96-0422J

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of

DOCKET NO. 950495-WS

Application for rate increase and increase in service availability charges by Southern States Utilities, Inc. for Orange-Osceola Utilities, Inc. in Osceola County, and in Bradford, Brevard, Charlotte, Citrus, Clay, Collier, Duval, Highlands, Lake, Lee, Marion, Martin, Nassau, Orange, Osceola, Pasco, Putnam, Seminole, St. Johns, St. Lucie, Volusia, and Washington Counties.

NINTH - EVENING SESSION

VOLUME 38

Pages 4583 through 4758

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN SUSAN F. CLARK COMMISSIONER J. TERRY DEASON COMMISSIONER JULIA L. JOHNSON COMMISSIONER DIANE K. KIESLING COMMISSIONER JOE GARCIA
DATE:	Thursday, May 9, 1996
TIME:	Commenced at 9:00 a.m.
PLACE:	Betty Easley Conference Center 4075 Esplanade Way, Room 148 Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR

(Appearances as heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

Number:		Identified	Admitted
220	SEB-1 and SEB-2	4598	4611
221	BP-1 and PB-2	4622	4632
222	RAT-3 through RAT-14	4709	4709
223	Recent Water Analyses of Leisure Lakes	4747	
224	Late-filed deposition Exhibit No. 6, January 1996	4747	
225	SSU's response to Staff's Interrogatory Number 305	4747	
226	EPA Handbook, et cetera	4747	
227	Three letters from HRS and one response from SSU	4749	

P R O C E E D I N G S

(Transcript continues in sequence from Volume 37.)

CHAIRMAN CLARK: We are ready to go back on the record. Mr. Armstrong, I believe it's Mr. Bailey.

MR. ARMSTRONG: Yes, Madam Chair.

STEPHEN BAILEY

was called as a rebuttal witness on behalf of Southern States Utilities, Incorporated, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. ARMSTRONG:

Q Mr. Bailey, do you have before you ten pages of prefiled rebuttal testimony in this proceeding?

A Yes, I do.

Q Do you have any changes to that prefiled rebuttal?

A Yes, I do.

Q Could you give them.

A On Page 3, Line 19, change "witnesses" to "witness." On Line 20 of the same page, delete "Bertram and." The same page, Line 22, change "their" to "his," and "witnesses are" to "witness is." That's all.

Q With those changes, if I would ask you the questions contained in these ten pages, would your answers be the same?

A Yes, they would.

MR. ARMSTRONG: Madam Chair, we request that the ten pages of prefiled rebuttal testimony of Mr. Bailey be incorporated into the record as though read.

CHAIRMAN CLARK: The prefiled rebuttal testimony of Mr. Steven Bailey will be inserted in the record as though read.

MR. ARMSTRONG: Thank you.

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is Stephen E. Bailey, P.E. and my business address is 1000 Color Place, Apopka, Florida 32703.

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

A. I am employed by Southern States Utilities, Inc. ("Southern States") as a Senior Project Engineer in the Planning and Engineering Department.

Q. WHAT IS YOUR EDUCATION BACKGROUND AND WORK EXPERIENCE?

A. I received a Bachelor of Science in Engineering Degree from the University of Central Florida in 1979 majoring in Environmental Engineering. I received a Masters in Business Administration Degree from the Crummer Graduate School of Business, Rollins College in 1992.

I have worked for Southern States for 10 months. At Southern States I am performing as project manager for both water and wastewater related facilities. I am also responsible for facility design and certain aspects of construction permitting for various utility related facilities.

Prior to working at Southern States, I spent 15 years working for private consulting firms specializing in serving both private and municipal water and wastewater utilities. I started work at

the firm of Dyer, Riddle, Mills and Precourt, Inc. in 1981 as a design engineer. I was responsible for the design, permitting and construction monitoring of water and wastewater treatment plants, and all necessary facilities to make them operational including but not limited to wastewater collection systems, water distribution systems and effluent disposal facilities. In 1983 I began working at Commonwealth Engineering Associates, Inc. ("Commonwealth") as a project engineer. During my 12 year tenure at Commonwealth I progressed until I was the Manager of the Environmental Engineering Department. Assignments included evaluations of existing utility related facilities, master planning new water and wastewater utilities, including all associated appurtenances, and improving the operation and service provided by treatment facilities by upgrading or expanding process units. I also designed, permitted, provided construction administrative services, assisted with facility start-up and monitored system operation for numerous utility related projects.

I have an additional 2 years experience working in the construction industry and performing

civil engineering.

Q. WHAT ARE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a Professional Engineer and have been registered to practice in the State of Florida since 1984. I am a member of the American Water Works Association and the Florida Engineering Society.

Q. HAVE YOU EVER TESTIFIED BEFORE A REGULATORY AGENCY?

A. Yes. I testified before the Florida Public Service Commission in 1991. I presented testimony on behalf of Florida Cities Water Company, Inc. regarding the suitability of a new wastewater treatment facility and that facility's ability to meet effluent discharge criteria.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. During customer service hearings, several customers expressed doubt that the majority of plant being placed into service by SSU was to fulfill regulatory mandates. Sugarmill Woods witnesses Bertram and Hansen also submitted pre-filed testimony raising similar allegations. It appears from their testimony that the witnesses are assuming that "regulatory mandate" is synonymous with "environmental justification". Although a regulatory mandate may be an environmental

justification, it is not always the case. Attached as Exhibit _____ (SEB-1) is a schedule identifying the regulatory mandated projects placed into service for the service areas under my responsibility. This exhibit also identifies the regulatory requirement necessitating the project to be performed.

Customers and their Counsel also suggested that the Commission should not permit Southern States to charge rates which include projections of plant in service, generally suggesting that Southern States' projections were not credible. I, and other SSU engineers, will present evidence confirming that SSU's projections are credible and that the Commission should permit SSU to charge rates that include SSU's projected plant in service.

Q. HAS SSU PRESENTED COMMISSION STAFF, PUBLIC COUNSEL AND OTHER PARTIES WITH PLANT IN SERVICE INFORMATION AS OF DECEMBER 31, 1995 WHICH IN YOUR OPINION VALIDATES SSU'S PROJECTIONS AND REBUTS PUBLIC COUNSEL'S SLIPPAGE ADJUSTMENT?

A. Yes. Exhibit _____ (SEB-2) provides a schedule identifying the actual plant placed in service by SSU in 1995 in the service areas under my

responsibility. I have been informed that SSU provided this information to all parties on March 4, 1996 in response to a Commission Staff document request. Only three projects out of the 1995 projects included in the MFRs under my responsibility were not actually completed in 1995. More importantly, the total cost of these three projects was only $327,248 as compared to the total of $2,981,235 projected in the MFRS. Also, one of the three projects has already been placed in service in February 1996. SSU witness Kimball addresses these and other facts which demonstrate that Public Counsel's proposed slippage adjustment, which is premised upon plant in service completion dates, should be rejected.

Q. COULD YOU PLEASE IDENTIFY THE CURRENT STATUS OF THE THREE PROJECTS UNDER YOUR RESPONSIBILITY IDENTIFIED IN THE MFRS AS PROJECTED TO BE COMPLETED IN 1995 BUT WHICH WERE NOT PLACED IN SERVICE AS OF DECEMBER 31, 1995?

A. The above 3 projects under my responsibility which were not completed in 1995 but which either have been or will be completed in 1996 are the Beacon Hills/Cobblestone Chemical Feed Facility, the Beacon Hills Duval County Utility Relocate and the

Wooten Water Treatment Plant Improvements.

The Wooten's Water Treatment Plant improvements cannot be implemented until land ownership issues are resolved and land usage rights are obtained. SSU is currently in the process of obtaining a lease for property at the plant site but the property owner has been reluctant to work with us to date.

The Beacon Hills Duval County Utility Relocation project was postponed due to an unexpected delay in obtaining a Right-of-Way Use Permit from the County. The County required SSU to prepare a traffic control plan. We could not have contemplated that this type of requirement would be placed upon us as it was without precedent. The requirement for preparing the traffic control plan was ultimately found to be unnecessary as SSU originally had argued. The project was completed, cleared for use and placed in service on February 22, 1996.

The Beacon Hills/Cobblestone Chemical Feed project was delayed because of the unavailability of specified construction materials. The project is currently under construction and is expected to be in service by June 30, 1996.

Q. LOOKING AT EXHIBIT _____ (SEB-2), ONE NOTES THE REFERENCE TO TWO PROJECTS WHICH WERE EXPENSED. COULD YOU EXPLAIN THIS DESIGNATION?

A. Yes. These two projects were completed in 1995; however, when SSU's expense/capitalization criteria were applied, the people responsible for booking SSU's investment in the indicated lead and copper control projects, which totalled only $3,946, determined that the investment should be expensed, not capitalized.

Q. WERE THERE ANY PROJECTS UNDER YOUR RESPONSIBILITY WHICH WERE IDENTIFIED BY SSU IN THE MFR'S FOR COMPLETION IN 1995 THAT WERE CANCELED?

A. Yes. There were three flow meter installation projects identified in the MFRs that were canceled. The projects were: (1) a flow meter installation at the Beechers Point Wastewater Treatment Plant, (2) a flow meter installation at the Palm Port Wastewater Treatment Plant and (3) a flow meter installation at the Park Manor Wastewater Treatment Plant. Each of these three flow meter installations were canceled after we determined that because of the small size of the facilities involved and the constraints on capital available, it was not prudent to expend the funds for flow

meters when other methods of determining flow at the treatment plants were available to SSU. The total projected cost of these three projects in the MFRs was only $12,501.

Q. WERE THERE ANY PROJECTS COMPLETED IN 1995 UNDER YOUR RESPONSIBILITY WHICH WERE NOT PROJECTED TO BE COMPLETED IN THE MFR PROJECTIONS FOR 1995?

A. Yes. SSU completed 1 project in 1995 that was under my responsibility but was not in the MFRs. This project related to our Beacon Hills wastewater treatment plant outfall facility which cost $302,949. The schedule for completing this project was accelerated to comply with regulatory mandates, set forth by the Florida Department of Environmental Protection and the U.S.E.P.A. The mandate required SSU to replace the facility. SSU requests that the actual cost of this project be considered by the Commission as an offset to any reduction that the Commission would make to rate base so long as total revenue requirements are not increased.

It is not unusual and in fact is to be expected that the necessity to complete projects not budgeted will arise during the course of the year as a result of inspections by environmental

regulators, the imposition of new and unexpected permit conditions at permit renewal time, mandated utility relocations, equipment failures or other similar circumstances. Due to the limitations on capital available to SSU, when projects like this arise, we typically review other projects under our responsibility to determine whether they can be cancelled or delayed so that we can remain within the capital budget. Of course, if projects are mandated by public health or environmental concerns there is little possibility for compromise on such projects.

Q. THE MFRS INDICATE A PROJECTED COST FOR IMPROVEMENTS TO THE WASTEWATER COLLECTION SYSTEM AT BEACON HILLS OF $283,785. HOWEVER, THE ACTUAL COST OF THE PROJECT TOTALLED $338,797. CAN YOU EXPLAIN WHY THE PROJECT COST INCREASED?

A. Yes. This project represented the second and third phases of a multi-phase proposed collection system improvements project. The project was planned to include sewer line improvements only, with the cost for this work submitted in the MFRs. Upon completion of the first phase, unexpected problems occurred in other sections of the existing collection system. Therefore, the subsequent

phases were altered to eliminate this problem by including the design and installation of pump station upgrades and the construction of additional pipelines. Since the final cost of the project remains reasonable, SSU requests that the actual cost be considered by the Commission as an offset to any reduction, if any, to rate base so long as total revenue requirements are not increased.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

BY MR. ARMSTRONG:

Q Mr. Bailey, you're sponsoring two exhibits identified as SEB-1 and SEB-2, is that correct?

A That's correct.

MR. ARMSTRONG: Madam Chair, we request that those exhibits be identified with the next available exhibit number.

CHAIRMAN CLARK: They will be identified as Exhibit 220.

MR. ARMSTRONG: Thank you.

(Exhibit Number 220 marked for identification.)

BY MR. ARMSTRONG:

Q Mr. Bailey, do you have a summary?

A Yes, I do.

Q Could you please provide that?

A Yes. The purpose of my rebuttal testimony is to respond to comments made in public hearings and intervenor testimony contesting the credibility of Southern States' MFR projections of planned additions. I want to make it clear that projects SSU states has included -- or states as have been included in the MFRs are, one, in fact, required by regulatory mandate or public safety, the projects and associated in-service amounts projected in the MFRs are reasonable and adjustment for project slippage is not warranted.

As Senior Project Engineer for the North Region of SSU, I am responsible for capital improvements and in assisting the operations department with certain aspects pertaining to project management. This includes assuring public health, safety, and welfare, maintaining regulatory compliance, and providing facilities necessary to meet minimum service levels and providing for growth of the facilities.

Now, regulatory compliance encompasses more than environmental justification referred to by the intervenor witnesses. Southern States must comply with all applicable rules, statutes, ordinance, and standards of federal, state, and local jurisdictions, plus other organizations such as the water management districts. Compliance may include environmental concerns and they may also include non-environmental concerns.

Now, in the year that I have been working at SSU, I have spent a majority of my time primarily on projects that are necessary to comply with regulatory requirements. Of the 49 engineering projects in the north region included in the '95 MFRs, only three were incomplete at the end of that year. An additional three projects were canceled and two were expensed. The total plant-in-service amount not spent for the projects completed were substantially offset by completion of a project which had not been anticipated to

be done in the '95, and therefore was not included in the MFRs for '95. The actual '95 in-service amount for '95 was 97.5 percent of projects filed with the MFRs. As for the '96 test year, Southern States has included only those projects that are carried over from 1995, the high priority projects, and blanket projects that respond to repair and replacement with the dollars based on historical levels for these type of projects. Therefore, I believe that we will continue to make the investments provided for in the MFRs. I do not believe that project slippage should be factored into the case, because historically for the four years '92 through '95, SSU has placed more plant in service than the projected total for those years. Also, Southern States' Witness Ms. Kimball will also provide testimony confirming that no adjustment slippage is appropriate.

In summary, Southern States has proven the credibility of the '95 and '96 plant-in-service amounts made in the MFRs. We have made the financial investments we have said we were going to make.

Q Does that conclude your summary?

A Yes, it does.

MR. ARMSTRONG: Thank you, Mr. Bailey. The witness is available for cross.

CHAIRMAN CLARK: Mr. Beck.

MR. BECK: Thank you, Madam Chairman.

CROSS EXAMINATION

BY MR. BECK:

Q Mr. Bailey, could you turn to your Exhibit SEB-2?

A Yes.

Q Would you accept that if you exclude the canceled or expensed projects, you list 44 projects there, is that correct?

A I thought that the number was slightly higher than that. I believe that number was 46. Excuse me, 49.

Q But if you exclude the expensed or canceled projects, it will be slightly less, will it not?

A Okay. That's fine, yes.

Q And would you accept that of the 44 projects that were neither canceled nor expensed, 31 of them were later than the projected date?

A Yes. But then that assumes that some of them were earlier, as well.

MR. BECK: That's all I have. Thank you.

CHAIRMAN CLARK: Mr. Jacobs.

MR. JACOBS: Just a few questions, Madam Chairman.

CROSS EXAMINATION

BY MR. JACOBS:

Q Mr. Bailey, what is your relationship to Mr. Goucher in a professional fashion in the company?

A In a professional fashion?

Q In the company, yes.
A We are co-employees.
Q All right, sir. And what are his responsibilities versus your responsibilities?
A Basically they are very similar with the exception that he has one region and I have a separate one.
Q All right, sir. His discussion earlier, and you were here present whenever he had his moment of --
A Yes, I was.
Q He talked earlier about priorities that the company has as to how they prioritize projects?
A Yes.
Q He talked about priority one was public safety?
A Yes.
Q And number two was regulatory --
A Yes.
Q -- requirements. He didn't remember the third and the fourth and the fifth, do you remember what those are?
A Yes, I have that here. Number one is safety, number two, regulatory mandated, number three, quality of service, number four, growth, and, number five, general improvements.
COMMISSIONER KIESLING: Could I ask a question on that?
WITNESS BAILEY: Certainly.

COMMISSIONER KIESLING: Where does maintenance fit in? Which of those categories would you call maintenance?

WITNESS BAILEY: Typically, I think that would be under general improvements.

COMMISSIONER KIESLING: So maintaining an improvement you have already put there is also the same as putting another improvement there.

WITNESS BAILEY: Well, let me read you the definition for general improvement, it may assist you. It says projects initiated to enhance operational efficiency. I realize this is very broad, but we are trying to keep these broad so that we can have some variability with it. A lot of other times with the operational projects, some of those improvements may also be included under quality of service. And, again, it's kind of a definition, who is doing the paperwork, who is assigning the priority.

COMMISSIONER KIESLING: Okay. And let me just ask you one more now that I've interrupted your train of thought. For example, one of the earlier witnesses talked about replacing a crumbling manhole.

WITNESS BAILEY: Yes, uh-huh.

COMMISSIONER KIESLING: And I guess, you know, in my way of thinking it seemed like that's a maintenance thing as opposed to a regulatory mandate. There is no rule that says you have to go out and fix that manhole, there is just

a rule that says you've got to keep it in good and proper running order.

WITNESS BAILEY: Yes. I think what happens is there has to be a judgment made, and the judgment is is this maintenance, or if something happens here and it fails, will it cause noncompliance, will it subject people to health, safety, and welfare concerns.

COMMISSIONER KIESLING: Okay. Thank you.

MR. JACOBS: Madam Chairman, may I proceed?

CHAIRMAN CLARK: Yes.

BY MR. JACOBS:

Q Mr. Bailey, you just made the statement, I know, and Commissioner Kiesling asked you that it's a judgment call, and if it's a general improvement it's also considered to be maintenance. And I think you said that it could be that is a mandatory requirement by the government, as well. Do all of these things -- I guess my question is do all of these things really fade into some grayness in a mass and become requirements of the government at sometime in their necessity of being done?

A No, I don't believe so.

Q Well, then you disagree with Mr. Goucher, who said earlier that growth really kind of pushes you into regulatory mandate, and growth and regulatory mandate can be the same justification?

A For growth, that is correct. When I answered your question I had envisioned the possibility of other improvements that would not be related to growth.

Q Well, you just said for maintenance as an example, maintenance, the water pipe has got to be -- if the water pipe starts leaking because it wasn't maintained properly, then the governmental authority gets in and then you go to fix it and you say we did that because the government mandated it.

A Yes, in some cases.

Q All right, sir. Whenever you get to quality, the quality of service, if the service breaks down so it's not quality service, then a governmental agency gets a phone call and they step in and all of a sudden that becomes governmentally mandated then, is that correct?

A In some cases, yes.

Q These priorities are set down by your company, is that right?

A Yes.

Q So it's a judgment call on your part?

A Yes.

Q And when it ceases to be a judgment call is whenever the government gets involved?

A Not necessarily, no.

Q Well, if the government says go fix it, you have

got to go fix it?

A In some instances, yes.

Q But if you had properly maintained it before the government got into it, then it would be within your discretion to keep it up and keep it going, right?

A In some cases, yes.

Q All right, sir. I guess the issue is is that there seems to be a lot of discussion here about the fact that you all are building and doing all of these things because of the government requiring you to do so, but isn't it true that whenever you have things like growth, you get more customers, isn't that true?

A Yes.

Q And so if, for an example, you needed 20 PSI at a maximum hourly demand, let's say that is the pressure required, and you had growth in the system and all of a sudden the 20 PSI goes away because you have more customers. Do you wait for the government to step in, or do you go ahead and fix it and then you have more people coming in to help pay for that, and don't you solve the problem that way without waiting for the government?

A In some instances, yes. And if you look back at the MFRs, and the improvements that are listed in the filing, you can see where those projects have been implemented and that type of thing.

Q So you implemented those projects without having the government mandate you do that, then, is that correct?

A That's correct.

Q So, these statements that have been made throughout this process that we did it because the government made us do it, that's not necessarily true, then is it? A lot of this work you do because you have made a judgment that it needed to be maintained, you made a judgment that quality control or quality service ought to be delivered, and you have made a judgment that growth is sufficient to cover the needs, is that not correct?

A And I think that's reflected in the filing.

Q All right, sir. And so the discussions by the President of Minnesota Power or Chairman of the Board and others that all of this problem that has put you on this edge of financial ruin is not just government requirement then, is it?

MR. ARMSTRONG: Objection. Madam Chair, I don't think that has been his testimony nor is there a factual predicate. The filing does lay out the different categories of capital expenditures and they are not all under regulatory requirement.

MR. JACOBS: I thought it was a fair question.

MR. ARMSTRONG: Without a factual predicate, that is my objection.

MR. JACOBS: Well, I don't know what you need for a factual predicate, Madam Chairman. We have had a discussion here about -- Mr. Bailey says that he couldn't really distinguish between growth and regulatory mandate because one kind of faded into the other. Now this witness is making -- I mean, Mr. Goucher said that, and now Mr. Bailey is making distinctions and saying, "Gosh, some of these projects we did because we thought in our judgment they ought to be done," and they weren't regulatory mandated. Now we have had converse testimony from the CEO of Minnesota Power that we are on the brink of ruin because of governmental requirements, and I'm just trying to get into the distinction here that is made by two different voices coming from the same place.

CHAIRMAN CLARK: All right. Give me your question again.

MR. BECK: Good luck.

CHAIRMAN CLARK: I think you may have combined a lot of thoughts into one question, and --

MR. JACOBS: And you want me to separate them out.

CHAIRMAN CLARK: Try to do that.

MR. JACOBS: I guess I will go back, and if you will bear with me, Mr. Bailey.

BY MR. JACOBS:

Q You have said that many of the projects in the

MFRs were done because you thought, number one, that the maintenance needed to be done, or you had growth sufficient to have expanded customer base to pay for it, or you wished to render quality service to your customers, and those are many reasons, or the reasons that you used for these many 45 projects, right?

