DIRECT TESTIMONY OF TED L. BIDDY, P.E. / P.L.S.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

ON BEHALF OF THE

CITIZENS OF THE STATE OF FLORIDA

DOCKET NO. 950495-WS

Revised 5/3/96

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is Ted L. Biddy. My business address is Baskerville-Donovan, Inc. (BDI), 2878 Remington Green Circle, Tallahassee, Florida 32308.

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

A. I am Vice-President of Baskerville-Donovan, Inc. and Regional Manager of the Tallahassee Office.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE?

A. I graduated from the Georgia Institute of Technology with a B.S. degree in Civil Engineering in 1963. I am a registered professional engineer and land surveyor in Florida, Georgia and Mississippi and several other states. Before joining BDI in 1991, I had operated my own civil engineering firm for 21 years. My areas of expertise include civil engineering, structural engineering, sanitary engineering, soils and foundation engineering and precise surveying. During my career, I have designed and supervised the master planning, design and construction of thousands of residential, commercial and industrial properties. My work has included: water and wastewater design; roadway design; parking lot design; stormwater facilities design; structural design; land surveys; and environmental permitting.

I have served as principal and chief designer for numerous utility projects. Among my major water and wastewater facilities designs have been a 2,000 acre development in Lake County, FL; a 1,200 acre development in Ocean Springs, MS; a 4 mile water distribution system for Talquin Electric Cooperative, Inc. and a 320

lot subdivision in Leon County, FL.

Q. WHAT ARE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a member of the Florida Engineering Society, National Society of Professional Engineers, and Florida Society of Professional Land Surveyors.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION (FPSC)?

A. Yes. I have testified in the St. George Island Utilities, Ltd. case in Docket No. 940109-WU.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A STATE OR FEDERAL COURT AS AN ENGINEERING EXPERT WITNESS?

A. Yes, I have had numerous court appearances as an expert witness for cases involving roadways, utilities, drainage, stormwater, water and wastewater facilities designs.

Q. HAVE YOU REVIEWED ANY RATE FILING DOCUMENTS FILED WITH THE FLORIDA PUBLIC SERVICE COMMISSION REGARDING USED AND USEFUL ANALYSIS AND OTHER ENGINEERING ISSUES?

A. Yes, I have reviewed the FPSC staff final recommendations on engineering issues for Docket No. 920733-WS and No. 900718-WU. Docket No. 920733-WS was filed by the General Development Utilities, Inc. for its Silver Springs Shores Division which has lime softening treatment facilities. Docket No. 900718-WU was filed by Gulf Utility Company for its reverse osmosis plant expansion.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide comments on methods of used and useful analysis used by Southern States Utilities, Inc. (SSU) for this rate increase filing.

Q. WERE THE MATERIALS YOU ARE SPONSORING PREPARED BY YOU OR BY PERSONS UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes, they were.

Q. DO YOU AGREE WITH THE MARGIN RESERVE PROPOSED BY SSU FOR USED AND USEFUL CALCULATIONS?

A. No, I do not think margin reserve used by SSU in this rate filing is appropriate. Besides the testimony provided by Witness Mr. Larkin, I have some comments to add especially on 3 years and 5 years of margin reserve for water and wastewater treatment facilities, respectively. Chapter 62-600.405, Florida Administrative Code (F.A.C.) requires all wastewater utilities to submit capacity analysis reports (CAR) to the Florida Department of Environmental Protection (FDEP) at different conditions. The five year time frame mentioned in the rules is mainly used as the interval for submitting a CAR. We should not translate that five year time frame as the actual time required for new plant expansions. The rule is simply trying to mandate wastewater treatment plant (WWTP) owners to prepare plans for possible future expansion. The five year submittal will be reduced to annual update when the permitted capacity will be equaled or exceeded within the next 10 years. The utilities may have to expand WWTP quickly, it depends on how soon the flow is

anticipated to reach the permitted capacity. If the wastewater flow is not anticipated to reach the permitted capacity within 10 years, on the other hand, the utilities are only required to submit a CAR every 5 years and nothing else.

FDEP has no similar rules on water treatment facilities. The need for plant expansion again is dependent upon when the future flow will reach existing capacities. Sometimes it does not take a long time to increase capacity for water treatment, such as adding a new well and filters. Therefore, the 3-year and 5-year margin reserves requested by SSU are not justified or mandated by regulation.

In addition, a well planned phased development and plant expansion can reduce and eventually eliminate the need of margin reserve. This is feasible and can be done. The construction permit DC432-219274 of Marion Oaks WWTP is a good example in this filing. In that permit, the 0.2 MGD Type I extended aeration sewage treatment plant was permitted to expand in four phases to a 1.0 MGD plant. Actually, the utility should have new customers or developers to pay for new plant expansion through contribution or prepaid CIAC (contribution in aid of construction) and other ways. Collection of these prepaid fees from future customers should render a margin reserve allowance, paid by current customers, to be unnecessary.

Under Florida conditions of tightening environmental regulation, increasing water costs and water conservation concern, it is reasonable to believe that the water consumption and wastewater generation of existing customers will not increase. Therefore, the margin reserve requested by SSU is solely for new

customers. If the PSC allows margin reserve in the used and useful calculations, then it will penalize existing customers by burdening them to pay extra cost for new customers. Allowing margin reserve will further increase water and wastewater rates to existing customers. High utility rates reduce the financial ability for customers and will hinder future development. Therefore, the PSC should eliminate margin reserve allowance in used and useful analysis. The utility should recover the costs of plant addition from new customers or developers through other measures.

Q. DO YOU HAVE ANY COMMENTS ON THE FIRE FLOW REQUIREMENT SOUTHERN STATES UTILITIES, INC. (SSU) APPLIED IN USED AND USEFUL CALCULATIONS?

A. Fire flow capacity should be included in used and useful calculation only if fire flow provision was proven by sufficient fire flow test records. SSU did not provide this information in the original filing, therefore, no fire flow was applied in my used and useful calculation. However, OPC has request SSU to provide the fire flow test information. Revised used and useful calculation will be submitted if SSU does provide adequate information.

In the response to OPC Document Request No. 298, SSU provided fire flow test records for seven water systems and appropriate fire flow allowance was included in the revised Exhibit TLB-3 of used and useful calculations. Exhibit TLB-3.1 summarizes fire flow records and adjustments of fire flow allowance.

Many components of a water distribution system dictate the delivery of fire

flow. They include high service pumps, distribution storage tanks (elevated or ground) and water mains. Because of economic concerns, for many systems fire flows are provided partially by high service pumps and partially by storage. See Exhibit TLB-1 excerpted from AWWA M31 Manual for examples.

No fire flow should be applied to high service pumps, finished water storage or water supply wells without confirming the fire fighting capability of each system. Installing a fire hydrant in the distribution system does not guarantee the required fire flow. As mentioned above SSU was asked to prove the fire flow capability by providing fire flow test records. However, that information was not available at the time of preparing this testimony. Therefore, no fire flow requirement requested by SSU was included in my used and useful calculations in Exhibit TLB-3. When fire flow test documentation becomes available, the used and useful schedules may be revised and provided to the Commission.

If a system is not designed or proved to provide required fire flow, it is dangerous and unfair to assume the fire flow requirement in used and useful analysis. Residents and business owners are paying higher property insurance premiums because of inadequate fire fighting provision. It is not cost effective to use source of supply to meet instantaneous demands, such as peak hourly flows and fire flows. Normally a small water system without storage tanks does not have the capability for fire fighting.

In addition, AWWA Manual M31 Page 33 states "Generally, water system components are out of service for short periods of time, so the probability of a

component being out of service when a fire occurs is low. ....Fortunately, fires that severely stress a distribution system occur only a few times a year in large systems and only once every few years in small systems. Therefore, the probability of a major fire occurring while more than one water system component is out of service is so low that the utility should not be expected to meet required fire flow at such times."

Q. SSU REQUESTED A 12.5% COMPANY-WIDE LEVEL OF UNACCOUNTED FOR WATER. DO YOU AGREE WITH THIS REQUEST?

A. No. A company-wide unaccounted for water percentage can not represent actual unaccounted for water level of each system. Some systems with high levels of unaccounted for water, like Oak Forest, St. Johns Highlands, and Stone Mountain, are averaged out by large numbers of low unaccounted for water systems. Therefore, the company-wide approach provides a shelter to high unaccounted for water systems and does not encourage operation improvement. PSC should evaluate the level of unaccounted for water on an individual basis. To achieve low levels of unaccounted for water, PSC should allow no more than 10% for each water system. Proper adjustments have been made in Exhibit TLB-3 water system used and useful calculations, to account for excess unaccounted for water.

Q. DO YOU RECOMMEND THAT A SINGLE MAXIMUM DAY FLOW SHOULD BE USED IN USED AND USEFUL CALCULATIONS?

A. No, the single maximum day flows should not be used in used and useful

calculations in this filing. The single maximum day flows may include undetected or unrecorded leaks, flushing and unusual usage, in addition to the PSC allowed unaccounted for water. Normally, a water main leaks for days before detection and that amount of water loss is hard to keep track of. Main breaks and line flushing have similar situations because good records are hard to keep.

When engineers review historic flow data and evaluate for maximum daily demands, any unusual and excessive uses of water should be excluded as provided by AWWA M31, *Distribution System Requirement for Fire Protection*, on Page 16. In this filing, SSU did not exclude any unusual and excessive water use for the single maximum day flows. Therefore, an average of the five highest maximum daily flows in the maximum month is justified and should be used for all used and useful and engineering issues. This has been the policy historically used by the Commission.

Q. IS IT JUSTIFIED TO USE THE PERMITTED CAPACITIES IN OPERATION PERMITS INSTEAD OF CONSTRUCTION PERMITS FOR USED AND USEFUL CALCULATIONS?

A. Normally the operation permit has the same capacity as construction permit for each treatment facility. However, sometimes the same treatment facility has less permit capacity in its operation permit than construction permit. For example, a one MGD contact stabilization type sewage treatment plant could be rated at 0.5 MGD for operating in extended aeration treatment. The Beacon Hills WWTP provides an actual example. According to FDEP permit number DO16-213087,

that facility is permitted as a 0.836 MGD extended aeration WWTP, which can also be operated as a 1.78 MGD contact stabilization WWTP. I have adjusted the used and useful calculation for the Beacon Hill wastewater treatment plant to reflect its 1.78 MGD capacity in Exhibit TLB-4. Adjustments would be appropriate for the other systems if their plant capacities are similarly understated.

Therefore, construction permit capacities should be used unless the operation permit has permanently changed the original permit capacities. This question will not be an issue when SSU applies for permit renewals in the future. According to the NPDES permit delegation from EPA, FDEP will combine the construction and operation permits into one permit application.

Q. IS IT REASONABLE TO USE "FIRM RELIABLE CAPACITIES" TO CALCULATE USED AND USEFUL PERCENTAGES FOR SUPPLY WELLS, HIGH SERVICE PUMPS AND WATER TREATMENT FACILITIES?

A. No, it is not justified to use firm reliable capacity on more than one component. The firm reliable capacity is the total capacity of supply wells, high service pumps, filters, or other treatment plant facilities without the largest unit in operation. That largest unit is assumed to be out of service for routine maintenance or emergency repair.

Most of the time, facilities are scheduled in advance to be out of service for maintenance or repair. It is very unlikely that two facility components will be scheduled for service at the same time. The chance of having two facility

breakdowns, simultaneously, is slim. Therefore, it is not economically justified to calculate used and useful percentages for supply wells, water treatment facilities and high service pumps all with "firm reliable capacity." Adjustments have been made in my used and useful calculations in Exhibit TLB-3, based on the above discussion.

Q. DO YOU HAVE ANY COMMENTS ON WATER SUPPLY WELL USED AND USEFUL CALCULATIONS PROPOSED BY SSU?

A. SSU used so called "firm reliable capacity" in calculating used and useful percentage for water supply wells. The firm reliable capacity excludes the largest well capacity by assuming it to be out of service. When there are more than ten wells, the largest two wells are assumed to be out of service. The combined capacity of remaining supply wells is the "firm reliable capacity." If a system has only supply wells and no storage facilities or high service pumps, then the well pumps also serve as high service pumping facilities. For this type water system, the "firm reliable capacity" proposed by SSU is acceptable.

However, when storage or high service pumping facilities are available, the "firm reliable capacity" method is not applicable. According to Section 3.2.1.1 Source capacity of *Recommended Standards For Water Works*:

"The total developed groundwater source capacity shall equal or exceed the design maximum day demand and equal or exceed the design average day demand with the largest producing well out of service."

This design criteria should be used to calculate used and useful percentage

for supply wells. For the above reason, the "firm reliable capacity" method should not be applied to supply wells where the water system is also equipped with storage and high service pumping facilities. Adjustments have been made according to the above principles in Exhibit TLB-3.

Q. DO YOU HAVE ANY COMMENTS REGARDING USED AND USEFUL CALCULATIONS OF THE FINISHED WATER STORAGE?

A. The peak hour domestic demands calculations proposed by SSU is unjustified without document support and clear explanation. SSU assumed the peak hour demand is two times of the maximum day demand and the peak hour demand is four hours long. AWWA M32, *Distribution Network Analysis for Water Utilities*, suggests a peak factor range of 1.3 to 2.0 for peak-hour demand to maximum-day demand. I believe 1.3 should be used because it is the minimum requirement.

In MFRs Volume VI Book 1 of 2 Pages 14 and 15, "maximum day gallons pumped" was used instead of "maximum day gallons pumped/24 hours." The time unit was omitted and an abnormal large storage for domestic peak hour demand will be erroneously calculated. Though SSU did not make mistakes in this calculation, it is better to clarify that the "maximum day gallons pumped" means "maximum day gallons pumped within 24 hours" in the record. Normally to compute the required peak hour storage, a mass diagram or hydrograph indicating the hourly rate of consumption is required.

SSU requested an 8-hour emergency storage for large water systems, including: Amelia Island, Burnt Store, Citrus Springs, Deltona Lakes, Lehigh,

Marco Shores, Marco Island, and Sugar Mill Country Club. Emergency storage is not a design criteria in the *Recommended Standards for Water Works*. Just as AWWA M32 stated, the amount of emergency storage is an owner option to be included within a particular water system. It depends on an assessment of risk and the desired degree of system dependability. Emergency storage is seldom included in designs because of costs. SSU was unable to confirm the emergency storage in the original plant design. Therefore, no emergency storage was applied in my used and useful calculations.

SSU also requested ten percent of the total finished water storage to be "dead storage" because of floor suction and vortexing effect. These concerns are not true for all storage facilities, especially for elevated tanks. For ground storage facilities, as-built drawings should be able to reveal the minimum operating level. It is not justified to assume 10% of the storage capacity is dead storage for every single storage tank. In addition, SSU has used more than 10% dead storage in the used and useful calculations for most of the systems. Further, SSU provides no supporting explanation to justify dead storage allowance for each storage tank.

When designing storage tanks and high service pumps, engineers have to check the available net positive suction head (NPSH) and ensure that it is greater than the net required positive suction head to avoid cavitation problems. Therefore, the vortex situation is rare because high service pumps are always placed at a low grade to obtain the maximum NPSH. Full storage tank capacity was applied in my used and useful calculations, per Exhibit TLB-2 and Exhibit TLB-3.

Q. DO YOU HAVE ANY COMMENTS TO ADD ABOUT THE PROPOSED HIGH SERVICE PUMPS USED AND USEFUL CALCULATIONS?

A. High service pumps are normally designed to handle maximum daily flows. Any demands beyond maximum daily flows should be met by distribution storage tanks (AWWA M32 P.41). Distribution storage means elevated storage tank or a ground storage tank with booster pumps in the distribution system. Distribution storage is a part of the finished water storage. Finished water storage usually means ground storage tanks that store finished water to be supplied to high service pumps which push the finished water to the distribution system. However, many water systems have elevated storage tanks in addition to the ground storage tanks to meet the system demands. According to SSU witness Mr. Bliss, Keystone Heights and Lehigh are the only two water systems in this rate filing that have elevated storage tanks. It is not cost effective to use high service pumps to handle peak hourly flows and fire flows. If fire flows are provided by distribution storage, no fire flow should be included in high service pump used and useful calculations. However, SSU was unable to confirm whether fire flow is provided by elevated storage tanks in Keystone Heights and Lehigh. For that reason fire flow demands will be applied to high service pumps only when fire flow provision is properly proven.

A water system with no elevated distribution storage facilities is less cost effective because both high service pumps and on site finished water storage need to meet extra peak hourly demands above maximum daily flows or fire flows. Without the capability of replenishing elevated storage, high service pumps need

to operate in a higher and wider range of pumping head. Therefore, the capital costs are higher and less cost effective to operate, compared to water systems with elevated storage tanks. During the peak demands, the elevated tank will first provide water to the system and high service pumps will provide the remaining excess water demands. For that reason a smaller high service pump can be used. Examples in Exhibit TLB-1 clearly address these situations.

When distribution storage is not available, but the system is designed to provide fire flows, engineers will size up high service pumps for fire flow provision. However, the design flows used should be maximum day demands (average 5 maximum days of maximum month) plus fire flows or peak hourly demands, which ever is greater. This design criteria is used in AWWA M31 because the chance of having a fire outbreak during peak hourly demands is very slim. Therefore, designing high service pumps to meet fire flows, plus peak hourly flows, is not economically justified. Adjustments have been made in my used and useful calculations in Exhibit TLB-3. See Exhibit TLB-2 for calculation key summary.

Q. DO YOU AGREE WITH THE 100% USED AND USEFUL REQUEST ON FACILITY LANDS, HYDRO TANKS, AND AUXILIARY POWER?

A. No, PSC should not grant 100% used and useful on facility lands, auxiliary power and hydro tanks without individual analysis. Every system has different sizes of facility lands, auxiliary power, and hydro tanks. The current demands and available capacities are also unique between systems. These factors all dictate the

facility usage. Therefore, a used and useful calculation is really required for every facility land, auxiliary power, and hydro tank. Adjustments should be made to the used and useful percentages because all facility land, auxiliary power, and hydro tank are part of the system, and they are designed to serve the whole system. The higher the existing demand, the higher the used and useful percentage.

From the response to OPC Interrogatory No. 341, SSU stated that 50 water and 11 wastewater systems have auxiliary power equipment. Unfortunately SSU cannot specify what facilities are supported by each auxiliary power equipment. Therefore, OPC has to assume that auxiliary power has the same used and useful percentage as supply wells or wastewater treatment plants. Adjustments to auxiliary power have been made in Exhibit TLB-3 and Exhibit TLB-4. See Exhibit TLB-2 for calculation key and rationale summary. Marco Shores water system has no supply wells, and the used and useful percentage of high service pumps was used for auxiliary power equipment.

Q. IS IT APPROPRIATE TO USE HYDRAULIC ANALYSIS IN CALCULATING THE USED AND USEFUL PERCENTAGES OF WATER TRANSMISSION AND DISTRIBUTION SYSTEMS?

