Cities Water Company (FCWC) ever utilized the expertise of a Black & Veatch employee as an expert witness before the PSC at a rate case hearing?

A. Yes, in FCWC's South Ft. Myers wastewater rate case, PSC Order No. PSC-93-1288-FOF-SU, Docket No. 920808-SU (9/7/93).

Q. Specifically, what did Black & Veatch attest to in that rate case?

A. Black & Veatch's witness testified to the used and useful treatment plant components in that proceeding.

Q. Did the PSC accept Black & Veatch's testimony related to used and useful components?

A. Yes.

Q. What is your position with that firm?

A. I am a project manager/project engineer.

Q. How long have you held that position?

A. I have held the position since 1985.

Q. What are your normal duties for the firm?

A. The majority of my time I am responsible for engineering duties for numerous projects and clients for which my role is either the project manager, or

project engineer, depending upon the nature and scope of our services.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to establish the capacity of the Waterway Estates Advanced Wastewater Treatment Plant (WWTP) in response to the direct testimony of Office of Public Counsel witness Kimberly Dismukes and PSC staff witness Bennie Shoemaker.

Q. Are you the Black & Veatch project manager for the Waterway Estates WWTP expansion to provide advanced wastewater treatment?

A. Yes, I am.

Q. Did you prepare the preliminary design report and the Florida Department of Environmental Protection (FDEP) permit application for the Waterway Estates WWTP expansion to provide advanced wastewater treatment?

A. Yes, I did.

Q. Aren't you also the engineer of record for this facility?

A. Yes, I am.

Q. Did Black & Veatch provide the final design and construction management services for the Waterway Estates WWTP expansion?

A. Yes, they did.

Q. Were you also the project manager of these portions of

the project for Black & Veatch?

A. Yes, I was.

Q. Do you agree with witness Dismukes' use of a plant capacity of 1.5 MGD?

A. No.

Q. What was the design capacity of the plant contained in the preliminary design report and FDEP permit application?

A. 1.30 million gallons per day (MGD) expandable to 1.5 MGD.

Q. On what basis was the plant capacity expansion designed and rated?

A. The plant expansion was originally designed to treat 1.30 MGD on an average annual daily flow basis.

Q. Did FCWC direct you to change the design after the preliminary design report was prepared and the FDEP permit application was filed?

A. Yes. FCWC directed us to change the design capacity to a maximum of 1.25 MGD based on the annual average daily flow and the design waste concentration associated with this flow.

Q. Why was this change made?

A. The plant capacity of the original plant was determined based upon providing reclaimed water at an annual rate of 0.30 MGD to the Lochmoor Country Club

Golf Course for irrigation. After the design was completed, it became apparent that the actual irrigation rate was less than originally estimated.

Q. What was the original irrigation rate use in the design?

A. The original irrigation rate used in the design was 0.96 inches per week over 81 acres. This was reduced to account for reduced usage during wet weather periods.

Q. Did you make the design change?

A. Yes.

Q. In your professional opinion, was this change prudent?

A. Yes.

Q. What is the capacity of the facility that was actually constructed by FCWC?

A. The plant capacity will be equal to 1.25 MGD based upon the average annual daily flow and the waste concentration associated with this flow.

Q. Is this capacity change reflected in the construction permit?

A. No. In discussions with FDEP staff, it was decided that it would be best to reflect this change in design capacity on the operating permit application, rather than submitting an application for modification of the construction permit.

Q. Does the notification of completion of construction for the Waterway Estates WWTP reflect the design changes associated with reducing the capacity to 1.25 MGD?

A. Yes, it does. Please see Exhibit _____ (TAC-1) for a copy of the notification.

Q. Did you assist FCWC with the preparation of the operating permit application for this facility?

A. Yes.

Q. When will you submit the operating permit application to FDEP for approval?

A. The application will be submitted in early May, 1996.

Q. What design capacity is shown on the operating permit application?

A. 1.25 MGD.

Q. What basis of design flow is shown on the operating permit application?

A. The basis of design flow is the annual average daily flow.

Q. Could the plant, as constructed, be permitted to treat a flow greater than 1.25 MGD?

A. No.

Q. Please explain how plant capacity is determined?

A. Wastewater treatment plants are normally designed to remove solids and dissolved pollutants contained in

the raw wastewater received by the plant. The plants are normally permitted by the regulatory agency to meet effluent requirements on an annual average basis. Of course, the flow received by a wastewater treatment plant is not constant, but varies during the day in relationship to the activities of the customers connected to the plant. The flows also vary daily and seasonally throughout any given year in response to weather conditions, the influx of seasonal and tourist population, changes in the number of wastewater customers, etc. Therefore, these variations must be considered when designing the plant and are normally calculated from historical or industry literature data as a multiple of the annual average daily design flow.