A Yes.

Q So, you would disagree, then, with statements made earlier that this stuff you're having to do for improvements of your different facilities are all mandated by government requirements?

MR. ARMSTRONG: Objection. And that is the point of my objection, there is no factual predicate for that statement being made that it was all done for regulatory requirements. The information in the records shows 35 percent for regulatory requirement, 9 percent for safety, 35 percent for growth, the remaining is the other. There is no factual predicate for that statement and that question.

MR. JACOBS: I will withdraw the question.

CHAIRMAN CLARK: Okay.

BY MR. JACOBS:

Q Mr. Bailey, of the 35 percent that's done for growth, and the 35 percent that's done for regulatory requirement, do you sense growth edging into regulatory requirement, or is that a specific, distinct, absolute 35

percent for growth, and it's not to be confused that it is being fudged into the government requirement?

A Fudged?

Q Yes, sir, moved into that category.

A No, I don't believe that at all.

Q Okay. The improvements that are done in your venue, which include Amelia Island Utility Company, right?

A Correct.

Q Mr. Wright works for you there, I believe, doesn't he?

A Yes.

Q Okay. And you are doing those improvements in your work at Amelia Island, does that benefit inure to the benefits of a user located in Mr. Goucher's area?

A No, it does not. Not directly.

MR. JACOBS: Okay. No further questions.

CHAIRMAN CLARK: Mr. Twomey.

MR. TWOMEY: I don't have any questions.

CHAIRMAN CLARK: Staff.

MS. CAPELESS: Staff has no questions.

CHAIRMAN CLARK: Exhibits. Oh, redirect, excuse me.

MR. ARMSTRONG: No redirect. The company moves Exhibit 220.

CHAIRMAN CLARK: Exhibit 220 will be entered in

the record without objection.

(Exhibit Number 220 received into evidence.)

CHAIRMAN CLARK: Thank you, Mr. Bailey. Mr. Paster. You're excused, Mr. Bailey. Thank you.

WITNESS BAILEY: Thank you.

BRUCE PASTER

was called as a rebuttal witness on behalf of Southern States Utilities, Incorporated, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. ARMSTRONG:

Q Good evening, Mr. Paster.

A Good evening.

Q Do you have before you nine pages of prefiled rebuttal testimony in this proceeding?

A Yes, I do.

Q Do you have any changes to that prefiled rebuttal?

A Yes, I do.

Q Could you please give them now.

A On Page 3, Line 3, change the word "witnesses" to "witness." Line 4, strike the words "Bertram and." Line 6, change the word "their" to "his," and the words "the witnesses are," to "he is."

Q With those changes, if I asked you the questions contained in these nine pages would your answers be the

same?

A Yes, they would.

MR. ARMSTRONG: Thank you. Madam Chair, we request that the nine pages of prefiled rebuttal testimony of Mr. Paster be incorporated into the record as though read.

CHAIRMAN CLARK: It will be incorporated in the record as though read.

MR. ARMSTRONG: Thank you.

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is Bruce Paster, P.E. and my business address is 1000 Color Place, Apopka, Florida 32703.

Q. WHAT IS YOUR POSITION WITH SOUTHERN STATES UTILITIES, INC.?

A. I am employed by Southern States Utilities, Inc. ("Southern States") as Senior Engineer in the Planning and Engineering Department.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE?

A. I received a Bachelor of Science degree in Civil Engineering in 1984 from the University of Massachusetts. I have 8 years experience working for private consulting engineering firms in the water and wastewater industry and have been working for Southern States for the past three and one-half years.

In 1984, I began working as an Environmental Engineer with the consulting firm of Camp Dresser and McKee, Inc. in Boston, Massachusetts. Project assignments included analyses, planning, report writing and design of various water and industrial wastewater treatment facilities.

From 1986 to 1990, I worked as an Environmental Engineer for Camp Dresser and McKee,

Inc. in Orlando, Florida. I primarily was assigned to municipal wastewater projects including the analyses, preliminary and final design of wastewater collection, treatment and effluent disposal facilities.

From 1990 to 1992, I served as a Project Manager for Dyer, Riddle, Mills & Precourt, Inc. in Orlando, Florida. I was assigned to various water and wastewater planning and design projects for both municipal and private utility clients.

In September of 1992, I began employment with Southern States in their Planning and Engineering Department in Apopka, Florida. I am currently serving as a Senior Engineer with project management responsibilities for both water and wastewater facilities.

Q. WHAT ARE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a Professional Engineer registered in the State of Florida since 1989. I am a member of the American Society of Civil Engineers and the Florida Water and Pollution Control Operators Association.

Q. HAVE YOU EVER TESTIFIED BEFORE A REGULATORY AGENCY?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. During customer service hearings, several customers

expressed doubt that the majority of plant being placed into service by SSU was to fulfill regulatory mandates. Sugarmill Woods witnesses Bertram and Hansen also submitted pre-filed testimony raising similar allegations. It appears from their testimony that the witnesses are assuming that "regulatory mandate" is synonymous with "environmental justification". Although a regulatory mandate may be an environmental justification, it is not always the case. Attached as Exhibit _____ (BP-1) is a schedule identifying the regulatory mandate projects placed into service for the service areas under my responsibility.

Q. HAS SSU PRESENTED COMMISSION STAFF, PUBLIC COUNSEL AND THE OTHER PARTIES WITH PLANT IN SERVICE INFORMATION AS OF DECEMBER 31, 1995 WHICH IN YOUR OPINION VALIDATES SSU'S PROJECTIONS AND REBUTS PUBLIC COUNSEL'S SLIPPAGE ADJUSTMENT?

A. Yes. Exhibit _____(BP-2) provides a schedule identifying the actual plant placed in service by SSU in 1995 in the service areas under my responsibility. Only 8 of the 1995 projects were not completed. The total filed in service amount of these projects is $3,280,612 as compared to the total 1995 plant in service additions under my

responsibility of $5,849,023 projected in the MFRs. Of these projects, 2 have now been placed in service totaling $2,382,520. SSU witness Kimball addresses facts which demonstrate that Public Counsel's proposed slippage adjustment, which is premised upon plant in service completion dates, should be rejected.

Q. COULD YOU PLEASE IDENTIFY THE PROJECTS UNDER YOUR RESPONSIBILITY WHICH WERE INCLUDED IN THE MFRS FOR 1995 BUT NOT PLACED INTO SERVICE AS OF DECEMBER 31, 1995?

A. There are only eight projects under my responsibility which were not completed in 1995 but which either have been or will be completed in 1996. The projects are identified in Exhibit _____ (JDW-8). These projects include: in the Deltona Lakes service area, the Wellington water treatment plant expansion, the Agatha/Saxon water treatment plant improvements and the Sagamore Drive water treatment plant distribution system. Cumulatively, the projected 1995 cost of these three projects in the MFRs was $1,883,450. To date in 1996, the Wellington water treatment plant expansion project has been completed and was in service as of February 16, 1996 at a cost of $1,380,372, within

1% of the projected cost of $1,365,786 projected in the MFRs. The project actually was completed as of January 10, 1996, but booking to "in service" was delayed because of delays in receiving DEP clearance. The Agatha/Saxon water treatment plant improvements were completed in early March and are currently in the clearance process. A portion of the Sagamore project was cleared for service on December 11, 1995; the remainder of the project was requested for clearance on March 14, 1996 and is awaiting DEP acceptance.

The University Shores lead and copper control project was delayed because SSU is attempting to reduce costs by using in house labor to complete it. The equipment is on site and I have been informed that operations personnel have begun installation. Then DEP clearance will be required.

The hydropneumatic tank at Tropical Park was delayed due to local regulatory permitting issues. It is expected to be cleared as in service on April 30, 1996.

The hydro tank and new well for the Carlton Village service area is projected to be complete by March 31, 1996. The project was delayed due to difficulties experienced by the general contractor

including delays in receiving required electrical permits and bacteriological testing.

The water treatment plant and distribution improvements for the Silver Lakes Estates/Western Shores service area also were not placed in service in 1995 but were placed in service on January 29, 1996. The actual cost of completing this project was $1,002,148 as compared to the projected cost in the MFRs of $862,100. The project was delayed primarily due to a delay in delivery of the electrical control panel. Since the final cost of completing the project remains reasonable, SSU requests that the actual cost be considered by the Commission as an offset to any reduction, if any, to rate base so long as total revenue requirements are not increased.

The eighth project was the DHCC effluent easement project at the Glen Abbey Golf Course. SSU witness Carlyn Kowalsky will address this project.

Q. LOOKING AT EXHIBIT _____ (BP-2), ONE NOTES THE REFERENCE TO PROJECTS WHICH WERE EXPENSED. COULD YOU EXPLAIN THIS DESIGNATION?

A. Yes, the six lead and copper projects were completed in 1995. However, when SSU's

expense/capitalization criteria were applied, the people responsible for booking SSU's investment, which was projected at only $21,048, determined that the investment should be expensed, not capitalized.

Q. WERE ANY 1995 PROJECTS UNDER YOUR RESPONSIBILITY CANCELLED, AND, IF SO, CAN YOU TELL THE COMMISSION WHY?

A. Yes. Five projects under my supervision totalling only $54,315 were cancelled. SSU anticipated spending $13,290 to relocate facilities required due to a notification received by SSU from the Volusia County Department of Transportation ("DOT") for road widening projects. Volusia County and the DOT did not perform the road widening and notified SSU that the road widening would not occur. Therefore, SSU did not incur the costs and cancelled the project.

The Meredith Manor storage tank dome project and the Bay Lakes Estates water treatment plant building project were cancelled because, upon further investigation, it was determined that the existing facilities could be maintained. Therefore, the funds ($25,596) for these projects were used for other reprioritized projects.

Similarly, the Deltona Lakes valve replacement project for the water distribution system and the corrosion control equipment ($15,429) were cancelled due to scheduling conflicts brought on by reprioritizing available manpower for other critical projects.

Q. WERE THERE ANY PROJECTS COMPLETED IN 1995 UNDER YOUR RESPONSIBILITY WHICH WERE NOT PROJECTED TO BE COMPLETED IN THE MFR PROJECTIONS FOR 1995?

A. Yes. We completed and placed into service one project which was not included in the MFRs but was completed in 1995. The project is referred to as the Deltona Lakes Force Main Upgrade (95CC742). The in service amount for this project was $49,219. It is not unusual and in fact is to be expected that the necessity to complete projects not budgeted will arise during the course of the year as a result of inspections by environmental regulators, the imposition of new and unexpected permit conditions at permit renewal time, equipment failures or other similar circumstances. Due to the limitations on capital available to SSU, when projects like these arise, we typically review other projects under our responsibility to determine whether they can be cancelled or delayed

so that we can remain within the capital budget. Of course, if projects are mandated by public health or environmental concerns there might be no room for compromise on such projects. SSU requests that the actual cost of this project be considered by the Commission as an offset to any reduction that the Commission would make to rate base so long as total revenue requirements are not increased.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

BY MR. ARMSTRONG:

Q Mr. Paster, you're sponsoring two exhibits, BP-1 and BP-2, is that correct?

A That's correct.

Q And you have no changes to those exhibits?

A Correct.

MR. ARMSTRONG: Madam Chair, could they be identified with the next available exhibit number?

CHAIRMAN CLARK: The next available number is 211.

MR. ARMSTRONG: Thank you.

(Exhibit Number 221 marked for identification.)

BY MR. ARMSTRONG:

Q Mr. Paster, do you have a summary of your testimony?

A Yes, I do.

Q Could you provide that now, please.

A Yes, sir. The purpose of my rebuttal testimony is to respond to comments made in public hearings and intervenor testimony contesting the credibility of Southern States' MFR projections of plant additions. I want to make it clear that projects Southern States has included in the MFRs are, in fact, required by regulatory mandate. Projects and associated in-service amounts projected in the MFRs are reasonable and accurate, and adjustments for project slippage is not warranted.

I am the Senior Engineer for the Central Region of SSU. As such, I am responsible for capital improvements, assisting the operations department with certain aspects pertaining to project management. This includes ensuring public health, safety, and welfare, maintaining regulatory compliance, providing facilities necessary to meet minimum service levels, providing for growth of the facilities.

Regulatory compliance encompasses more than the environmental justification referred to by intervenor witnesses. Southern States must comply with all applicable rules, statutes, ordinances, and standards of federal, state and local jurisdictions. Compliance may include environmental concerns or non-environmental concerns. In the three and one-half years I have worked at Southern States Utilities, I have spent my time predominantly on projects which were required by regulatory agencies. Of the 64 capital projects for the central region included in the 1995 MFRs, only eight projects were not completed. Five projects were canceled, and six were completed but expensed. Of the eight projects not completed in 1995, five are now in service and two are expected to be in service by the end of this month.

As for the 1996 test year, Southern States has included only 1995 carry-over projects, high priority projects, and blanket projects such as renewal and

replacements which were projected based on historical levels of these types of projects. For these reasons we believe that Southern States Utilities will continue to make the investments provided for in the MFRs. I do not believe that project slippage should be factored into this case because historically for the four years, 1992 through 1995, reflected in this rate case, SSU has actually placed more plant-in-service than the projected total plant-in-service for these years. Southern States Witness Kimball will also provide testimony confirming that no slippage adjustment is appropriate.

In summary, Southern States has proven the credibility of the 1995 and 1996 plant-in-service projections made in the MFRs. Simply stated, SSU has made the financial investments we have said we were going to make. That concludes my summary.

MR. ARMSTRONG: Thank you, Mr. Paster. The witness is available for cross.

COMMISSIONER DEASON: Mr. Beck.

MR. BECK: Thank you.

CROSS EXAMINATION

BY MR. BECK:

Q Mr. Paster, we have received an inquiry from the Imperial Terrace West Homeowners Association about a well that you project to place into service in 1996. Are you

familiar with that project?

A Yes, I am.

Q What is the status of that project?

A At this time we have done a preliminary investigation and preliminary design for the construction of a second well, an emergency back up well for that system. We have also looked at other alternatives. A much more efficient alternative than construction of a new well would be to interconnect with the City of Tavares, a utility abutting our small service area. We are still in negotiations with the City of Tavares. If we are unable to negotiate with them for an interconnect, we would then proceed with the construction of a new well.

Q When do you expect to finish your negotiations with the City of Tavares?

A I'm expecting this summer to know one way or the other from the City of Tavares whether they will be willing to allow us an interconnect with their system.

Q And you said that if those negotiations are unsuccessful you are going to go ahead and drill a well there, is that correct?

A At this time, yes, that is our plan.

Q Where in proximity to the Imperial Mobile Terrace location is your back up well that you propose to drill?

A The proposed area, we have looked -- right now

there are two areas we are looking at. One is to purchase a plot of land adjacent to our service area from a large land owner. We would purchase approximately two to three acres in that area, and then run piping into our service territory. Another option would be to purchase a number of mobile home sites in that area. The problem there being the location, the proximity of existing septic tanks in that area. And, of course, the third option is the one I have mentioned, an interconnect which would probably be less than half the cost, approximately a third of the cost of drilling a new well.

Q Can you express any opinion as to the likelihood of which course will wind up being taken?

A Well, I'm hoping that the interconnect will work, and that the City of Tavares will agree that that is the most prudent solution for this situation.

Q And if that does not prove to be successful, what is the likelihood of completing a new well during 1996, in your opinion?

A I think it would be difficult right now. I think we would try to get it in by December. We would have to go through the permitting process first, and it would be -- I think it would be very close. I think for this project we are hoping to find a better solution, a more cost efficient solution, and for that reason that we are holding off on

that.

Q Could you turn to your exhibit to your testimony?

A Uh-huh.

Q Exhibit BP-2, and I believe you said in your summary, if I heard you right, that there are 64 projects listed there, is that correct?

A Yes, sir.

Q And 11 of those have either been canceled or expensed, is that correct?

A Yes, sir.

Q That leaves a balance of 53 projects?

A That's correct.

Q And would you agree with me that of those 53 projects, 38 were placed in service after the projected in-service date?

A I haven't made that count.

Q Would you accept that subject to check?

A Yes.

Q I have placed a copy of Exhibit 218 by you when you came up there. Do you have that there?

A Yes, I do.

Q Could you turn to your section of that exhibit, which is, I believe, on the back of Page 4 that is written in the upper right-hand corner, and on Page 5?

A Yes, sir.

Q Do those show projects for which you are responsible?

A Yes, they do.

Q Okay. And this is the status of those projects as of the end of March of 1996, is that right?

A That's correct.

Q And am I reading correctly on Page 5 that for the central region through the end of March of 1996, the actual direct spending was $253,735 out of a total authorization for the year of $2,039,098, is that right?

A That number is a direct spending number, not a plant-in-service number for central region or for 1996. My understanding is the plant-in-service number for the company is already at approximately 30 percent or $4.6 million. My understanding is by the end of this month plant-in-service in 1996 will be approximately $9.2 million dollars or 60 percent. This number that you're looking at, the 253 is a spending number, not a plant-in-service number.

MR. BECK: I move to strike the answer as being non-responsive to my question.

COMMISSIONER DEASON: Mr. Armstrong.

MR. ARMSTRONG: I think he responded to the question. The question related to an exhibit which reflects spending, not plant-in-service, and I don't know if that -- I mean, what the witness was clarifying was that this

reflects spending, not plant-in-service.

COMMISSIONER DEASON: I will let the answer stand, Mr. Beck. You may re-ask your question to get further clarification.

BY MR. BECK:

Q This exhibit on Page 5 shows the spending, direct spending of the numbers that I just cited to you, is that correct?

A That's correct.

Q And if I'm reading that correct, or would you accept subject to check that that reflects 12.4 percent of actual through the end of March compared to the total amount authorized for 1996?

A Yes.

MR. BECK: Thank you, Mr. Paster. That's all I have.

COMMISSIONER DEASON: Mr. Jacobs.

CROSS EXAMINATION

BY MR. JACOBS:

Q Mr. Paster, now the projects that we are talking about here that are within the year or the 13 months that we are talking about here, what is the number of those projects now?

A I'm sorry, which projects are you referring to?

Q What are the numbers of projects now that you're

talking about that you all are trying to get some adjustments here for? What is the number, is it 64 projects, is it 53 projects, how many projects are we talking about?

A I'm not sure I understand the question.

Q Mr. Beck asked you a question of those projects which ones were finished by a certain date, and you said 53 projects.

A 64 projects are the number of projects that were filed in 1995, plant-in-service additions.

Q All right. And that is the one you're seeking to have your adjustment based on, is that right?

A I'm not sure.

Q Let me ask it another way, then. Let's say the number is 64, how many of those projects are you doing because some mandate of a regulatory agency?

A I don't have the breakdown in front of me. I'm assuming it would be similar to the rest of the company. The breakdown that I've heard in testimony is approximately 35 percent.

Q So, in other words, 22 projects of that amount you're saying are done because of regulatory mandate?

A If that's what it works out to, yes.

Q Mr. Paster, in the central district, do the improvements that you're doing, let's say there are 64 of

those, those 64 improvements, do any of those inure to the benefit of folks that are in Mr. Bailey's district directly?

A I believe they do, yes.

Q And how do they do it directly?

A I believe indirectly they all do in that any time that a lot of these projects are to stay in environmental compliance to help the environment, to help -- the testimony I have heard that we all share the same aquifer, and that if we are doing projects to protect that aquifer here it does help not just Mr. Bailey, but other customers of ours and other citizens in Florida.

Q So it's your testimony that somebody who is connected to Amelia Island receives direct benefit from money you're spending down in Central Florida?

A Indirect benefit, yes, and I would have to think about --

Q I said in direct benefits.

A A direct benefit?

Q Yes.

A I would have to think further on that.

Q You would have to do what?

A I would have to think further on that.

Q You couldn't give me yes or no?

A No.

MR. JACOBS: No further questions.

COMMISSIONER DEASON: Mr. Twomey.

MR. TWOMEY: I have no questions.

COMMISSIONER DEASON: Staff.

MS. SUMMERLIN: No questions.

COMMISSIONER DEASON: Commissioners. Redirect.

MR. ARMSTRONG: No redirect.

COMMISSIONER DEASON: Exhibits.

MR. ARMSTRONG: The company moves Exhibit 221.

COMMISSIONER DEASON: Without objection, Exhibit 221 is admitted.

(Exhibit Number 221 received into evidence.)

COMMISSIONER DEASON: You may call your next witness.

MR. FEIL: The next witness would be Rafael Terrero.

RAFAEL A. TERRERO

resumed the stand on behalf of Southern States Utilities, Incorporated, and having previously been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. FEIL:

Q Are you ready now, Mr. Terrero?

A Yes, sir.

Q You were sworn when you were testifying on direct, were you not?

A That's correct.

Q Could you state your name for the record, please.

A My name is Rafael Terrero, T like in Thomas, E-R-R-E-R-O.

Q And you are the same Rafael Terrero who testified on direct in this case, correct?

A That's correct.

Q Are you the same Rafael A. Terrero for whom prefiled testimony was filed in this case, prefiled rebuttal testimony consisting of 74 pages?

A That's correct.

Q Do you have any changes or corrections to that testimony?

A Yes, I do. I have Page 4, Line 17, change "channel" to "pipe." I have Page 13, Line 11, change "updated" to "upgraded." Page 21, Line 13, should read, "Mr. Biddy has not." Page 28, Line 4, remove "where". Page 31 --

Q Excuse me, I didn't catch that last one. That was Line 4, Page 28?

A That's correct.

Q And what was the word?

A Where. Copies of, remove where.

Q Delete where, okay.

A Delete where, right. Page 31, take out reuse.

COMMISSIONER KIESLING: What line?

WITNESS TERRERO: Line 13, I'm sorry.

A (Continuing) Page 51, Line 13, that line should read, "Tank remained in service until recently." That is all the changes I have.

Q With those corrections, if I asked you the questions in your prefiled written rebuttal today would your answers to them be the same?

A Yes, sir.

MR. FEIL: Commissioner Deason, I ask that Mr. Terrero's prefiled rebuttal be inserted into the record as though record.