A. No, it is not appropriate to use hydraulic analysis modeling to calculate the used and useful percentage for water transmission and distribution system. The hydraulic analysis method indeed is a reliable design tool for designing water transmission and distribution systems. However, it does not follow that hydraulic analysis is also appropriate and applicable for the used and useful analysis in

economic regulations.

The used and useful analysis for a water transmission and distribution system is not a flow measurement or flow projection technique. Used and useful analysis is about allocating construction costs fairly to both existing and future customers. Hydraulic analysis modeling proposed by SSU unfairly shifts the majority of the cost burden to existing customers, especially in new or sparsely developed areas. For example, in the same subdivision customers in densely developed areas will have to pay for water mains which are less used in newly or sparsely developed areas. The reason is that the distribution system will supply water to high demands from densely developed areas through looped water mains in sparsely developed areas. The fire flow provision also makes the water mains in sparsely developed areas highly used and useful. It is the responsibility of developers and utility owners to prevent scattered development. Utility owners should bear the risk and costs of acquiring systems serving sparse developments. Sunny Hills is a good example of the above conditions. The example below illustrates the unfair used and useful determination because the flow measurement technique utilized in a hydraulic analysis tends to inflate used and useful percentage for sparsely developed systems.

Assume a water distribution system is designed to serve 1,000 single family homes with a 750 gpm fire flow provision, and assume that the system currently serves only 100 homes with 350 gallons per home average daily consumption. Using peaking factors of 2 for maximum daily flows from average daily flows and

1.3 for peak hourly flows from maximum daily flows, the existing 100 homes will be required to pay for 58.84% of the total water mains laid for 1,000 homes. See the following calculation.

$$\text{Used and useful \%} = \frac{[(100 \times 350 \times 2 \times 1.3/1440) + 750]}{[(1000 \times 350 \times 2 \times 1.3/1440) + 750]} = 58.84\%$$

This example clearly demonstrates that the hydraulic analysis method unfairly allocates cost sharing between existing customers and future customers. In the filing, SSU has requested a 28.09% used and useful on the Sunny Hills Well 5 transmission and distribution system. In that subdivision, only four customers are connected to the system with a 491 lot capacity. Due to the inclusion of fire flow, those customers who represent less than one percent of the system, are responsible for 28.09% of the water mains cost. An economic regulatory agency like PSC should not accept such a disparity created by hydraulic analysis methods. If PSC accepts hydraulic analysis for used and useful calculations, future development will be intimidated by highly inflated rates.

Hydraulic analysis modeling is too complicated and time consuming to apply to water transmission and distribution used and useful analysis. Any change in high service pumps, distribution storage, customer demands and water main size will increase or decrease water flows in water pipes. For example, by using a larger size high service pump for build out conditions, more water will pass through the same water main. Therefore, a change in the system operating parameters will create a different hydraulic analysis result. The build out flows presented by SSU

in the MFR's are not the ultimate capacities of the water mains, and they are subject to change. For examples, a lot of "dry" water mains in the original "Deltona" systems are not connected to existing distribution systems. Once the "dry" mains are connected, the build out flow of each main will be changed. If PSC accepts the use of hydraulic analysis, there will be numerous sets of used and useful percentages, and it can unduly complicate the used and useful analysis. Consequently customers will be paying more than their fair share on the water transmission and distribution system.

In addition, to validate the hydraulic analysis computer model for an existing distribution system, detailed calibrations are required, which includes comparing system pressures with computer output and checking roughness coefficient of water mains. A slight change on the roughness coefficient can affect the results significantly. Calibrating a hydraulic model basically is a trial and error process until the model prediction is close to field measurements. Trying to adopt hydraulic modeling for used and useful analysis is not appropriate because of complexity and time consumption. It is economically unfeasible for most utilities to perform hydraulic modeling for rate increase filings. Due to numerous variables, the enormous staff time required to verify hydraulic computer models is an unnecessary burden for PSC.

On the other hand, the "lot count" method allocates the water main costs evenly to all customers, after engineers have properly designed the whole system. The lot count method assigns a fair share of the total construction cost to every

customer. The lot count method does not fail to recognize water main cost to accommodate fire flow and looped lines, because it allocates the total cost through used and useful percentages. Existing customers do not get a free ride because the construction costs of fire flow accommodation and looped lines are included in the total cost.

Water transmission and distribution systems are designed for all existing and future customers. The hydraulic analysis method clearly tilts the burden to existing customers. The lot count method tends to give an equal cost share to all customers. Therefore, the lot count method will not discourage future development, as opposed to the way hydraulic modeling will probably discourage future development. For some instances, however, the lot count method still favors future customers. For example, without future development, engineers would design a smaller size system for existing customers. However, most of the time water transmission and distribution mains are oversized for existing customers to accommodate future phases of development. Lot count method does not reduce the used and useful percentage for existing customers for the over sized mains. Therefore, existing customers are carrying extra costs for laying larger sizes of water mains that will be connected for future development. The burden on future customers are therefore less than existing customers.

"Fill-in-lots" should not be a problem in the lot count method. When a system is reaching built out, fill-in lots probably will be sold at appreciated values and increase the used and useful percentages. A mass development without proper

phasing creates sparse development and scatters customers. Low used and useful percentages of the water transmission and distribution are apparent and unavoidable. Developers and utility owners should bear the risk for not preventing sparse development from happening. Existing customers should not pay for the consequence of low used and useful percentage on a water distribution system. SSU should recover the cost of unused water mains by collecting contributions from new customers. Adjustments have been made to appropriate systems in the Exhibit TLB-3.

Q. SHOULD RATE BASE INCLUDE WATER MAINS LAID IN THE GROUND BUT NOT CONNECTED TO THE EXISTING DISTRIBUTION SYSTEM?

A. Any water mains constructed in place but which do not connect to the existing system should be considered non-used and useful. Apparently those "dry" mains are reserved for future customers. Any investment in these "dry" water mains should be removed from rate base. When SSU provides the dollar investments in these "dry" water mains, these amounts should be removed from rate base.

According to the Late Filed Deposition Exhibit No. 8 of Mr. Bliss, the following dollar amounts should be removed from the rate base of each system: $913,386.25 from Citrus Spring; $204,309.60 from Marion Oaks; $45,144.00 from Pine Ridge; and $686,711.20 from Sunny Hills.

Q. SHOULD EXCESS INFLOW AND INFILTRATION BE INCLUDED IN ENGINEERING SCHEDULE F-2(S) GALLONS OF WASTEWATER

TREATED?

A. No. The amount of wastewater treated should not include any excessive inflow and infiltration. Engineering Schedules F-2(S) filed by SSU did not show the inflow and infiltration amount. The inflow/infiltration information should be presented to show the condition of collection system. Many guideline criteria are available and can be used for infiltration allowance on gravity sewers. In the *Recommended Standards for Wastewater Facilities,* 200 gallons per inch of pipe diameter per mile per day is the recommended guideline and that criteria is generally used by the FDEP staff.

Any excessive inflow and infiltration should be excluded from the amount of wastewater treated. The used and useful analysis should be adjusted accordingly. From the response to OPC Document Request No. 279, SSU indicated that eight out of the forty WWTP have excess inflow and infiltration, as shown by Appendix DR 279-A. The excess amounts were excluded from the used and useful calculations in Exhibit TLB-4.

Q. DO YOU AGREE THAT THE NEW RAW WATER SUPPLY SITE OF MARCO ISLAND IS 100% USED AND USEFUL WITHOUT EVALUATION?

A. No. An evaluation of total water supply capacity should be conducted before claiming 100% used and useful on the raw water supply site. Currently, it does not seem feasible that this facility will be put into service for the projected test year 1996 because no facilities have been constructed on the site. In addition, witness

Mr. Terrero mentioned that SSU does not yet have the easement and right of way to connect the new water supply site and Marco Island. Therefore, the cost of 160 acres new water supply site should be eliminated from the rate base in this filing.

Q. DO YOU AGREE WITH THE 100% USED AND USEFUL REQUEST FOR ALL EFFLUENT REUSE FACILITIES WITHOUT EVALUATION?

A. No. Though effluent reuse is encouraged by environmental regulatory agencies and the utilities are allowed to recover the costs through rate structures, it does not automatically mean all effluent reuse facilities are 100% used and useful. Existing customers should not pay for extra reuse capacity, just as existing customers should not pay for excess capacities of wastewater treatment plants and percolation ponds. In addition, the effluent reuse customers also are paying costs for using the treated effluent. SSU should perform used and useful calculations on all systems that have reuse facilities: Amelia Island, Deltona Lakes, Florida Central Commerce Park, Lehigh, Marco Island, Point O'Woods, and University Shores. It is unjustified to ask existing customers to pay for future customers. Currently no specific used and useful calculations have been made due to lack of effluent reuse flow data. Under this circumstance, the used and useful percentage of reuse facilities was assumed the same percentage as used for percolation ponds.

Some systems have two or more effluent disposal measures other than reuse. For example, Marco Island wastewater system has golf course irrigation, percolation ponds, and deep injection well for its effluent disposal. Used and useful calculations may be revised when relevant information is provided by SSU.

Q. DO YOU AGREE THAT AN ADJUSTMENT SHOULD BE MADE TO THE DEEP INJECTION WELL ON MARCO ISLAND?

A. Yes. The used and useful percentage of the deep injection well on Marco Island depends on the flow data that will be provided by SSU in the near future. Proper adjustment may be made and filed to the Commission when necessary information is provided.

According to the Late Filed Deposition Exhibits No. 4, 5, and 6 of Mr. Tererro and Response to OPC Document Request No. 289, the deep injection well on Marco Island is 37.24% used and useful. See Exhibit TLB-4 for the revised used and useful percentages, and Exhibit TLB-4.1 for effluent disposal calculation summary.

Q. DO YOU HAVE ANY SPECIFIC COMMENTS CONCERNING THE BURNT STORE WATER SYSTEM?

A. Yes. I believe the capacity of the Burnt Store reverse osmosis water plant should be 380 gallons per minute (gpm) instead of 333 gpm. The SSU response to Staff Interrogatory No. 91 indicated that there are two membrane skids in service. Each skid is rated for 167 gpm. However, this pure product water (167 gpm) is blended with ten percent (10%) of the 223 gpm feed water. Therefore, the whole plant output capacity should be as follows:

$$\text{Total Capacity} = 2 \times [167 \text{ gpm} + (10\% \times 223 \text{ gpm})] = 378.6 \text{gpm}$$

However, at his deposition SSU witness Mr. Terrero confirmed that he considered each skid to have a capacity of 190 gpm, resulting in a total capacity of 380 gpm

for Burnt Store's reverse osmosis water plant. Proper adjustment has been made in my used and useful calculation in Exhibit TLB-3.

Q. DID YOU PREPARE ANY USED AND USEFUL CALCULATIONS IN THIS TESTIMONY?

A. Yes, I have recalculated the used and useful percentages for all water and wastewater systems, according to my positions on the above issues. However, some information was not provided by SSU, and I had to make many assumptions in the calculations. For example, fire flow provision was not included because no confirmation is available. Auxiliary power is normally designed to operate supply wells in water systems. In wastewater systems, auxiliary power is usually designed to operate the wastewater treatment plant.

All numbers filed by SSU were used, and assumed to be genuine and correct. The calculated used and useful percentages of water and wastewater systems are presented in Exhibit TLB-3 and Exhibit TLB-4, respectively. A summary of calculation key and rationale is also included in Exhibit TLB-2. However, these used and useful numbers are subject to change pending further responses to discovery.

Q. DOES THIS CONCLUDE YOUR PREFILED TESTIMONY?

A Yes, that concludes my testimony filed on February 12, 1996.

EXHIBIT TLB-1

DISTRIBUTION SYSTEM ANALYSIS EXAMPLE

PUMPING FOR DISTRIBUTION STORAGE

The two types of distribution storage—ground and elevated—have, in turn, two types of pumping systems. One is a direct pumping system, in which the instantaneous system demand is met by pumping with no elevated storage provided. The second type is an indirect system in which the pumping station lifts water to a reservoir or elevated storage tank, which floats on the system and provides system pressure by gravity.

Direct Pumping

The direct pumping system is quite rare today, but some systems still exist. Variable-speed pumping units operated off of direct system pressure are also in use in some communities. Hydropneumatic tanks at the pumping station provide some storage. These tanks permit the pumping-station pumps to start and stop, based on a variable system pressure preset by controls operating off of the tank.

Indirect Pumping

In an indirect system, the pumping station is not associated with the demands of the major load center. It is operated from the water level difference in the reservoir or elevated storage tank, enabling the prescribed water level in the tank to be maintained. The majority of systems have an elevated storage tank or a reservoir on high ground floating on the system. This arrangement permits the pumping station to operate at a uniform rate, with the storage either making up or absorbing the difference between station discharge and system demand.

ANALYSIS OF STORAGE

Two variations of distribution storage design affect the operation and reliability of a system's fire suppression capabilities. These two variations involve placement of the storage between the supply point and the major load center or beyond the major load center. An analysis of the following storage designs will be made in the remainder of this chapter:

- system A—pumping station to major center of demand (load) with no elevated storage tank;
- system B—pumping station to major center of demand with an elevated storage tank between the supply and demand; and
- system C—pumping station to major center of demand with an elevated storage tank beyond the demand.

Model System

The model system used in the analysis has the following characteristics:

Population = 27,000
Water demand rates
- Average day—27,000 × 150 gpcd = 4.0 mgd
- Maximum day—4.0 × 1.5 = 6.0 mgd
- Maximum hour—6.0 × 1.5 = 9.0 mgd

Fire flow = 5000 gpm = 7.2 mgd
Maximum 10-h rate
- Maximum day and fire flow—6.0 + 7.2 = 13.2 mgd

Minimum pressure at major load center = 50 psi

System pipelines are all expressed as equivalent lengths of 24-in. pipe with a *C* factor of 120. Hydraulic gradient is the slope of the line joining the elevations to which water would rise in pipes freely vented and under atmospheric pressure.

System A—No Storage

If no storage is provided in system A (Figure 3-1) at a given demand rate, the pumping station hydraulic gradient must be sufficient to overcome system losses at a demand rate and maintain a minimum of 115 ft at the major load center. Thus, the pumping heads required to maintain 115 ft plus the head loss in 40,000 ft of equivalent pipe for the various conditions are as follows:

Demand Rates	Pumping Head Required
Average day, 4.0 mgd—115 + (0.67 × 40)	= 142 ft
Maximum day, 6.0 mgd—115 + (1.42 × 40)	= 172 ft
Maximum hour, 9.0 mgd—115 + (3.0 × 40)	= 235 ft
Maximum day and fire, 13.2 mgd—115 + (6.1 × 40)	= 359 ft

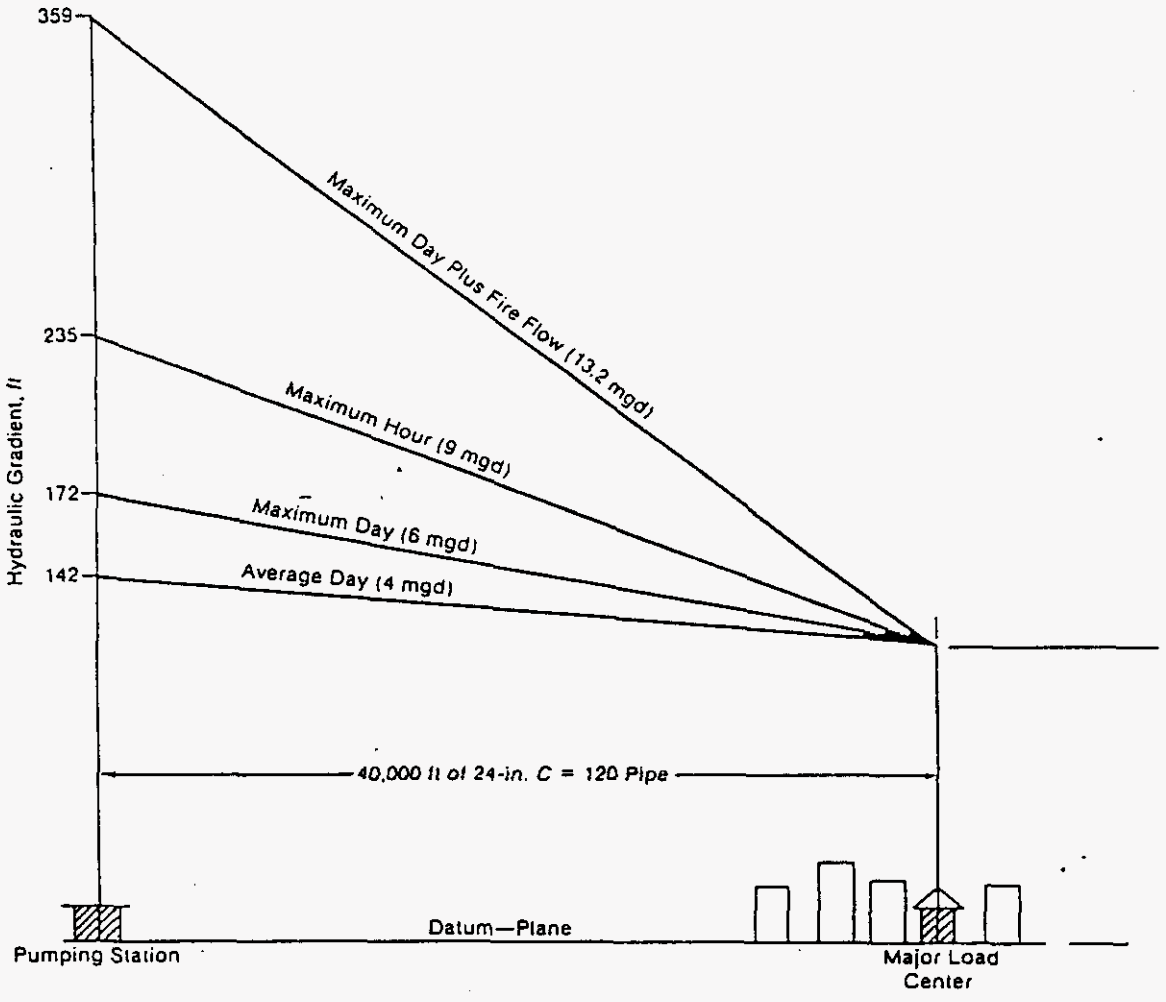

Figure 3-1 System A—hydraulic gradient with no storage.

System B—Storage Ahead of Load Center

If, as shown in Figure 3-2, a 1.75-mil gal storage tank is located 145 ft above the datum plane and at a distance of 35,000 ft from the pump station (5000 ft ahead of the major load center), the pumping head of a given pumping rate must be sufficient to pump against a head at the storage tank and overcome system losses at the pumping rate.

Average day. At the average-day demand, the required pumping rate (no water taken from storage) is 4 mgd. The pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 35,000 ft of equivalent pipe at 4 mgd, or 145 + (0.67 × 35) = 169 ft. The hydraulic gradient at the load center is the hydraulic gradient at the tank minus the head loss in 5000 ft of equivalent pipe, or 145 − (0.67 × 5) = 142 ft.