The peak hour flow results when customers are most active during the daytime hours and the plant design must be able to hydraulically allow this flow to pass through the plant to prevent the treatment units from overflowing and at the same time, provide full treatment.

Each individual unit process must be analyzed in relationship to accepted design standards to determine its ability to meet effluent quality limits under varying flow conditions associated with the annual average daily design flow. Even though these unit

processes may provide acceptable effluent quality in response to short-term variations in influent flow, the plant generally will not be able to meet these limits on a continuous basis.

The plant capacity is not only based upon the hydraulic capacity received by the facility, it is also based upon the load or quantity of pollutants carried by the flow which require treatment or removal in order to meet the effluent limitations. The pollutant load is normally determined based upon the average annual daily design flow and the associated design pollutant concentrations. Therefore, the plant capacity determination must also take into account the ability of the unit processes to remove the influent pollutant load down to levels that meet the effluent limitations.

The final determination of plant capacity is based upon the ability to respond to variations in raw wastewater flow and pollutant load, and whichever of these variables is the most limiting upon plant capacity is usually the final determining factor.

Q. Is the limiting plant capacity factor at Waterway Estates WWTP the disposal capacity as stated in the direct testimony of Witness Shoemaker?

A. No.

Q. What is the limiting factor regarding plant capacity?
A. The treatment process.
Q. What qualifications and experience are required to determine capacity of a wastewater treatment facility?
A. A person would need to thoroughly understand all technical aspects of the operations and functions of the various components of the wastewater facility, have knowledge of the variations of raw wastewater quality and quantity, have knowledge of the applicable rules, regulations, industry standards and reference documents that govern its design, and possess the experience and training required to analyze and evaluate each of these to make a determination of the capacity of a facility. These qualifications and experience would normally be possessed by a professional engineer practicing in the areas of sanitary or environmental engineering with specific training and experience in the design and operation of wastewater treatment facilities.
Q. Could a person not possessing these qualifications determine the capacity of a wastewater treatment facility such as Waterway Estates?
A. No.
Q. What qualifications and experience are required to obtain an FDEP permit for a wastewater treatment

plant?

A. At a minimum, a person must be a registered professional engineer in the State of Florida in order to sign and seal the application form and certify the completion of construction as required by the FDEP in accordance with the provisions of s. 403.0877, Florida Statutes. Moreover, Rule 62-600.715, Florida Administrative Code, requires that a preliminary design report signed and sealed by the engineer of record accompany the application. Additionally, the rules of practice for professional engineers prohibit them from performing assignments when they are not qualified by training or experience in the field or discipline of engineering involved. Rule 61G15-19.001(6)(c), Florida Administrative Code, Rules Of The State Board of Professional Engineers. In essence, this means that the engineer, besides being registered, should practice in the areas of sanitary or environmental engineering and have specific educational background or experience in the design and operation of wastewater treatment facilities, as well as knowledge of applicable rules, regulations, and guidance documents.

Q. In your professional opinion, what capacity should be utilized to determine the used and useful percentage

for the Waterway Estates WWTP?

A. The average annual daily flow capacity of 1.25 MGD should be used.

Q. Does this conclude your testimony?

A. Yes.

EXHIBIT _____ (TAC-1)

NOTIFICATION OF COMPLETION
OF CONSTRUCTION

NOTIFICATION OF COMPLETION OF CONSTRUCTION FOR WASTEWATER FACILITIES

1. Instructions

   a. In accordance with Rule 62-620.610, F.A.C., this form must be submitted to the Department's appropriate district office or approved local program prior to placing a newly constructed facility or modified portion of an existing facility into operation for any purpose other than testing for leaks and equipment operation.
   b. Each applicable item must be completed in full. Where attached sheets or other technical documentation are used in lieu of the blank spaces provided, indicate appropriate cross-references in the spaces.
   c. Three (3) copies of this notification with supporting documentation shall be submitted with this form.
   d. All information is to be typed or printed in ink. Dates are to be entered in MM/DD/YR format.