COMMISSIONER DEASON: Without objection, it will be so inserted.

Q. ARE YOU THE SAME RAFAEL A. TERRERO WHO PREVIOUSLY FILED DIRECT TESTIMONY?

A. Yes, I am.

Q. HAVE YOU REVIEWED THE PREFILED DIRECT TESTIMONY OF TED BIDDY, BUDDY L. HANSEN, HUGH LARKIN, JR., DONNA DERONNE, MICHAEL WOEFFLER, ALBERT E. BERTRAM, KIM DISMUKES, AND WITNESS FROM ENVIRONMENTAL AGENCIES?

A. Yes, I have.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. My rebuttal testimony will focus primarily on three areas: (1) addressing Staff witness Dodrill's assertions regarding the 212 acres SSU purchased in Collier County; (2) addressing Public Counsel witness Biddy's proposed adjustments to the used and useful levels indicated on SSU's MFRs; and (3) addressing the comments of the witnesses from the Department of Environmental Protection, which I will refer to as DEP, and other regulatory authorities concerning SSU's compliance with applicable rules at each of our service areas.

Q. DO YOU AGREE WITH STAFF WITNESS DODRILL THAT THE MAJORITY OF THE 212 ACRES PURCHASED BY CONDEMNATION FOR FUTURE WATER SUPPLIES SHOULD BE TREATED AS NON-UTILITY PROPERTY?

A. No, for several reasons. First, the property

acquired not only includes the lakes but also the property upon which SSU's pumping facilities and water lines are located to withdraw the water and transport it to Marco Island. The lakes would have been useless to SSU if we did not purchase the adjoining land upon and through which these facilities are located. To understand this point, please understand that SSU would not have been able to use any of the facilities on the adjoining property without paying the Colliers for the property upon which they are located as the Colliers expressly stated that they did not wish the lease to continue. The area which SSU purchased adjacent to the lakes also acts as a recharge area for the lakes water supply during periods of heavy rain.

Another reason the adjacent area was acquired was to protect the water source from potential pollution sources. It is estimated that all of the acquired area is necessary to protect the surface water supply from spills on the highway, developers (including the Collier family from whom we purchased the property), commercial properties that could be considered industrial pollution contributors, etc. The property also will be the

site where water supplies from sources such as the 160 acres will be combined, stored and re-pumped to Marco Island.

SSU and our legal, engineering and land appraisal experts determined that the purchase of 212 acres was the optimum way to protect the quality of its water supply to Marco Island in the most economical way. All of the area acquired replenishes the water supply and keeps the drawdown at a level that regulatory agencies require in order to protect the supply from saline water intrusion. Also, as SSU witness, Robert Dilg, Esq. will testify, if the area adjoining the lakes had not been acquired, SSU potentially would have been forced to incur additional costs above the $8 million to secure the property from development and protect the lakes.

Also, SSU realized that the site was the best location for the Aquifer Storage and Recovery facility which is being constructed on the site. Exhibit _____ (RAT-3) provides a map identifying the purchased parcel, the ASR site and the lakes. Construction of the ASR facility on this site was the most economical as well as the most technically strategic placement of the facility. As

demonstrated by the rings which surround the ASR well on this map, the concentration of water placed in the ASR well will confirm that the total site is needed to protect SSU against the possibility of other entities, such as the Colliers or their licensee from drilling wells in this area and tapping our stored ASR water supplies.

Q. ARE THERE ANY OTHER REASONS WHY THE BALANCE OF THE ACREAGE AT THE CONDEMNED COLLIER LAKES PARCEL SHOULD NOT BE CONSIDERED NON-UTILITY AND, THUS, NON-USED AND USEFUL?

A. Yes. The strategic placement of this site is evidenced by the fact that the Henderson Creek passes the site and water from the creek will recharge the source of the water and enable us to use the excess water to be stored in the ASR facility. Also, SSU plans to channel the water SSU will obtain from the 160 acre (Section 35) site into the Collier Lakes and the ASR well. If the Collier Lakes and surrounding property had not been purchased by SSU, SSU would have incurred additional costs to acquire a site for the ASR facility, if such a site could be located -- and, almost certainly, no other site would have been so strategically located. Also, if the purchase had

not been made, SSU would have had to install additional pipelines from the 160 acre site to SSU's transmission facilities because SSU would have lost the pipe on the Collier Lakes property which we will now continue to use to transport the water to our existing transmission facilities. SSU will be saving a great cost to our customers by locating the ASR facility in this area and using the existing pumps and piping to convey the water needed to be delivered to the ASR well and ultimately Marco Island.

Q. DO YOU AGREE WITH MR. BIDDY'S TESTIMONY IN REFERENCE TO MARGIN RESERVE?

A. Definitely not. It is apparent that Mr. Biddy has not been exposed to the regulatory constraints and third party opposition confronting investor owned utilities, even though he expresses concern on page 3, lines 19 and 20, of his testimony that "the utilities may have to expand WWTP quickly."

Q. DO YOU FEEL THAT WATER TREATMENT PLANTS SHOULD FOLLOW THE SAME PLANNING STRATEGIES AS THOSE OF WASTEWATER TREATMENT FACILITIES?

A. Yes. On Page 4, line 2, Mr. Biddy appears to assume that because it is a water plant to be added, there should not be a planning period for

it. Due to the Commission's existing used and useful policy, the utility is discouraged from having available sites in inventory for future facilities. It is our position that in most cases, due to factors such as land acquisition, zoning changes, site constraints, third-party opposition, etc., it will take a long time to obtain permits and design facilities, which may not only include treatment facilities, storage facilities, etc. but also transmission and distribution improvements and pumping facilities to deliver water where demanded. Regulatory agencies are presently requiring that information be provided at permit application and renewal time for water plant capacities similar to that provided for wastewater facilities in the Capacity Analysis Reports. Presently, this information is being requested by the Central, Northeast and Southwest Districts of the Department of Environmental Protection, which I will refer to as "DEP," when construction permit requests are submitted by utilities for approval.

Q. MR. BIDDY'S OPINION AT PAGE 4 OF HIS TESTIMONY THAT SSU'S PLANNING STAGES FOR THE MARION OAKS FACILITY ARE PRUDENT. COULD YOU DESCRIBE THE DATES AND CAPACITY CHANGES FOR EACH PHASE OF THE PLANNED

MARION OAKS PLANT EXPANSION?

A. Yes. The Phase 3-A expansion to 0.275 MGD would be in service by 2003. The Phase 3-B expansion to 0.350 MGD would be in service by 2019. The Phase 4 expansion to 0.500 MGD would be in service by 2050. The Phase 5 expansion to 1.000 MGD would be in service by 2085.

Q. DOES THIS SHOW THAT BUILDING IN PHASES RECONFIRMS THE NEED FOR MARGIN RESERVE?

A. Yes. These planning stages include margin reserve periods for Phases 3A through 5 as follows:

Phases 3A to 3B	16 years
Phases 3B to 4	31 years
Phases 4 to 5	35 years

As can be seen by this example, Mr. Biddy's acknowledgement that this is the prudent way to expand plant provides compelling confirmation of the tremendous need for economies of scale, discussed further in Mr. Hartman's rebuttal testimony, and the need for a margin reserve period to recognize such economies.

The utility, under present Commission used and useful policy, is discouraged from proceeding with plans such as the prudent plan for Marion Oaks. This type of planning has not only been provided

for Marion Oaks but for other plants as well, such as Citrus Springs, Sugarmill Woods and Spring Hill. These master plans represent the most economical plans for our customers, but again, due to existing used and useful policy, this will not be the way any utility could proceed to construct plant until the antiquated rules are revised to allow recovery and a rate of return on the associated investment in such facilities.

Q. SHOULD FIRE FLOW REQUIREMENTS BE CONSIDERED IN THE USED AND USEFUL CALCULATIONS?

A. Yes. Contrary to what Mr. Biddy suggests, fire flow capacity should be included in used and useful calculations for any plant where fire flows have been included in the design. For example, the Citrus Springs water distribution system was designed for fire flows, but SSU is not responsible for the installation of the hydrants. Even though the hydrants have not been installed, allowance for fire flows should be allowed. Public Counsel witness Biddy states on Page 6, line 7, "If a system is not designed or proven to provide required fire flow, it is dangerous and unfair to assume the fire flow requirement in used and useful analysis." Thus, Mr. Biddy recognizes that when

the distribution system has been designed to provide fire flow, it is only fair to the utility to consider this flow in the used and useful calculation. Again, the utility is not encouraged by existing used and useful rules to provide the excess capacity required for fire flow since it is not known when fire hydrants will be added to the distribution system.

Q. DO SMALL WATER DISTRIBUTION SYSTEMS WITHOUT A STORAGE TANK HAVE FIRE FIGHTING CAPABILITIES?

A. There are some small distribution systems that have fire fighting capabilities such as our Point 'O Woods plant, where the fire flow is obtained from a single well and there are no large storage facilities. There are other small facilities at which storage is available but not in quantities sufficient for fire storage, however, the facilities have been designed to provide fire flows. An example of such a facility is Fox Run.

Q. HOW DOES AWWA MANUAL M31 ACCOUNT FOR RATES OF WATER USE?

A. Page 16 of AWWA manual M31 addresses the water demands in a water system as follows:

"RATES OF WATER USE

Three historical or predicted water

demand rates are involved in the discussion of fire protection. They are:

Average daily demand--the average of the total amount of water used each day during a one-year period.

Maximum daily demand--the maximum total amount of water used during any 24-h period in a three-year period. (This number should consider and exclude any unusual and excessive uses of water that would affect the calculation.)

Maximum hourly demand--the maximum amount of water used in any single hour, of any day, in a three-year period. It is normally expressed in gallons per day by multiplying the actual peak hour use by 24.

Where specific data on past consumption are not available, a good rule of thumb is that maximum daily demand is 1.5 times the

> average daily demand, while the peak hourly rate may vary from **two to four times** the average daily rate. In small water systems, peaking factors may vary significantly higher than this.
>
> Design flow should be based on the maximum hourly demand or the maximum daily demand plus the fire flow requirement, whichever is greater. The distribution system should be designed to maintain a minimum pressure of 20 psi at all points in the system under all conditions of design flow."

Mr. Biddy suggests that page 33 of the Manual supports his proposition that reliability considerations should not be part of the used and useful equation. However, I have reviewed page 33 of M-31 and have found that the Manual states as follows:

> " Major System Components
>
> Specifying the reliability required for major transmission mains, pump stations, and storage tanks is difficult because the outage of any

one of these components can affect a large area. Furthermore, the chance that a fire will occur during an outage of one of these components is considerably higher than during an outage of local lines. The rule for determining reliability of these components is that all required fire flows be delivered downstream, even when one of these major components is out of service. In the case of pumps, the impact of loss of power to the pumps for an extended period of time needs to be considered and planned for. However the system should be designed to provide some water at 20 psi."

It should be clear from this passage that Mr. Biddy's proposition that the Commission ignore reliability criteria for purposes of used and useful analysis is in direct conflict with design criteria reflected in the Manual.

Q. DO YOU AGREE WITH MR. BIDDY'S SUGGESTION THAT THE CAPACITY OF THE BEACON HILLS WASTEWATER TREATMENT PLANT UNDER PERMIT NO. DO16-213087 IS INCORRECTLY

STATED IN THE MFR'S?

A. No. Existing operation of the plant in the extended air mode results in a the 0.836 MGD capacity of the existing plant.

To operate this plant in the contact stabilization mode, investment in additional facilities would be needed to comply with existing regulations and meet class III reliability, which includes among other things, an additional clarifier, dual chlorine contact chambers, etc. Even if this plant were to be updated for the additional capacity, no adjustment of used and useful should be done since the cost incurred for tankage in the extended air mode is the same as for contact stabilization mode with no increase in cost to our customers for the tanks. This is an example of economies of scale at its best.

Finally, SSU should not be penalized by a hypothetical increase in the plant capacity.

Q. IS MR. BIDDY'S STATEMENT ON PAGE 8, LINES 21 AND 22, IN REFERENCE TO ERP PERMITS CORRECT?

A. No. The 1993 Environmental Resources Permit, which I will refer to as the ERP program, does not consider the combination of construction and operation permits. The ERP is a combination of the

wetlands and dredge and fill permits and surface water management.

Chapter 62-620 Wastewater Facilities Permitting, implemented in November 1994, incorporates the delegation of the EPA NPDES permit to the DEP which resulted in a single permit to be issued for construction and operation of wastewater facilities.

Q. DO YOU HAVE ANY COMMENTS CONCERNING MR. BIDDY'S PROPOSALS FOR USED AND USEFUL DETERMINATIONS RELATED TO WATER SUPPLY WELLS, STORAGE AND HIGH SERVICE FACILITIES?

A. Yes. I disagree with Mr. Biddy's methodology in reference to the "firm reliable capacity" method of facilities with storage and pumping facilities.

It should be noted that mechanical equipment will fail at the "worst possible time" and this is not limited to one component. In instances where demands are in excess of the capabilities of the equipment, it very well may be that in order to keep the system above 20 p.s.i., it is stressed to the maximum; then, if extended, the equipment may fail.

Q. DO YOU AGREE WITH MR. BIDDY'S USE OF A 1.3 RATIO OF PEAK FLOW TO MAXIMUM DAY DEMAND?

A. No. The size of the facilities operated by SSU are such that it will require a larger ratio as shown on AWWA M31, Page 16, which specifically states, "... a good rule of thumb is that maximum daily demand is 1.5 times the average daily demand, while peak hourly rate may vary from two to four times the average daily rate. In small water systems, peaking factors may vary significantly higher than this."

Q. WHAT WERE THE METHODS USED TO DESIGN STORAGE FACILITIES IN MOST OF THE ORIGINAL SYSTEMS?

A. The rule of thumb method was to have a maximum day capacity available as storage.

Even though in the original design the term "emergency storage" was not used as such, when you analyze the proposed rules and compare them to the original design, it is obvious that emergency storage was included in the design. Recent experience has confirmed that this design was prudent and necessary. During a Marco Island raw water main break emergency, it took the cooperation of the media and the residents to limit their usage during a period of time in which SSU was able to provide service by utilizing full production from our R.O. plant. At other facilities where we have

installed less than maximum day storage due to used and useful considerations, we have been able to satisfy fire flow demands, but we also have, on occasion, had some areas with less than 20 p.s.i. during fire flow demands due to lack of storage facilities. In such situations, we have had to serve boil water notices to our customers. Please understand that even in these situations SSU always has been able to provide the necessary fire flow to put out the fire.

Q. DO YOU AGREE WITH MR. BIDDY'S STATEMENTS ON FACILITY LANDS?

A. No. All lands occupied by any facility should be 100% used and useful. The utility has been diligent in acquiring the land necessary to provide service to its customers in a prudent process. Under the existing rules, the utility has no incentive to acquire any more land than is necessary--although master planning might otherwise suggest land should be acquired ahead of time. For example, SSU acquired a raw water supply site in Collier County at a cost of approximately $240,000 in 1984. This location was acquired to provide a source of supply to meet future demand. SSU has not obtained any return on this investment even

though this site was used to store sludge from the lime softening treatment plant at Marco Island, which saved a lot of money for existing customers.

SSU's predecessor, after having one of the first groundwater models for Marco Island, found that the build out demands were going to be 5 MGD in addition to the then existing facilities. In looking out for the existing customers, since they will share this water with future customers, SSU acquired the 160 acre site after testing the site for water quality and quantity. This site was selected to be developed at a later date due to its distance to our existing facilities and due to the utility's desire not to expend money unnecessarily. The utility actually evaluated different alternatives to provide water to the Island but was not successful in obtaining them. SSU provided information identifying these alternatives in detail to all parties in response to FPSC Interrogatories 43, 298 and 341; OPC Document Request 33; and OPC Interrogatory 290. As I will discuss, we are in the throes of developing the 160 acre water supply source at this time. If SSU did not already own the property perhaps SSU would be required to secure additional property in the area

which, as demonstrated by the Collier Lakes condemnation, is not an easy or inexpensive process. Since the 160 acres is in SSU's land inventory, we and our customers are saved from a potentially expensive outlay of funds.

Q. DO YOU AGREE WITH MR. BIDDY'S STATEMENTS REGARDING HYDRO TANKS AND AUXILIARY POWER?

A. No. All hydro tanks and auxiliary power should be 100% used and useful since they have been installed for surge suppression and to avoid disruption of service from broken water distribution mains. Standby power to provide and maintain a reliable level of service is required by FPSC and by DEP regulations.

In addition, standby power equipment has been designed to meet the minimum loading characteristics of our facilities and in most cases this equipment has been phased in order to provide the least amount of power required to meet the needs of each plant.

Q. IS IT REQUIRED THAT MARCO SHORES WATER TREATMENT PLANT PROVIDE STANDBY POWER?

A. Yes. Marco Shores serves more than 350 people, so standby power should be installed to provide the reliability required by DEP Regulation

62.555.320(6). Please refer to Exhibit _____ (RAT-4).

Q. DO YOU AGREE WITH MR. BIDDY'S ANALYSIS CALCULATING THE USED AND USEFUL PERCENTAGES OF WATER TRANSMISSION AND DISTRIBUTION SYSTEMS?

A. No. The hydraulic analysis method is a tool not only used to evaluate the most economical distribution system but is also versatile in evaluating the flow through pipes during any condition. Hydraulic analyses have been performed either manually when computers were scarce, to presently, when the evaluation of a system can be completed economically with desktop computers in a fraction of the time that was required in the 1950's, 60's and 70's.

Hydraulic analysis has been used not only for modeling flow in pipes but also to model water quality behavior within drinking water distribution systems. It tracks the flow of water in each pipe, the pressure at each junction, the height of water in each storage tank, and the concentration of a substance throughout a distribution system during multi-time period simulation. In addition to substance concentrations, water age and source tracing can also be performed. In addition to the

above-mentioned multi-task of a hydraulic analysis, hydraulic flow modeling can be used to measure used and useful in a simple and accurate way. The four systems submitted in the MFRs were originally designed the same way with fire flow considerations and as such should be analyzed with fire flow capabilities throughout the territory. The distribution systems were designed at an early stage of the development, were constructed under the same specifications and were installed in accordance with the original design. Minor revisions have been done through the years to optimize the system or accommodate growth and economic efficiency.

The original developers intended to prevent scattered development, but since most of the lots sold were to people from different states and countries, it was/is very difficult to manage the growth of any Florida community. All or virtually all of the lots in Citrus Springs, Pine Ridge and Marion Oaks have been sold by Deltona Corporation, and Sunny Hills has a remainder of 12,000 lots to be sold of the original, 35,000 or so lots. As mentioned above, the lots were sold in groups in order to phase the growth, but as we all know, the

people who bought these properties probably will not retire and build homes at the same time, or move to their property in the same order that Deltona's original development plan suggested.

It is the responsibility of the utility to serve its customers in the most economical way possible, but at the same time have a reliable source where the quality of the water service is monitored to meet federal, state and local regulations.

Q. HAS MR. BIDDY ANALYZED THE COST TO SERVE THE 100 HOMES REFERRED TO ON PAGE 16, LINES 5 THROUGH 20?

A. No. Mr. Biddy has presented an economic analysis of the costs to 100 homes for a water distribution system to serve 1,000. I just pointed out that Mr. Biddy has looked at a case where 10% of lots are connected. what about areas where 70 of 100, 80 of 100 or 90 of 100 lots are connected? Can anyone reasonably suggest that pipeline in front of these connected houses are at all non-used and useful simply because 1 to 3 lots of every 10 are not connected? To get back to Mr. Biddy's example, Mr. Biddy also is assuming that the development is a planner's dream and has developed in the form of a mushroom, which is not a realistic pattern for

development. It should be noted that the utility must follow regulations in that if fire flows are mandated by local or state regulations, we must comply and design the system for fire flow capabilities. It is an engineering and utility goal to provide the quality of service which meets the demands of customers and regulatory agencies. Serving one of five lots does not mean that service can be provided with a garden hose to the one connected lot. A 1/2" garden hose probably could serve the domestic needs for a 50 foot long service, but at what cost? What about lawn irrigation? If the customer has an irrigation system, the demand could be 15 to 35 gpm, with a low pressure sprinkler system, at approximately 35 p.s.i.

The distribution system should be able to provide fire flows if designed to handle fire demands, and it should not be based on the number of connected lots. If fire service is designed, then at the time the utility serves so much as one customer, fire flows should be adequate. By today's used and useful rules, there is little incentive to design adequately for fireflow.

Q. DO YOU AGREE WITH MR. BIDDY'S COMMENTS ON PAGE 17,

REGARDING THE COMPLEXITIES OF HYDRAULIC MODELING?

A. No. Hydraulic analysis modeling is a very simple setup, and will save the utility tremendous time and effort to provide good service. In fact, as pointed out by Mr. Biddy, Page 15, lines 7, 8 and 9, "The hydraulic analysis method indeed is a reliable design tool for designing water transmission and distribution systems." Included as Exhibit ____ (RAT-5) are copies of 2 loops manually computed for Marco Island done in 1964. This manual task appears to have taken approximately one week to perform. With today's programming and computers, a network of approximately 50 loops and 150 pipes could be completed in approximately 4 hours; this task would have taken months to complete in the old days and perhaps this is what Mr. Biddy is referring to. Please refer to Exhibit _____ (RAT-6).

The purpose of the hydraulic modeling is, "the basis for preliminary design in terms of sizing and phasing new facilities and maximize the use of existing facilities." Please refer to Exhibit _____ (RAT-7).

Q. WHAT METHOD WAS USED TO ORIGINALLY DESIGN THE DISTRIBUTION SYSTEMS MODELED IN THE MFR'S?

A. The program used originally was a mainframe program entitled, "Water Flow In A Pipe Network By Hardy Cross Solution," by D. R. Wood. Please refer to Exhibit _____ (RAT-8). It should be noted that the author of this program actually improved the system to publish the "Kentucky Pipe" hydraulic analysis used by most utilities, consulting engineers, etc. "Kentucky Pipe" rights were sold to Cybernet and presently the Cybernet analysis is the "Kentucky Pipe" with Auto Cad integrated to make it more versatile.