Maximum day. At the maximum-day demand, the required pumping rate is 6 mgd (no water taken from storage). The pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 35,000 ft of equivalent pipe at 6 mgd, or 145 + (1.42 × 35) = 195 ft. The hydraulic gradient at the load center is the hydraulic gradient at the tank minus the head loss in 5000 ft of equivalent pipe at 6 mgd, or 145 − (1.42 × 5) = 138 ft.

Maximum hour. At the maximum-hour demand, the flow in the 5000 ft of pipe between the tank and the load center must be 9 mgd. The hydraulic gradient at the load center is the hydraulic gradient at the tank minus the losses in 5000 ft of equivalent pipe at 9 mgd, or 145 − (3 × 5) = 130 ft. The pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 35,000 ft of equivalent pipe at the chosen pumping rate. If 3 mgd is to be supplied from the tank

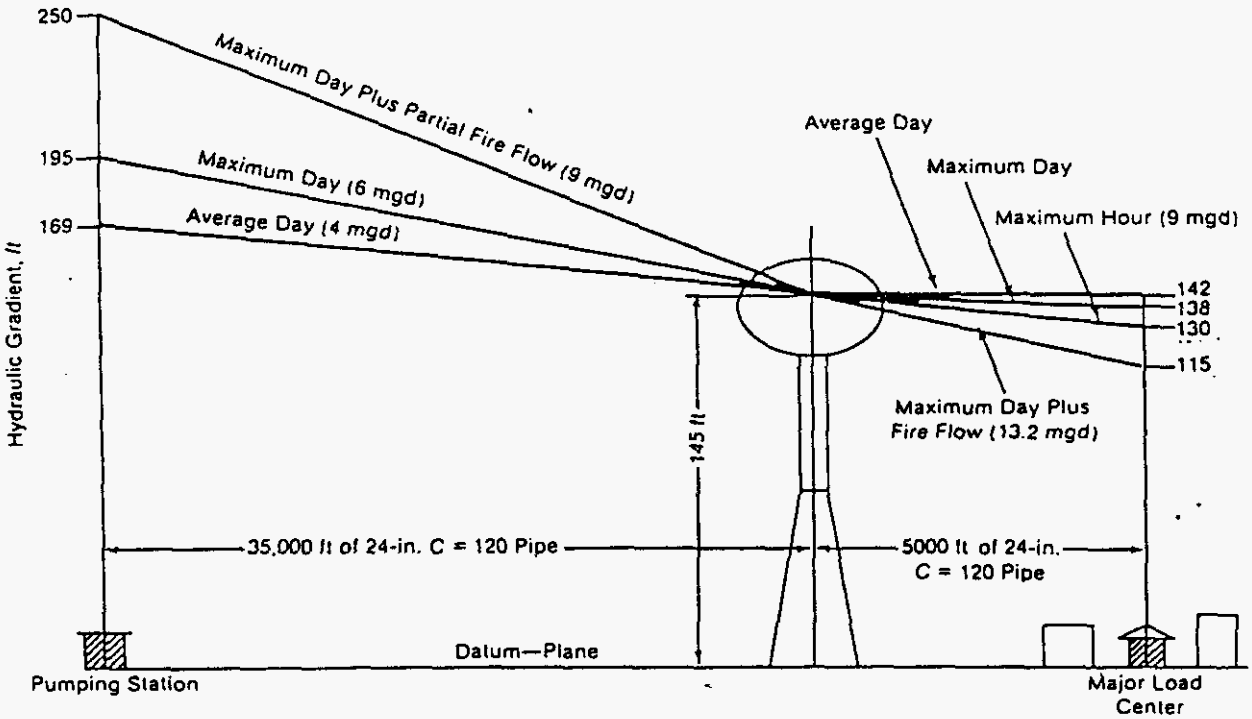

Figure 3-2 System B—hydraulic gradients with storage between pump station and load center.

storage and the remaining 6 mgd is to be supplied from pumping, the pumping head required is 145 + (1.42 × 35) = 195 ft (Figure 3-2).

Maximum day plus fire flow. At the maximum-day demand plus the fire demand, the flow in the 5000 ft of pipe between the tank and the load center must be 13.2 mgd. The hydraulic gradient at the load center is the hydraulic gradient at the tank minus the head loss of 5000 ft of equivalent pipe at 13.2 mgd, or 145 − (6.1 × 5) = 115 ft. If it is decided to supply 4.2 mgd from storage and pump the remaining 9 mgd, the pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 35,000 ft of equivalent pipe at 9 mgd, or 145 + (3 × 35) = 250 ft.

Demand Rates	Pumping Head Required
Average day, 4.0 mgd—no water from storage	= 169 ft
Maximum day, 6.0 mgd—no water from storage	= 195 ft
Maximum hour, 9.0 mgd—6.0 mgd from pumps + 3.0 mgd from storage	= 195 ft
Maximum day plus fire flow, 13.2 mgd—9.0 mgd from pumps + 4.2 mgd tank	= 250 ft

System C—Storage Beyond Load Center

In the arrangement shown in Figure 3-3, 1.75 mil gal of storage is provided 5000 ft beyond the load center (45,000 ft from the pump station) at an elevation of 119 ft above the datum plane. When no water is being taken from storage at a given demand rate, the pumping head must be sufficient to pump against the head at the tank and overcome losses between the pump station and the load center at that demand rate. When part of the demand is being supplied from storage, however, the pumping head need only be sufficient to pump against the head at the load center and overcome losses in the pipeline between the pump station and the load center.

Average day. At the average-day demand, the required pumping rate is 4 mgd (no water taken from storage). The pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 40,000 ft of equivalent pipe, or 119 + (0.67 × 40) = 146 ft. The hydraulic gradient at the load center is thus identical to that at the tank (119 ft).

Maximum day. At the maximum-day demand, the required pumping rate is 6 mgd (no water taken from storage). The pumping head required is equal to the hydraulic gradient at the tank plus the head loss in 40,000 ft of equivalent pipe at 6 mgd, or 119 + (1.42 × 40) = 176 ft. The hydraulic gradient at the load center is identical to that at the tank (119 ft).

Maximum hour. If, at the maximum-hour demand (9 mgd), it is decided to supply 3 mgd from storage and the remaining 6 mgd from pumping, the hydraulic gradient at the load center is the hydraulic gradient at the tank minus the head loss in the 5000 ft of pipe between the tank and load center at the storage discharge rate of 3 mgd, or 119 − (0.4 × 5) = 117 ft. The pumping head required is equal to the hydraulic gradient at the load center plus the head loss in 40,000 ft of equivalent pipe at 6 mgd, 117 + (1.42 × 40) = 174 ft.

Maximum day plus fire flow. In order to maintain a head of 115 ft at the load center, the flow in the 5000 ft of pipe between the load center and the tank cannot exceed that at which the head loss is 4 ft, which is 4.2 mgd. Thus the remainder of the demand (9 mgd) must be supplied from pumping. The pumping head required is equal to the hydraulic gradient at the load center (115 ft) plus the head loss in 40,000 ft of equivalent pipe, or 115 + (3 × 40) = 235 ft.

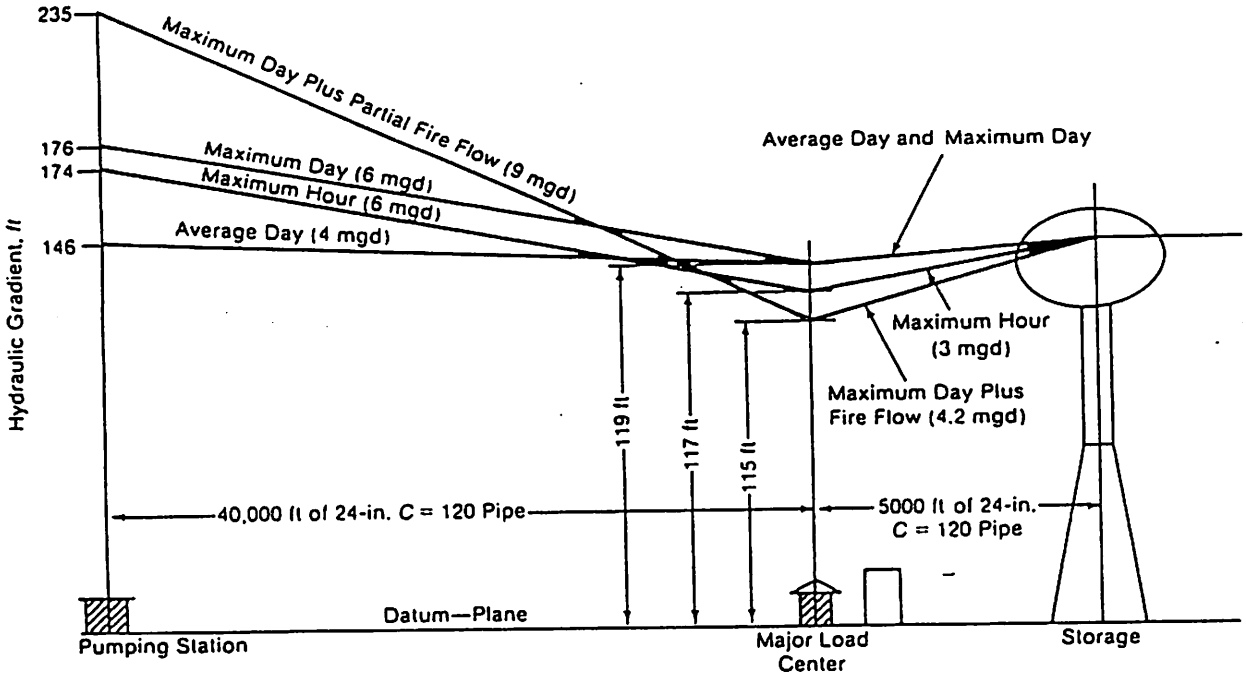

Figure 3-3 System C—hydraulic gradients with storage beyond load center.

Demand Rates	Pumping Head Required
Average day, 4.0 mgd—no water from storage	= 146 ft
Maximum day, 6.0 mgd—no water from storage	= 176 ft
Maximum hour, 9.0 mgd—6.0 mgd from pumps + 3.0 mgd from tank	= 174 ft
Maximum day plus fire flow, 13.2 mgd—9.0 mgd from pumps + 4.2 mgd from tank	= 235 ft

In the analyses above, the designer has provided 1.75 mil gal of storage for fire demands. The highest rate of flow that can be sustained for the required 10 h is 4.2 mgd. The remainder of the fire flow (3 mgd) and the maximum-day demand (6 mgd) must be supplied from pumping. The fact that the pumping rate (9 mgd) is the same as the maximum-hour demand is only a coincidence.

Comparison of System A With System C

If no storage is provided, 124 ft (359 ft − 235 ft) more pumping head is required to furnish the maximum-day demand plus fire flow than if adequate storage is provided beyond the load center. With the increased pumping rates required with no storage, the power needed is approximately 1100 hp, as opposed to 495 hp with storage, or more than twice as much. Similarly, furnishing the maximum-hour demand without storage would require 500 hp, as opposed to 245 hp, still more than twice as much.

The capacities of the pumps required under these two conditions would be 13.2 mgd at 359-ft head, as opposed to 9 mgd at 235-ft head, and 9 mgd at 235-ft head, as opposed to 6 mgd at 174-ft head. During average- and maximum-day demands, the pumping head at the source is approximately the same.

Comparison of System B With System C

In comparing storage located between the source and the load center with storage located beyond the load center, the examples illustrate that an increase in height is necessary if the storage is between the source and the load center. To secure approximately equivalent pressure results, the flow line of storage in the first instance must be 26 ft (145 ft – 119 ft) higher than if the storage feeds back to the load center from a point beyond.

Pumping heads are substantially lower under all rates of flow and pressure is more uniformly regulated, if the storage is located beyond the load center. The area served is substantially greater and the pressures are better regulated by storage located beyond the load center than by storage located between the pumping station and the load center. The additional height of 26 ft for the storage tank and the additional pumping head under all rates of flow make system B more costly when considering initial capital cost and substantially higher operating costs for electrical power.

Recommended Design

System C, using a 1.75-mil gal elevated storage tank beyond the major load center, is the recommended design, because it provides the necessary water demand flows at reasonable pressures. This system is also the most cost-effective design for capital costs and operating costs.

The design chosen is based on replenishing, within the 24 h during which a major fire occurs, all water taken from storage for fire fighting. The maximum required pumping head would be reduced from 235 ft to 182 ft if all water used for fire fighting (7.2 mgd) was provided by storage, and the pumps would only have to operate at 6 mgd. If the system was so designed, however, the tank would have to be raised 6 ft in order to maintain 115 ft of head at the load center, and the fire storage would have to be increased to 3 mil gal. Fire storage would then amount to 50 percent of the maximum day and 75 percent of the average day, and that much storage might not be economically justified. On the other hand, if the storage is not provided, an additional 3 mgd of pumping capacity is required and the production and supply works must also be capable of increased output, unless finished-water storage is provided ahead of the pump station. Therefore, an economic and engineering study should generally be made to determine the most efficient way to provide the required capacity.

References

1. *Water Distribution Operator Training Handbook*. AWWA, Denver, Colo. (1976).
2. COTE, A.E. & LINVILLE, J.L., eds. *Fire Protection Handbook*. National Fire Protection Association, Quincy, Mass. (16th ed., 1986).
3. FAIR, G.M. ET AL. *Water and Wastewater Engineering*. John Wiley and Sons, Inc., New York (1966).
4. STEEL, E.W. & MCGHEE, T.G. *Water Supply and Sewerage*. McGraw-Hill Book Co., New York (1979).

EXHIBIT TLB-2

KEY AND RATIONALE
FOR
OPC USED AND USEFUL CALCULATIONS

KEY AND RATIONALE FOR OPC USED AND USEFUL CALCULATIONS

I. SUPPLY WELL

A. Small System (without high service pumps):

Used & Useful % = **PHF/Reliable Capacity** (w/o fire flow provision)

= **(MDF + FF)/Reliable Capacity** (w/ fire flow provision)

Rationale ---- Well pumps function as high service pumps. Therefore, according to "10 States Standards", at least two pumping units shall be provided. With any pump out of service, the remaining pump or pumps shall be capable of providing the maximum daily pumping demand of the system. It is not economically justified to use PHF+FF as design flow. A peaking factor of 1.3 is applied to MDF where PHF is used in the calculations.

B. Large System (with high service pumps and storage):

Used & Useful % = **MDF/Total Capacity** or **ADF/Reliable Capacity,**

Whichever is greater.

Rationale ---- ADF/Reliable Capacity is used because the percentage is generally greater than MDF/Total Capacity. Reliable capacity should be applied once to high service pumps, not to other facilities also. The chance of having a well and a high service pump breakdown or to be out of service simultaneously is very slim. "10 States Standards" states that "the total developed groundwater source capacity shall equal or exceed the design maximum day demand and equal or exceed the design average day demand with the largest producing well out of service."

Notes: 1. PHF = Peak Hourly Flow; MDF = Avg. 5 Max Day Flows in Max Month; ADF = Annual Avg. Day Flow; FF = Fire Flow. However, fire

flow provisions were allowed only for those systems that had verified fire flows.

2. Water flow was adjusted for excess unaccounted for water.

3. No margin reserve was included in OPC's calculations.

II. HIGH SERVICE PUMP

Used & Useful % = **(MDF + FF)/Reliable Capacity**

or **PHF/Reliable Capacity** (no fire protection)

Rationale ---- It is not economically justified to use PHF + FF as design flow, per AWWA M31 (P.16). Reliable capacity should be used per "10 States Standards." No fire flow was applied at this time. It may be included pending future discovery response. For systems with elevated storage tanks like Keystone Heights and Lehigh, the peak hour demands are provided by elevated tanks.

III. WATER TREATMENT PLANT

Used & Useful % = **MDF/Total Capacity**

Rationale ---- The chance is very small to have a high service pump and a part of treatment facilities to be out of service at the same time.

VI. FINISHED WATER STORAGE

Used & Useful % = **(1/2 ADF + FF)/Total Capacity** (with fire flow provision)

or **ADF/Total Capacity** (without fire flow protection)

Rationale ---- AWWA M32 suggests that equalization storage is about 20 to 25 percent of the average day demand. Fire storage shall be included if fire flow is provided. Emergency storage is an owner option.

---- "10 States Standard" requires fire flow storage where fire protection

is provided. The minimum storage capacity for systems not providing fire protection shall be equal to the average daily consumption (ADF). This requirement may be reduced when the source and treatment facilities have sufficient capacity with stand by power to supplement peak demands of the system. Emergency storage is not mentioned in this reference.

---- SSU uses a peaking factor of 2 and 4 hours of peak duration to calculate peak hour storage or equalization storage. This is a pure empirical method. SSU also requests 8 hours of ADF as emergency storage for some water systems, but no detail explanation was provided.

---- OPC believes fire storage should be included where fire protection is provided. Fire flow storage was not included because SSU has not confirmed the provision of fire protection. Fire flow is assumed stored in ground storage tanks and delivered through high service pumps.

When the system is furnishing fire flow, a half day ADF storage is used. That is more than adequate for peak hour demand storage compared with 20 to 25% ADF mentioned in the AWWA M32. The volume of a half day ADF is also close to SSU's empirical method calculated. The excess storage can be considered as a provision for emergency storage. The one day ADF storage criteria used in "10 States Standards" was reduced to one half day because MDF design flow is used for supply wells, treatment plant and high service pumps. Fire storage will be included if it is confirmed.

No emergency storage was included because it is not yet confirmed by the original design or other supporting documents. Total capacity is used because SSU used more than 10% for dead storage without confirmation. Dead storage is not applicable to

elevated storage tanks.

V. HYDROPNEUMATIC TANK

Used & Useful % = **10 x (Total Capacity - Reliable Capacity of Supply Well)**
Hydro Tank Capacity

Rationale ---- Hydropneumatic tanks are usually used in very small water systems with groundwater supply wells as "10 States Standards" stated. When serving more than 150 units, ground or elevated storage should be provided.

The sizing criteria is ten times the capacity of the largest well pump. The information filed is not clear on some supply wells especially for large systems because two wells were assumed out of service. However, the largest well capacity is still assumed to be the difference between total capacity and reliable capacity of supply wells.

VI. AUXILIARY POWER

A. Water System:

Used & Useful % = **(1/2 MDF)/(1/2 Total Capacity) = MDF / Total Capacity**

Rationale ---- This a FDEP requirement per Chapter 62-555.320, F.A.C. SSU cannot provide proper capacity information of auxiliary power, therefore, the used and useful percentage of supply wells was used because the cost of auxiliary power is booked under the Source of Supply as Power Generation Equipment.

B. Wastewater System:

Used & Useful % = **ADF of Max. Month/Total Capacity**

Rationale ---- FDEP has no specific requirement. Since SSU cannot provide proper

capacity information to specific equipments, the same used and useful percentage of WWTP was used for auxiliary power.