2. Facility Information

   a. Permit Number DC36-237227 b. Facility Identification Number 5236P01630

   c. Project/Facility Name Waterway Estates WRF

   d. Contact Name Robert Dick
   Number and Street 7401 College Parkway
   City/State/Zip Code Fort Myers, Florida 33907
   Telephone (941) 936-0247

3. Description of Facilities to be Placed into Operation:

   See Attachment A

4. Description of Substantial Deviations from the Permit, Approved Preliminary Design Report, and Application Materials:

   See Attachment B

5. Implementation Dates

   a. Actual Date Construction Began 03/15/95
   b. Scheduled Date to Place Facilities into Operation 03/15/96
   c. Scheduled Date to Attain Operational Level 03/15/96
   d. Scheduled Date to Submit DEP Form 62-620.910(13)[1] 03/15/96

[1] In accordance with Rule 17-620.610, F.A.C., DEP Form 17-620.910(13) Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals for Wastewater Facilities must be submitted within six month after the facilities are placed into operation.

CM

6. Certifications

a. Applicant or Authorized Representative

I certify that the statements made in this notification and all attachments are true, correct and complete to the best of my knowledge and belief. I agree to operate and maintain these wastewater facilities in such a manner as to comply with the provisions of Chapter 403, F.S., Chapter 62-600, F.A.C., and all other applicable rules of the Department. Further, an appropriate draft operation and maintenance manual which has been examined by a professional engineer as certified below is available and located at The Waterway Estates, WRF and can be submitted upon request. of the expande facilities

[signature] 3/5/96

(Signature of Applicant or Authorized Representative[3]) (Date)

Name (please type) Mike Acosta, P.E. Company Name Florida Cities Water Company
Title V.P. Engineering & Operation Company Address 4837 Swift Rd, Suite 100
Phone (813) 925-3088 City/State/Zip Code Sarasota, FL 34231

b. Professional Engineer Registered in Florida

I certify that the facilities listed above have been completed to the point where the facilities are functionally complete. I further certify that construction on these facilities has proceeded substantially in accordance with the permit and the approved preliminary design report and application materials, or that deviations noted above will not prevent the system from functioning in compliance with all applicable statutes of the State of Florida and rules of the Department when properly operated and maintained. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative ~~under my direct supervision~~, for the purpose of determining if the work proceeded in compliance with the permit and the approved preliminary design report and application materials.

Company Name Black & Veatch Name (please type) Thomas A. Cummings, P.E.
Company Address 2701 N. Rocky Point Drive, Suite 960 [signature] 3/27/96
City/State/Zip Code Tampa, FL 33607 43474
Phone Number (813) 281-0032

(Seal, Signature, Date, and Registration Number)

c. Professional Engineer Registered in Florida

I certify that the draft operation and maintenance manual for these wastewater facilities has been prepared or examined by me or by individual(s) under my direct supervision and that there is reasonable assurance, in my professional judgement, that the facilities, when properly operated and maintained in accordance with this manual, will comply with all applicable statutes of the State of Florida and rules of the Department.

Company Name Black & Veatch Name (please type) Thomas A. Cummings, P.E.
Company Address 2701 N. Rocky Point Drive, Suite 960 [signature] 3/27/96
City/State/Zip Code Tampa, FL 33607 43474
Phone Number (813) 281-0032

(Seal, Signature, Date, and Registration Number)

[3]If signed by the authorized representative, attach a letter of authorization.

ATTACHMENT A

3. Description of Facilities to be Placed into Operation.

- Rotating Drum Screen
- Mechanical Mixer for Equalization Tank
- Chlorine Feed System
- Compressed Air System for Automatic Pinch Valves
- Mixed Liquor Suspended Solids Recycle Pumping System
- Lime Storage/Feed Silo for Sludge Stabilization
- Blower Addition/Rehabilitation for Increased Aeration
- Additional Diffusers in Biological Treatment Unit No. 1.
- Reclaimed Water Pumping System
- Reclaimed Water Transmission Pipeline
- Miscellaneous Structural, Mechanical and Instrumentation Improvements