Q. DO YOU AGREE WITH THE LOT COUNT METHOD FOR ANALYSIS OF USED AND USEFUL?

A. No. The lot count method does not follow engineering methodology at all; it only addresses density without consideration of properly sized distribution systems which must comply with federal, state and local regulation including fire flow regulations. The lot count method does not take advantage of the economies of scale principle. In other words, this method is antiquated and counterproductive to good engineering results for our customers. In the end, if utilities design facilities under the lot count principle, the results will be ineffective construction costs to

our customers and unreliable service.

Q. HOW SHOULD EXCESS INFLOW AND INFILTRATION BE EVALUATED?

A. Infiltration and inflow should be evaluated in accordance with EPA Handbook, "Sewer System Infrastructure Analysis and Rehabilitation." EPA/625/6-91/030. Please refer to the pertinent excerpt in Exhibit _____ (RAT-9). This addresses the most economical method of analyzing infiltration/inflow to the system. Any facility not exceeding these limits should not be penalized in the used and useful analysis.

Q. HAS THE 160 ACRE RAW WATER SUPPLY SITE OF MARCO ISLAND BEEN EVALUATED IN REFERENCE TO ITS CAPACITY?

A. Yes. The 160 Acre, Section 35 raw water supply has been evaluated as to the capacity of water that the utility will be able to withdraw from the site. Copies of these studies have been submitted to all parties in this proceeding. This parcel should be 100% used and useful since permitting is at an advanced stage and construction of this facility will commence as soon as permits have been obtained.

The water obtained from the 160 acres will be combined with that of the existing raw water lakes

in order to meet demands on the island. In addition, during the wet season, the additional water available will be stored in the Aquifer Storage and Recovery (ASR) facilities being constructed at this time at the Collier raw water lakes site.

It is of utmost importance to finalize the permitting of the 160 acre site in order to provide the additional raw water to create a freshwater lens that will provide the quality of water that our lime softening facility is capable of treating.

Q. DO YOU DISAGREE WITH MR. BIDDY'S STATEMENTS ABOUT EFFLUENT REUSE FACILITIES NOT BEING 100% USED AND USEFUL?

A. Yes. We agree with Richard Harvey, former Director of the Water Facilities Division of DEP, that all effluent reuse facilities should be considered 100% used and useful. The facilities serving Marco Island and Marco Shores have been permitted by all regulatory agencies and they match the capacity of the wastewater treatment plant and should be 100% used and useful.

To demonstrate what facilities are included as reuse facilities, I will describe the additional facilities required at Marco Island to supply reuse

to the golf courses on Marco Island and at Marco Shores as well as the Marco Island median. Those facilities include the following: (a) equalization basin; (b) automatic screens; (c) dual aeration tanks; (d) dual filters; (e) dual chlorine contact chambers; (f) substandard ponds; (g) injection well; (h) monitoring equipment (chlorine residual, turbidity); (i) pumping facilities; (j) transmission mains; (k) booster stations; (l) percolation ponds; and (m) standby power.

The utility must manage the different effluent disposal areas in order to be able to dispose of the effluent in accordance with regulatory requirements. To provide a more economical way of disposing of the effluent, when the golf courses are not using the reclaimed wastewater at Marco Island, it is pumped into the injection well in order to save energy and costs. Ms. Kowalsky will address the plans to use reclaimed water on other sites which will decrease the disposal of wastewater into the injection well in accordance with new directions from the regulatory agencies, environmentalists and most of all concerned citizens' groups.

Q. SHOULD THE MARCO ISLAND INJECTION WELL BE

CONSIDERED 100% USED AND USEFUL?

A. Yes. The Marco Island injection well should be considered 100% used and useful. SSU has provided FPSC copies of where the permitted capacity of the existing well. The injection well presently disposes the concentrate from the R.O. water plant and also serves as a backup to the reuse facilities in case of inclement weather.

The injection well has provided the utility with an ultimate disposal during times of inclement weather and avoided discharges to surface waters. Since the injection well is completely sealed, any flood in the area that forecloses effluent disposal to golf courses or percolation ponds can be disposed into the well.

Q. WHAT WAS THE PURPOSE IN OBTAINING WATER FROM THE "DUDE PIT" FOR RAW WATER SUPPLY?

A. The utility has expeditiously reviewed several sites in the area near our existing Marco Lakes in order to augment and/or replace our existing source.

The need for additional water sources arose from the impending expiration of an existing lease agreement with the Collier's and the limitations of the Collier site to provide additional water.

Of all of the sites that were evaluated by the utility, the Dude Pit property was the one with the best projected quality water through the years. SSU pursued a water agreement with the then owners of Dude Pit. SSU investigated the permitting requirements and all agencies agreed that permitting of the site was possible.

SSU immediately contracted to have a design of the proposed facilities and permits were obtained from all agencies with the exception of Collier County.

The amount of water to be withdrawn and permitted by regulatory agencies was 4.0 MGD.

The County did not approve this site largely as a result of opposition from agricultural interests which opposed development of the site.

Q. WAS THE WATER FROM THE DUDE PIT TO SUPPLY WATER TO MASS MUTUAL GOLF COURSE AT MARCO SHORES?

A. SSU had preliminary conversations and a draft agreement was completed to provide irrigation water for the Mass Mutual Golf Course from the Dude Pit, but this never materialized. Also, the provision of water from the Dude Pit to the Golf Course would have been only one customer for the water. The golf course was not going to take the entire four

million gallons a day which would have been available. In fact, the golf course usage would have been only approximately 350,000 gallons per day, or only 8.75% of the water. The remainder would have been used to supply SSU's existing customers. The attempt to suggest that SSU pursued the Dude Pit water resources solely to supply the Mass Mutual Golf Course is ridiculous and, depending on how closely the information available to the parties was read, could be said to be intentionally misleading.

Please note that Mass Mutual also inquired about obtaining reclaimed water from SSU facilities but these efforts never materialized either.

Q. HAS SSU SPENT ANY FUNDS FOR "PROTECTING THE ENVIRONMENT OR ENVIRONMENTAL COMPLIANCE"?

A. Of course, I completely disagree with Mr. Bertram's statements to the contrary.

Since 1989, SSU has embarked on hundreds of projects in order to be in environmental compliance and to protect the environment.

Just a few examples of these projects are as follows:

Soon after acquiring the Deltona Lakes service area, SSU entered in a consent order with DEP due

to a concern over potential negative impact on Lake Monroe from effluent discharges.

SSU diligently proceeded to improve the facilities to include reclaimed water use at two golf courses. One of these golf courses was having trouble with high chlorides and SSU was requested by the St. Johns River Water Management District to install a line to the Deltona Hills and Country Club, and later, another line was installed to serve Glen Abbey Golf Course.

At University Shores, SSU ceased the surface water discharge of effluent in 1994 by agreeing to connect the facilities to Orange County reuse facilities and paying for the connection. This was a solution designed to protect the environment and also to maintain environmental compliance.

At Seaboard, SSU invested in an interconnect of SSU's wastewater facility to the City of Tampa thus ending an era of discharges of effluent into a creek. The cessation of this discharge also diminished the mosquito population in an area of low income residents previously plagued by mosquitoes.

At Marco Island, SSU provides wastewater to two golf courses using the reclaimed water to its

maximum--thus saving precious fresh water for residential use. SSU is also presently providing Reverse Osmosis water to Marco Island residents from the brackish aquifer, saving 4.0 MGD of fresh water during periods of high demand. Saving this fresh water is necessary for recharging the aquifer and fighting saltwater intrusion.

These are just a few of the hundreds of projects completed by SSU. SSU is proud of our record with regulatory agencies in working with them to protect the environment and the public health in so many different ways. Mr. Bertram's suggestion that all that was required to comply with environmental and safety requirements was additional sampling requirements has no basis in fact and, obviously, would never be made by any provider of water and wastewater service nor should it be condoned by regulators, environmental or economic, of such service providers.

Q. DO YOU AGREE WITH MR. BERTRAM'S STATEMENT ABOUT WELL CONSTRUCTION TECHNIQUES?

A. No. The wells drilled by SSU have been permitted by regulatory agencies. In fact, in most cases, the regulatory personnel have been present during construction. I agree that in some cases the high

iron concentrations may result from failure of the shoe or the casing. However, SSU has completed a great deal of research on our existing facilities which has confirmed that iron may appear in our water supply as a result of sink holes which may develop at a significant distance from our wells; nonetheless, our supplies have been contaminated by the pollutants, such as iron, which are introduced into the aquifer through the sink holes.

SSU complies with regulations in that we provide water within MCL requirements to our customers. It could cost millions of dollars to identify and correct deficiencies in the earth's natural systems. Would any investor propose that this be done by SSU?

Q. IS THERE A LIMIT IMPOSED FOR ACCEPTABLE IRON CONCENTRATION IN THE EXISTING REGULATIONS , AND IF SUCH LIMITATION EXISTS, HOW WOULD YOU CLASSIFY THE ADDITIONAL TREATMENT TO MEET THIS LIMITATION?

A. Iron has a limit of 0.3 mg/l. If a well does not have a concentration above .3 mg/l, there is no need to treat any further. But, if the concentration is above .3 mg/l, the additional treatment would be classified for "environmental compliance."

Q. DO YOU AGREE WITH SUGARMILL WOODS' WITNESS HANSEN IN REFERENCE TO SUGARMILL WOODS WASTEWATER TREATMENT AND DISPOSAL?

A. No. As I mentioned before in this testimony, more and more rules require additional evaluations of existing and potential plant expansions or improvements and more often than not these re-evaluations require a reduction of capacity because some component of the facility, such as percolation ponds, cannot handle the loading under new rules or do not have the reliability needed.

The capacity of the Sugarmill Woods wastewater plant was reduced in 1995 because the clarifier maximum capacity is 0.4 MGD as stated in the Capacity Analysis Report of the Sugarmill Woods facility which was prepared for SSU by Berryman & Henigar in October 1995. I have included the cover page and the pertinent page from this report in Exhibit _____ (RAT-10).

Q. WHAT IS THE CURRENT CAPACITY OF THE BURNT STORE WATER TREATMENT PLANT?

A. The current capacity of the water treatment plant is as follows:

Each Skid		240,000 gpd
2 Skids @ 240,000 gpd	=	480,000 gpd

	+ 10% Blend	=	48,000 gpd
			528,000 gpd
	528,000 gpd/1440 min/day	=	367 gpm
	528,000 gpd - 48,000 gpd	=	480,000 gpd
	480,000 gpd/1,440	=	333 gpm

The use of 367 gpm refers to the plant actually producing 100% capacity regardless of reliability of maintenance, etc. A reduction of approximately 10% of the total capacity should be allowed for maintenance procedures to be performed in these facilities bringing the total treated capacity to 333 gpm.

Q. DO YOU AGREE WITH MS. DISMUKES' TESTIMONY IN REFERENCE TO THE USED AND USEFUL OF THE WETLANDS IN BUENAVENTURA LAKES?

A. No. The wetlands are an important part of the effluent disposal facilities for the wastewater treatment plant. The wetlands will act as a disposal source of wastewater at times of inclement weather and as a back-up disposal source for effluent not acceptable for public access disposal.

Permit conditions refer to the wetlands as capable of disposing of approximately 100,000 gpd, but these wetlands are bermed to hold 60 days of excess effluent in case of inclement weather.

These facilities should be evaluated with the permitted capacity recently issued in permit FL0039446-001 and not what was permitted under the old permit when the area was treated by DEP as experimental wetlands. Through the evaluation of several years of historical data, it was determined that the disposal capacity was 100,000 gallons per day -- the experiment is over, the wetlands are a permitted disposal source. A copy of the permit is included in Exhibit _____ (RAT-11).

It should be noted that any facility that was being evaluated as experimental wetlands to meet regulations 5 to 10 years ago will likely experience capacity reductions upon permit renewal, due to new, more strict regulations and new methods of evaluating disposal capacity. The utility should not be penalized for acquiring a parcel of land that met engineering criteria at the time of study, but by means of more stringent environmental analysis, the capacity has been reduced. The Buenaventura Lakes wetlands were originally designed as follows:

"Wetland Disposal

After alum and denitrification treatment, 0.3 mgd of the treated

effluent will be pumped to the northernmost portion of the upper 60-acre wetland for disposal. A line discharge is employed to achieve a more uniform flow through the wetlands. The treated effluent will be retained in 60 acres of upper wetland, 70 acres of middle wetland and 39 acres of lower wetland for nutrient uptake by the vegetation. A schematic of the wetland disposal area is depicted in Figure 4.

Based on a study conducted by Jammal & Associates, (Orlando, Florida), the disposal capacity of the 169-acre wetland disposal area was approximately 0.4 mgd for a normal rainfall year. Under this loading rate, the water depth in the 169-acre wetland disposal area was estimated to be less than 1 foot, thus providing about 2 feet of freeboard below the overflow weirs. The 169-acre wetland disposal area

has an existing 3-foot high perimeter dike to prevent any surface runoff from entering or leaving the system.

A copy of the Figure 4 "Schematic of Wetland Disposal Area" mentioned in the above quote is provided in Exhibit _____ (RAT-12). It should be understood that without the wetlands as a source of overflow disposal, the environment and public health could be adversely effected because SSU would have no other alternative available for disposal -- would it be preferred to have the overflow running in the streets or discharging into preserved surface water systems?

Q. REGARDING THE ZEPHYR SHORES WASTEWATER TESTIMONY FROM MR. PETE BURGHARDT OF DEP, WOULD YOU AGREE THAT THE ADEQUACY OF THE COLLECTION SYSTEM IS UNKNOWN?

A. The collection system is known to be adequate for the intended purpose. There is minimal or no inflow/infiltration and the average flows indicate that the influent is being conveyed properly. We also maintain our lift stations and pumping appurtenances to ensure adequacy of the collection system.

Q. DO YOU AGREE THAT THE PASCO COUNTY FLOW DIVERSION ENABLES THE FACILITY TO BE IN COMPLIANCE?

A. The facility is quite capable of maintaining compliance based on the current treatment system, but diverting a portion of the influent flow to Pasco County enables our effluent ponds to function better due to lessened flow.

Q. DOES THE ZEPHYR SHORES FACILITY HAVE PROBLEMS MAINTAINING COMPLIANCE WITH ODORS?

A. We rarely receive complaints from neighbors or customers, and the DEP has not required us to take any actions to minimize the natural effects resulting from operation of this wastewater plant.

Q. REGARDING THE PALM TERRACE WATER TESTIMONY FROM DEP MR. WILLIAM DUNN, WOULD YOU AGREE THAT THERE IS A NEED FOR ADDITIONAL TREATMENT TO CONTROL HIGH LEAD AND COPPER RESULTS?

A. There may be a future need, but at this time it is unwarranted since, under applicable regulations, the treatment system construction deadline is January 1, 1997. We are still fine tuning our process and have taken two consecutive six-month samples prior to the January 1, 1997 deadline. We also received a permit from DEP on January 1, 1995 for our C.L. Smith treatment system. As with any

new requirement, we are adjusting our feed rates and are confident we can reduce the exceedances.

Q. REGARDING THE APACHE SHORES WASTEWATER TESTIMONY FROM MS. PHYLLIS JAMES, COULD YOU ELABORATE ON THE CONSENT ORDER CONTAINED IN EXHIBIT PJ-1?

A. This issue was resolved nearly a year ago and we demonstrated an immediate good faith effort to resolve these issues after discovery of the issues, as DEP noted on Part III of their computation worksheet included in Exhibit _____ (RAT-13).

Q. REGARDING THE POINT O'WOODS WASTEWATER TESTIMONY FROM DEP MS. PHYLLIS JAMES, WOULD YOU AGREE THAT THERE WERE A FEW MINOR DEFICIENCIES DURING THE CONSTRUCTION PERIOD?

A. Yes, there were some very minor matters as are sometimes experienced during construction activities, but as she also states, this system was noncompliant for several years before we acquired it, and we have brought this system into compliance.

Q. REGARDING THE SPRING GARDENS WASTEWATER TESTIMONY FROM DEP MS. PHYLLIS JAMES, COULD YOU PLEASE EXPLAIN THE STATUS OF THE PERMIT RENEWAL AND BUILDING MORATORIUM?

A. Since we acquired this system during March 1995 we

have reduced infiltration and inflow by over 100,000 gpd and are now less than our 0.02 mgd limit, which should allow release of the moratorium since we have capacity to accept additional flow. We submitted the permit renewal documents on April and November, 1995 and January 1996. Mr. Edward Coppock of the DEP is the permit writer and he recently called to tell us that the permit has been approved and will be issued soon.

Q. OTHER MISCELLANEOUS ITEMS ARE SUGGESTED BY MS. JAMES REGARDING THE SPRING GARDENS FACILITY. COULD YOU RESPOND TO EACH?

A. We have already sodded and seeded the berms but no growth occurred to prevent erosion, and additional costs to repeat are therefore unwarranted, but we will rake and maintain these berms. Once the ponds dry, we are planning to remove sludge, add fresh sand, and rototill. We do not keep records of pond rotations, and have a second blower available but not installed since it is not required to date.

Q. REGARDING THE SUGARMILL WOODS WASTEWATER TESTIMONY FROM MS. PHYLLIS JAMES, WHAT WERE THE CIRCUMSTANCES REGARDING IMPROPER NOTIFICATION OF MALFUNCTIONS AND ESTIMATIONS OF MOR FLOWS?

A. Lightning disabled a flow meter and composite

equipment, and it appears that the above did occur during this emergency situation. The flow meter and Parshall flume are back in service and additional efforts will be made to further improve proper communications of such events.

Q. REGARDING THE PALM TERRACE WASTEWATER TESTIMONY FROM DEP DAVID MACCOLEMAN, IS THE PLANT EXCEEDING IT'S PERMITTED CAPACITY?

A. Our permit limitation of 0.13 mgd has not been exceeded since it is an annual average limitation, which allows occasional higher flows as long as the annual average is maintained. Some monthly and three month flows have been greater than 0.13 but are of no consequence to the issue of permit exceedance.

Q. IS IT CORRECT THAT A CAPACITY ANALYSIS REPORT (CAR) IS DUE FROM THE PALM TERRACE FACILITY AND MAY REQUIRE PLANT IMPROVEMENTS?

A. An updated CAR will be submitted this month, and could possibly indicate the need for improvements or expansion, but we are currently within our permit limits regarding flow, BOD and TSS.

Q. DOES GROUND WATER EXHIBIT RADIAL FLOW WHICH MAY BE ASSOCIATED WITH FLOW RATES AT THE PALM TERRACE FACILITY?

A. It is possible that the groundwater flow is influenced by the effluent, but it is unlikely. We are currently taking monthly readings to further ascertain flow directions and influence.

Q. REGARDING THE GOSPEL WOODS WATER FACILITY TESTIMONY FROM DEP WILLIAM RYLAND, IS IT POSSIBLE THAT THE HIGH WATER TABLE HAS CAUSED A SURFACE WATER POND TO DIRECTLY INFLUENCE THE WATER SUPPLY WELL?

A. We are currently evaluating this situation since it is possible to have interference due to proximity, but recent bacteriological analyses have been in compliance.

Q. REGARDING THE POINT O'WOODS WATER TESTIMONY FROM DEP WILLIAM RYLAND, PLEASE PROVIDE RESPONSES TO THE FOLLOWING:

1. ARE THE COPPER LEVELS EXCEEDING THE 90TH PERCENTILE LIMITS? AND,

2. WILL PAST TURBIDITY PROBLEMS WITH WELL NO. 4 INTERFERE WITH REACTIVATION OF WELL NO. 5?

A. 1. The copper levels have decreased and we are still in the progress of fine tuning our treatment system, which, by rule, has a January 1, 1997 compliance deadline.

2. Lightning damaged well No. 5 and we received a temporary permit to utilize well No. 4 while being

repaired. Past turbidity problems have not resurfaced during testing and we recently received clearance to place well No. 5 back on line.

Q. REGARDING THE ROLLING GREEN/ROSEMONT WATER TESTIMONY FROM MR. RYLAND, PLEASE RESPOND TO THE FOLLOWING:

1. IRON LIMITS ARE BEYOND THE MCL.

2. A SECOND BACK-UP WELL MAY BE NEEDED SOON.

A. 1. We are currently evaluating the iron exceedance. If additional dosing or other alternatives do not lower the results, we will consider additional treatment and related permitting issues.

2. The two well requirement only applies to facilities with more than 150 connections or serving more than 350 people. SSU's January 1996 billing records indicate a total of 127 connections for these facilities. Also, using 2.26 people per household per county census data equates to only 287 people. Therefore, neither statement applies at this time.

Q. REGARDING THE MARION OAKS WASTEWATER SYSTEM TESTIMONY FROM DEP MR. NEAL SCHOBERT, IS IT TRUE THAT THERE IS NO VALID OPERATING DOCUMENT?

A. We received Permit No. FLA012669 on February 27,

1996 after much negotiation due to complexities of phased expansion increments. Previous nitrate exceedances have been eliminated from reoccurrence and, according to the permit, DEP has allowed us to postpone major construction at this facility. Please refer to the documentation in Exhibit ____ (RAT-14).

Q. REGARDING THE APACHE SHORES WATER TESTIMONY FROM DEP MS. SANDRA SEQUEIRA, COULD YOU PLEASE ELABORATE ON THE NEED FOR AN AUXILIARY POWER SOURCE, ADDITIONAL ANALYSES, AND AN IRON FILTER?

A. We are negotiating an interconnect with Citrus County and expect to complete it in the first half of 1996, which will negate the need to install additional equipment or take more analyses.