VII. WASTEWATER TREATMENT PLANT

Used & Useful % = **ADF of Max. Month/Total Capacity**

Rationale ---- Though the capacity permitted is annual ADF, OPC agrees to use ADF of the maximum month because that is the PSC policy.

Note: Wastewater flow was adjusted for excess infiltration.

VIII. EFFLUENT DISPOSAL AND EFFLUENT REUSE FACILITY

Used & Useful % = **ADF of Max. Month/Total Capacity**

Rationale ---- Same as WWTP.

Note: Since no effluent reuse data was yet provided, the same used and useful percentage also was used for effluent reuse facilities for the following systems: Amelia Island, Deltona Lakes, Florida Central Commerce Park, Lehigh, Marco Island, Point O'Woods, and University Shores.

IX. WATER DISTRIBUTION SYSTEM AND WASTEWATER COLLECTION SYSTEM

Used & Useful % = **Lots Connected/Total Lots Available**

Rationale ---- See direct testimony.

X. FLOWS AND LOTS PROJECTIONS OF 1996

A. Water System:

MDF of 1996 = (ERCs of 1996/ERCs of 1994) x Avg. 5 Max. Day of 1994

B. Wastewater System:

ADF of Max. Month in 1996 = (ERCs of 1996/ERCs of 1994) x ADF of Max. Month in 1994

C. Water Distribution and Wastewater Collection Systems

Connected Lots of 1996 = (ERCs of 1996/ERCs of 1994) x Connected Lots of 1994

EXHIBIT TLB-3

OPC USED AND USEFUL CALCULATIONS
OF
WATER SYSTEMS

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] *FPSC Uniform [x]; FPSC Non-Uniform [x]*	Amelia Island	Apache Shore	Apple Valley	Bay Lake Estates	Beacon Hill	Beecher's Point	Burnt Store	Carlton Village	Chuluota
		1996	1996	1996	1996	1996	1996	1996 Reverse Osmosis	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	2,110,842	24,000	960,000	60,000	2,849,200	Water	239,040	94,000	488,000
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	1,933,972	20,200	767,715	56,348	2,731,049	Purchased	220,503	108,593	367,168
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	1,727,071	20,200	736,800	54,000	2,477,540	From	194,686	93,080	352,400
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	1,286,547	15,268	389,878	20,038	1,492,990	Town of	164,340	45,073	207,825
5	1994 ANNUAL AVG DAILY FLOW (GPD)	1,148,909	15,268	374,178	19,203	1,354,404	Welaka	145,100	38,634	199,466
6	**FIRE STORAGE ACCEPTED (GAL.)**	180,000	0	0	0	0		0	0	0
7	**FIRE FLOW PROVISION (GPM)**	1,000	0	0	0	0		0	0	0
8	Unaccounted for Water Level (%)	21.9%	11.9%	9.7%	8.5%	0.3%	17.6%	0.1%	19.9%	4.9%
9	Unaccounted for Water Allowed (%)	10.0%	10.0%	9.7%	8.5%	0.3%	10.0%	0.1%	10.0%	4.9%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	**Supply Wells:**	L	S	L	S	L	S	L	S	L
13	Total Capacity (gpm)	2,800	150	1,100	275	3,850	N/A	440	300	1,300
14	Reliable Capacity (gpm)	1,400	50	500	0	2,350	N/A	220	100	800
15	OPC Calculated Used & Useful (%)	**56.22%**	**35.78%**	**54.15%**	**100.00%**	**49.26%**	N/A	**51.87%**	**88.33%**	**19.61%**
16	*U & U Per Order (%)*	67.70%	25.30%	100.00%	100.00%	58.90%	N/A	80.10%	100.00%	98.50%
17	SSU Requested U & U (%)	100.00%	66.67%	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	50.43%
18										
19	Auxiliary Power:									
20	Capacity (GPD), not provided	Unavailable		Unavailable	Unavailable	Unavailable		Unavailable	Unavailable	Unavailable
21	OPC Calculated Used & Useful (%)	**56.22%**		**54.15%**	**100.00%**	**49.26%**		**51.87%**	**88.33%**	**19.61%**
22	SSU Requested U & U (%)	100.00%		100.00%	100.00%	100.00%		100.00%	100.00%	100.00%
23										
24	**High Service Pumping:**									
25	Total Capacity (gpm)	5,200	N/A	2,400	N/A	5,675	N/A	2,400	N/A	1,950
26	Reliable Capacity (gpm)	2,645	N/A	1,200	N/A	4,000	N/A	900	N/A	1,450
27	OPC Calculated Used & Useful (%)	**82.54%**	N/A	**44.43%**	N/A	**47.41%**	N/A	**17.01%**	N/A	**17.58%**
28	U & U Per Order (%)	64.20%	N/A	100.00%	N/A	100.00%	N/A	100.00%	N/A	100.00%
29	SSU Requested U & U (%)	100.00%	N/A	100.00%	N/A	100.00%	N/A	100.00%	N/A	97.03%
30										
31	**WATER TREATMENT PLANT:**									
32	**Water Treatment Equipment:**									
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	380	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	380	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	**40.30%**	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	96.77%	N/A	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	**Finished Water Storage:**									
41	Total Capacity (gal.)	1,000,000		100,000		433,600		500,000		150,000
42	*Reliable Capacity (gal.)*	*289,953*	N/A	90,000	N/A	390,240	N/A	401,633	N/A	135,000
43	OPC Calculated Used & Useful (%)	**74.67%**	N/A	**100.00%**	N/A	**100.00%**	N/A	**16.43%**	N/A	**69.28%**
44	U & U Per Order (%)	100.00%	N/A	100.00%	N/A	100.00%	N/A	46.90%	N/A	75.00%
45	SSU Requested U & U (%)	100.00%	N/A	100.00%	N/A	100.00%	N/A	84.75%	N/A	100.00%
46										
47	**Hydropneumatic Tanks:**									
48	Total Capacity (gal.)	20,000	12,500	15,000	3,000	20,000	N/A	25,000	10,000	15,000
49	OPC Calculated Used & Useful (%)	**70.00%**	**8.00%**	**40.00%**	**91.67%**	**75.00%**	N/A	**8.80%**	**20.00%**	**33.33%**
50	U & U Per Order (%)	100.00%	61.00%	100.00%	100.00%	100.00%	N/A	100.00%	54.00%	100.00%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	100.00%
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	**Schedule F-7(W)**									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	**Connected Lots in 1996 w/o M.R.**	1,601	153	982	72	3,266	52	490	147	682
57	Connected Lots in 1994 w/o M.R.	1,429	153	942	69	2,962	45	432	126	655
58	*Connected Lots in 1994 w/ M.R.*	1,513	153	962	70	3,060	49	458	137	669
59	Number of Lots	2,467	293	1,591	100	3,178	85	4,347	343	1,055
60	OPC Calculated Used & Useful (%)	**64.88%**	**52.22%**	**61.71%**	**72.00%**	**100.00%**	**61.56%**	**11.26%**	**42.86%**	**64.67%**
61	U & U Per Order (%)	100.00%	55.00%	100.00%	64.00%	97.00%	100.00%	13.70%	31.00%	100.00%
62	SSU Requested U & U (%)	100.00%	55.00%	100.00%	73.70%	100.00%	100.00%	13.70%	45.89%	100.00%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	1,630	161	918	63	2,545	69	503	87	635
68	1991	1,804	160	941	64	2,660	80	561	96	653
69	1992	1,924	161	961	66	2,799	90	597	109	669
70	1993	2,027	157	982	68	3,078	92	651	118	679
71	**1994**	2,187	153	1,001	69	3,401	94	724	126	692
72	1995	2,315	153	1,022	70	3,536	103	767	137	707
73	1995.5	2,382	153	1,033	71	3,642	107	793	142	714
74	**1996**	2,449	153	1,043	72	3,749	110	820	147	721

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Citrus Park	Citrus Springs	Crystal River	Deetwyler Shores	Deltona Lakes	Del Ray Manor	Druid Hills	East Lake Harris Est.	Fern Park	Fern Terrace
		1996	1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	155,700	1,384,800	46,000	Water	15,981,000	66,600	299,000	40,200	92,000	93,680
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	144,583	1,018,008	40,744	Purchased	16,045,232	57,120	240,800	37,268	80,541	81,858
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	142,940	960,200	38,600	From	15,200,200	57,120	240,800	36,640	80,200	79,300
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	90,399	594,100	23,653	Orlando	6,764,274	26,158	124,771	18,026	52,101	37,835
5	1994 ANNUAL AVG DAILY FLOW (GPD)	89,372	560,364	22,408	Util. Comm.	6,406,029	26,158	124,771	17,722	51,816	36,653
6	**FIRE STORAGE ACCEPTED (GAL.)**	0	0	0		260,100	0	0	0	0	0
7	**FIRE FLOW PROVISION (GPM)**	0	0	0		2,168	0	0	0	0	0
8	Unaccounted for Water Level (%)	9.9%	17.9%	2.8%	2.0%	11.6%	0.0%	14.2%	9.9%	7.9%	4.4%
9	Unaccounted for Water Allowed (%)	9.9%	10.0%	2.8%	2.0%	10.0%	0.0%	10.0%	9.9%	7.9%	4.4%
10											
11	**SOURCE OF SUPPLY AND PUMPING:**										
12	**Supply Wells:**	S	L	S	S	L	L	L	S	L	S
13	Total Capacity (gpm)	285	1,500	390	N/A	17,230	525	550	200	259	180
14	Reliable Capacity (gpm)	137	1,000	150	N/A	14,230	250	200	0	0	0
15	OPC Calculated Used & Useful (%)	95.27%	43.41%	24.52%	N/A	63.63%	7.56%	41.50%	100.00%	100.00%	100.00%
16	U & U Per Order (%)	100.00%	100.00%	100.00%	N/A	96.00%	100.00%	100.00%	100.00%	100.00%	100.00%
17	SSU Requested U & U (%)	100.00%	100.00%	53.64%	N/A	92.85%	100.00%	100.00%	100.00%	100.00%	100.00%
18											
19	**Auxiliary Power:**										
20	Capacity (GPD), not provided	Unavailable				Unavailable		Unavailable			Unavailable
21	OPC Calculated Used & Useful (%)	95.27%				63.63%		41.50%			100.00%
22	SSU Requested U & U (%)	100.00%				100.00%		100.00%			100.00%
23											
24	**High Service Pumping:**										
25	Total Capacity (gpm)	N/A	4,500	N/A	N/A	23,300	500	500	N/A	250	N/A
26	Reliable Capacity (gpm)	N/A	3,000	N/A	N/A	21,200	250	250	N/A	0	N/A
27	OPC Calculated Used & Useful (%)	N/A	21.70%	N/A	N/A	61.94%	15.87%	64.08%	N/A	100.00%	N/A
28	U & U Per Order (%)	N/A	N/A	N/A	N/A	100.00%	100.00%	100.00%	N/A	100.00%	N/A
29	SSU Requested U & U (%)	N/A	100.00%	N/A	N/A	100.00%	37.00%	100.00%	N/A	100.00%	N/A
30											
31	**WATER TREATMENT PLANT:**										
32	**Water Treatment Equipment:**										
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38											
39	**TRANSMISSION AND DISTRIBUTION:**										
40	**Finished Water Storage:**										
41	Total Capacity (gal.)		500,000			7,000,000	6,000	30,000		17,000	
42	Reliable Capacity (gal.)	N/A	140,825	N/A	N/A	3,749,577	7,200	27,000	N/A	15,300	N/A
43	OPC Calculated Used & Useful (%)	N/A	54.72%	N/A	N/A	51.26%	100.00%	100.00%	N/A	100.00%	N/A
44	U & U Per Order (%)	N/A	N/A	N/A	N/A	100.00%	100.00%	100.00%	N/A	100.00%	N/A
45	SSU Requested U & U (%)	N/A	100.00%	N/A	N/A	100.00%	100.00%	100.00%	N/A	100.00%	N/A
46											
47	**Hydropneumatic Tanks:**										
48	Total Capacity (gal.)	4,000	16,000	2,000	N/A	25,500	5,000	7,500	3,000	4,500	3,000
49	OPC Calculated Used & Useful (%)	37.00%	31.25%	100.00%	N/A	100.00%	55.00%	46.67%	66.67%	57.56%	60.00%
50	U & U Per Order (%)	56.00%	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	70.00%	100.00%	50.00%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
52											
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**										
54	**Schedule F-7(W)**										
55	**TRANSMISSION AND DISTRIBUTION:**										
56	**Connected Lots in 1996 w/o M.R.**	350	1,892	76	124	23,933	59	247	177	178	126
57	Connected Lots in 1994 w/o M.R.	346	1,784	72	124	22,672	59	247	174	177	122
58	Connected Lots in 1994 w/ M.R.	346	1,840	74	124	23,327	59	247	175	177	125
59	Number of Lots	335	11,667	91	138	34,940	77	335	214	208	126
60	OPC Calculated Used & Useful (%)	100.00%	16.22%	83.52%	89.86%	68.50%	76.62%	73.73%	82.70%	85.56%	99.99%
61	U & U Per Order (%)	100.00%	21.00%	100.00%	100.00%	89.30%	100.00%	100.00%	100.00%	100.00%	100.00%
62	SSU Requested U & U (%)	100.00%	42.71%	100.00%	100.00%	89.30%	100.00%	100.00%	100.00%	100.00%	100.00%
63											
64	**ERC CALCULATIONS (by SSU)**										
65	**Combined Schedule of F- 5 & 7 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	333	1,719	65	136	22,190	77	333	168	180	119
68	1991	326	1,810	65	133	23,064	77	331	170	180	121
69	1992	328	1,864	68	130	23,651	77	330	170	181	123
70	1993	340	1,898	70	130	24,301	75	330	173	180	125
71	**1994**	348	1,960	72	131	24,895	75	331	175	182	124
72	1995	348	2,021	74	131	25,614	75	331	176	182	127
73	1995.5	350	2,050	75	131	25,946	75	331	177	182	126
74	**1996**	352	2,078	76	131	26,279	75	331	178	183	128

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Fisherman's Haven	Fountains	Fox Run	Friendly Center	Golden Terrace	Gospel Island	Grand Terrace	Harmony Homes	Hermits Cove
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	56,700	65,100	69,000	12,900	Water	7,000	99,500	5,900	80,800
2	1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)	41,680	50,427	62,297	9,100	Purchased	6,525	134,731	36,360	49,400
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	41,680	37,820	57,057	9,100	From	5,800	93,800	36,360	49,400
4	*1996 ANNUAL AVG DAILY FLOW (GPD)*	*26,751*	*14,603*	*30,855*	*4,363*	*City of*	*2,271*	*50,119*	*23,078*	*20,043*
5	1994 ANNUAL AVG DAILY FLOW (GPD)	26,751	10,952	28,260	4,363	Inverness	2,019	34,893	23,078	20,043
6	FIRE STORAGE ACCEPTED (GAL.)	0	0	0	0		0	0	0	0
7	FIRE FLOW PROVISION (GPM)	0	0	0	0		0	0	0	0
8	Unaccounted for Water Level (%)	3.1%	13.6%	1.5%	9.3%	17.6%	9.8%	4.3%	7.6%	9.8%
9	Unaccounted for Water Allowed (%)	3.1%	10.0%	1.5%	9.3%	10.0%	9.8%	4.3%	7.6%	9.8%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	Supply Wells:	S	L	L	S	S	S	S	S	L
13	Total Capacity (gpm)	100	300	850	140	N/A	50	600	300	110
14	Reliable Capacity (gpm)	0	80	350	0	N/A	0	0	0	0
15	OPC Calculated Used & Useful (%)	100.00%	12.22%	6.12%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%
16	U & U Per Order (%)	100.00%	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%
17	SSU Requested U & U (%)	100.00%	100.00%	19.07%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%
18										
19	Auxiliary Power:									
20	Capacity (GPD), not provided			Unavailable						Unavailable
21	OPC Calculated Used & Useful (%)			6.12%						100.00%
22	SSU Requested U & U (%)			100.00%						100.00%
23										
24	High Service Pumping:									
25	Total Capacity (gpm)	N/A	1,500	850	N/A	N/A	N/A	N/A	N/A	240
26	Reliable Capacity (gpm)	N/A	1,000	500	N/A	N/A	N/A	N/A	N/A	120
27	OPC Calculated Used & Useful (%)	N/A	3.38%	6.65%	N/A	N/A	N/A	N/A	N/A	37.16%
28	U & U Per Order (%)	N/A	37.00%	100.00%	N/A	N/A	N/A	N/A	N/A	60.60%
29	SSU Requested U & U (%)	N/A	83.98%	100.00%	N/A	N/A	N/A	N/A	N/A	95.85%
30										
31	**WATER TREATMENT PLANT:**									
32	Water Treatment Equipment:									
33	*Total Capacity (gpm)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	Finished Water Storage:									
41	Total Capacity (gal.)		20,000	50,000						23,000
42	Reliable Capacity (gal.)	N/A	18,000	45,000	N/A	N/A	N/A	N/A	N/A	20,700
43	OPC Calculated Used & Useful (%)	N/A	35.19%	30.86%	N/A	N/A	N/A	N/A	N/A	43.57%
44	U & U Per Order (%)	N/A	100.00%	100.00%	N/A	N/A	N/A	N/A	N/A	100.00%
45	SSU Requested U & U (%)	N/A	100.00%	100.00%	N/A	N/A	N/A	N/A	N/A	100.00%
46										
47	Hydropneumatic Tanks:									
48	Total Capacity (gal.)	*10,000*	*13,000*	*4,400*	*3,500*	N/A	600	6,000	5,000	3,000
49	OPC Calculated Used & Useful (%)	10.00%	16.92%	100.00%	40.00%	N/A	83.33%	100.00%	60.00%	36.67%
50	U & U Per Order (%)	15.00%	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	90.00%	75.90%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	*Schedule F-7(W)*									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	Connected Lots in 1996 w/o M.R.	136	39	107	20	106	9	158	61	175
57	Connected Lots in 1994 w/o M.R.	136	29	98	20	105	8	110	61	175
58	Connected Lots in 1994 w/ M.R.	136	32	103	20	105	9	139	61	175
59	Number of Lots	144	84	109	46	120	25	111	62	350
60	OPC Calculated Used & Useful (%)	94.44%	46.18%	98.17%	43.48%	88.24%	12.34%	100.00%	98.39%	50.00%
61	U & U Per Order (%)	100.00%	14.00%	100.00%	100.00%	100.00%	36.00%	100.00%	100.00%	49.40%
62	SSU Requested U & U (%)	100.00%	53.59%	100.00%	100.00%	100.00%	12.34%	100.00%	100.00%	50.41%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	Combined Schedule of F- 8 & 9 (W)	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	133	2	82	21	118	6	38	62	173
68	1991	133	4	90	20	116	8	66	62	173
69	1992	133	6	94	21	117	8	95	62	172
70	1993	133	18	96	21	119	8	108	62	173
71	1994	136	30	98	20	119	8	110	61	176
72	1995	136	33	103	20	119	9	139	61	176
73	1995.5	136	37	105	20	120	9	148	61	176
74	1996	136	40	107	20	120	9	158	61	176

