

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for increase in water and wastewater rates in Alachua, Brevard, DeSoto, Highlands, Lake, Lee, Marion, Orange, Palm Beach, Pasco, Polk, Putnam, Seminole, Sumter, Volusia, and Washington Counties by Aqua Utilities Florida, Inc.

DOCKET NO. 080121-WS  
FILED: October 27, 2008

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the Direct Testimony of Keith Kleinmann on behalf of the Florida Public Service Commission, has been furnished by ~~U.S. Mail~~, on this 27<sup>th</sup> day of October, 2008, to the following.

*Hand Delivery*

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DOCKET NO. 080121-WS – Application for increase in water and wastewater rates in Alachua, Brevard, DeSoto, Highlands, Lake, Lee, Marion, Orange, Palm Beach, Pasco, Polk, Putnam, Seminole, Sumter, Volusia and Washington Counties by Aqua Utilities Florida, Inc.

WITNESS: Direct Testimony of Keith Kleinmann, Florida Department of Environmental Protection, South District  
Appearing on Behalf of the Staff of the Florida Public Service Commission.

DATE FILED: October 27, 2008

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FPSC-COMMISSION CLERK

DIRECT TESTIMONY OF KEITH KLEINMANN

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Q. Please state your name and business address.

A. Keith Kleinmann, Florida Department of Environmental Protection, 2295 Victoria Avenue, Suite 364, Fort Myers, Florida 33902.

Q. Please provide a brief description of your education background and experience.

A. I have a Bachelor of Science Degree from the Florida Southern College and have been an employee of the Florida Department of Environmental Protection (FDEP) for over 13 years; the vast majority of that time was in the Wastewater Section.

Q. What are your general responsibilities at the FDEP?

A. I am the Environmental Manager of five employees of the compliance enforcement section of the Wastewater Section. My duties include enforcement coordinator for all wastewater related enforcement activities in the South District. I oversee the compliance section of the Wastewater Section. We conduct inspections, review all compliance data related to wastewater quality, and ensure that all violations are corrected in a timely manner.

Q. Are you familiar with the Aqua Utilities Florida, Inc. (Aqua) wastewater systems in Highlands (Leisure Lakes) and Lee (South Seas) Counties?

A. Yes.

Q. Has the utility been the subject of any FDEP enforcement action within the past three years?

A. Yes. From June 22, 2005 to October 13, 2005, Aqua discharged to two golf course ponds that were not authorized discharge sites under the current South Seas permit. The Department issued a Consent order in August 2007. On March 20, 2008, Aqua proposed a pollution prevention project implementation plan to resolve the consent order in lieu of paying a fine. The project, which proposes to replace the ditches in

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1 the two aeration tanks, is expected to be complete by December 2008, with a final  
2 report to FDEP in January 2009. (EX KK-1)

3 Q. Is the utility otherwise in compliance the DEP requirements?

4 A. No. The South Seas Discharge Monitoring Reports (DMR) for 2008 indicate effluent  
5 violations for Total Suspended Solids for the months of March, April, May, and  
6 August 2008. The July DMR indicates a Fecal Coliform violation. The South Seas  
7 facility is having problems with their filter system. The system was inspected in  
8 October 2008 and a compliance letter is being drafted to address these issues.

9 Q. Is the overall maintenance of the treatment, collection, and disposal facilities otherwise  
10 satisfactory?

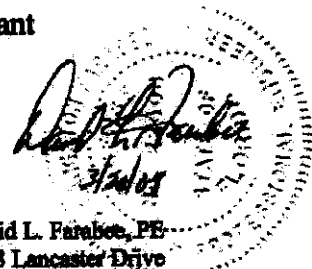
11 A. Yes.

12 Q. Do you have anything further to add?

13 A. No, I do not.

**Pollution Prevention Project Implementation Plan**  
for  
**Aqua Utilities Florida, Inc.**  
**South Seas Resort Wastewater Treatment Plant**  
**Captiva Island, Florida**

March 20, 2008



Prepared by: David L. Farabee, PE  
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**General Description**

The South Seas Resort WWTP uses a contact-stabilization activated sludge treatment process with two process aeration tanks. These tanks are currently aerated by diffused aeration using coarse-bubble diffusers. Air is supplied by two centrifugal blowers (one is a standby blower), which serve these process air tanks, as well as the digesters and return-sludge airlifts.

The proposed Pollution Prevention Project is to replace the diffusers in the two aeration tanks, which are called the Contact Tank and the Recirculation Tank, with fine-bubble diffusers. This will provide for more efficient aeration. Fine-bubble diffusers have a higher oxygen transfer efficiency, using less air to achieve the same dissolved oxygen transfer into the tank contents. This results in a significant energy savings by reducing the power consumption by the blower motors.

The existing blowers are multi-stage centrifugal blowers, which are typically throttled by partially closing the intake valve. Such throttling reduces the power demand by the blower, which reduces the amperage draw of the motor, reducing the overall energy consumption. Such a reduction does not require replacement of the blowers or motors, nor does it require the addition of variable-frequency drives.

The proposed project will not include replacement of diffusers in the digesters because digester air requirements are likely to be governed by mixing needs rather than aeration, and because of the higher likelihood of diffuser fouling in a digester. The proposed project does not affect operation of the other existing blowers, which serve the equalization tank and its influent airlift.

**Product Literature**

Aqua Utilities has used fine-bubble diffusers manufactured by Environmental Dynamics, Inc. in its Fruitville WWTP in Sarasota County. This installation has been successful, and it is proposed that the same diffusers, or an equal provided by another manufacturer, be used at South Seas Resort WWTP. The following attachments describe these proposed diffusers:

- Flex Air diffuser brochure (4 pages)
- EDI Flexair Magnum Diffuser product specification sheet (2 pages)
- EDI diffuser assembly (Drawing no. A-21271)
- EDI Diffuser layout for Reseration Tank (Drawing no. 33168)
- EDI Diffuser layout for Contact Tank (Drawing no. 33169)

**Energy Conservation**

The energy conservation expected by diffuser replacement was conservatively estimated based on an anticipated improvement from 12% oxygen transfer efficiency to 18%. Such an improvement would result in a difference in power demand of about 6 horsepower. This translates into a difference of about 3200 KW-hr per month, which is 6.6% of the total energy consumption at the treatment plant throughout 2007. Based on 2007 electric bills, which average 8.18 cents per KW-hr, such a savings would reduce the electrical energy costs by about \$3,166 per year.

**Estimated Costs**

The cost of replacing the process aeration tank diffusers with fine-bubble diffusers is estimated as shown in the following table:

Item	Estimated Cost
Preparation of P2 Project Plan	\$3,000
Diffusers and in-basin piping	18,000
Manufacturer's startup assistance	2,600
Air Piping Modifications	3,000
Design & Construction Phase Engineering	<u>5,000</u>
Subtotal	\$31,600
Contingency (10%)	<u>3,200</u>
<b>Total Estimated Cost</b>	<b>\$34,800</b>

**Implementation Schedule**

The following implementation schedule is proposed for installation of the fine-bubble diffusers.

<b>Activity</b>	<b>Anticipated Completion Date</b>
P2 Implementation Plan Submittal to FDEP	March 24, 2008
P2 Implementation Plan Approval by FDEP	April 25, 2008
Contract for Design Services	June 1, 2008
Preparation of Bidding Documents	August 1, 2008
Construction Bid Award	October 1, 2008
Construction Completion	December 31, 2008
P2 Final Report Submittal to FDEP	January 31, 2009