Q. REGARDING THE SPRING GARDENS WATER TESTIMONY BY MS. SANDRA SEQUEIRA, IS IT CORRECT THAT AUXILIARY POWER IS REQUIRED?

A. We submitted information to the DEP on December 18, 1995 to explain that we only had 127 connections and 287 people based on the census data. The DEP's follow-up Request for Additional Information acknowledged that this information was less than the 150 connections and 350 person requirement which would have required auxiliary power.

Q. IS THE DEP AWAITING AN AFTER THE FACT PERMIT REVIEW FOR A PUMP REPLACEMENT WHICH WAS INSTALLED DURING AUGUST 1993?

A. No. The pump was actually installed during August of 1995, not 1993. We notified the DEP of the emergency replacement by letter on August 17, 1995, filed an application on October 18, 1995, and have responded to two requests for additional information on December 18, 1995 and February 13, 1996. Correspondence is now due from DEP and a permit is expected soon.

Q. REGARDING THE PINE RIDGE WATER TESTIMONY FROM MS. SANDRA SEQUEIRA, IS IT TRUE THAT AUXILIARY POWER IS PROVIDED FOR WELL NO. 4 BUT NOT FOR TWO OTHER WELLS?

A. Well No. 2 has an auxiliary power supply but does not have an auto-start feature. Well No. 3 is a small pump and is not a lead pump. We are planning to add auxiliary power to well no. 3 but it has not yet been budgeted.

Q. REGARDING THE LAKESIDE WATER TESTIMONY FROM MS. SANDRA SEQUEIRA, IS A SECOND WELL NEEDED?

A. No. We only have 86 connections and less than 350 persons, which makes us exempt from the second well requirements. It should be noted that there is an

existing second well which is not connected to our facilities at this time. In the event a second well is required, SSU will test the second well to determine if it is viable in the hope that we can save customers money.

Q. DO YOU AGREE WITH DEP MR. SCOTT A. BREITENSTEIN'S TESTIMONY REGARDING THE NEED FOR AUXILIARY POWER FOR THE LAKE AJAY WATER FACILITY?

A. No. According to SSU's billing records for February 1996, the Lake Ajay water treatment plant currently serves 94 connections. According to Rule 62-555.320(6) Florida Administrative Code (F.A.C.), auxiliary power is not required.

Q. DO YOU AGREE WITH MR. SCOTT A. BREITENSTEIN'S TESTIMONY REGARDING THE NEED TO MONITOR GROUP II VOC'S FOR THE LAKE AJAY WATER FACILITY?

A. No. According to SSU's billing records for February 1996, the Lake Ajay water treatment plant currently serves 94 connections -- less than 350 people. SSU currently has a waiver for Group II VOC's from the DEP in accordance to Rule 62-550.521(4).

Q. DO YOU AGREE WITH MR. SCOTT A. BREITENSTEIN'S TESTIMONY REGARDING THE STATUS OF THE BACKUP WELL/PLANT FOR THE TROPICAL PARK WATER FACILITY?

A. No. The backup well/plant for the Tropical Park water system was placed back into service on January 17, 1996. Consequently, this system is currently meeting the requirements of Rule 62-555.315(1).

Q. DO YOU AGREE WITH MR. ROBERTO C. ANSAG'S TESTIMONY REGARDING AUXILIARY POWER FOR THE SILVER LAKE ESTATES/WESTERN SHORES WATER FACILITY?

A. No. Plant improvements, including the installation of a 250 kw diesel generator, which was permitted under DEP construction permit no. WC35-266211, were completed and cleared for use on March 6, 1996. SSU, therefore, has adequate auxiliary power in the event of a power outage at this facility.

Q. DO YOU AGREE WITH MR. ROBERTO C. ANSAG'S TESTIMONY REGARDING AUXILIARY POWER AND WELL LOCATION REQUIREMENTS FOR THE HOLIDAY HAVEN WATER FACILITY?

A. No. The Holiday Haven water system is a consecutive system. The primary water supplier is Astor-Astor Park Water Company. Consequently, the auxiliary power requirement does not apply for this system. The well location requirement also does not apply for this facility for the same reason.

Q. DO YOU AGREE WITH MR. ROBERTO C. ANSAG'S TESTIMONY REGARDING AUXILIARY POWER AND WELL LOCATION

REQUIREMENTS FOR THE WESTMONT WATER FACILITY?

A. No. The Westmont water facility is a consecutive water system. The primary water supplier is the Orange County Public Utilities Department. Consequently, the auxiliary power requirement does not apply for this facility. The well location requirement also does not apply for this facility for the same reason.

Q. DO YOU AGREE WITH MR. ROBERTO C. ANSAG'S TESTIMONY REGARDING AUXILIARY POWER AND WELL LOCATION REQUIREMENTS FOR THE DAETWYLER SHORES AND THE LAKE CONWAY PARK WATER FACILITIES?

A. No. The Daetwyler Shores and the Lake Conway Park water facilities are consecutive systems. The primary water supplier is the Orange County Utilities Commission. Consequently, the auxiliary power requirement does not apply for these facilities. The well location requirement also does not apply for these facilities for the same reason.

Q. DO YOU AGREE WITH MR. CLARENCE C. ANDERSON'S TESTIMONY REGARDING THE CHULUOTA WASTEWATER FACILITY?

A. No. A rainfall gauge is located at the Chuluota wastewater treatment plant site and is read and

recorded daily. Approximately 11.43 inches and 10.2 inches of rainfall were recorded for the months of August and October 1995, respectively. According to the Monthly Operating Reports, monthly average daily flows for the months of August and October 1995 were 0.060 mgd and 0.050 mgd, respectively. The permitted capacity of the Chuluota wastewater treatment plant is 0.1 mgd. Excessive rain contributed to increased flows during these months, however, the flows did not exceed plant capacity or cause hydraulic overload.

Q. WHAT IS THE STATUS OF PERMIT NUMBERS 1695-WD-3311 AND 1695-WD-3312, FOR THE CORROSION CONTROL SYSTEMS AT BEACON HILLS AND COBBLESTONE, RESPECTIVELY?

A. Both facilities were cleared for use on January 22, 1996.

Q. WERE THE CORROSION CONTROL IMPROVEMENTS CONSTRUCTED WITHIN THE SCHEDULES MANDATED BY FAC 62-551 AND THE SCHEDULES CONTAINED IN THE PERMITS?

A. Yes. FAC Rule 62-551 mandates that corrosion control treatment be installed for medium systems within 24 months after the Department approves its recommended treatment. Corrosion control permits for Beacon Hills and Cobblestone were issued on June 30, 1995, with expiration dates of January 1,

1997.

Q. WHAT IS THE STATUS OF THE COMPLIANCE LETTER ISSUED APRIL 26, 1995 CONCERNING PUBLIC EDUCATION FOR EXCEEDING LEAD ACTION LEVELS?

A. Public education concerning lead action levels was conducted May 1, 1995, consistent with the requirements contained in FAC 62-551.810.

Q. DID THE UTILITY TAKE AN AERATION/GROUND STORAGE TANK OFF LINE IN FEBRUARY, 1993 WITHOUT AUTHORIZATION FROM THE DEP?

A. No. The aerator on the small ground storage tank was removed from the tank, however, the storage tank remains in service. The aerator had deteriorated to an extent that water quality could have been compromised had it been left in service. Our records indicate that there was verbal communication with DEP regarding removal of the aerator, but there was not subsequent written follow-up.

Q. DID THE UTILITY HAVE AN ACTIVE CONSTRUCTION PERMIT FROM DEP FOR THE POSTMASTER VILLAGE WATER FACILITY IN 1995?

A. Yes. DEP permit number DS10-271324 for distribution system improvements was issued May 10, 1995 and cleared for service on November 14, 1995.

Q. DOES THE UTILITY HAVE A CROSS-CONNECTION CONTROL PLAN APPLICABLE TO THE PALM VALLEY WATER FACILITY.

A. Yes. The Company's cross-connection control plan is applicable to all of the company's distribution facilities, and is on file at each DEP district office in which SSU owns and operates a water supply facility.

Q. DOES THE UTILITY HAVE A CURRENT CONSTRUCTION PERMIT FROM DEP FOR THE REMINGTON FOREST WATER FACILITY?

A Yes. DEP permit number WC55-279787 was issued December 28, 1995, and expires December 28, 1997. The permit is for construction of an additional 4" well to meet peak water demands and provide additional system reliability.

Q. WHAT IS THE STATUS OF THE GENERAL PERMIT FOR CORROSION CONTROL ISSUED BY DEP FOR THE PALM PORT WATER FACILITY?

A. Permit Number WC54-263113 for implementing corrosion control treatment with pH adjustment (caustic soda addition) was issued January 26, 1995 and expires January 26, 1997. In October, 1995, the Palm Port facility switched from disinfection with gaseous chlorine to hypochlorination, which increased the pH of the finished water. Results of lead and copper distribution system samples taken

after conversion from gas chlorination to hypochlorination demonstrated lead and copper levels below the action levels. Consequently, the permit to install corrosion control treatment has not been implemented. DEP has been notified that the permit will not be implemented at this time. However, lead and copper distribution samples will continue to be monitored to assure that optimal treatment is achieved.

Q. WHAT IS THE STATUS OF THE GENERAL PERMIT FOR CORROSION CONTROL ISSUED BY DEP FOR THE RIVER GROVE WATER FACILITY?

A. The River Grove corrosion control permit was issued for installation of a polyphosphate blend. The polyphosphate system has been installed and was certified complete to DEP on January 25, 1996.

Q. WHAT IS THE STATUS OF THE CURRENT CONSTRUCTION PERMIT FOR THE WOOTENS WATER FACILITY?

A. Permit No. WC54-278064 was issued October 5, 1995 for the addition of an aerator and storage tank. The permit expiration date is October 5, 1997. Improvements proposed under this permit are necessary to resolve water quality violations for turbidity, color, and odor addressed under Consent Order No. 93-0332. Implementation of the permit has

been delayed due to the necessity to acquire property or easement rights to install the aerator. The current owner of the property is not amenable to selling the property or granting an easement for a reasonable price. The legal costs associated with exercising the power of eminent domain would result in unacceptable rates for the customers under the stand-alone capped rate structure due to the limited number of customers served by the Wootens facility.

Q. DO YOU AGREE WITH MR. ALLEN'S TESTIMONY THAT LEAD SAMPLING RESULTS EXCEEDED THE ALLOWABLE LIMITS IN MORE THAN 10% OF RANDOM SAMPLING?

A. No. The lead and copper rule requires the establishment of a sampling plan approved by DEP, or in this case, the DHRS since the drinking water program is delegated in Lee County, which targets areas in the distribution system which have the greatest potential for lead and copper contamination. Sampling within these areas is random, but sampling is not random within the entire distribution system. The October, 1995 resampling results to which Mr. Allen refers were within the allowable limits in more than 90% of the samples randomly collected in the potentially worst

areas within the distribution system.

Q. DO YOU AGREE WITH MR. FAIRCLOTH'S TESTIMONY THAT THE SUGAR MILL COUNTRY CLUB FACILITY DOES NOT MEET THE MAXIMUM CONTAMINANT LEVELS FOR PRIMARY AND SECONDARY WATER QUALITY STANDARDS?

A. No. The trihalomethane standard is not applicable to the Sugar Mill Country Club facility because it serves less than 10,000 people. Additionally, lead concentrations in the finished water produced by the utility are below the maximum contaminant level contained in the primary drinking water standards, FAC 62-550.310. Sampling of water at the customers' taps, in accordance with the requirements of the lead and copper rule, FAC 62-551 did indicate that lead levels exceeded the action level in that rule. SSU has completed the required steps for facilities exceeding the action level in a timely manner in accordance with the schedule contained in the rule.

Q. IS TREATMENT FOR THE REDUCTION OF HALOGEN FORMATION MANDATED BY RULE, BASED ON THE RESULTS OF CHEMICAL ANALYSES OF RAW AND FINISHED WATER WHEN COMPARED TO REGULATIONS?

A. No, SSU is not required to treat the water to reduce the level of halogen formation indicated by

Mr. Faircloth since the facilities do not serve more than 10,000 people -- thus, we have not spent money to treat the water. SSU further believes that the expenditure of these funds would not be economical given the unreasonable standard applied -- a level which would increase the likelihood of cancer by 1 in 10,000 to a person who drinks 2 liters of water everyday for 70 years from this supply source. We believe our action in this type of situation comports with the customer attitude demonstrated during customer service hearings which encouraged SSU to restrict the level of investment made to meet such standards when possible.

Q. DO YOU AGREE WITH MR. FAIRCLOTH'S TESTIMONY THAT THE WATER PRODUCED BY SSU AT DELTONA LAKES DOES NOT MEET THE STATE AND FEDERAL MAXIMUM CONTAMINANT LEVELS FOR PRIMARY AND SECONDARY WATER QUALITY STANDARDS?

A. No. FAC 62-550.325(2) states that "Suppliers of water may use sequestering agents in lieu of meeting the maximum contaminant level for iron and manganese when the maximum iron and manganese concentration does not exceed 1.0 mg/l. By using phosphate injection as a sequestering agent, the water is treated so as to comply with the rule.

Q. DOES THE UTILITY HAVE A CURRENT ACTIVE CONSTRUCTION PERMIT FROM THE DEP SOUTH DISTRICT DRINKING WATER PROGRAM FOR THE BURNT STORE WATER TREATMENT PLANT?

A. Yes. DEP Permit No. WC08-279073 was issued January 5, 1996 to permit SSU to add an additional 0.240 MGD R.O. skid to the existing facility.

Q. IS THERE A DEVIATION BETWEEN THE RULES FOR DESIGN OF WATER SUPPLY WELLS AND THE ACTUAL DESIGN AND CONSTRUCTION SPECIFICATIONS OF THE WELLS SUPPLYING THE REVERSE OSMOSIS FACILITY ON MARCO ISLAND?

A. No. Potable water well permitting, along with the authority to develop rules to implement DEP requirements into the well permitting procedure, was delegated by DEP to the South Florida Water Management District. Subsequently, the District delegated well construction permitting authority to Collier County. This delegation is authorized under Section 373.308, Florida Statutes. Collier County ordinance contain specifications for constructing potable water wells in areas subject to flooding. The ordinance is consistent with Florida Statutes, concerning the protection of drinking water supplies. Section 373.326, F.S. contains provisions to grant exemptions in cases where rule requirements would create undue hardship

to the applicant. The County Ordinance affords protection to the water supply by specifying additional construction techniques in areas subject to flooding. Design and construction of the wells on Marco Island is consistent with the requirements contained in the Collier County Ordinance, which is the proper authority for permitting potable water well construction on Marco Island.

Q. HAS SSU ADDRESSED THE CONCERNS REPORTED BY DEP IN THE MOST RECENT SANITARY SURVEY CONDUCTED AT THE MARCO ISLAND WATER TREATMENT FACILITY?

A. At the reverse osmosis plant, operations personnel have verified that the storage tank vents are properly screened and sealed to prevent contamination. A finer screen has been installed on the degassifier blower motor to prevent the entrance of insects, and hose bibb vacuum breakers have been installed to prevent backflow contamination of the water supply. The leaking sample taps have been replaced, and painting of the sulfuric acid room is scheduled to be completed this year.

For the lime softening plant, the alarm system requested by DEP for loss of chlorine capacity was installed at the time of the inspection, but was

out of service for repairs. The alarm system is back in service at this time. The operator assured that all storage tank vents were properly screened and sealed to prevent contamination, and repaired the access hatchway to the clearwell to assure that it is watertight. The storage tanks were inspected by the operations staff and were found to have all access points watertight. A predictive maintenance program is being implemented this year which will address the recommendations to continually paint and clean sections of the water treatment facility as needed. This program will also incorporate a finished water storage tank inspection and cleaning schedule. The operator also verified that there is adequate backflow protection between the wastewater treatment facility and the water treatment facility.

SSU does not currently have funds available to complete the improvements to the chlorine gas facilities in the 1996 budget year. The existing chlorine feed facilities at the lime softening plant were constructed over twenty years ago, prior to the requirement for a separate enclosed room, and were constructed in accordance with requirements in effect at that time. Available

funding has been allocated to complete improvements to the R.O. plant and raw water supply to assure adequate water supply and safe pressures are available to the service area.

Q. HAS SSU ADDRESSED THE CONCERNS REPORTED BY DEP IN THE APRIL 13, 1995 SANITARY SURVEY CONDUCTED AT THE MARCO SHORES WATER TREATMENT FACILITY?

A. Yes. The operations staff has ensured that vents on storage tanks are completely screened. Adequate backflow prevention devices have been installed on all hose bibbs. The Company's predictive maintenance program currently being implemented addresses periodic storage tank inspection and cleaning, and painting and cleaning of the water treatment plant area as needed.

Q. WHAT IS THE CAPACITY STATUS OF THE AMELIA ISLAND WASTEWATER TREATMENT FACILITY?

A. Capacity of the facility has been increased from 0.850 MGD to 0.950 MGD under DEP Permit No. DC45260421, which was certified complete as of December 8, 1995. The highest three-month average daily flow for the facility in 1995 was 0.852 MGD, which is approximately 90% of the rated capacity of the facility. The annual average daily flow for 1995 was 0.701 MGD, which is about 74% of the rated

capacity of the facility. Projections contained in the most recent Capacity Analysis Report dated March, 1994 indicate that the current capacity will be sufficient until 1999, at which time additional improvements will be required. Funds have been budgeted for engineering and commencement of construction in 1998, with the remaining funds budgeted to complete construction in 1999.

Q. DID SSU ADDRESS INFILTRATION/INFLOW (I/I) IN THEIR MOST RECENT CAPACITY ANALYSIS REPORT FOR THE AMELIA ISLAND WASTEWATER FACILITY?

A. No. The DEP Guidelines for Preparation of Capacity Analysis Reports, July, 1992, do not require that I/I be evaluated. The Guidelines do require an evaluation of seasonal variations in flow, which was included in the March, 1994 Capacity Analysis Report Update. Flow records show consistent peaks in the summer months of August and September. There is typically strong tourist activity during these months since the service area is a resort community. The Operation and Maintenance Performance Report completed in December, 1992 stated that although there is no evidence of I/I, that a preliminary I/I study be conducted. A preliminary study based on approved USEPA

methodology was completed in 1995, which concluded that I/I in the Amelia Island collection system is marginally excessive, based on typical per capita wastewater generation. A more detailed assessment of the system including televising the lines will be conducted in 1996 to identify specific areas potentially for corrective action, if feasible from a cost/benefit perspective.

Q. HOW DOES SSU DETERMINE THE AMOUNT OF FLOW FROM THE WOODMERE WASTEWATER SERVICE AREA TO THE UNITED WATER FLORIDA'S MONTEREY WASTEWATER TREATMENT FACILITY?

A. Flow to the Monterey facility is collected in the southwest portion of the Woodmere service area, and flows by gravity to what is referred to by the operators as the "golf course lift station." This portion of the service area is not connected to the remainder of the Woodmere collection system. Flow is estimated based on lift station pump run times and pumping capacity. Flow data was forwarded to the DEP in November, 1995 as part of the wastewater facility permit application. Flow in this area averages about 35,000 gallons per day.

Q. DO YOU AGREE WITH MS. RODRIGUEZ' TESTIMONY THAT THE WOODMERE WASTEWATER TREATMENT FACILITY NEEDS AN

OVERHAUL OR REPLACEMENT?

A. Yes. Design of a replacement facility was completed in December, 1995 and submitted to DEP in February, 1996, along with additional support documentation, including a Reuse Feasibility Study. Construction of a replacement facility is budgeted to begin in the fourth quarter of 1996, and to be completed in 1997. The replacement facility considers continuation of the existing surface water discharge since the reuse alternatives are estimated to cost the individual customers an additional $100 per year above the surface water discharge alternative.

Q. WHAT IS THE STATUS OF THE EFFLUENT DISPOSAL ISSUE AT THE BEECHER'S POINT WASTEWATER FACILITY?

A. SSU completed a report which evaluates land application alternatives for the Beecher's Point facility. Technologically feasible alternatives were identified, however, with stand-alone capped rates in place, the improvements were determined to be economically infeasible to construct.

Q. WHAT IS THE STATUS OF SSU'S PERMIT MODIFICATION TO ADD A DIGESTER AT BEECHER'S POINT?

A. As SSU engineer Steve Bailey will testify, the digester has been installed, and certification of

completion by DEP is pending.

Q. WHAT IS THE STATUS OF SSU'S PERMIT MODIFICATION TO ADD A DIGESTER AT PARK MANOR?

A. The digester addition was not implemented due to inability to access the proposed digester location. In order to install the digester, the contractor would have had to traverse private property to place the tank in the desired location. The property owner was not amenable to allowing a temporary access easement at a reasonable cost. Therefore, the digester was not installed. Residuals are currently hauled and treated by a contract hauler prior to land application. SSU continues to seek an economical alternative but we cannot resolve the problem by paying what the property owner expected. There is no danger to the environment from our current resolution. SSU should not be penalized for refusing to accept the just alternative available to save customers' money in the long term.

Q. WHAT IS THE STATUS OF THE EFFLUENT DISPOSAL ISSUE AT THE PALM PORT WASTEWATER FACILITY?

A. SSU completed a report which evaluates land application alternatives for the Palm Port facility. Technologically feasible alternatives

were identified, however, with stand-alone capped rates in place, the improvements were determined to be economically infeasible to construct.

Q. WHAT IS THE STATUS OF THE TEMPORARY OPERATING PERMIT FOR THE FISHERMAN'S HAVEN WASTEWATER TREATMENT FACILITY?

A. Temporary Operating Permit No. DT43-236192 was modified and assigned a new permit number, DT43-269020 on November 6, 1995. The modification included a revised schedule for construction of a sludge holding tank to be completed by August 15, 1996. Construction of the sludge holding tank was substantially complete as of December 21, 1995. Certification to DEP is pending.

Q. WHAT IS THE STATUS OF THE MAINTENANCE ITEMS IDENTIFIED BY MR. THEIL REGARDING THE FISHERMAN'S HAVEN WASTEWATER TREATMENT FACILITY?