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Hobby Hills	Holiday Haven	Holiday Heights	Imperial Terrace	Inter-cession City	Interlachen/ Park Manor	Jungle Den	Keystone Heights	Kingswood
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	49,350	Water	33,000	103,000	136,190	101,400	Water	656,000	Water
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	42,540	Purchased	39,600	87,062	116,250	68,818	Purchased	549,886	Purchased
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	42,540	From	39,600	86,000	110,590	76,360	From	543,400	From
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	20,386	Astor Water	16,488	39,720	61,837	36,140	Astor Water	338,350	Brevard
5	1994 ANNUAL AVG DAILY FLOW (GPD)	20,386	Assoc.	16,488	39,236	58,826	40,101	Assoc.	334,359	County
6	**FIRE STORAGE ACCEPTED (GAL.)**	0		0	0	0	0		120,000	
7	**FIRE FLOW PROVISION (GPM)**	0		0	0	0	0		1,000	
8	Unaccounted for Water Level (%)	11.8%	21.7%	7.2%	5.8%	22.3%	24.9%	1.3%	11.8%	5.2%
9	Unaccounted for Water Allowed (%)	10.0%	10.0%	7.2%	5.8%	10.0%	10.0%	1.3%	10.0%	5.2%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	**Supply Wells:**	S	S	S	S	S	L	S	L	S
13	Total Capacity (gpm)	325	N/A	220	550	325	340	N/A	1,230	N/A
14	Reliable Capacity (gpm)	150	N/A	0	150	75	160	N/A	680	N/A
15	OPC Calculated Used & Useful (%)	**25.14%**	**N/A**	**100.00%**	**52.40%**	**100.00%**	**13.35%**	**N/A**	**33.93%**	**N/A**
16	U & U Per Order (%)	43.20%	N/A	100.00%	100.00%	100.00%	56.30%	N/A	47.10%	N/A
17	SSU Requested U & U (%)	47.94%	N/A	100.00%	100.00%	100.00%	56.30%	N/A	70.97%	N/A
18										
19	**Auxiliary Power:**									
20	Capacity (GPD), not provided				Unavailable	Unavailable	Unavailable		Unavailable	
21	OPC Calculated Used & Useful (%)				**52.40%**	**100.00%**	**13.35%**		**33.93%**	
22	SSU Requested U & U (%)				100.00%	100.00%	100.00%		100.00%	
23										
24	**High Service Pumping:**									
25	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	430	N/A	N/A	N/A
26	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	190	N/A	N/A	N/A
27	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	**21.41%**	N/A	N/A	N/A
28	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	N/A	N/A
29	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	N/A	N/A
30										
31	**WATER TREATMENT PLANT:**									
32	**Water Treatment Equipment:**									
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	**Finished Water Storage:**									
41	Total Capacity (gal.)						30,500		55,000	
42	Reliable Capacity (gal.)	N/A	N/A	N/A	N/A	N/A	27,450	N/A	49,500	N/A
43	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	**90.42%**	N/A	**100.00%**	N/A
44	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	100.00%	N/A
45	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	100.00%	N/A
46										
47	**Hydropneumatic Tanks:**									
48	Total Capacity (gal.)	3,000	N/A	3,000	3,000	5,000	10,000	N/A	10,000	N/A
49	OPC Calculated Used & Useful (%)	**58.33%**	N/A	**73.33%**	**100.00%**	**50.00%**	**18.00%**	N/A	**55.00%**	N/A
50	U & U Per Order (%)	87.50%	N/A	100.00%	100.00%	75.00%	54.00%	N/A	71.30%	N/A
51	SSU Requested U & U (%)	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	N/A	100.00%	N/A
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	**Schedule F-7(W)**									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	**Connected Lots in 1996 w/o M.R.**	95	113	52	244	262	252	113	991	61
57	Connected Lots in 1994 w/o M.R.	95	112	52	241	249	280	113	979	61
58	Connected Lots in 1994 w/ M.R.	95	113	52	243	257	250	113	984	61
59	Number of Lots	125	166	53	241	546	387	135	1,673	68
60	OPC Calculated Used & Useful (%)	**76.00%**	**68.07%**	**98.11%**	**100.00%**	**47.97%**	**65.19%**	**83.70%**	**59.22%**	**89.71%**
61	U & U Per Order (%)	100.00%	70.00%	100.00%	100.00%	44.00%	61.50%	100.00%	68.40%	100.00%
62	SSU Requested U & U (%)	100.00%	70.00%	100.00%	100.00%	49.02%	66.33%	100.00%	68.40%	100.00%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	94	111	51	238	236	235	112	1,148	61
68	1991	92	116	52	241	239	240	113	1,140	60
69	1992	91	116	51	242	247	243	113	1,152	59
70	1993	95	112	51	243	255	242	112	1,167	60
71	**1994**	96	114	52	243	254	243	113	1,173	61
72	1995	96	115	52	245	262	217	113	1,179	61
73	1995.5	96	115	52	245	265	218	113	1,183	61
74	**1996**	96	115	52	246	267	219	113	1,187	61

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Lake Ajay	Lake Brantley	Lake Conway	Lake Harriet	Lakeview Villas	Lelani Heights	Leisure Lakes	Marco Shores	Marion Oaks	Meredith Manor
		1996	1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	105,070	41,000	Water	140,000	12,200	381,500	66,000	479,966	1,058,000	400,300
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	131,480	31,600	Purchased	116,839	7,620	255,124	51,229	403,171	972,926	357,260
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	97,514	31,600	From	115,600	7,620	252,540	50,200	403,171	896,000	357,260
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	49,350	17,940	Orlando	73,370	2,251	142,564	24,503	135,064	601,295	232,154
5	1994 ANNUAL AVG DAILY FLOW (GPD)	36,601	17,940	Util. Comm.	72,592	2,251	141,120	24,011	135,064	553,753	232,154
6	**FIRE STORAGE ACCEPTED (GAL.)**	0	0		0	0	0	0	0	0	0
7	**FIRE FLOW PROVISION (GPM)**	0	0		0	0	0	0	0	0	0
8	Unaccounted for Water Level (%)	9.1%	5.7%	5.7%	5.1%	0.6%	9.8%	14.7%	4.3%	7.7%	2.8%
9	Unaccounted for Water Allowed (%)	9.1%	5.7%	5.7%	5.1%	0.6%	9.8%	10.0%	4.3%	7.7%	2.8%
10											
11	SOURCE OF SUPPLY AND PUMPING:										
12	Supply Wells:	L	L	S	L	S	S	L		L	L
13	Total Capacity (gpm)	200	100	N/A	600	25	470	350	N/A	1,500	1,380
14	Reliable Capacity (gpm)	100	0	N/A	0	0	100	50	N/A	1,000	300
15	OPC Calculated Used & Useful (%)	**45.65%**	**100.00%**	**N/A**	**100.00%**	**100.00%**	**100.00%**	**32.43%**	**N/A**	**45.04%**	**53.74%**
16	U & U Per Order (%)	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	N/A	63.70%	80.10%
17	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	N/A	100.00%	92.92%
18											
19	Auxiliary Power:										
20	Capacity (GPD), not provided	Unavailable					Unavailable	Unavailable	navailable	Unavailable	Unavailable
21	OPC Calculated Used & Useful (%)	**45.65%**					**100.00%**	**32.43%**	**18.67%**	**45.04%**	**53.74%**
22	SSU Requested U & U (%)	100.00%					100.00%	100.00%	100.00%	100.00%	100.00%
23											
24	High Service Pumping:										
25	Total Capacity (gpm)	320	100	N/A	400	N/A	N/A	400	2,700	1,200	1,150
26	Reliable Capacity (gpm)	160	0	N/A	0	N/A	N/A	200	1,500	600	350
27	OPC Calculated Used & Useful (%)	**57.07%**	**100.00%**	**N/A**	**100.00%**	**N/A**	**N/A**	**16.95%**	**18.67%**	**100.00%**	**70.88%**
28	*U & U Per Order (%)*	100.00%	100.00%	N/A	100.00%	N/A	N/A	100.00%	68.20%	100.00%	100.00%
29	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	N/A	N/A	100.00%	100.00%	100.00%	100.00%
30											
31	WATER TREATMENT PLANT:										
32	Water Treatment Equipment:										
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	500	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	500	N/A	N/A
35	OPC Calculated Used & Useful (%)	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**56.00%**	**N/A**	**N/A**
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.00%	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	N/A
38											
39	TRANSMISSION AND DISTRIBUTION:										
40	Finished Water Storage:										
41	Total Capacity (gal.)	15,000	8,000		25,000			15,000	500,000	1,000,000	50,000
42	Reliable Capacity (gal.)	13,500	7,200	N/A	22,500	N/A	N/A	13,500	367,123	900,000	45,000
43	OPC Calculated Used & Useful (%)	**100.00%**	**100.00%**	**N/A**	**100.00%**	**N/A**	**N/A**	**77.84%**	**13.51%**	**30.06%**	**100.00%**
44	U & U Per Order (%)	100.00%	100.00%	N/A	100.00%	N/A	N/A	100.00%	58.90%	100.00%	100.00%
45	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	N/A	N/A	100.00%	100.00%	100.00%	100.00%
46											
47	Hydropneumatic Tanks:										
48	Total Capacity (gal.)	3,000	1,000	N/A	5,000	1,000	20,000	10,000	10,000	27,000	10,000
49	OPC Calculated Used & Useful (%)	**33.33%**	**100.00%**	**N/A**	**100.00%**	**25.00%**	**18.50%**	**30.00%**	**N/A**	**18.52%**	**100.00%**
50	U & U Per Order (%)	100.00%	100.00%	N/A	100.00%	30.00%	59.00%	100.00%	100.00%	100.00%	100.00%
51	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
52											
53	**USED AND USEFUL CALCULATIONS**										
	Water Transmission & Distribution System										
54	**Schedule F-7(W)**										
55	***TRANSMISSION AND DISTRIBUTION:***										
56	**Connected Lots in 1996 w/o M.R.**	111	67	84	282	12	395	252	518	2,709	639
57	Connected Lots in 1994 w/o M.R.	82	67	84	279	12	391	247	518	2,494	639
58	Connected Lots in 1994 w/ M.R.	96	67	84	280	12	393	385	518	2,601	639
59	Number of Lots	100	73	89	302	23	413	584	584	12,262	867
60	OPC Calculated Used & Useful (%)	**100.00%**	**91.78%**	**94.38%**	**93.38%**	**52.17%**	**95.64%**	**43.16%**	**88.70%**	**22.09%**	**73.70%**
61	U & U Per Order (%)	44.35%	100.00%	97.00%	100.00%	100.00%	100.00%	75.00%	70.70%	34.40%	85.20%
62	SSU Requested U & U (%)	100.00%	100.00%	97.00%	100.00%	100.00%	100.00%	75.00%	100.00%	**86.83%**	85.20%
63											
64	**ERC CALCULATIONS (by SSU)**										
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	28	65	85	273	14	385	236	417	2,181	730
68	1991	38	65	84	273	13	386	242	410	2,316	734
69	1992	54	66	85	275	13	388	243	405	2,412	730
70	1993	74	65	85	278	12	390	243	408	2,526	730
71	**1994**	89	67	84	280	12	391	244	432	2,644	734
72	1995	104	67	84	281	12	393	247	432	2,757	734
73	1995.5	112	67	84	282	12	394	248	432	2,814	734
74	**1996**	120	67	84	283	12	395	249	432	2,871	734

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-6 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] *FPSC Uniform [x]; FPSC Non-Uniform [x]*	Morningview	Oak Forest	Oakwood	Palisades	Palm Port	Palm Terrace	Palm Mobile Home Park	Picciola Island	Pine Ridge
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	28,900	140,000	Water	146,000	41,700	183,800	12,990	83,100	793,000
2	1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)	17,540	114,637	Purchased	174,771	35,218	151,912	10,574	81,324	820,099
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	17,540	111,600	From	122,100	32,560	151,660	10,574	78,420	670,000
4	1996 ANNUAL AVG DAILY FLOW (GPD)	11,245	46,900	Brevard	69,894	18,415	71,773	4,453	39,071	426,945
5	1994 ANNUAL AVG DAILY FLOW (GPD)	11,245	45,658	County	48,830	17,025	71,654	4,453	37,676	348,803
6	FIRE STORAGE ACCEPTED (GAL.)	0	0		0	0	0	0	0	0
7	FIRE FLOW PROVISION (GPM)	0	0		0	0	0	0	0	0
8	Unaccounted for Water Level (%)	8.0%	26.1%	4.2%	9.8%	12.4%	12.0%	2.4%	17.4%	5.7%
9	Unaccounted for Water Allowed (%)	8.0%	10.0%	4.2%	9.8%	10.0%	10.0%	2.4%	10.0%	5.7%
10										
11	SOURCE OF SUPPLY AND PUMPING:									
12	Supply Wells:	S	S	S	S	L	S	S	S	S
13	Total Capacity (gpm)	425	630	N/A	800	100	160	130	275	1,150
14	Reliable Capacity (gpm)	0	150	N/A	0	0	0	0	100	550
15	OPC Calculated Used & Useful (%)	100.00%	44.53%	N/A	100.00%	100.00%	100.00%	100.00%	67.98%	100.00%
16	U & U Per Order (%)	100.00%	100.00%	N/A	86.80%	100.00%	100.00%	26.80%	100.00%	100.00%
17	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
18										
19	Auxiliary Power:									
20	Capacity (GPD), not provided		Unavailable						Unavailable	Unavailable
21	OPC Calculated Used & Useful (%)		44.53%						67.98%	100.00%
22	SSU Requested U & U (%)		100.00%						100.00%	100.00%
23										
24	High Service Pumping:									
25	Total Capacity (gpm)	N/A	N/A	N/A	N/A	120	N/A	N/A	N/A	N/A
26	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	60	N/A	N/A	N/A	N/A
27	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	39.78%	N/A	N/A	N/A	N/A
28	U & U Per Order (%)	N/A	N/A	N/A	N/A	29.50%	N/A	N/A	N/A	N/A
29	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	100.00%	N/A	N/A	N/A	N/A
30										
31	WATER TREATMENT PLANT:									
32	Water Treatment Equipment:									
33	*Total Capacity (gpm)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38										
39	TRANSMISSION AND DISTRIBUTION:									
40	Finished Water Storage:									
41	Total Capacity (gal.)					18,000				
42	Reliable Capacity (gal.)	N/A	N/A	N/A	N/A	16,200	N/A	N/A	N/A	N/A
43	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	49.92%	N/A	N/A	N/A	N/A
44	U & U Per Order (%)	N/A	N/A	N/A	N/A	23.60%	N/A	N/A	N/A	N/A
45	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	100.00%	N/A	N/A	N/A	N/A
46										
47	Hydropneumatic Tanks:									
48	Total Capacity (gal.)	4,500	10,000	N/A	15,000	5,000	3,000	1,500	5,000	16,000
49	OPC Calculated Used & Useful (%)	94.44%	48.00%	N/A	53.33%	20.00%	53.33%	86.67%	35.00%	37.50%
50	U & U Per Order (%)	100.00%	43.20%	N/A	80.00%	30.00%	80.00%	100.00%	53.00%	100.00%
51	SSU Requested U & U (%)	100.00%	100.00%	N/A	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
52										
53	USED AND USEFUL CALCULATIONS Water Transmission & Distribution System									
54	Schedule F-7(W)									
55	TRANSMISSION AND DISTRIBUTION:									
56	Connected Lots in 1996 w/o M.R.	36	145	206	49	106	1,183	59	137	818
57	Connected Lots in 1994 w/o M.R.	36	141	201	34	98	1,181	59	132	668
58	Connected Lots in 1994 w/ M.R.	36	143	203	40	103	1,181	59	135	743
59	Number of Lots	42	287	191	141	137	1,213	87	213	3,828
60	OPC Calculated Used & Useful (%)	85.71%	50.49%	100.00%	34.52%	77.37%	97.52%	67.82%	64.30%	21.36%
61	U & U Per Order (%)	100.00%	50.70%	100.00%	6.30%	67.50%	100.00%	69.00%	100.00%	20.00%
62	SSU Requested U & U (%)	100.00%	51.28%	100.00%	40.06%	80.22%	100.00%	69.00%	100.00%	100.00%
63										
64	ERC CALCULATIONS (by SSU)									
65	Combined Schedule of F- 6 & 9 (W)	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	44	140	189	2	86	1,199	59	125	776
68	1991	45	140	191	4	68	1,193	60	128	948
69	1992	45	143	195	19	94	1,195	59	130	1,103
70	1993	45	145	196	34	98	1,202	58	133	1,253
71	1994	46	147	201	51	98	1,204	59	135	1,415
72	1995	46	149	203	60	103	1,204	59	138	1,574
73	1995.5	46	150	204	67	105	1,205	59	139	1,653
74	1996	46	151	206	73	106	1,206	59	140	1,732