ATTACHMENT B

4. Description of Substantial Deviations from the Permit, Approved Preliminary Design Report, and Application Materials:

- Reclaimed water discharge structure at Lochmoor Golf Course pond was provided as an exposed surface discharge in a protective cage. A submerged diffuser type discharge was originally submitted.
- New buried yard piping at the plant was provided as AWWA C900, C905 PVC pipe with ductile iron mechanical joint fittings and mega-lug wedge acting restrainers.
- Only eight of the originally submitted eleven new diffuser banks were installed in BTU #1.
- A sludge recirculation pipe was provided to flow equalization tank.
- The lime storage/feed silo for sludge stabilization is installed in its entirety. All components of silo have not been tested due to the pending FDEP air pollution permit.
- Controls for the reclaimed water transmission system have been set in accordance with the attached Operating Protocol.
- The Waterway Estates WRF capacity is 1.25 MGD based on Annual Average Daily Flow.

OPERATING PROTOCOL

WATERWAY ESTATES WATER RECLAMATION FACILITY
REUSE WATER SYSTEM

The Waterway Estates Water Reclamation Facility has a present design capacity of 1.25 MGD which can be expanded to 1.5 MGD upon the installation of additional mechanical equipment. The plant is equipped with ultraviolet disinfection with a surface water discharge to the Caloosahatchee River, flow can also be diverted after UV disinfection and chlorinated in the reclaimed water main for discharge to the Lochmoor Country Club storage ponds. From the storage ponds it will be utilized by Lochmoor for irrigation.

Normal plant discharge will be by gravity to the river. However, when reclaimed water is required by Lochmoor the reclaimed water pump and chlorinator will be started and chlorinated flow will be diverted to the Lochmoor storage pond. When there is no reclaimed water demand the pump will stop and all flow will go to the river.

Demand for the reclaimed water is controlled by a float valve located at the golf course pond. When the level in the pond drops to a preset limit the float valve will open and the pressure in the main will drop. The pressure sensor will actuate the reuse pump when a preset pressure is noted. When the pond level rises to a predetermined height, the float valve will close causing an increase in pressure in the main which will in turn shut off the reuse pump.

The reuse system can be monitored by the plant computer system at both Waterway Estates and Fiesta Village. The Fiesta Village Plant is staffed 24 hours/day. The plant computers are able to monitor the reuse valve status, main pressure, irrigation pump status, chlorine residuals and turbidity. The system can also operate the reuse pump from remote locations.

In order to assure reliability of the reuse system, continuous on-line monitoring for turbidity and total chlorine residual is provided and monitored by both plant computer systems. In the event that the total residual chlorine drops below 1.3 mg/l or the turbidity exceeds 3 NTU, the reuse pumps will automatically shut off by the computer, the isolation valve will close and all flow will go to the river. The reuse pumps will not restart until the operator manually checks the system and turns the system back on.

The Waterway Estates WRP will provide reclaimed water to Lochmoor except under the following conditions:

1) Total Residual Chlorine falls below 1.3 mg/L (flow will be automatically diverted to river per plant computer).
2) Turbidity exceeds 3 NTU (flow will be automatically diverted to river per plant computer).
3) TSS prior to application of disinfectant exceeds 5 mg/L.
4) Any one fecal coliform sample detects 25 colonies/100mls after chlorination.
5) Other conditions such as failures, breakdowns, plant upsets, etc that have been confirmed and may have a potential adverse impact on the public health.

In the event any one or more of the above conditions are met the following actions will be taken:

A. Immediate Action
1) Shut off the irrigation pumps if this has not already been completed by the computer.
2) Investigate and identify exact cause/source of problem and determine if short or long term corrective actions are needed. Assess the problem as it relates to the operational capabilities of the system.
3) Provide immediate preliminary report to key management personnel.

B. Short Term Corrective Actions (2 Hours)
1) Make necessary corrections/repairs.
2) If repairs are to exceed 2 hours, follow long term corrective actions.

C. Long Term Corrective Actions
1). Irrigation valve shall be closed and pump shut down either automatically or manually. Restart will only be done manually by operator. All flow will be diverted to river.
2) Notify Lochmoor of system shutdown (995-0081)
3) The reclaimed water system will remain shut down until all corrective action has been completed and quality standards are met before the system placed back on line. Customer will be notified prior to restoration of service.
4) Notify the proper authorities of the possible problem and system shut down.