A. The ventilator fan in the chlorine cylinder enclosure has been replaced. The loose filter dosing pump float switch electrical box has been secured. All of the blower manifold piping was replaced concurrent with the installation of the sludge holding tank. The seam between the filter dosing tank and lid has been grouted to eliminate leakage. The filters were returned to service

shortly after the referenced storm, as soon as the media was cleaned.

Q. REFERRING TO THE LEILANI HEIGHTS WASTEWATER TREATMENT FACILITY, WHAT IS THE STATUS OF THE RECOMMENDED COLLECTION SYSTEM IMPROVEMENTS ADDRESSED IN THE BOYD ENVIRONMENTAL ENGINEERING REPORT DATED JUNE, 1995?

A. Repairs to the collection system where problems were noted have been completed. Additional investigations, including televising lines will be conducted this year, with corrective action to follow this year or next, depending on the magnitude of repairs indicated and the cost/benefit determination.

Q. WHAT ACTIVITIES HAS SSU UNDERTAKEN TO RESOLVE NONCOMPLIANCE ISSUES AT THE ENTERPRISE WASTEWATER FACILITY?

A. SSU periodically cleans and mows vegetation from the percolation pond and sprayfield. The most significant problem associated with the facility involves inadequate sprayfield capacity. Evaluations of capacity of the existing sprayfield and potential alternate sites on the island indicate that no additional reliable effluent disposal capacity is available on the island. The

most feasible technological solution is to abandon the facility and connect the collection system to the Deltona Lakes facility.

SSU has prepared preliminary design plans and cost estimates to implement the only reasonable technical solution. However, with a stand-alone capped rate structure, the necessary improvements are economically not feasible to implement.

Q. WHAT IS THE STATUS OF THE UNAUTHORIZED DISCHARGE TO SURFACE WATERS FROM THE DELTONA LAKES WASTEWATER FACILITY?

A. Discharges to surface waters occurred during extended wet weather periods in 1994 and early 1995. SSU had permitted effluent disposal (reuse) capacity sufficient to meet effluent disposal needs during normal weather conditions. Also, SSU had permitted wet weather storage capacity at the Glen Abbey Golf Course. Subsequent to extended wet weather conditions experienced in 1993 and 1994, the capacity of the storage facility was no longer available for effluent storage due to stormwater contributions from adjacent development. SSU also had construction permits for construction of additional storage ponds at the Deltona Hills Golf Course, and additional effluent disposal capacity

at the drainfield on the Florida Power and Light (FP&L) easement. Prior to the discharge to surface waters, these permits were not implemented because adequate effluent disposal and storage capacity had always been available in previous years. These permitted sites were planned to handle future expansion of the wastewater treatment facility.

After several months of extremely rainy conditions, and the resulting multiple surface water discharges, the decision was made to implement effluent disposal at the drainfield on the FP&L easement, and to attempt to increase the rated capacity based on operational experience with the facility after construction. Construction of the FP&L easement was completed on July 1, 1995. No discharges to surface waters have occurred since that time.

Concurrent with the decision to construct the FP&L drainfield, SSU also decided to apply for a limited wet weather discharge permit to provide additional reliability in the effluent disposal system. The limited wet weather discharge permit application was submitted on March 20, 1995. The application is pending additional hydrologic information needed to clearly define the

circumstances under which a discharge might occur, and a limited analysis of water quality based effluent limitations.

Q. WHAT IS THE NATURE OF THE ENFORCEMENT ACTION FROM DEP CONCERNING COMPLETION OF CONSTRUCTION OF PERMITTED DISPOSAL AREAS?

A. SSU applied for and was issued permits for construction of additional areas to prepare for expanded effluent disposal capacity for the facility. With the Deltona Hills golf course, and the Glen Abbey golf course reuse sites and the permitted storage capacity at the Glen Abbey golf course, it did not appear prudent at the time to construct additional effluent disposal sites. After two consecutive seasons of extraordinarily wet weather, the necessity to construct additional sites was obvious. Construction of the FP&L easement drainfield was complete by July 1, 1995, and is currently being evaluated to define its actual capacity. Construction of additional storage ponds on the Deltona Hills golf course has been determined to be infeasible due to the current philosophy of the golf course management. They have communicated to us that they are not interested in altering the architecture of the golf course to

include additional ponds. Additionally, further review of the proposed golf course storage pond system indicates that the system would not provide the desired reliability during wet weather conditions.

Alternate effluent disposal sites that have been identified as required by the consent order include expanding the FP&L easement drainfield to the east if the current evaluation demonstrates the need to construct additional capacity.

Q. DO YOU AGREE WITH MR. BARIENBROCK'S TESTIMONY THAT THE BURNT STORE WASTEWATER TREATMENT FACILITY IS CURRENTLY OPERATING UNDER PERMIT NO. DO08-168047, WHICH WAS ISSUED ON APRIL 11, 1990, WITH AN EXPIRATION DATE OF APRIL 4, 1995?

A. No. The facility is operating under Wastewater Facility Permit No. FLA014083-267014, issued January 3, 1996.

Q. ARE YOU AWARE OF NEGATIVE COMMENTS FROM CUSTOMERS REGARDING WATER SERVICE FROM THE BEACON HILLS FACILITIES?

A. Yes. SSU recognizes that the customers may be frustrated at times in this area due to water quality issues. But it should be understood that the water source in the entire Arlington area is

naturally high in sulfur. Water that is high in sulfur has strong odor and poor taste. Sulfur is treated by aeration and chlorination. Chlorination is also used for disinfection. SSU has recently completed improvements to the aeration, storage, and chlorination facilities at the Beacon Hills plant, and is in the process of installing chlorination improvements at the Cobblestone plant. Additional aeration and storage capabilities are proposed for Cobblestone in 1997. These improvements will allow chlorine to be fed automatically, paced evenly with the demand, to allow a more consistent chlorine residual. In the past, complaints related to high chlorine taste or odor resulted from manually fed chlorine, which was often set high to match high demands, then as the demand reduced during off-peak hours, chlorine residuals were excessive. Additionally, we are required to maintain a minimum free chlorine residual of 0.2 mg/l in the distribution system to assure adequate disinfection. With manually fed chlorine, it is difficult to maintain an even residual concentration as demand fluctuates during the day. To consistently maintain a minimum chlorine residual in the distribution system,

chlorine is manually set to accommodate higher demands.

As the Commission is probably aware, in 1993, the EPA established maximum contaminant levels for lead and copper at the customer's tap. The lead and copper rule, as implemented by the DEP in FAC 62-551 became effective January 1, 1993. Prior to that time, standards for lead and copper in drinking water were contained in the National Primary and Secondary Drinking Water Standards set forth in FAC 62-550.310 and 62-550.320 and were applied to water entering the finished water distribution system. The current rule applies to water quality at the customer's tap after having remained stagnant for at least six hours in the customer's plumbing. Water quality characteristics can change over time and through contact with corrosive materials. The rule requires that public water suppliers optimize treatment techniques to minimize the potential for lead and copper to leach from plumbing fixtures and concentrate in the drinking water.

Prior to implementation of the lead and copper rule, the quality of water supplied by SSU was consistent with the National Primary and Secondary

Drinking Water Standards. SSU has collected samples in compliance with the lead and copper rule and reported results to the Duval County Public Health Unit, which has been delegated authority for the drinking water program in Duval County by DEP. SSU has applied for and received permits for implementing corrective measures, and we have installed equipment to optimize treatment for the Beacon Hills/Cobblestone water treatment facilities. In accordance with the regulatory requirement in FAC 62-551.530(4), optimal treatment must be demonstrated within 36 months after installation of corrosion control treatment. SSU remains in compliance with these time frames. It would be wrong for SSU to be penalized for not complying with the rule sooner since it is apparent from the rule that the EPA recognized early on that it would take some time and money to achieve compliance and thus wrote an extended compliance period into the rule.

Q. DO YOU HAVE ANY COMMENTS REGARDING THE PROBLEMS BEACON HILLS CUSTOMERS HAVE WITH CORRODING PIPES?

A. Yes. As several customers indicated at the customer service hearing on September 20, 1995, the corrosion problems relates primarily to the

proliferation of the copper plumbing in Jacksonville area homes which reacts with the water native to the region. As customer Sandi Hubbard noted, the City of Jacksonville is in the process of revising the building code to "eliminate copper from Jacksonville." As witness Mazer indicated, SSU bears little blame for the fact that builders have installed and apparently continue to install copper plumbing, valves or fixtures in their homes.

Q. A CUSTOMER SERVED BY THE ZEPHYR SHORES WATER FACILITIES COMPLAINED TO THE COMMISSION THAT A PUMP HAD FALLEN INTO A WELL AT ZEPHYR SHORES AND SSU HAD NOT REMOVED IT. SHOULD ZEPHYR SHORES' CUSTOMERS BE CONCERNED ABOUT WATER CONTAMINATION FROM THE PUMP?

A. No. SSU continues to monitor water obtained from the well. This water has continued to meet all standards despite the pump having fallen in without any additional treatment being required. Thus, there is no benefit to customers for SSU to incur the cost to remove the pump.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

BY MR. FEIL:

Q And, Mr. Terrero, did you also have attached to your prefiled rebuttal some exhibits numbered RAT-3 through RAT-14?

A Yes, sir.

MR. FEIL: Commissioner Deason, I ask that RAT-3 through RAT-14 receive the next exhibit number for identification.

COMMISSIONER DEASON: Yes. It will be Composite Exhibit 222.

(Composite Exhibit Number 222 marked for identification.)

MR. FEIL: Thank you, Commissioner, and I tender the witness for cross.

COMMISSIONER DEASON: Public Counsel.

CROSS EXAMINATION

BY MR. RILEY:

Q Good afternoon, Mr. Terrero.

A Good afternoon.

Q On Pages 3 and 4 of your rebuttal testimony you talk about the 212-acre site for the aquifer storage and recovery facility. And on those pages you make reference to your Exhibit RAT-3, which I believe is a one-page map that I guess is your first exhibit attached to the rebuttal testimony, is that correct?

A That's correct.

Q Could I have you refer to that map, and I just need to ask you a few questions so I could better understand it.

A Okay.

Q And on this map there is delineated two shaded areas, could you explain to me what those shaded areas represent?

A Those two shaded areas are the existing surface area of the lakes where we withdraw water.

Q And those lakes -- I mean, they just seem so -- they didn't seem like natural shapes of lakes, and that was going to be one of my follow-up questions, but the lakes really have that shape?

A They do have that shape.

Q Are they man-made lakes?

A Yes, they are.

Q Okay. Can you delineate on this map where the boundary of the 212 acres falls? I see here the proposed ASR well, so I'm assuming that that point there is in the 212 acres, is that correct?

A That's correct.

Q And this map doesn't really describe where the 212 acres is, is there a way that you can describe it verbally, the approximate location of the -- is that the center of the

212 acres or where does that well lie on the 212 acres?

A That is the southeast corner of the -- in the southeast corner of the 212 acres. I have a map that shows approximately the boundaries of the 212 acres.

Q Now, the 212 acres includes both of the man-made lakes?

A Yes, it does.

Q And may I assume, if I'm reading this map, that north is to the -- east would be to the right of the proposed well site?

A That's correct. North is straight up.

Q Now, to get some idea of scale, for instance, Section 35, does that represent a square mile?

A It's supposed to.

Q And that equates with 640 acres?

A Roughly, yes, sir.

Q So this 212-acre site represents about one-third approximately of what would be the area of a section, let's say Section 35, is that correct? I'm just getting -- so how is it that this is in the southeast corner? I'm trying to visualize.

A What do you mean by that?

Q So the well is -- the property basically goes up to the north of this well site?

A That's correct.

Q And to the west?

A Yes.

Q Okay. Can you tell me where the 160-acre raw water site is located with reference to this 212-acre site?

A You don't see the 160 acres in this map.

Q And yet it is located in Section 35?

A No. It's located in Section 35, but it's in another township.

Q Oh, it's in a completely different township?

A It's in the same county, it's just about five miles to the east.

Q Okay. And yet this is one of the arguments for the 212-acre site is its proximity to the 160 acres?

A Could you clarify that for me, please.

Q I thought I read in your testimony that one of the positive aspects of this location was its proximity to the 160-acre site, and when I kept hearing references to Section 35, I just began to assume that it was quite close.

A No. The Section 35 where the 160 acres is located is about five miles, but if you have a pipeline we could pump to this site here with no problem.

Q There is a reference here to -- Henderson Creek is on this map, and can you tell me which direction the water flows?

A South.

Q Okay. And there is also on this map a Henderson Creek weir. Who owns this weir?

A The county.

Q And what is its purpose?

A The purpose is to make sure that the salt water doesn't go into the area behind it. It's a salt water barrier.

Q Henderson Creek, then, flows into salt water?

A It goes into Rookery Bay, yes.

Q And that is as it continues to progress in a southerly direction?

A That's correct.

Q Okay. Moving back to your testimony on Page 4, Lines 12 through 17, you say that the strategic placement of this site is evidenced by the fact that the Henderson Creek passes the site and water from the creek will recharge the source of the water and enable you to use excess water to be stored in the ASR facility, is that correct?

A That's correct.

Q Could you explain to me how the Henderson Creek recharges this area, the ASR facility?

A Okay. Henderson Creek doesn't do all the recharging in the area. Henderson Creek actually provides some recharge to where the lakes are at, and the area that we have of the 212 acres. Depending on the height of that

creek depends on how much water we can withdraw from there.

Q So the water that's flowing in the creek physically is connected to the man-made lake?

A No, it's not.

Q And it helps fill up that lake? It appears from this map, and I'm going back -- I'm still referring to RAT-3 -- it seems that Henderson Creek is right next to the boomerang shaped lake, is that correct?

A It is adjacent to, but it's not connected.

Q It is not connected.

A Adjacent to, but not connected.

Q Okay. So my question is, physically what is the hydraulics, what is the process that allows the water from Henderson Creek to make its way either into the lakes and/or ultimately into the ASR facility?

A Well, what would happen is you have a transmissivity (phonetic) from the Henderson Creek that will recharge the lakes at a faster rate due to the height elevation on the creek. So if the creek is dry it won't recharge as much, but if the creek is running and running over the dam, of course, you can pull more water out of there.

Q So it has to overflow the bank between the lake and --

A I didn't say that. Overflow over the dam that you

saw there in that little drawing where it says Henderson Creek weir.

Q Right.

A So we will build a head there and then we will recharge our lakes.

Q And does it just go through the ground, the soil?

A Yes, through the ground. Like a filter, yes.

Q Okay. So this is a natural process, it's not something that you can turn on and turn off. Man can't interrupt that recharge process?

A That's correct. The purpose of the ASR is actually to get the excess water from probably July through September when there is heavy rains and you have excess water flowing down the creek.

Q Okay. And now if I could just have you briefly go back to Page 2 of your testimony, and it's on Lines 17 through 19. You make another statement basically justifying the need for the full 212 acres for this ASR facility, and it says another reason the adjacent area was acquired was to protect the water source from potential pollution sources. Now, my first question is this term adjacent area, is this the area adjacent to the well site itself, and this is a justification for the full 212 acres?

A No, the area that we are talking about is the area adjacent to the lakes, which is the recharge area to the

lakes, a portion of the recharge area to the lakes and that is what we are talking about is all that area there.

Q Meaning the adjacent area is the 212 acres that you wanted to put in rate base?

A That's correct.

Q Excuse me?

A Excuse me. The 212 acres includes the lakes, right.

Q And the land around the lakes and the well site?

A That's correct.

Q But you need this much acreage because you need to protect the ASR storage facility from pollution sources?

A No. What you need to protect is the surface water that you have in there, the lakes, from pollution sources.

Q And how do you do that by having the acreage around the lakes?

A Well, what you do is you have area around it and you have a time interval by where if you have a spillage on the highway it will take some time to get to our lakes. So actually I have run a model, which I have as an exhibit here if you want it, by where we show that if you have a spillage on the highway it will take 365 days to get into our water supply. In that period of time we should be able to remedy that.

Q I guess that where I'm headed with this line of

questioning is that you are touting the benefits of the Henderson Creek in providing extra water to -- quantities of water for your ASR facility, and yet at the same time expressing concern about polluting the ASR water source by potential pollution. I'm wondering if this Henderson Creek could not, in fact, become the source of pollution to this ASR. What is a benefit of recharging could, in fact, become a problem by the creek bringing to the ASR facility pollution upstream. If, in fact, there is through natural processes water coming from Henderson Creek into this 212-acre site in the ASR facility, I can see where that is beneficial up to the point until the land that is connected to the Henderson Creek could, in fact, bring pollution by way of the creek into the ASR. Have you considered, or did SSU consider how the Henderson Creek could counteract what you think you're accomplishing here by buying up additional acreage around these lakes?

A Like I said before, the reason for buying the additional area that we have there is to protect the area. As a matter of fact, you know, if you look at it, we had not only the 212 acres, we have 1,620 acres on a lease and we never got adjusted for any used and useful. 1,620 acres. So we actually have gone back and retracted to 212 acres to protect the source. If you go to any source protection, if you are familiar with any source protection you know that

you have to have some areas adjacent, that you have to protect your source. If you take like 500 feet around that perimeter probably it will take you all the way to the edge of the property.

Q If you're recharging the ASR facility with local rain water collecting on the 212 acres, you know, I can see that you could gain some degree of control over pollution sources on that water coming into the ASR facility. But if your facility is designed to receive water from Henderson Creek that's coming from great distances away, isn't there a considerable risk of polluting your entire ASR facility with pollution that could be caused along Henderson Creek?

A The DEP and the EPA have reviewed this application and they have agreed to allow us to be build the ASR facilities there. They are sure that the way we have our facilities there and the way we are protecting our facilities is sufficient to allow us to build this ASR with no problem.

Q Now, was that a yes or a no to my question?

A Will you repeat your question again.

Q That's a familiar strategy. The question was don't you run the risk of locating this facility as you have next to Henderson Creek, which has through natural processes being recharged by Henderson Creek, don't you open yourself up to subjecting the ASR facility to any pollution sources

that could be put into Henderson Creek?

A No. We have been there for 30-something years, and we never had that problem, so I don't feel that we will have that problem now.

Q Now, however, it is true that any pollution that makes its way into Henderson Creek through what your earlier answers to my questions were could, in fact, make their way into your ASR facility, is that true or not?

A It might be true. What kind of pollutants are you talking about?

Q Any pollution that could make its way into a creek that goes by hundreds and hundreds and hundreds of acres upstream.

A If you look at the way we are going to do it, we are going to be -- we are not going to take the water direct from the creek, we are going to go through the lakes which will be like another natural filter. Before we go to the ASR, we are going to also chlorinate.

Q Okay. Let's move on to Page 7 of your rebuttal testimony, and here you're critiquing some comments that Mr. Biddy made of the Marion Oaks wastewater treatment plant.

A Correct.

Q And I think to characterize Mr. Biddy's comments, I think he used that particular small wastewater treatment

plant to show the benefits of phased development, phased additions to a plant to accommodate growth. And I believe here in this Page 7 you are criticizing his testimony, is that correct?

A That's correct.

Q And you suggest, in fact, that Marion Oaks is a good example -- in fact, right around Lines 15 through 20 you say this is really a very good example, your exact words, "Provides compelling confirmation of the tremendous need for economies of scale." And further down it shows the need for the margin reserve period, is that correct?

A What I said here is Mr. Biddy's acknowledgement that this a prudent way to expand a plant provides compelling confirmation of the tremendous need for economies of scale.

Q So you believe that Marion Oaks, contrary to what Mr. Biddy suggested it meant to him, is that the Marion Oaks example shows a compelling confirmation for the need for economies of scale, is that correct?

A I would say the way he addressed his comments is that this is the way that a wastewater treatment plant should be designed and built for existing customers or future customers. I think that what he is addressing is that the phasing was right and the economies of scale are there.

Q What is the current capacity of the plant at Marion Oaks, is it 200,000 gallons a day?

A Yes, it is.

Q And when did the Marion Oaks plant first begin operation?

A In the early '70s.

Q Early '70s?

A I would say.

Q And according to the SSU information that we have gotten, it's going to be seven more years before it is projected to be increased to 275,000 gallons a day, is that correct?

A That's what the report said.

Q And according to your testimony here on Page 7, it's going to be another 16 years for it to be expanded from 275,000 to 350,000 gallons a day, is that correct?

A That's correct.

Q And 31 years to be further expanded from 350,000 to 500,000 gallons, and another 35 years to expand it from half a million to a million gallons a day, is that the projection?

A Right. I'm not promoting that we build a plant for 35 years, what I was saying here is that Mr. Biddy agreed with the thought of having phased construction instead of having an increment of 30,000 gallons every 18

months. I think 18 months margin reserve doesn't give us enough time to do any planning whatsoever, even to get permits. And it will be a complete cycle. It will be construction, planning, construction again. It won't stop.

Q Thank you for that testimony. If I could just get you to maybe answer my direct questions.

A I thought I did.

Q Okay. What is the depreciable life of a wastewater treatment plant like Marion Oaks?

A I'm not an accountant.

Q But as an engineer -- forget the accounting depreciation, what is the real life, depreciable life of a facility like this?

A 20 or 30 years.

Q So, basically isn't it correct that before the plant would ever reach a million gallons a day, this plant would virtually have to be built or rebuilt two or three times?

A That might be the case.

Q And doesn't this frankly give a pretty good example about the hazards of economies of scale, that you really have to have the growth to really support those economies? The fact that if the customers do not come you could be literally rebuilding plants --

A I agree with you on that, and that is why I am

opposed so much to the lot count method, because you are relying on the growth there that might never take place.

Q Hear on this Page 7, you also say that this is a good example for the need for a margin of reserve. I'm curious in this particular real-life fact situation, what do you see as the approach margin reserve that these people should have to pay?

A The margin reserve that we apply is five years on wastewater and three years for water.

Q And that is what you would recommend for this situation?

A I would recommend ten years on the wastewater.

Q Excuse me?

A I would recommend ten years on wastewater if you put it up to me. But actually we went with five years and that is what we are going for.