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Pine Ridge Estates	Piney Woods	Point O'Woods	Ponoma Park	Postmaster Village	Quail Ridge	River Grove	River Park	Rosemont Rolling Green
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	124,000	112,967	132,000	84,600	114,500	27,000	49,100	74,400	153,000
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	103,914	101,593	129,365	64,808	116,896	38,480	43,133	59,799	147,903
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	98,788	99,800	120,200	62,740	112,540	22,200	43,133	58,300	140,000
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	51,873	53,646	77,342	38,030	45,728	9,076	23,715	34,230	57,388
5	1994 ANNUAL AVG DAILY FLOW (GPD)	49,314	52,699	71,863	36,816	44,024	5,236	23,715	33,372	54,321
6	**FIRE STORAGE ACCEPTED (GAL)**	0	0	0	0	0	0	0	0	0
7	**FIRE FLOW PROVISION (GPM)**	0	0	0	0	0	0	0	0	0
8	Unaccounted for Water Level (%)	11.8%	9.6%	16.2%	18.4%	10.0%	2.4%	8.2%	9.1%	8.8%
9	Unaccounted for Water Allowed (%)	10.0%	9.6%	10.0%	10.0%	10.0%	2.4%	8.2%	9.1%	8.8%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	**Supply Wells:**	L	L	S	S	S	S	L	L	S
13	Total Capacity (gpm)	685	440	1,250	95	400	650	135	215	865
14	Reliable Capacity (gpm)	360	140	500	35	200	0	0	93	65
15	OPC Calculated Used & Useful (%)	10.35%	26.61%	16.85%	100.00%	52.77%	100.00%	100.00%	25.58%	100.00%
16	U & U Per Order (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	36.70%	100.00%
17	SSU Requested U & U (%)	34.14%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	61.55%	100.00%
18										
19	**Auxiliary Power:**									
20	Capacity (GPD), not provided	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable				Unavailable
21	OPC Calculated Used & Useful (%)	10.35%	26.61%	16.85%	100.00%	52.77%				100.00%
22	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%				100.00%
23										
24	**High Service Pumping:**									
25	Total Capacity (gpm)	500	200	N/A	N/A	N/A	N/A	320	180	N/A
26	Reliable Capacity (gpm)	250	0	N/A	N/A	N/A	N/A	160	90	N/A
27	OPC Calculated Used & Useful (%)	28.35%	100.00%	N/A	N/A	N/A	N/A	18.72%	46.14%	N/A
28	U & U Per Order (%)	100.00%	100.00%	N/A	N/A	N/A	N/A	32.30%	75.90%	N/A
29	SSU Requested U & U (%)	100.00%	100.00%	N/A	N/A	N/A	N/A	42.91%	100.00%	N/A
30										
31	**WATER TREATMENT PLANT:**									
32	**Water Treatment Equipment:**									
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	**Finished Water Storage:**									
41	Total Capacity (gal.)	15,000	25,000					15,000	5,000	
42	Reliable Capacity (gal.)	13,500	22,500	N/A	N/A	N/A	N/A	13,500	4,500	N/A
43	OPC Calculated Used & Useful (%)	100.00%	100.00%	N/A	N/A	N/A	N/A	79.05%	100.00%	N/A
44	U & U Per Order (%)	100.00%	100.00%	N/A	N/A	N/A	N/A	92.00%	100.00%	N/A
45	SSU Requested U & U (%)	100.00%	100.00%	N/A	N/A	N/A	N/A	100.00%	100.00%	N/A
46										
47	**Hydropneumatic Tanks:**									
48	Total Capacity (gal.)	3,500	7,000	10,000	5,000	8,000	6,500	3,000	4,500	10,000
49	OPC Calculated Used & Useful (%)	92.86%	42.86%	75.00%	12.00%	25.00%	100.00%	45.00%	27.11%	80.00%
50	U & U Per Order (%)	92.00%	90.00%	100.00%	18.00%	41.00%	100.00%	67.50%	83.00%	35.00%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	**Schedule F-7(W)**									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	**Connected Lots in 1996 w/o M.R.**	217	170	367	172	161	26	104	359	131
57	Connected Lots in 1994 w/o M.R.	206	167	341	166	155	15	104	350	124
58	Connected Lots in 1994 w/ M.R.	207	169	358	169	158	22	104	355	129
59	Number of Lots	292	215	415	535	345	114	119	754	150
60	OPC Calculated Used & Useful (%)	74.22%	79.07%	86.43%	32.10%	46.67%	22.81%	87.39%	47.61%	87.33%
61	U & U Per Order (%)	100.00%	76.50%	83.50%	32.00%	44.70%	15.60%	100.00%	44.80%	87.00%
62	SSU Requested U & U (%)	100.00%	79.44%	90.43%	32.72%	47.75%	26.20%	100.00%	46.11%	89.23%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	169	163	304	171	141	0	104	334	113
68	1991	171	165	329	171	146	6	104	339	120
69	1992	173	166	342	174	148	15	104	343	123
70	1993	186	167	342	180	151	16	104	347	124
71	**1994**	212	167	341	182	155	15	104	350	124
72	1995	213	169	358	185	158	22	104	355	129
73	1995.5	218	169	362	187	160	24	104	357	130
74	**1996**	223	170	367	188	161	26	104	359	131

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Salt Springs	Samira Villas	Silver Lakes West Shores	Silver Lake Oaks	Skycrest	St. Johns Highlands	Stone Mountain	Sugar Mill	Sugarmill Woods
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	202,000	8,900	1,857,200	15,700	61,700	42,800	24,600	200,000	2,806,000
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	195,383	4,847	1,889,654	8,727	60,758	34,111	22,880	165,383	2,796,369
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	193,000	4,847	1,796,720	8,727	59,200	32,907	20,020	158,000	2,479,400
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	93,150	2,472	878,354	5,208	24,086	13,974	8,241	111,469	1,187,768
5	1994 ANNUAL AVG DAILY FLOW (GPD)	92,014	2,472	835,156	5,208	23,468	13,481	7,211	106,493	1,053,134
6	**FIRE STORAGE ACCEPTED (GAL)**	0	0	0	0	0	0	0	0	0
7	**FIRE FLOW PROVISION (GPM)**	0	0	0	0	0	0	0	0	0
8	Unaccounted for Water Level (%)	3.6%	2.1%	7.3%	4.1%	17.1%	39.2%	58.8%	7.7%	6.0%
9	Unaccounted for Water Allowed (%)	3.6%	2.1%	7.3%	4.1%	10.0%	10.0%	10.0%	7.7%	6.0%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	**Supply Wells:**	S	S	L	L	S	L	S	L	L
13	Total Capacity (gpm)	633	85	2,850	40	675	75	100	330	4,800
14	Reliable Capacity (gpm)	133	0	1,450	0	175	0	0	210	4,200
15	OPC Calculated Used & Useful (%)	**100.00%**	**100.00%**	**90.50%**	**100.00%**	**22.40%**	**100.00%**	**100.00%**	**36.86%**	**40.46%**
16	U & U Per Order (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	21.00%	57.00%	100.00%
17	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	77.84%	71.46%
18										
19	**Auxiliary Power:**									
20	Capacity (GPD), not provided	Unavailable				Unavailable			Unavailable	Unavailable
21	OPC Calculated Used & Useful (%)	**100.00%**				**22.40%**			**36.86%**	**40.46%**
22	SSU Requested U & U (%)	100.00%				100.00%			100.00%	100.00%
23										
24	**High Service Pumping:**									
25	Total Capacity (gpm)	N/A	N/A	3,460	140	N/A	120	N/A	2,250	3,600
26	Reliable Capacity (gpm)	N/A	N/A	2,745	70	N/A	60	N/A	1,200	2,400
27	OPC Calculated Used & Useful (%)	N/A	N/A	**47.81%**	**8.66%**	N/A	**27.95%**	N/A	**9.57%**	**80.91%**
28	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	100.00%	N/A	100.00%	N/A
29	SSU Requested U & U (%)	N/A	N/A	100.00%	31.15%	N/A	100.00%	N/A	100.00%	100.00%
30										
31	**WATER TREATMENT PLANT:**									
32	**Water Treatment Equipment:**									
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	350	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	350	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**32.81%**	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.10%	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.10%	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	**Finished Water Storage:**									
41	Total Capacity (gal.)				12,000		16,000		500,000	500,000
42	Reliable Capacity (gal.)	N/A	N/A	N/A	5,400	N/A	14,400	N/A	400,564	450,000
43	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	**21.70%**	N/A	**30.92%**	N/A	**11.15%**	**100.00%**
44	U & U Per Order (%)	N/A	N/A	N/A	50.00%	N/A	100.00%	N/A	73.30%	N/A
45	SSU Requested U & U (%)	N/A	N/A	N/A	100.00%	N/A	100.00%	N/A	100.00%	100.00%
46										
47	**Hydropneumatic Tanks:**									
48	Total Capacity (gal.)	15,000	1,500	15,000	1,000	5,000	3,000	1,000	15,000	60,000
49	OPC Calculated Used & Useful (%)	**33.33%**	**56.67%**	**93.33%**	**40.00%**	**100.00%**	**25.00%**	**100.00%**	**8.00%**	**10.00%**
50	U & U Per Order (%)	53.30%	85.00%	100.00%	60.00%	100.00%	49.00%	100.00%	100.00%	67.00%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	**Schedule F-7(W)**									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	**Connected Lots in 1996 w/o M.R.**	115	2	1,285	26	117	85	8	648	2,632
57	Connected Lots in 1994 w/o M.R.	114	2	1,222	26	114	82	7	619	2,333
58	Connected Lots in 1994 w/ M.R.	114	2	1,265	26	116	84	7	636	2,508
59	Number of Lots	160	3	1,648	53	122	118	22	661	8,252
60	OPC Calculated Used & Useful (%)	**72.13%**	**66.67%**	**77.99%**	**49.06%**	**95.90%**	**72.03%**	**36.36%**	**97.97%**	**31.89%**
61	U & U Per Order (%)	78.00%	100.00%	100.00%	50.90%	100.00%	69.80%	25.00%	86.90%	22.40%
62	SSU Requested U & U (%)	100.00%	100.00%	100.00%	50.90%	100.00%	72.46%	36.36%	99.51%	33.39%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	154	13	1,368	27	108	79	6	591	3,929
68	1991	158	13	1,503	26	111	79	6	624	4,250
69	1992	161	13	1,582	25	113	81	7	636	4,598
70	1993	156	13	1,472	24	113	83	7	636	4,862
71	**1994**	162	13	1,508	26	114	82	7	642	4,928
72	1995	162	13	1,561	26	116	84	7	660	5,297
73	1995 5	163	13	1,574	26	117	84	8	666	5,427
74	**1996**	164	13	1,586	26	117	85	8	672	5,558

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-6 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Sunny Hills (Mill. 164)	Sunny Hills (Mill 9)	Sunshine Parkway	Tropical Park	University Shores	Venetian Village	Welaka/ Saratoga Harbor	Westmont	Windsong
		1996	1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	311,500	19,000	186,900	187,700	1,658,600	65,600	55,000	Water	44,800
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	269,400	8,400	157,043	152,257	1,775,860	45,756	40,102	Purchased	36,088
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	269,400	8,400	118,740	151,980	1,559,860	43,500	38,940	From	35,420
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	159,592	3,000	98,981	58,412	1,071,474	26,111	17,395	Orange	16,249
5	1994 ANNUAL AVG DAILY FLOW (GPD)	159,592	3,000	74,839	58,306	941,149	24,824	16,891	County	15,948
6	**FIRE STORAGE ACCEPTED (GAL.)**	0	0	270,000	0	0	0	0		0
7	**FIRE FLOW PROVISION (GPM)**	0	0	2,000	0	0	0	0		0
8	Unaccounted for Water Level (%)	4.0%	4.0%	5.4%	13.3%	3.6%	2.9%	6.9%	12.0%	2.0%
9	Unaccounted for Water Allowed (%)	4.0%	4.0%	5.4%	10.0%	3.6%	2.9%	6.9%	10.0%	2.0%
10										
11	**SOURCE OF SUPPLY AND PUMPING:**									
12	**Supply Wells:**	L	S	L	S	L	S	L	S	S
13	Total Capacity (gpm)	650	200	2,000	200	5,100	310	296	N/A	180
14	Reliable Capacity (gpm)	300	0	1,000	0	3,600	100	110	N/A	0
15	OPC Calculated Used & Useful (%)	**36.94%**	**100.00%**	**6.87%**	**100.00%**	**24.18%**	**41.31%**	**10.96%**	N/A	**100.00%**
16	U & U Per Order (%)	63.90%	63.90%	100.00%	100.00%	100.00%	44.30%	29.80%	N/A	100.00%
17	SSU Requested U & U (%)	72.11%	100.00%	100.00%	100.00%	100.00%	100.00%	38.09%	N/A	100.00%
18										
19	**Auxiliary Power:**									
20	Capacity (GPD), not provided	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable			
21	OPC Calculated Used & Useful (%)	**36.94%**	**100.00%**	**6.87%**	**100.00%**	**24.18%**	**41.31%**			
22	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%			
23										
24	**High Service Pumping:**									
25	Total Capacity (gpm)	500	N/A	3,400	N/A	7,980	N/A	300	N/A	N/A
26	Reliable Capacity (gpm)	300	N/A	2,600	N/A	3,980	N/A	150	N/A	N/A
27	OPC Calculated Used & Useful (%)	**62.36%**	N/A	**81.12%**	N/A	**30.99%**	N/A	**18.57%**	N/A	N/A
28	U & U Per Order (%)	100.00%	N/A	100.00%	N/A	72.30%	N/A	N/A	N/A	N/A
29	SSU Requested U & U (%)	100.00%	N/A	99.89%	N/A	100.00%	N/A	55.87%	N/A	N/A
30										
31	**WATER TREATMENT PLANT:**									
32	**Water Treatment Equipment:**									
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38										
39	**TRANSMISSION AND DISTRIBUTION:**									
40	**Finished Water Storage:**									
41	Total Capacity (gal.)	60,000		108,000		612,000		40,000		
42	Reliable Capacity (gal.)	54,000	N/A	97,200	N/A	550,800	N/A	36,000	N/A	N/A
43	OPC Calculated Used & Useful (%)	**100.00%**	N/A	**100.00%**	N/A	**87.54%**	N/A	**21.74%**	N/A	N/A
44	U & U Per Order (%)	100.00%	N/A	100.00%	N/A	100.00%	N/A	N/A	N/A	N/A
45	SSU Requested U & U (%)	100.00%	N/A	100.00%	N/A	100.00%	N/A	55.87%	N/A	N/A
46										
47	**Hydropneumatic Tanks:**									
48	Total Capacity (gal.)	20,000	7,500	10,000	10,000	20,000	4,000	4,500	N/A	4,000
49	OPC Calculated Used & Useful (%)	**17.50%**	**26.67%**	**100.00%**	**20.00%**	**75.00%**	**52.50%**	**41.33%**	N/A	**45.00%**
50	U & U Per Order (%)	93.00%	100.00%	100.00%	100.00%	100.00%	66.00%	45%/100%	N/A	56.00%
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	N/A	100.00%
52										
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**									
54	**Schedule F-7(W)**									
55	**TRANSMISSION AND DISTRIBUTION:**									
56	**Connected Lots in 1996 w/o M.R.**	435	4	14	533	3,800	142	134	137	107
57	Connected Lots in 1994 w/o M.R.	435	4	11	532	3,338	135	130	129	105
58	Connected Lots in 1994 w/ M.R.	435	4	13	532	3,574	139	132	134	106
59	Number of Lots	5,377	491	40	671	5,100	223	249	167	106
60	OPC Calculated Used & Useful (%)	**8.09%**	**0.81%**	**36.01%**	**79.43%**	**74.51%**	**63.68%**	**53.79%**	**82.04%**	**100.00%**
61	U & U Per Order (%)	11.00%	N/A	100.00%	81.40%	100.00%	61.70%	54.00%	100.00%	100.00%
62	SSU Requested U & U (%)	**28.09%**	**28.09%**	100.00%	81.40%	100.00%	65.13%	54.00%	100.00%	100.00%
63										
64	**ERC CALCULATIONS (by SSU)**									
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	619	4	39	544	2,777	123	129	117	102
68	1991	604	4	42	545	2,951	129	129	121	105
69	1992	607	4	56	544	3,233	133	130	127	105
70	1993	614	4	67	545	3,548	134	132	129	106
71	1994	602	4	62	549	3,748	135	134	129	106
72	1995	602	4	74	549	4,013	139	136	134	107
73	1995.5	602	4	78	549	4,140	141	137	136	108
74	1996	602	4	82	550	4,267	142	138	137	108

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Woodmere	Wootens	Zephyr Shores	Buenaventura Lakes	Deep Creek	Enterprise	Geneva Lake Estates	Keystone Club Estates
		1996	1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	1,479,000	8,120	121,000	2,753,000	All Water	All Water	104,500	229,000
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	1,463,718	8,855	91,187	2,769,385	Purchased	Purchased	96,603	132,851
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	1,398,000	7,792	89,600	2,610,400	From	From	90,540	126,000
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	888,133	3,114	54,982	1,815,263	Charlotee	Deltona	39,711	39,183
5	1994 ANNUAL AVG DAILY FLOW (GPD)	848,258	2,740	54,025	1,711,052	County	Lakes	37,219	37,162
6	**FIRE STORAGE ACCEPTED (GAL.)**	0	0	0	141,864			0	0
7	**FIRE FLOW PROVISION (GPM)**	0	0	0	1,182			0	0
8	Unaccounted for Water Level (%)	38.6%	6.9%	5.0%	13.5%	2.9%	11.6%	17.2%	12.6%
9	Unaccounted for Water Allowed (%)	10.0%	6.9%	5.0%	10.0%	2.9%	10.0%	10.0%	10.0%
10									
11	**SOURCE OF SUPPLY AND PUMPING:**								
12	**Supply Wells:**	L	S	S	L	S	S	S	S
13	Total Capacity (gpm)	3,000	25	120	4,700	N/A	N/A	280	450
14	Reliable Capacity (gpm)	1,000	0	0	2,200	N/A	N/A	100	375
15	OPC Calculated Used & Useful (%)	**44.04%**	**100.00%**	**100.00%**	**55.29%**	**N/A**	**N/A**	**80.93%**	**31.15%**
16	U & U Per Order (%)	48.30%	90.00%	100.00%	63.20%	N/A	N/A	N/A	N/A
17	SSU Requested U & U (%)	100.00%	100.00%	100.00%	92.14%	N/A	N/A	100.00%	53.93%
18									
19	**Auxiliary Power:**								
20	Capacity (GPD), not provided	Unavailable			Unavailable			Unavailable	Unavailable
21	OPC Calculated Used & Useful (%)	**44.04%**			**55.29%**			**80.93%**	**31.15%**
22	SSU Requested U & U (%)	100.00%			100.00%			100.00%	100.00%
23									
24	**High Service Pumping:**								
25	Total Capacity (gpm)	3,100	N/A	N/A	7,400	N/A	N/A	N/A	N/A
26	Reliable Capacity (gpm)	2,000	N/A	N/A	4,400	N/A	N/A	N/A	N/A
27	OPC Calculated Used & Useful (%)	**36.29%**	N/A	N/A	**69.05%**	N/A	N/A	N/A	N/A
28	U & U Per Order (%)	100.00%	N/A	N/A	63.2%	N/A	N/A	N/A	N/A
29	SSU Requested U & U (%)	100.00%	N/A	N/A	100.0%	N/A	N/A	N/A	N/A
30									
31	**WATER TREATMENT PLANT:**								
32	**Water Treatment Equipment:**								
33	Total Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38									
39	**TRANSMISSION AND DISTRIBUTION:**								
40	**Finished Water Storage:**								
41	Total Capacity (gal.)	455,000			1,206,000				
42	Reliable Capacity (gal.)	409,500	N/A	N/A	1,085,400	N/A	N/A	N/A	N/A
43	OPC Calculated Used & Useful (%)	**89.68%**	N/A	N/A	**84.39%**	N/A	N/A	N/A	N/A
44	U & U Per Order (%)	100.00%	N/A	N/A	60.1%	N/A	N/A	N/A	N/A
45	SSU Requested U & U (%)	100.00%	N/A	N/A	100.0%	N/A	N/A	N/A	N/A
46									
47	**Hydropneumatic Tanks:**								
48	Total Capacity (gal.)	10,000	500	7,500	N/A	N/A	N/A	3,000	8,000
49	OPC Calculated Used & Useful (%)	**100.00%**	**50.00%**	**16.00%**	N/A	N/A	N/A	**60.00%**	**46.88%**
50	U & U Per Order (%)	100.00%	75.00%	17.10%	N/A	N/A	N/A	N/A	N/A
51	SSU Requested U & U (%)	100.00%	100.00%	100.00%	N/A	N/A	N/A	100.00%	100.00%
52									
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**								
54	**Schedule F-7(W)**								
55	**TRANSMISSION AND DISTRIBUTION:**								
56	**Connected Lots in 1996 w/o M.R.**	1,207	25	499	7,515	3,311	236	93	159
57	Connected Lots in 1994 w/o M.R.	1,153	22	490	7,063	2,940	216	87	151
58	Connected Lots in 1994 w/ M.R.	1,172	24	495	7,287	3,166	225	90	154
59	Number of Lots	1,189	52	647	6,725	7,171	279	139	250
60	OPC Calculated Used & Useful (%)	**100.00%**	**48.08%**	**77.10%**	**100.00%**	**46.17%**	**84.71%**	**67.11%**	**63.64%**
61	U & U Per Order (%)	98.50%	28.90%	85.40%	N/A	N/A	N/A	N/A	N/A
62	SSU Requested U & U (%)	100.00%	51.25%	85.40%	100.00%	48.19%	86.78%	69.13%	65.77%
63									
64	**ERC CALCULATIONS (by SSU)**								
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990	1,235	17	479		2,801.5	202.5	96.0	139.0
68	1991	1,244	18	518		3,067.0	216.5	97.5	141.0
69	1992	1,277	20	511		3,334.5	226.3	100.5	143.5
70	1993	1,333	21	496		3,450.8	241.3	107.5	152.5
71	**1994**	1,404	22	508	7,075.0	3,479.0	258.3	112.0	160.0
72	1995	1,427	24	513	7,278.3	3,746.2	269.6	115.3	163.3
73	1995.5	1,448	24	515	7,395.8	3,832.1	276.4	117.4	166.0
74	**1996**	1,470	25	517	7,505.9	3,918.0	283.2	119.5	168.7