Q On Page 8 of this rebuttal testimony you talk about -- I think we are looking at Lines 3 through 9, that we have done master planning under the current rules, but this will not be the way any of the utility could proceed, is that correct?

A What lines are you talking about, sir?

Q Lines 3 through about 9. Again, it's kind of talking about the Marion Oaks situation, that this is an example of planning, master planning. But that this is

highly discouraged apparently by the current used and useful policy employed by the Commission. And somehow you're suggesting in this testimony, I want you to correct me if I'm wrong, that given these used and useful policies, this will not be the way any utility could proceed to construct plant until antiquated rules are revised. And my question to you is even under the current regulatory scheme employed by the Commission, SSU has, in fact, employed these. You have admitted in Citrus Springs, Sugarmill Woods, Springhill, that you employed these prudent practices, why couldn't other utilities also do the same?

A Well, what I'm saying here is that the master planning of any utility should be done the way that you have a site, you have a master plan, and you have a growth, and based on that you build your facilities. If by any reason your growth doesn't happen to go the way that you're projecting, then you have to make another plan. On this plan here in Marion Oaks, for example, I would not recommend the company to do this way even though we have approved plans. As I said, what I would recommend the company to do with the present used and useful rules is go ahead and build a 30,000 gallon plant for the next 18 months. Now, that doesn't do anything for our customers, it doesn't do anything in engineering, doesn't do anything for the environment. It's a nightmare.

Q Now, are you suggesting that it's Mr. Biddy's recommendation to the Commission that the utilities build plants in 18 month increments?

A No, sir.

Q Okay. Good.

A I'm not recommending that you build any plant for 18 months.

Q Excuse me. You didn't understand my point. I said are you suggesting that Mr. Biddy has recommended to this Commission that utilities build utility plant in 18 month increments?

A I think that's what he is saying.

Q Could you pull out Mr. Biddy's revised --

A I don't have it here.

Q -- testimony. He never made any such statement.

A Okay.

Q Let move to Pages 11 and 12 of your rebuttal testimony. Here on these pages you criticize Mr. Biddy's characterization of AWWA M31 manual. In fact --

A What lines are you on?

Q Well, we are starting on, I guess, Line 16.

A Okay.

Q And you're saying that he is mischaracterizing, and, in fact, you go on to include a quote that you took apparently or allegedly from AWWA M31 manual. Do you have a

copy of that manual handy?

A I don't have it with me, no, sir.

Q I have one copy I will let you look at.

A Sure.

Q My concern is, and why I want you to look at it, I believe my question is have you misquoted in your quote the AWWA manual that you have referred to? Now, the section that you quote or that you allegedly quote is titled major system components. I hope you're on -- did you get the right page? And my question for you is did you, in fact -- I'm just curious if this last sentence is even in the manual that you're quoting, or was that just a mistake? This is the sentence, "However, the system should be designed to provide some water at 20 PSI"?

A You mean, are you talking about Lines 7 through 15 or are you talking Lines 21 through --

Q I'm talking about Lines 15 through 17 in your testimony. Page 12 now. I'm suggesting that language is not --

A Page 12 or 11?

Q Page 12. It's the end of your quote. The quote which began on Page 11. And I'm suggesting that you have added some language to the manual.

A I didn't change the language of the manual. I might have the wrong -- 31, it could be 32, but this came

out of the AWWA manual.

Q You say this quote that you put in your testimony came out of an AWWA manual?

A Yes, it did.

Q Well, I don't know which manual you're referring to. I got a copy of the manual that you're referencing in your testimony, and I went to the portion that you quoted, and I didn't find it to be the same.

A Let me ask you what is the manual that Mr. Biddy has in there?

Q He has AWWA M31, the same manual that you're making reference to. In fact, you're critiquing him, saying that he got it wrong.

A I wonder if we have got the same edition.

Q You didn't bring your sources?

A No, I did not. I thought that by quoting what I had here was sufficient, so I didn't bring my book.

Q I will have to go back there just a second.

A Okay. The next time I will specify which edition it is.

Q Or bring the materials with you.

A Right. I will have to bring the public library to pack up all of this.

Q You nearly did, didn't you? Isn't it correct, though, that Mr. Biddy used firm reliable capacity on high

service pumps used and useful analysis just like the AWWA M31 suggests here in this edition?

A I don't know what it says in that edition there.

Q Well, I mean, I think AWW talks about firm reliable capacity for high service pumps, any edition. Are you aware of any edition that doesn't require that?

A They do require firm capacity, yes.

Q And my question to you is does not Mr. Biddy in his used and useful recommendation provide for firm reliable capacity in his high service pumps?

A If I put something different here, he was not addressing it the way that it should have been addressed.

Q So my question is yes or no, did Mr. Biddy use firm reliable capacity on high service pumps in his recommendation to the Commission, or do you know?

A I couldn't tell you.

Q You couldn't tell me?

A I couldn't tell you at this moment.

Q If we could move on to Page 16, Lines 4 through 6. You state -- again, we are talking about fire flow demand and a 20 PSI requirement. You state --

A What page are you on, sir?

Q Page 16, Lines 4 through 6. And in this area you're talking about fire flow demands and the 20 PSI requirement. You make a statement, "But we also have on

occasion had some areas with less than 20 PSI during fire flow demands due to lack of storage facilities." Do you see that?

A That's correct.

Q And my question is could you elaborate on which areas you have experienced those below 20 PSI conditions?

A We have some areas like Deltona where we are saying that our storage capacities -- bear with me one second.

Q Okay.

A We have some areas like Deltona where we have had fires and we don't have like the maximum day storage, and we have run into problems in meeting the 20 PSI at times for the forest fire, and it wasn't at the forest fire itself, but it was in other areas. And then you go to Mr. Biddy's used and useful and what he has here is, I believe, 51 percent of used and useful for storage at Deltona. That tells you how reliable that computation is.

Q Well, that's interesting testimony, but I was just trying to get an idea of where the locations of where these less than 20 PSI conditions existed and you said Deltona. Are there others?

A There was Deltona and there was Marco Island, one area of Marco Island, they have high grounds and it was lower than 20 PSI.

Q Let me move you over to Page 35 of your rebuttal testimony, Lines 8 through 12. We are talking about Burnt Store water treatment plant, and with reference to that plant, you make the statement on Lines 8 through 12 that a reduction of approximately 10 percent of the total capacity should be allowed for maintenance procedures. Do you see that?

A Yes, sir.

Q How did you arrive at your request for a 10 percent allowance for maintenance procedures?

A I believe what I arrived at that is having the experience of having other plants, RO plants like Marco Island, this plant even though it is rated at 4 million gallons per day you can never get a continuous 4 million gallons per day. Usually 3.8, 3.2, so I estimated that we should have a margin for maintenance so when the membranes need any maintenance or any flushing, we should be able to run the plant.

Q Now, you may have answered my next question because you said you estimated. Now, was the basis of this estimate through your personal experience or can you refer me to any supporting documents, or manuals, or so forth that would have a provision for such a 10 percent maintenance allowance?

A No, this was based on the experience we have at

Marco Island. And I want you to know that all these manuals that we are looking about and looking at are based on all of the utility's experiences. This manual are not written by somebody that is in a room all enclosed. This manual that AWWA produced and things like that are based on experience that people in the field allows them to have. And this is something that it should be in the manual. It's not in the manual, but it should be in the manual. This is our own experience.

Q Okay. So there is no manual support for that?

A My experience as support.

Q Okay. Still talking about the Burnt Store water treatment plant on Page 57, on Lines 4 through 6, you make the statement that, "Yes, DEP permit certain number was issued January 5, 1996, to permit SSU to add an additional 240,000 gallons per day RO skid to the existing facility," is that correct?

A That's correct.

Q Now, from your prior testimony there were two RO skids at the Burnt Store water plant, is that correct?

A That's correct.

Q And here SSU is adding another skid?

A That's correct.

Q And my question is how many more RO skids can be added to the existing facility?

A What we are talking about, the existing facility means actually the utility. You know, in the future you can have 8 million gallons per day.

Q Excuse me?

A What I'm saying is, you know, you have to add as the utility grows.

Q Sure.

A And that's what it is.

Q I guess my question is the building, the water treatment facility building is a certain size. Is it designed to receive 3, 4, 5, 6 additional skids given the existing piping and so forth that is there at the facility, do you know?

A I don't recall that. That should have been asked of Mr. Westrick.

Q Who now?

A Mr. Westrick.

Q As an operational man for SSU, you have no information as to the additional skids that could be added to the current plant?

A Could you ask the question again, please.

Q As an operational man for SSU, you have no information on the capacity of the current plant to receive additional skids?

A I'm not the project manager for the utility, so I

wouldn't know if they are going to add a building there. I imagine they are, because the building we have is limited. Instead of giving you a wrong answer, I won't give you an answer.

Q But regardless of how many additional skids might be able to be added to this plant, SSU is proposing that the current plant should be considered, and the land, and the structures associated with it should be considered 100 percent used and useful?

A Yes. The reason being is that this facility is not, the facility that we have there, the water plant, is not the only thing on the site. You have wells that are distributed around the site which make full use of the site.

MR. RILEY: No further questions.

COMMISSIONER DEASON: Mr. Jacobs.

MR. JACOBS: Thank you, Mr. Chairman. I have no questions.

COMMISSIONER DEASON: Mr. Twomey.

MR. TWOMEY: Yes, sir.

CROSS EXAMINATION

BY MR. TWOMEY:

Q Let me ask you first, Mr. Terrero, the other day you had obtained a copy of Mr. Minot's (phonetic) bill, I think, from the latter part of 1994 which showed that they had that text on it of a message, right?

A That's correct.

MR. TWOMEY: Mr. Feil, we had that identified but not entered in the record, right?

MR. FEIL: Correct, it was Exhibit 82.

BY MR. TWOMEY:

Q Do you have a copy of that? Or maybe can one of your attorneys get you a copy?

A I do now.

Q Okay. Would you look at that and apparently, there is -- first of all, what is the date of the bill?

A Let me tell you, first of all, I'm not a billing expert, though.

Q I'm sorry, sir.

A The bill seems to be 11-30-94.

Q 11-30-94. Okay. And it has on it the text about some homes in this community have elevated lead, right?

A That's correct.

Q Would you agree with me, Mr. Terrero, that the text of the message is in the same size type as the rest of the text on the message on the bill?

A Come back with that again.

Q Yes, sir. Would you agree with me that the size of the type that that message is printed in is the same size type as the rest of the text and numbers that appears on the bill?

A It looks like it, yes.

Q So if there was a -- if the Florida Administrative Code Section 62-551.810(2)(a), required that along with the following alert on the water bill itself in large print, that SSU would not have complied in that regard, is that correct?

A I would say that the print that we have there is readable. The reason they say large print is because we don't want to miss the payment either, so we have it about the same size.

Q I'm sorry, what?

A So it's large enough to be read. DEP doesn't specify how big a font you have to have, sir.

Q Well, if it says here -- I want to read this to you. It says along with the following alert on the water bill itself in large print. And then it gives the text of the message. Doesn't that mean to you, Mr. Terrero, large print, that it has to be larger than the surrounding print?

A No, I think that what they mean is don't put it in small print like a car dealer.

Q Well, we don't want to talk bad about car dealers, do we, Mr. Terrero?

A No, sir.

Q Of course not. But isn't the -- well, we won't debate this.

MR. TWOMEY: Mr. Chairman, I would like to ask you to require SSU to prepare and submit a late-filed exhibit that shows that it has met the requirements, the public education requirements of Rule 62-551.800 for the lead exceedences and the copper exceedences that occurred at Beacon Hills since January 1st of 1994. I would like you to require them to do the same for the lead exceedences that we heard from the DEP witnesses today wherein the Volusia County health department is apparently responsible for compliance as well as any other exceedences since January 1st of 1994.

COMMISSIONER DEASON: Mr. Feil.

MR. FEIL: Well, Commissioner, I thought that with respect to Beacon Hills we had already dealt with that extensively when Mr. Terrero was up on direct. But I suppose if it will speed things along, and if Mr. Terrero doesn't have a problem with preparing such a late-filed hearing exhibit, that I don't have a problem with it.

WITNESS TERRERO: Well, I have a problem with it, because I think we clarified everything on the last time. I said that we were late in the publication, we have not got a consent order, we have not got a violation, so I don't see why are we looking for anything else in that. As the witnesses said this morning, we have complied with the studies, we have installed equipment, so what is the

problem?

COMMISSIONER KIESLING: I just have one question. Didn't one of the either HRS or DEP witnesses this afternoon from Jacksonville say that they had satisfied all of their education --

MR. TWOMEY: No, I don't think any of them --

WITNESS TERRERO: Yes.

COMMISSIONER DEASON: Hold it. Right now Commissioner Kiesling is speaking, nobody else talks until she gets her question asked and she will direct it to one person.

COMMISSIONER KIESLING: Thanks. And right now I was directing that to Mr. Twomey or to anyone else who might happen in terms of counsel to remember that same question and answer.

MR. TWOMEY: I don't think anybody knew whether the public education requirements were met or not. But my larger, if I can expand upon the basis for my request, we heard testimony today that lead exceedence has been exceeded and is currently being exceeded, as I recall, in at least two other systems aside from Beacon Hills. I would think, I mean, I'm curious on behalf of my clients, I would think the Commission would be curious, be compelled to know whether this utility is in compliance with the requirements that it educate the public when such exceedences exist. And it

seems to me that if Mr. Terrero or the company has the documents they can put them together and prove to the Commission that they have properly notified schools, television stations, radio stations, and the like in compliance with the law.

MR. FEIL: Commissioner Kiesling, if I may, a few things. First, I was in the room, and as I recall Ms. Rodriguez was speaking with regard to that issue and was told by Mr. Hamilton as he was standing there, and Ms. Rodriguez said that we had met the public education requirements. Secondly, Mr. Twomey had requested a good deal of this information through discovery already, so I would surmise that he has it already. Now, I'm all in favor of speeding things along, but at the same time I have some trepidation about the prospect of conducting discovery through a late-filed hearing exhibit.

COMMISSIONER KIESLING: Well, I'm not the one ruling on it. My question only related to my memory that, in fact, Ms. Rodriguez did say that after consulting with Mr. Hamilton that they had satisfied all of the public education requirements for the Jacksonville problem, and that was my only point.

MR. TWOMEY: And, again, I think she said that he said kind of a deal, so I would just ask that -- I'm not looking for discovery in that regard. Everybody knows the

level of concern generated by lead in the water and the health consequences with respect to children and so forth, and we ought to put it to bed.

MR. FEIL: Commissioner, the other problem I have with respect to the late-filed exhibit would be the degree of specificity that Mr. Twomey is requesting. Even if we filed something I would have no idea whether or not we sated his concern, and it seems to me since he has asked for a good deal of information through discovery, if there is a specific problem that he has identified it would be easiest for him to be able to ask a question of Mr. Terrero while Mr. Terrero is here and identify the problem, then we can move on.

COMMISSIONER DEASON: We are going to move on. I'm going to ask our staff to take a look at this matter, I think, if they think the record is sufficient or insufficient. And at the conclusion of cross examination of this witness, I will get a recommendation from staff in that regard, and depending on their recommendation I will take your request again, Mr. Twomey, at that point.

MR. TWOMEY: That's excellent. I appreciate it, Mr. Chairman.

BY MR. TWOMEY:

Q You have responded to -- let me start over again. You had, had you not, Mr. Terrero, in your MFRs requested a

used and useful calculation of 90.46 percent for the Sugarmill Woods wastewater treatment plant based upon your statement that its capacity was 400,000 gallons a day, right?

A Yes. My job at Southern States Utilities is environmental manager, and one of my responsibilities is to make sure that we comply with effluent limitations. An engineer made a study of the facilities and concluded that the capacity of the clarifier was .4 million gallons per day, and even though the permit says that it is .5 million gallons per day, the way that I would recommend the company is to go to 400,000 gallons per day and do some other improvements. But since we agree that we are going to leave it at .5, that is the way it is.

Q Right. And you did that only after -- isn't it true that you did that only after Mr. Hansen caught the difference and raised it as an issue in his testimony?

MR. FEIL: Commissioner, I mean, I'm getting deja vu here. I thought we had been through all of this when Mr. Terrero was on direct. I mean, we talked about the engineering report, we talked about the clarifier, we talked about how the used and useful percentage we have requested is based on .5 MGD. I mean, how much more repetition do we need?

COMMISSIONER DEASON: Mr. Twomey.

MR. TWOMEY: I will drop the question. Let me go to this point.

BY MR. TWOMEY:

Q What I want to know, Mr. Terrero, given that under the uniform rate structure being requested here, that Mr. Hansen and my other clients, most of them will be subject to pay for all used and useful calculations in this case, are there any other water or wastewater treatment plant capacities in your filing that are lower than the operating permit capacities?

MR. FEIL: Objection. Mr. Twomey asked that identical question of Mr. Bliss, and Mr. Bliss gave a response.

MR. TWOMEY: And what did Mr. Bliss respond, I don't recall.

MR. FEIL: As I recall he said not that he know of.

MR. TWOMEY: Well, I'm asking Mr. Terrero because it's not asked of Mr. Terrero yet, and I would suggest, Mr. Chairman, that if he knows he can tell me, if he doesn't he can say so.

COMMISSIONER DEASON: I will allow the question.

WITNESS TERRERO: Not that I know of.

BY MR. TWOMEY:

Q Okay. On Beacon Hills, you had in your rebuttal

testimony --

A The page, please.

Q Well, I'm trying to find it, Mr. Terrero, just a minute. Page 12. You had requested for the Beacon Hills wastewater treatment plant that you were entitled to a used and useful percentage of 100 based on the permitted capacity of the plant being 836,000 gallons per day, and also on an average daily flow of the maximum day with a five year margin reserve of 1,079,374 gallons, is that correct?

A I just see here that I'm saying that the plant is operating at 8.36, and, yes, I agree that it's 100 percent, but that's about the extent of it.

Q How can you have an average daily flow for maximum day in excess of a million gallons in a plant that only has a capacity of 836,000 gallons?

A Where do you see the flow of over a million gallons? I don't see it.

Q I see it on Page 868 of Volume 6, Book 1 of 2, in the F schedules.

A Could you show that to me, please.

Q Sure. Did you see it?

A Yes.

Q And that's a fact, is it not?

A Well, that's what was projected by the rate department until there is an analysis.

Q Right. And the projections are that you're going to have a -- your used and useful calculation based upon flows in excess of one million gallons per day in a plant that you claim only has capacity of 836,000 gallons per day, right?

A It's operating today at .836. The process could be changed and we could treat the amount that we say on that with the same plant that we have here, and still claim that it is 100 percent. I don't think that by just changing the process you can go and change your used and useful. I mean, your tankage is there, because you change a number just of the capacity doesn't mean that your used and useful should go down.

Q Okay. I want to show you Volume 11 of your MFRs, Book 15 of 17, and ask you to look -- do you have that volume?

A No, I don't.

Q Do your attorneys have it?

MR. FEIL: No.

MR. TWOMEY: I will show you this one in a minute.

BY MR. TWOMEY:

Q And ask you to look at Permit Number D016-213087, which was issued March 25th, 1993, and expires June 10th, 1997. And I want to read this statement to you, and then I'm going to ask you to look it and help me figure out what

it means. It's the second paragraph, it says, "The department" -- meaning the DEP -- "permits the operation of a 0.836 million gallons per day extended aeration wastewater facility (which can also be operated as a 1.78 million gallon per day contact stabilization wastewater facility)" -- I don't know if it should be course, it says C-O-A-S-E -- "screening, grit removal, chlorination and sulfur dioxide, dechlorination discharging into the St. Johns River via a 20-inch diameter force main." Let me know when you finish reading that, please.

A I got it. I read it.

Q Now, that permit seems to say to me that you can operate the plant at up to 1.78 million gallons per day.

A No, sir. That permit says that you can change the process and go to 1.78, but you have to do a lot of additional work to get to that capacity, which we don't have the facilities in there. It says the course screening, it says rate chamber, it says more different equipment. Also since that time, since '93 rules have changed. In order to go to the river you have to go to Class 3 reliability which will add an additional clarifier.

Q I'm sorry, go ahead. Are you finished?

A I'm finished.

Q So it's your testimony that you can only operate the plant at the .836?

A At this time, yes, without doing further evaluations.

Q Now, I had asked you earlier if you knew whether the hydraulic modeling proposed by the company for the four systems involved would result in necessarily -- or it did result in higher used and useful percentages than the lot method, lot count method, do you recall that?

A Yes, sir.

Q Are you aware now whether or not the hydraulic method results in a higher used and useful percentage for each of those systems than the lot count method?

A I was educated on these books, so if you look at --

Q If the answer is yes --

A Yes, the answer is yes. But I think the lot count method is not a method to really design or evaluate any system. As a matter of fact, in addition to looking up this information that you wanted, I went ahead and I ran a model given a pipe size that you are not even allowing me to, you know, the cost of the used and useful is even lower than that. And I ran a Cybernet with it, and I ended up with pressures of minus 120 pounds, minus 40 pounds. That's what you want me to build. Engineering-wise that is not what we are looking for.

MR. TWOMEY: Mr. Chairman, that was my last

question, so I had just as soon that -- I am satisfied with the yes. If counsel wants to get more of the Cybernet on redirect, that's fine. Thank you, Mr. Terrero.

COMMISSIONER DEASON: Staff.

MR. PELLEGRINI: Commissioner Deason, I would suggest that we address the question that you posed to staff at this time, if that's appropriate.

COMMISSIONER DEASON: I said we would do it at the end of your cross examination. You're talking about the question on the lead exceedences notice?

MR. PELLEGRINI: Yes, I am.

COMMISSIONER DEASON: We will do it at the end of your cross examination.

MR. PELLEGRINI: All right.

Commissioner Deason, we are distributing four exhibits which we intend to use in our cross examination of Mr. Terrero. The first of these is entitled Recent Water Analyses at Leisure Lakes.