OPC USED AND USEFUL CALCULATIONS
Water Treatment Plant - Schedule F-5 (W)

Line No.	Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x]; FPSC Non-Uniform [x]	Lakeside	Lehigh	Marco Island	Palm Valley	Remington Forest	Spring Gardens	Valencia Terrace
		1996	1996	1996	1996	1996	1996	1996
1	1994 MAX DAY FOR YEAR (GPD)	544,000	1,711,000	11,871,000	All Water	87,780	55,050	224,700
2	**1996 AVG MAX 5 DAYS IN MAX MONTH (GPD)**	317,003	1,727,685	10,439,248	Purchased	96,041	52,534	218,000
3	1994 AVG MAX 5 DAYS IN MAX MONTH (GPD)	298,800	1,661,200	9,924,600	From	77,540	49,530	218,000
4	**1996 ANNUAL AVG DAILY FLOW (GPD)**	96,945	1,371,878	6,486,319	Intercoastal	37,453	24,453	133,344
5	1994 ANNUAL AVG DAILY FLOW (GPD)	91,378	1,319,085	6,168,449	Utilities	30,238	23,055	133,344
6	**FIRE STORAGE ACCEPTED (GAL.)**	0	240,000	771,472		0	0	0
7	**FIRE FLOW PROVISION (GPM)**	0	2,000	3,214		0	0	0
8	Unaccounted for Water Level (%)	100.0%	13.6%	4.0%	8.8%	15.5%	19.8%	49.7%
9	Unaccounted for Water Allowed (%)	10.0%	10.0%	4.0%	8.8%	10.0%	10.0%	10.0%
10								
11	**SOURCE OF SUPPLY AND PUMPING:**							
12	**Supply Wells:**	S	L	L	S	L	S	S
13	Total Capacity (gpm)	1,400	1,900	9,831	N/A	48	180	1,100
14	Reliable Capacity (gpm)	400	1,444	7,747	N/A	0	90	350
15	OPC Calculated Used & Useful (%)	**5.50%**	**63.60%**	**73.74%**	N/A	**100.00%**	**36.56%**	**26.08%**
16	U & U Per Order (%)	N/A	100.00%	100.00%	N/A	N/A	N/A	N/A
17	SSU Requested U & U (%)	100.00%	100.00%	95.99%	N/A	100.00%	100.00%	100.00%
18								
19	**Auxiliary Power:**							
20	Capacity (GPD), not provided	Unavailable	Unavailable	Unavailable				Unavailable
21	OPC Calculated Used & Useful (%)	**5.50%**	**63.60%**	**73.74%**				**26.08%**
22	SSU Requested U & U (%)	100.00%	100.00%	100.00%				100.00%
23								
24	**High Service Pumping:**							
25	Total Capacity (gpm)	N/A	4,250	22,700	N/A	600	N/A	N/A
26	Reliable Capacity (gpm)	N/A	3,000	17,700	N/A	220	N/A	N/A
27	OPC Calculated Used & Useful (%)	N/A	**100.00%**	**59.12%**	N/A	**28.65%**	N/A	N/A
28	U & U Per Order (%)	N/A	100.0%		N/A	N/A	N/A	N/A
29	SSU Requested U & U (%)	N/A	100.0%	100.0%	N/A	100.0%	N/A	N/A
30								
31	**WATER TREATMENT PLANT:**							
32	**Water Treatment Equipment:**							
33	Total Capacity (gpm)	N/A	1,736	6,944	N/A	N/A	N/A	N/A
34	Reliable Capacity (gpm)	N/A	1,736	6,944	N/A	N/A	N/A	N/A
35	OPC Calculated Used & Useful (%)	N/A	**66.62%**	**100.00%**	N/A	N/A	N/A	N/A
36	U & U Per Order (%)	N/A	78.30%	100.00%	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	N/A	78.30%	100.00%	N/A	N/A	N/A	N/A
38								
39	**TRANSMISSION AND DISTRIBUTION:**							
40	**Finished Water Storage:**							
41	Total Capacity (gal.)		1,720,000	6,500,000		15,000		
42	Reliable Capacity (gal.)	N/A	1,048,052	3,635,143	N/A	13,500	N/A	N/A
43	OPC Calculated Used & Useful (%)	N/A	**52.40%**	**61.78%**	N/A	**100.00%**	N/A	N/A
44	U & U Per Order (%)	N/A	81.80%	100.00%	N/A	N/A	N/A	N/A
45	SSU Requested U & U (%)	N/A	88.00%	100.00%	N/A	100.00%	N/A	N/A
46								
47	**Hydropneumatic Tanks:**							
48	Total Capacity (gal.)	15,000	10,000	N/A	N/A	5,000	1,500	5,000
49	OPC Calculated Used & Useful (%)	**66.67%**	**45.60%**	N/A	N/A	**9.60%**	**60.00%**	**100.00%**
50	U & U Per Order (%)	N/A	100.00%	N/A	N/A	N/A	N/A	N/A
51	SSU Requested U & U (%)	100.00%	100.00%	N/A	N/A	100.00%	100.00%	100.00%
52								
53	**USED AND USEFUL CALCULATIONS** **Water Transmission & Distribution System**							
54	**Schedule F-7(W)**							
55	**TRANSMISSION AND DISTRIBUTION:**							
56	**Connected Lots in 1996 w/o M.R.**	93	5,800	6,083	216	80	130	323
57	Connected Lots in 1994 w/o M.R.	87	5,577	5,783	201	65	122	323
58	Connected Lots in 1994 w/ M.R.	90	5,681	5,986	209	70	126	323
59	Number of Lots	252	7,789	14,014	210	87	180	340
60	OPC Calculated Used & Useful (%)	**36.79%**	**74.46%**	**43.41%**	**100.00%**	**92.23%**	**72.06%**	**95.00%**
61	U & U Per Order (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
62	SSU Requested U & U (%)	37.73%	77.17%	100.00%	100.00%	100.00%	74.06%	95.00%
63								
64	**ERC CALCULATIONS (by SSU)**							
65	**Combined Schedule of F- 8 & 9 (W)**	Water	Water	Water	Water	Water	Water	Water
66	Year	ERC	ERC	ERC	ERC	ERC	ERC	ERC
67	1990		8,128.0	12,915.5	196.3	24.5		
68	1991		8,300.5	13,795.0	204.3	28.0		
69	1992		8,473.5	14,150.5	211.5	33.5		
70	1993		8,668.0	14,136.0	219.8	48.5		
71	**1994**	87.0	8,897.5	13,983.0	225.8	65.8	122.0	323.0
72	1995	89.6	9,063.8	14,473.6	234.8	71.1	125.7	323.0
73	1995.5	90.9	9,158.7	14509.8	238.6	76.3	127.5	323.0
74	**1996**	92.3	9,253.6	14,708.1	242.4	81.5	129.4	323.0

EXHIBIT TLB-3.1

SUMMARY OF AVAILABLE FIRE FLOW TESTS RECORDS
OF
SSU WATER SYSTEMS
AND
OPC FIRE FLOW ALLOWANCE

FIRE FLOW TEST RECORDS SUMMARY

OPC DOCUMENT REQUEST NO. 298

Docket No. 950495-WS
Company: Southern States Utilities, Inc.
Schedule Year Ended: 12/31/96
Projected [x]
FPSC Uniform [x]; FPSC Non-Uniform [x]

Line No.		Amelia Island	Deltona Lakes	Keystone Heights	Sunshine Parkway	Buenaventura Lakes	Lehigh	Marco Island
1	FIRE STORAGE ACCEPTED (GAL.)	180,000	260,100	120,000	270,000	141,864	240,000	771,472
2	FIRE FLOW PROVISION ACCEPTED (GPM)	1,000	2,168	1,000	2,000	1,182	2,000	3,214
3	AVERAGE FIRE FLOW PROVISION (GPM)	1,123	2,168	1,189	2,150	1,182	1,972	3,214
4	Fire Storage Requested by SSU (gal.)	180,000	300,000	120,000	270,000	300,000	240,000	1,080,000
5	Fire Flow Requested by SSU (gpm)	1,000	2,500	1,000	2,000	2,500	2,000	4,500
6	Duration Requested by SSU (hr)	3	2	2	2.25	2	2	4
7								
8	FIRE FLOW TEST RECORDS							
9	Maximum:							
10	Hydrant Number	Hammock Dr.	30077	Nightingale	Carroll Ful.	31	120	Caxombs
11	Date Last Flowed	7/11/95	4/19/93	n/a	6/29/95	2/23/95	9/14/95	7/18/94
12	Time of Day	n/a	10:45	n/a	n/a	n/a	9:00	10:55
13	Static Pressure	62	84	65	50	68	65	68
14	Residual Pressure	46	78	46	40	46	59	50
15	Pitot Pressure	n/a	40	n/a	38	n/a	52	44-46
16	GPM at flow	1,062	1,060	1,135	1,036	1,135	1,210	2,374
17	[redacted]	1,788	3,805	1,808	2,200	1,730	3,524	4,032
18								
19	Minimum:							
20	Hydrant Number	Ocean Blvd.	30030	Cypre & Her	Carroll Ful.	263	380	Tigertail Ct.
21	Date Last Flowed	7/22/95	11/5/92	n/a	6/25/95	12/1/95	1/28/87	7/21/94
22	Time of Day	n/a	21:05	n/a	n/a	n/a	12:00	13:25
23	Static Pressure	52	52	50	50	58	55	74
24	Residual Pressure	10	20	14	40	16	9	54
25	Pitot Pressure	n/a	10	n/a	32	n/a	8	44-46
26	GPM at flow	531	530	630	950	670	475	1402
27	[redacted]	458	530	571	2,100	635	420	2,397
28								
29	Average:							
30	[redacted]	1,123	2,168	1,189	2,150	1,182	1,972	3,214
31								

EXHIBIT TLB-4

OPC USED AND USEFUL CALCULATIONS
OF
WASTEWATER SYSTEMS

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-6 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Amelia Island	Apache Shores	Apple Valley	Beacon Hill	Beecher's Point	Burnt Store	Chuluota	Citrus Park	Citrus Springs
		1996	1996	1996	1996	1996	1996	1996	1996	1996
				Treated by Altomonte						
1	PERMITTED PLANT CAPACITY (GPD)	950,000	17,000	Springs	1,780,000	15,000	250,000	100,000	64,000	200,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	950,000	17,000	N/A	1,780,000	15,000	250,000	100,000	64,000	200,000
3	1994 AVG DAILY FLOW OF MAX MONTH (GPD)	844,484	12,000	N/A	783,323	8,194	135,968	42,226	48,323	134,033
4	**1996 AVG DAILY FLOW OF MAX MONTH (GPD)**	611,480	12,000	N/A	848,580	6,072	153,394	43,186	49,055	135,366
5	Response to OPC Doc. Request No. 279									
6	EXCESS Inflow/Infiltration (%), by EPA guidelines	36.4%				25.9%				
7	EXCESS INFLOW/INFILTRATION (GPD)	307,392	0		0	2,122	0	0	0	0
8										
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:									
10	**Treatment Plant:**									
11	OPC Calculated Used & Useful (%)	64.37%	70.59%	N/A	47.67%	40.48%	61.36%	43.19%	76.65%	67.68%
12	U & U Per Order (%)	94.30%	69.60%	N/A	62.90%	39.60%	48.00%	71.00%	100.00%	51.60%
13	SSU Requested U & U (%)	100.00%	70.59%	N/A	100.00%	54.62%	85.97%	71.00%	100.00%	69.51%
14	**Effluent Disposal:**									
15	OPC Calculated Used & Useful (%)	64.37%	70.59%	N/A	47.67%	40.48%	61.36%	43.19%	76.65%	67.68%
16	U & U Per Order (%)	94.30%	69.60%	N/A	69.60%	39.60%	48.00%	71.00%	100.00%	51.60%
17	SSU Requested U & U (%)	100.00%	70.59%	N/A	100.00%	54.62%	85.97%	71.00%	100.00%	69.51%
18	**Reuse Facilities:**									
19	OPC Calculated Used & Useful (%)	64.37%								
20	SSU Requested U & U (%)	100.00%								
21										
22	Auxiliary Power:									
23	Capacity (GPD), not provided	navailable			Unavailable					
24	OPC Calculated Used & Useful (%)	64.37%			47.67%					
25	SSU Requested U & U (%)	100.00%			100.00%					
26										
27	**USED AND USEFUL CALCULATIONS**									
	Wastewater Collection System									
28	**Schedule F-7(S)**									
29										
30	COLLECTION AND SYSTEM PUMPING PLANT:									
31	**Connected Lots in 1996 w/o M.R.**	1,450	111	163	3,085	45	418	135	136	684
32	Connected Lots in 1994 w/ M.R.	1,363	111	163	2,917	45	385	134	134	680
33	Connected Lots in 1994 w/o M.R.	1,273	111	163	2,848	45	371	132	133	677
34	Number of Lots	2,467	195	188	3,178	62	4,347	155	155	1,084
35	Calculated Used & Useful (%)	58.77%	56.92%	86.70%	97.09%	72.58%	9.63%	87.10%	87.43%	63.09%
36	U & U Per Order (%)	93.70%	59.55%	100.00%	91.00%	73.40%	9.20%	82.90%	82.90%	28.00%
37	SSU Requested U & U (%)	93.70%	59.50%	100.00%	100.00%	73.40%	10.40%	87.90%	100.00%	63.38%
38										
39										

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 & 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC
1990	1,382.0	116.0	175.0	2,450.0	45.0	342.0	127.0	251.0	687.0
1991	1,571.0	113.0	175.0	2,524.0	45.0	379.0	130.0	247.0	693.0
1992	1,707.0	113.0	173.0	2,609.0	45.0	398.0	131.0	248.0	696.0
1993	1,783.0	112.0	175.0	2,870.0	45.0	455.0	131.0	258.0	697.0
1994	1,935.0	111.0	180.0	3,229.0	45.0	554.0	132.0	264.0	704.0
1995	2,071.0	111.0	180.0	3,307.0	45.0	575.0	134.0	265.0	707.0
1995.5	2,137.0	111.0	180.0	3,403.0	45.0	600.0	134.0	266.0	709.0
1996	2,203.0	111.0	180.0	3,498.0	45.0	625.0	135.0	268.0	711.0

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-6 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Deltona Lakes	Fisherman's Haven	Florida Central Commerce Park	Fox Run	Holiday Haven	Jungle Den	Leilani Heights	Leisure Lakes
		1996	1996	1996	1996	1996	1996	1996	1996
1	PERMITTED PLANT CAPACITY (GPD)	1,200,000	25,000	95,000	Interconn. With Martin County	25,000	25,000	150,000	50,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	1,400,000	25,000	95,000	Utilities	25,000	25,000	150,000	50,000
3	1994 AVG DAILY FLOW OF MAX MONTH (GPD)	1,132,710	17,467	56,267	to Treat	18,700	16,613	172,964	18,129
4	**1996 AVG DAILY FLOW OF MAX MONTH (GPD)**	1,207,742	17,467	71,514		18,700	16,755	145,848	18,523
5	Response to OPC Doc. Request No. 279								
6	EXCESS Inflow/Infiltration (%), by EPA guidelines							16.1%	
7	EXCESS INFLOW/INFILTRATION (GPD)	0	0	0		0	0	27,847	0
8									
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:								
10	Treatment Plant:								
11	OPC Calculated Used & Useful (%)	100.00%	69.87%	75.28%	N/A	74.80%	67.02%	97.23%	37.05%
12	U & U Per Order (%)	95.00%	80.00%	44.00%	N/A	47.00%	65.00%	100.00%	65.70%
13	SSU Requested U & U (%)	100.00%	80.00%	100.00%	N/A	74.80%	68.61%	100.00%	65.70%
14	Effluent Disposal:								
15	OPC Calculated Used & Useful (%)	86.27%	69.87%	75.28%	N/A	74.80%	67.02%	97.23%	37.05%
16	U & U Per Order (%)	95.00%	80.00%	44.00%	N/A	47.00%	65.00%	100.00%	65.70%
17	SSU Requested U & U (%)	100.00%	80.00%	100.00%	N/A	74.80%	68.61%	100.00%	65.70%
18	Reuse Facilities:								
19	OPC Calculated Used & Useful (%)	86.27%		75.28%					
20	SSU Requested U & U (%)	100.00%		100.00%					
21									
22	Auxiliary Power:								
23	Capacity (GPD), not provided	Unavailable		Unavailable				Unavailable	
24	OPC Calculated Used & Useful (%)	100.00%		75.28%				97.23%	
25	SSU Requested U & U (%)	100.00%		100.00%				100.00%	
26									
27	**USED AND USEFUL CALCULATIONS**								
	Wastewater Collection System								
28	**Schedule F-7(S)**								
29									
30	COLLECTION AND SYSTEM PUMPING PLANT:								
31	Connected Lots in 1996 w/o M.R.	4,659	141	56	106	94	118	399	235
32	Connected Lots in 1994 w/ M.R.	4,619	141	51	102	94	117	398	233
33	Connected Lots in 1994 w/o M.R.	4,595	141	44	97	94	117	397	230
34	Number of Lots	5,000	144	71	109	166	135	413	385
35	Calculated Used & Useful (%)	93.18%	97.92%	78.18%	97.25%	56.63%	87.41%	96.61%	61.04%
36	U & U Per Order (%)	100.00%	100.00%	43.00%	100.00%	61.40%	100.00%	100.00%	61.60%
37	SSU Requested U & U (%)	100.00%	100.00%	84.26%	100.00%	61.40%	100.00%	100.00%	61.62%
38									
39									

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 & 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC
1990	4,860.0	142.0	86.0	82.0	95.0	114.0	393.0	221.0
1991	4,852.0	142.0	130.0	88.0	97.0	115.0	393.0	227.0
1992	4,895.0	140.0	146.0	92.0	97.0	116.0	394.0	229.0
1993	4,963.0	138.0	150.0	95.0	94.0	115.0	395.0	229.0
1994	5,025.0	141.0	155.0	97.0	96.0	117.0	397.0	230.0
1995	5,051.0	141.0	181.0	102.0	96.0	117.0	398.0	233.0
1995.5	5,073.0	141.0	189.0	104.0	96.0	118.0	398.0	234.0
1996	5,095.0	141.0	197.0	106.0	96.0	118.0	399.0	235.0

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-6 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Marco Shores	Marion Oaks	Meredith Manor	Morning-view	Palm Port	Palm Terrace	Park Manor	Point O'Woods	Salt Springs
		1996	1996	1996	1996	1996	1996	1996	1996	1996
				Interconn. With The City of						
1	PERMITTED PLANT CAPACITY (GPD)	110,000	200,000	Altamonte	20,000	50,000	130,000	15,000	58,000	85,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	110,000	200,000	Springs and	20,000	50,000	130,000	15,000	58,000	34,000
3	*1994 AVG DAILY FLOW OF MAX MONTH (GPD)*	*62,000*	*170,129*	*Sanlando*	*8,710*	*25,233*	*147,742*	*13,194*	*20,226*	*29,129*
4	**1996 AVG DAILY FLOW OF MAX MONTH (GPD)**	64,369	172,210	Utilities	8,710	27,550	148,175	15,134	23,622	29,129
5	Response to OPC Doc. Request No. 279									
6	EXCESS Inflow/Infiltration (%), by EPA guidelines									
7	EXCESS INFLOW/INFILTRATION (GPD)	0	0		0	0	0	0	0	0
8										
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:									
10	**Treatment Plant:**									
11	OPC Calculated Used & Useful (%)	**58.52%**	**86.10%**	**N/A**	**43.55%**	**55.10%**	**100.00%**	**100.00%**	**40.73%**	**34.27%**
12	U & U Per Order (%)	66.80%	81.00%	N/A	77.00%	45.00%	62.50%	28.00%	28.60%	49.00%
13	SSU Requested U & U (%)	94.24%	90.36%	N/A	77.00%	63.83%	100.00%	100.00%	51.53%	49.00%
14	**Effluent Disposal:**									
15	OPC Calculated Used & Useful (%)	**58.52%**	**86.10%**	**N/A**	**43.55%**	**55.10%**	**100.00%**	**100.00%**	**40.73%**	**85.67%**
16	U & U Per Order (%)	66.80%	81.00%	N/A	77.00%	45.00%	96.00%	28.00%	28.60%	100.00%
17	SSU Requested U & U (%)	100.00%	90.36%	N/A	77.00%	63.83%	100.00%	100.00%	51.53%	100.00%
18	**Reuse Facilities:**									
19	OPC Calculated Used & Useful (%)								40.73%	
20	SSU Requested U & U (%)								100.00%	
21										
22	**Auxiliary Power:**									
23	Capacity (GPD), not provided									
24	OPC Calculated Used & Useful (%)									
25	SSU Requested U & U (%)									
26										
27	**USED AND USEFUL CALCULATIONS**									
	Wastewater Collection System									
28	**Schedule F-7(S)**									
29										
30	COLLECTION AND SYSTEM PUMPING PLANT:									
31	**Connected Lots in 1996 w/o M.R.**	411	1,336	29	36	107	1,026	35	160	110
32	Connected Lots in 1994 w/ M.R.	400	1,323	28	36	103	1,024	33	152	110
33	Connected Lots in 1994 w/o M.R.	396	1,320	28	36	98	1,023	30	137	110
34	Number of Lots	584	1,610	34	48	137	1,189	35	191	185
35	Calculated Used & Useful (%)	**70.44%**	**83.00%**	**84.78%**	**75.00%**	**78.10%**	**86.29%**	**99.38%**	**83.77%**	**59.46%**
36	U & U Per Order (%)	50.20%	65.00%	100.00%	100.00%	67.00%	85.00%	96.90%	100.00%	100.00%
37	SSU Requested U & U (%)	85.62%	85.00%	100.00%	100.00%	80.40%	86.40%	100.00%	100.00%	100.00%
38										
39										

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 & 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC
1990	274.0	1,335.0	33.0	46.0	86.0	1,019.0	26.0	103.0	153.0
1991	288.0	1,333.0	33.0	46.0	89.0	1,013.0	30.0	121.0	151.0
1992	288.0	1,340.0	34.0	45.0	95.0	1,015.0	33.0	134.0	149.0
1993	294.0	1,361.0	34.0	45.0	98.0	1,023.0	33.0	137.0	146.0
1994	314.0	1,390.0	34.0	46.0	96.0	1,023.0	34.0	137.0	151.0
1995	317.0	1,393.0	34.0	46.0	103.0	1,024.0	37.0	152.0	151.0
1995.5	322.0	1,400.0	35.0	46.0	105.0	1,025.0	38.0	156.0	151.0
1996	326.0	1,407.0	35.0	46.0	107.0	1,026.0	39.0	160.0	151.0

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-6 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Silver Lake Oaks	South Forty	Sugar Mill	Sugarmill Woods	Sunny Hills	Sunshine Parkway	University Shores	Venetian Village
		1996	1996	1996	1996	1996	1996	1996	1996
1	PERMITTED PLANT CAPACITY (GPD)	12,000	50,000	270,000	400,000	50,000	250,000	1,145,000	36,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	12,000	50,000	270,000	500,000	50,000	150,000	1,145,000	36,000
3	1994 AVG DAILY FLOW OF MAX MONTH (GPD)	7,290	35,806	160,000	261,194	29,419	86,933	1,000,226	35,581
4	1996 AVG DAILY FLOW OF MAX MONTH (GPD)	7,290	13,508	167,886	293,645	29,583	3,710	1,130,484	36,808
5	Response to OPC Doc. Request No. 279								
6	EXCESS Inflow/Infiltration (%), by EPA guidelines		63.4%				96.5%		
7	EXCESS INFLOW/INFILTRATION (GPD)	0	22,701	0	0	0	83,890	0	0
8									
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:								
10	Treatment Plant:								
11	OPC Calculated Used & Useful (%)	60.75%	27.02%	62.18%	73.41%	59.17%	1.48%	98.73%	100.00%
12	U & U Per Order (%)	13.00%	74.00%	78.00%	58.20%	51.00%	51.00%	93.10%	86.00%
13	SSU Requested U & U (%)	60.75%	79.88%	78.00%	90.46%	60.02%	56.78%	100.00%	100.00%
14	Effluent Disposal:								
15	OPC Calculated Used & Useful (%)	60.75%	27.02%	62.18%	58.73%	59.17%	2.47%	98.73%	100.00%
16	U & U Per Order (%)	13.00%	74.00%	78.00%	58.20%	51.00%	51.00%	93.10%	86.00%
17	SSU Requested U & U (%)	60.75%	79.88%	78.00%	72.36%	60.02%	94.63%	100.00%	100.00%
18	Reuse Facilities:								
19	OPC Calculated Used & Useful (%)							98.73%	
20	SSU Requested U & U (%)							100.00%	
21									
22	Auxiliary Power:								
23	Capacity (GPD), not provided				Unavailable	Unavailable		Unavailable	
24	OPC Calculated Used & Useful (%)				73.41%	59.17%		98.73%	
25	SSU Requested U & U (%)				100.00%	100.00%		100.00%	
26									
27	USED AND USEFUL CALCULATIONS Wastewater Collection System Schedule F-7(S)								
28									
29									
30	COLLECTION AND SYSTEM PUMPING PLANT:								
31	Connected Lots in 1996 w/o M.R.	26	35	642	2,551	177	11	3,532	90
32	Connected Lots in 1994 w/ M.R.	26	34	630	2,432	176	10	3,338	89
33	Connected Lots in 1994 w/o M.R.	26	33	612	2,269	176	9	3,125	87
34	Number of Lots	53	52	661	8,252	504	56	4,275	107
35	Calculated Used & Useful (%)	49.06%	66.38%	97.08%	30.91%	35.12%	18.92%	82.61%	84.11%
36	U & U Per Order (%)	50.90%	94.00%	84.00%	21.10%	36.00%	100.00%	72.40%	81.90%
37	SSU Requested U & U (%)	50.90%	94.00%	99.00%	32.34%	36.00%	100.00%	87.12%	85.84%
38									
39									

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 & 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC
1990	27.0	55.0	576.0	3,844.0	176.0	55.0	2,545.0	80.0
1991	27.0	68.0	605.0	4,085.0	178.0	56.0	2,763.0	83.0
1992	25.0	68.0	619.0	4,422.0	178.0	67.0	2,996.0	84.0
1993	24.0	59.0	623.0	4,719.0	177.0	78.0	3,199.0	85.0
1994	26.0	65.0	629.0	4,773.0	179.0	73.0	3,371.0	87.0
1995	26.0	66.0	648.0	5,116.0	179.0	84.0	3,601.0	89.0
1995.5	26.0	67.0	654.0	5,241.0	179.0	86.0	3,706.0	89.0
1996	26.0	67.0	660.0	5,366.0	180.0	89.0	3,810.0	90.0

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-6 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Woodmere	Zephyr Shores	Buenaventura Lakes	Deep Creek	Enterprise	Lehigh	Marco Island
		1996	1996	1996	1996	1996	1996	1996
1	PERMITTED PLANT CAPACITY (GPD)	500,000	40,000	1,800,000	All Wastewater Treated By Charlotte County	Plant taken off line. Flow goes to Deltona Lakes.	2,100,000	3,500,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	500,000	40,000	1,800,000			2,100,000	3,500,000
3	1994 AVG DAILY FLOW OF MAX MONTH (GPD)	466,226	27,256	1,614,839		45,097	1,773,710	2,438,000
4	1996 AVG DAILY FLOW OF MAX MONTH (GPD)	482,889	27,744	1,713,181		59,253	1,848,001	856,291
5	Response to OPC Doc. Request No. 279							
6	EXCESS Inflow/Infiltration (%), by EPA guidelines							65.1%
7	EXCESS INFLOW/INFILTRATION (GPD)	0	0	0		0	0	1,587,138
8								
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:							
10	Treatment Plant:							
11	OPC Calculated Used & Useful (%)	96.58%	69.36%	89.71%	N/A	N/A	88.00%	24.47%
12	U & U Per Order (%)	100.00%	86.30%	69.90%	N/A	N/A	100.00%	78.00%
13	SSU Requested U & U (%)	100.00%	86.30%	89.71%	N/A	100.00%	100.00%	78.00%
14	Effluent Disposal:							
15	OPC Calculated Used & Useful (%)	96.58%	69.36%	89.71%	N/A	N/A	88.00%	22.91%
16	U & U Per Order (%)	100.00%	100.00%	69.90%	N/A	N/A	81.08%	N/A
17	SSU Requested U & U (%)	100.00%	100.00%	89.71%	N/A	N/A	100.00%	100.00%
18	Reuse Facilities:							
19	OPC Calculated Used & Useful (%)						88.00%	63.83%
20	SSU Requested U & U (%)						100.00%	100.00%
21								Exh TLB-4.1
22	Auxiliary Power:							
23	Capacity (GPD), not provided			Unavailable			Unavailable	Unavailable
24	OPC Calculated Used & Useful (%)			89.71%			88.00%	22.91%
25	SSU Requested U & U (%)			100.00%			100.00%	100.00%
26								
27	USED AND USEFUL CALCULATIONS Wastewater Collection System Schedule F-7(S)							
28								
29								
30	COLLECTION AND SYSTEM PUMPING PLANT:							
31	Connected Lots in 1996 w/o M.R.	1,155	496	7,437	3,414	166	4,436	1,976
32	Connected Lots in 1994 w/ M.R.	1,126	492	7,220	3,251	152	4,342	1,970
33	Connected Lots in 1994 w/o M.R.	1,115	487	7,010	2,999	126	4,257	1,964
34	Number of Lots	1,189	647	6,725	7,285	228	5,270	1,334
35	Calculated Used & Useful (%)	97.15%	76.64%	100.00%	46.87%	72.80%	84.17%	100.00%
36	U & U Per Order (%)	100.00%	85.30%	N/A	N/A	N/A	N/A	N/A
37	SSU Requested U & U (%)	100.00%	85.30%	100.00%	49.10%	79.19%	88.31%	100.00%
38								
39								

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 @ 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC	Sewer ERC
1990	1,206.0	476.0		2,825.8	64.0	6,440.5	5,044.5
1991	1,210.0	513.0		3,178.5	129.5	6,635.0	5,228.3
1992	1,230.0	505.0		3,444.5	132.0	6,777.0	5,356.3
1993	1,279.0	493.0		3,571.0	135.5	6,888.8	5,287.3
1994	1,343.0	505.0	7,010.0	3,611.8	137.3	7,093.3	5,109.0
1995	1,356.0	510.0	7,220.3	3,915.8	165.2	7,234.5	5,125.3
1995.5	1,373.0	512.0	7,327.8	4,014.1	172.8	7,312.4	5,133.4
1996	1,391.0	514.0	7,436.9	4,112.3	180.4	7,390.4	5,141.6

OPC USED AND USEFUL CALCULATIONS

Line No.	Wastewater Treatment Plant Schedule F-8 (S) Docket No. 950495-WS Company: Southern States Utilities, Inc. Schedule Year Ended: 12/31/96 Projected [x] FPSC Uniform [x] & Non-Uniform [x]	Spring Gardens	Tropical Isle	Valencia Terrace
		1996	1996	1996
1	PERMITTED PLANT CAPACITY (GPD)	20,000	50,000	99,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	20,000	50,000	99,000
3	1994 AVG DAILY FLOW OF MAX MONTH (GPD)	87,200	35,033	78,452
4	**1996 AVG DAILY FLOW OF MAX MONTH (GPD)**	92,489	43,616	78,452
5	Response to OPC Doc. Request No. 279			
6	EXCESS Inflow/Infiltration (%), by EPA guidelines			
7	EXCESS INFLOW/INFILTRATION (GPD)	0	0	0
8				
9	TREATMENT PLANT AND EFFLUENT DISPOSAL:			
10	Treatment Plant:			
11	OPC Calculated Used & Useful (%)	100.00%	87.23%	79.24%
12	U & U Per Order (%)	N/A	N/A	N/A
13	SSU Requested U & U (%)	100.00%	100.00%	79.24%
14	Effluent Disposal:			
15	OPC Calculated Used & Useful (%)	100.00%	87.23%	79.24%
16	U & U Per Order (%)	N/A	N/A	N/A
17	SSU Requested U & U (%)	100.00%	100.00%	79.24%
18	Reuse Facilities:			
19	OPC Calculated Used & Useful (%)			
20	SSU Requested U & U (%)			
21				
22	Auxiliary Power:			
23	Capacity (GPD), not provided			
24	OPC Calculated Used & Useful (%)			
25	SSU Requested U & U (%)			
26				
27	USED AND USEFUL CALCULATIONS			
	Wastewater Collection System			
28	Schedule F-7(S)			
29				
30	COLLECTION AND SYSTEM PUMPING PLANT:			
31	Connected Lots in 1996 w/o M.R.	130	274	323
32	Connected Lots in 1994 w/ M.R.	126	250	323
33	Connected Lots in 1994 w/o M.R.	122	220	323
34	Number of Lots	180	334	340
35	Calculated Used & Useful (%)	72.06%	82.07%	95.00%
36	U & U Per Order (%)	N/A	N/A	N/A
37	SSU Requested U & U (%)	74.06%	89.21%	95.00%
38				
39				

ERC CALCULATIONS (by SSU)
Combined Schedule of F- 8 & 10 (S)

Year	Sewer ERC	Sewer ERC	Sewer ERC
1990		126.5	
1991		154.0	
1992		180.5	
1993		207.5	
1994	122.0	220.0	323.0
1995	125.7	249.8	323.0
1995.5	127.5	261.9	323.0
1996	129.4	273.9	323.0

EXHIBIT TLB-4.1

OPC USED AND USEFUL CALCULATIONS
OF
DEEP INJECTION WELL AND EFFLUENT DISPOSAL
ON
MARCO ISLAND

OPC USED AND USEFUL CALCULATIONS

Marco Island
Wastewater Treatment Plant
Effluent Disposal Measures
Docket No. 950495-WS
Company: Southern States Utilities, Inc.
Schedule Year Ended: 12/31/96
Projected [x]
FPSC Uniform [ ] & Non-Uniform [x]

Line No.		Deep Well	Perc Pond	Golf Courses
		Mar-94	May-93	May-94
1	PERMITTED PLANT CAPACITY (GPD)	3,500,000	3,500,000	3,500,000
2	EFFLUENT DISPOSAL CAPACITY (GPD)	**9,900,000**	**3,500,000**	**1,000,000**
3	1994/HISTORIC AVG DAILY FLOW OF MAX MONTH (GPD)	3,663,065	801,968	632,258
4	**1996 AVG DAILY FLOW OF MAX MONTH (GPD)**	**3,686,438**	**801,968**	**636,292**
5				
6				
7	**EFFLUENT DISPOSAL:**			
8	**Information Source:**			
9	Late-Filed Deposition Exhibit Nos. 4,5 & 6 of Mr. Terrero;			
10	FDEP Permit: UC11-179323. (DR 289-D)			
11	Deposition of Mr. Terrero			
12				
13				
14	**Effluent Disposal:**			
15	OPC Calculated Used & Useful (%)	**37.24%**	**22.91%**	
16	U & U Per Order (%)	N/A	N/A	
17	SSU Requested U & U (%)	100.00%	100.00%	
18	**Reuse Facilities:**			
19	OPC Calculated Used & Useful (%)			**63.63%**
20	SSU Requested U & U (%)			100.00%
21				
22	**ERC CALCULATIONS (by SSU)**			
23	**Combined Schedule of F- 8 & 10 (S)**			
24		Sewer	Sewer	Sewer
25	Year	ERC	ERC	ERC
26	1990	5,044.5	5,044.5	5,044.5
27	1991	5,228.3	5,228.3	5,228.3
28	1992	5,356.3	5,356.3	5,356.3
29	1993	5,287.3	5,287.3	5,287.3
30	**1994**	5,109.0	5,109.0	5,109.0
31	1995	5,125.3	5,125.3	5,125.3
32	1995.5	5,133.4	5,133.4	5,133.4
33	**1996**	5,141.6	5,141.6	5,141.6
34	1996.5	5,149.7	5,149.7	5,149.7
35	1997	5,157.9	5,157.9	5,157.9
36	1997.5	5,166.1	5,166.1	5,166.1
37	1998	5,174.3	5,174.3	5,174.3
38	1999	5,190.8	5,190.8	5,190.8
39	2000	5,207.3	5,207.3	5,207.3