COMMISSIONER DEASON: That would be Exhibit 223.

MR. PELLEGRINI: The second of these is entitled Late-filed Deposition Exhibit Number 6 from Mr. Terrero's January 1996 deposition.

COMMISSIONER DEASON: 224.

MR. PELLEGRINI: The third of these is SSU's response to Staff's Interrogatory Number 305.

COMMISSIONER DEASON: 225.

MR. PELLEGRINI: And the fourth is entitled EPA Handbook, et cetera.

COMMISSIONER DEASON: 226.

(Exhibit Numbers 223 through 226 marked for identification.)

CROSS EXAMINATION

BY MR. PELLEGRINI:

Q Good evening, Mr. Terrero.

A Good evening.

Q You will recall, I think, or recollect a sanitary survey letter dated October 5th, 1995 issued by HRS in connection with the Deltona water service area?

A Yes, sir.

Q And you may recall that that letter required a response by the utility with reference to the deficiencies cited by December 5th, 1995?

A That date that you are quoting there was a wrong date. The letter, as we addressed this morning in the conference call, was a letter with no signature. The letter that came in to us actually was a two-page letter, and it had a date of February 1996 to be answered. I will be glad to provide that as an exhibit.

Q Are you saying that the utility has made a response to those deficiencies?

A Yes, we have.

Q And do have you that response with you?

A Yes, we do.

Q And can you then use that to inform us as to what the utility's response was?

MR. FEIL: If I may, for clarity, as Mr. Terrero said, the letter attached to Mr. Faircloth's testimony, if I have the correct staff witness, was an unsigned four-page letter. The letter that Mr. Terrero believes we received was a two-page letter, so the response that Mr. Terrero is going to refer to is going to be the response to the two-page letter, not the four-page letter, for clarification.

MR. PELLEGRINI: I accept the clarification.

WITNESS TERRERO: I have the letter.

MR. PELLEGRINI: Would you describe its contents? That is, the responses made to the deficiencies cited in the HRS letter?

MR. FEIL: We have copies of it, if you would like us to distribute them.

WITNESS TERRERO: We can provide you copies. I have got copies for everybody, if you want copies.

MR. PELLEGRINI: That would be acceptable.

Commissioner Deason, I would suggest that that be identified as an exhibit.

COMMISSIONER DEASON: 227.

(Composite Exhibit Number 227 marked for identification.)

MR. FEIL: Just so everybody knows what they are getting, we are circulating our response to the letter, the two-page letter we received, and the four-page letter, as well. I apologize that they are not numbered. We didn't anticipate necessarily providing them as exhibits, but thus they are.

COMMISSIONER DEASON: So the record is clear, the two-page letter and the response to that letter -- I'm sorry, you have a two-page letter and a four-page letter enclosed?

MR. FEIL: Yes, sir. I think the two-pager and four-pager are together.

COMMISSIONER DEASON: Okay. It will be a composite exhibit, Exhibit 227.

MR. FEIL: So you are combining all three as Composite 227?

COMMISSIONER DEASON: Yes. That being both versions of the letter, along with the response from Southern States.

MR. FEIL: Thank you, Commissioner Deason.

BY MR. PELLEGRINI:

Q Mr. Terrero, would you direct your attention to

the exhibit marked 223 for identification, and entitled Recent Water Analyses at Leisure Lakes?

A Okay.

Q Do you have that?

A Yes, sir.

Q Is it true that this response contains a water analysis conducted on Leisure Lakes since February, since the February service hearing?

A Yes.

Q Is it not true that the test results do not indicate any water quality problems?

A That's correct.

Q With reference now to the Collier Pits property, Mr. Terrero, the land condemned, the land taken by condemnation by SSU consists of 212 acres, is that correct?

A Yes, sir.

Q Is it true that there are no surface water protection setbacks?

A That's correct. Collier County has not presently come up with an ordinance to protect the surface water.

Q It is true, is it not, that DEP has been given primacy regarding the drinking water standards for Florida?

A Yes, sir.

Q Is it not also true that utilities which obtain water from a surface water supply must meet much stricter

treatment standards than those which utilize ground water sources?

A In some cases, yes.

Q Would you agree with me, then, that those stricter treatment standards probably would have something to do with the vulnerability of the surface water to contamination, the surface water source to contamination?

A Not really.

Q Why is that?

A Well, you can have a deep well like Sugarmill Woods, and it's a sandy soil, and if you have a spill of gasoline ten feet away from it, it will be down in the well in a day.

Q Page 3 of your rebuttal testimony. On Line 18, where you are discussing the aquifer storage and recovery well.

A Yes, sir.

Q Do you know whether that site was -- prior to the condemnation, do you know whether that site was evaluated for its suitability as an ASR site?

A We have talked about it, and like I mentioned to you in my deposition, the engineers or the hydrologists that were doing the evaluation are the same, the ASR for the county is about two miles south of our property. So, yes, we thought that this property could be used for ASR.

Q Prior to the condemnation proceeding?

A Yes.

Q You have agreed to provide at this hearing an overlay of the Exhibit RAT-3?

A I do have that, sir.

Q Do you have that with you this evening?

A Yes, sir.

MR. PELLEGRINI: Could we have that introduced as an exhibit, please. Commissioner Deason, I would so request.

COMMISSIONER DEASON: While that is being done, I need some clarification. On Exhibit 227, apparently there are three versions of the letter contained within that exhibit. And I need to know the distinction between the two four-page letters. Are they the same, drafts of the same letter? One has some hand notations on it.

WITNESS TERRERO: The hand notations, sir, were done by our operations personnel while they were doing the review of the letters.

COMMISSIONER KIESLING: The thing that I'm having trouble understanding is that there is a two-page October 5th, 1995 letter, a four-page October 5th, 1995 letter, and a four-page December 7th, 1995 letter all in the same packet in which you said there were only two letters.

WITNESS TERRERO: I obtained as much information

as I could and that's what I found. It seems like there was a miscommunication from --

COMMISSIONER KIESLING: Wait a minute. I don't need an explanation. I need to know what is in the exhibit, Mr. Feil.

MR. FEIL: That is what is there as I see it under this cover sheet.

COMMISSIONER KIESLING: Okay. But you originally identified it as a two-page letter and a four-page letter. Is the December 7th letter supposed to be a part of this?

MR. FEIL: It appears to have the exact same statements as the October 5th four-page letter with some notations. And interestingly enough, they all apparently have the same certified mail --

COMMISSIONER KIESLING: Well, I noticed that, too, which confused me even more. I mean, how you can use the same certified mail number on two letters two months apart was another quandary that I couldn't resolve in my own mind.

MR. FEIL: And I believe Mr. Armstrong attempted to suggest that when Mr. Faircloth was on the stand by asking him questions about whether or not the letter was transmitted informally prior to being sent formally. Neither of the two four-page letters there are signed.

COMMISSIONER KIESLING: I noticed that also.

So you have no other explanation that will help me

understand what this exhibit is.

MR. FEIL: Mr. Terrero may.

WITNESS TERRERO: The letter that has the exhibit number on top, the four-page letter, I think it has Lee Faircloth on top, I believe.

COMMISSIONER KIESLING: Not on what I have. You are confusing me more.

WITNESS TERRERO: That's what we had in the files, and that's what I provided. The letter that was signed was a two-page letter. To me, the HRS sent us a courtesy copy before sending the formal letter for us to take a look and take care of the problems that we had. And after a period of time they sent the second two-page letter signed. I don't want to confuse the issue, but that is --

MR. FEIL: I don't think the issue needs any help.

MR. PELLEGRINI: I would note that the SSU responses to the December letter, the unsigned December letter --

COMMISSIONER DEASON: Well, the exhibit, I guess, will speak for itself. But we have clarified that there are three letters from HRS, and that there is one response, and the response that is included is the response to the December 7th letter. And all of that comprises Composite Exhibit Number 227. Now we need to identify the next exhibit, which I think has just been passed out, which is an

overlay map, and that will be identified as Exhibit Number 228.

(Exhibit Number 228 marked for identification.)

BY MR. PELLEGRINI:

Q Mr. Terrero, in reference to the exhibit marked 228 for identification, or with reference to that exhibit, would you briefly explain how the ASR will work?

A The way the ASR will work is that we will pump water from the lakes into a well, and we will recharge an aquifer. Since this model was done, further studies have been completed, and instead of needing one well, we are going to need four wells to recharge and withdraw the water. It's not uncommon to have more than one well to recharge and withdraw water from the aquifer.

What will happen is that from June through about September there will be excess flow on the creek at Rookery Bay, which is downstream near Marco Island claims that is damaging the microbiology there. We will take the excess water through the lake, pump it into the injection well, store there, and then on the dry season we will be able to pump the water out and send it to Marco Island. That way the quality of the water will be good quality, it will be a steady quality of the water.

Q Is the utility required to own or control an amount of surface land in order to control or protect

withdrawals from the ASR?

A I would say that -- as an owner and a responsible party, we should open and control this area, because you don't want to have somebody else go and drill a well and take your water from there, or at the same time go and inject some water that is going to be damaging to your treatment.

Once you take and have the water down, at the time that you pull it you will have a specific quality, the one that you're going to be treating, you will have a treatment plant for that type of quality.

Like I said, I have an additional drawing that I would like to pass along with the additional wells on that site.

Q But before you do, and further to the explanation which you have just given us, is there an addition, a requirement as a matter of rule or statute, or is it a matter of prudent management?

A I believe that I have said in my testimony that it is a professional concept of how we are going to protect it. We have been in this business for a long time, we know the area, and we feel that this area here is the minimal amount of land that we can have to protect the ASR and the surface water, too.

Q I understand that, but is there also a requirement

as a matter of rule?

A No, there is not.

Q And now you said you wished to introduce a further exhibit on this subject?

A Yes.

Q And what is that?

COMMISSIONER DEASON: While that exhibit is being obtained, let me ask staff, I take it you still have quite a bit of cross examination for this witness?

MR. PELLEGRINI: Yes, sir, we do.

COMMISSIONER DEASON: When you get to a convenient breaking point, let me know, because we are going to recess for the evening, and you will just have to pick up with your cross examination tomorrow morning.

MR. PELLEGRINI: Commissioner Deason, this might be an appropriate point at which to break.

COMMISSIONER DEASON: Has the exhibit been located?

MR. FEIL: He is having trouble locating it.

COMMISSIONER DEASON: Well, this may be a good time.

MR. FEIL: Yes, sir. Thank you.

COMMISSIONER DEASON: Before we recess, I need to make an announcement.

Tomorrow morning, the Commission will be convening

an Internal Affairs meeting at 9:00 a.m. I cannot tell you how long that meeting is going to last. But the Chairman asked me to put everyone on notice that this hearing will convene ten minutes after the conclusion of Internal Affairs. As a guide, I think that there is only one item on the Internal Affairs agenda, I don't think that it will take an extraordinary length of time, but I can't tell you how long that will be. So just guide yourselves accordingly.

Mr. Feil.

MR. FEIL: We should be here at 9:11 then.

COMMISSIONER DEASON: Guide yourselves accordingly.

MR. FEIL: All right. Thank you, sir.

COMMISSIONER DEASON: Is there anything else before we recess for the evening? Hearing nothing, this hearing is recessed for the evening. See you tomorrow.

(Transcript continues in sequence with Volume 39.)

EXHIBIT (SEB-1)

PAGE 1 OF 18

DOCUMENT NUMBER-DATE

03383 MAR 21 96

FPSC-RECORDS/REPORTING

SOUTHERN STATES UTILITIES, INC.
PLANT ADDITIONS & REGULATORY REQUIREMENT(S)
North Region

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Amelia Island - Water		
1993	**92CN522**	REBUILD #2 WELL MOTOR	956.69	17-555.350
1993	**92CN451**	CHLORINE ALARM SYSTEM	408.21	17-555.320(5)
1994	**90CN366**	VACUUM CHLORINATION SYSTEM	4,466.46	17-555.320(5)
1994	**91CN452**	AERATOR ENCLOSURE	3,024.96	17-555.350
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,233.46	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	2,235.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	171.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	55.00	62-555.320(6)*(8),SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO004**	CLARIFER REHAB	71,400.00	62-600.410
1996	**96RO057**	LARGE METER RETROFIT	3,124.00	62-555.320(6)*(8),SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**87,074.78**	

DOCKET 950495-WS
EXHIBIT NO. 220
CASE NO. 96-04227

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO. 220
COMPANY/ SSU
WITNESS: Bailey
DATE: 4/29/96

EXHIBIT (SEB-2)
PAGE 2 OF 18

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
Amelia Island - Wastewater				
1994	**91CN280**	MANHOLE & 15" PVC PIPE	16,635.68	17-604.500
1994	**94CN305**	LIFT STATION 1518-1 ALARM WIRING	1,382.81	WL93-0024DW45, 17-604.130, 400, 500
1995	**94CN035**	WWTP RERATING/EXPANSION	403,693.00	62-600.405
1995	**95CN305**	LS/MANHOLE REPLACMENT	87,382.70	62-604.130, 400, 500
1995	**94CN088**	LS REHAB & MANHOLE REPL	48,914.77	17-604.130, 400, 500
1996	**96RO005**	COLLECTION IMPROVEMENTS	71,400.00	62-604.130, 400, 500
1996	**96RO003**	LIFT STATION UPGRADE	41,650.00	62-604.130, 400, 500
1996	**96RO001**	MANHOLE REFURBISHMENT	23,800.00	62-604.130, 400, 500
		Subtotal	**694,858.96**	

EXHIBIT (SEB-1)

PAGE 3 OF 18

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Beacon Hills - Water		
1993	**92CN500**	ADDITION TO CHLORINE FEED SYSTEM	14,836.37	17-555.320(5)
1993	**93CN517**	WELL PUMP AND CASING	12,056.41	17-555.315,350
1993	**92CN342**	GROUND STORAGE TANK REFURBISHMENT	7,774.14	17-555.350(1), Duval Co. PHU Inspection 11/18/92
1993	**92CN451**	CHLORINE ALARM SYSTEMS	2,474.91	17-555.320(5)
1993	**92CN546**	REBUILD WELL PUMP	2,279.42	17-555.315,350
1993	**92CN089**	AUTOMATIC DIALER & PHONE LINES	839.76	17-555.320(5)
1994	**91CN208**	CL2 LEAK DETECTOR/ALARM/STOR. TANK	10,512.95	17-555.320(5)
1994	**94CN441**	CHLORINE BUILDING	7,196.50	17-555.320(5)
1994	**93CN529**	DIESEL FUEL TANK CONTAINMENT	7,101.59	17-762
1994	**93CN517**	WELL PUMP AND CASING	684.16	17-555.315,350
1995	**94CN040**	WTP EXPANSION & IMPROVE	796,392.78	62-551, 555, Duval Co. PHU NNC 5/31/94, Duval Co. PHU Permit 1693WD2842
1995	**93CN064**	COBBLESTONE CHEMICAL FEED	182,077.75	62-551, 555, Duval Co. PHU Permit 1693WD2842
1995	**95CN702**	HIDDEN HILLS WATER MAIN	86,520.50	62-555*.350(1)
1995	**95CN309**	CHLORINE ANALYZERS(2)	7,381.10	62-555.320(5)a
1995	**95CO211**	LG WATER METER RETROFIT	4,631.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	354.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	109.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	6,471.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,149,693.35**	
		Beacon Hills - Wastewater		
1993	**92CA550**	H2S CONTROL	6,768.22	17-604.400
1993	**92CN536**	MANHOLE REFURBISHMENT	3,963.08	17-604.400,500
1993	**92CN273**	FORCE MAIN REFURBISHMENT	3,865.32	17-604.500
1993	**92CN525**	REFURBISH LIFT STATION PUMPS	2,562.75	17-604.130,400,500
1993	**89CN010**	WWTP DECHLORINATION	1,855.54	USEPA NOV 4/1/91, 17-3, NPDES Permit #FL0026778
1993	**92CN526**	PUMP - LIFT STATION	965.52	17-604.130,400,500
1993	**92CN535**	REFURBISH SUBMERSIBLE PUMP	881.65	17-604.130,400,500
1993	**92CN532**	PUMP - LIFT STATION	645.51	17-604.130,400,500
1993	**92CN533**	REFURBISH SUBMERSIBLE PUM -L/S 886- 8	595.87	17-604.130,400,500
1994	**93CN125**	LIFT STATION UPGRADE	92,275.65	17-604.130,400,500

EXHIBIT (SEB-1)

PAGE 4 OF 18

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
1994	**93CN057**	ELECTRIC CONTROL PANEL - L/S	45,689.00	17-604.130,400,500
1994	**93CN528**	DIESEL FUEL TANK CONTAINMENT	10,619.62	17-762
1994	**92CN272**	UPGRADE SPLITTER & INFLUENT BOX	9,116.80	17-600.410
1994	**94CN344**	PUMP - HABOUR ISLAND - L/S 886-19	6,065.71	17-604.130,400,500
1994	**93CN385**	REFURBISH PUMP - BEACON MASTER L/S	5,461.75	17-604.130,400,500
1994	**93CN611**	PUMP - EAST POINTE	3,332.39	17-604.130,400,500
1994	**93CN690**	PUMP - EAST POINTE	2,913.03	17-604.130,400,500
1994	**91CN356**	HARBOUR ISLAND L/S IMPROVEMENTS	1,226.85	17-604.130,400,500
1994	**93CN610**	PUMP - ST. JOHN'S LANDING	1,078.44	17-604.130,400,500
1995	**95CN314**	TROUGH REPLACEMENT	29,762.50	62-600.740, *410
1995	**95CN313**	MANHOLE REFURBISHMENTS	23,810.00	17-604.130,400,500
1995	**95CN310**	REPLACE AIR DIFFUSERS	8,571.60	62-600.740, *410
1996	**96RO010**	MANHOLE REFURBISHMENT	23,800.00	17-604.130,400,500
		Subtotal	**285,826.80**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Beecher's Point - Water		
1993	**92CN427**	CL2 KIT & SCOTT AIR PAK	55.57	17-555.330, 29CFR1910.134
1993	**92CN451**	CHLORINE ALARM SYSTEMS	26.99	FDEP 93-0332, 17-555.320(5), WL920071PW54NED
1994	**93CN054**	WATER SYSTEM CONNECTION TO WELAKA	62,153.76	FDEP 93-0332, 17-550, WL920071PW54NED
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,639.42	FDEP 93-0332, 17-555.320(5), WL920071PW54NED
1995	**95CO211**	LG WATER METER RETROFIT	66.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	5.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	92.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**64,040.74**	
		Beecher's Point - Wastewater		
1993	**92CN609**	SEWER MAIN	8,806.85	17-604.500
1993	**92CN516**	BEECHER'S POINT FORCE MAIN RELOCATION	3,274.52	17-604.400
1994	**93CN607**	INSTALL BLOWER	4,891.54	17-600.410
1995	**95CN315**	INSTALL FLOW METER AT WW	4,166.75	62-601.300
		Subtotal	**21,139.66**	
		Geneva Lake Estates - Water		
1993	**92CN507**	HYDRO PNEUMATIC TANK	14,683.96	17-555.350(1)
1993	**92CN451**	CHLORINE ALARM SYSTEM	91.84	FDEP Inspection letter 3/10/92, 17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEM	1,076.14	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	133.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	10.00	62-555.320(5)
1995	**95CO101**	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	185.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**16,182.94**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Hermits Cove - Water		
1993	**90CN151**	LINE EXTENSION TO TIE INTO PLANT 438	6,068.92	17-555.315, 320(6)
1994	**93CN048**	MANGANESE REMOVAL SYSTEMS	4,796.37	17-550.320
1994	**92CN451**	CHLORINE ALARM SYSTEMS	3,257.28	C.O. 93-0332, 17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	265.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	20.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	371.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**14,784.57**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Holiday Haven - Water		
1995	**95CO211**	LG WATER METER RETROFIT	169.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	13.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	236.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**422.00**	
		Interlachen Lakes/Park Manor - Water		
1993	**89CN146**	WTP GENERATORS	31,553.09	17-555.320(6)
1993	**92CN307**	WATER SYSTEM INTERCONNECT W/PARK MANOR	27,515.67	17-555.310
1993	**92CN451**	CHLORINE ALARM SYSTEMS	43.23	C.O. 93-0332, 17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,639.56	C.O. 93-0332, 17-555.320(5)
195	**95CN355**	REPLACE ROOF	5,357.25	62-555.350*(1)
1995	**95CO211**	LG WATER METER RETROFIT	375.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	29.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	9.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO031**	HIGH SERVICE PUMPS	13,090.00	62-555.350*(1)
1996	**96RO057**	LARGE METER RETROFIT	524.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**80,135.80**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
Jungle Den - Water				
1995	**95CO211**	LARGE WATER METER RETROFIT	172.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	13.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	241.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**430.00**	
Keystone Club Estates - Water				
1993	**92CN451**	CHLORINE ALARM SYSTEM	537.92	FDEP Sanitary Survey 3/10/92, 17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEM	1,086.51	FDEP Sanitary Survey 3/10/92, 17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	232.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	18.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	324.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**2,203.43**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Keystone Heights - Water		
1993	**92CN105**	PUMP AND MOTOR - WELL #2	14,121.33	17-555.350(1)
1993	**92CN505**	FIRE HYDRANTS	1,709.01	Clay County Ordinance #88, 17-555.330(3)
1993	**92CN494**	RELOCATION OF EMERGENCY GENERATOR	1,159.75	17-555.320(6) & 350(1)
1993	**92CN451**	CHLORINE ALARM SYSTEMS	900.14	17-555.320(5)
1993	**92CN420**	WELL FLOW METER REBUILD	524.21	SJRWMD 40C-2
1994	**93CN074**	WTP IMPROVEMENTS	104,710.97	17-555.320(4) & 350(1)
1994	**93CN075**	CLAY COUNTY ROADWAY IMPROVEMENTS	33,632.01	FS 337.403
1994	**92CN451**	CHLORINE ALARM SYSTEM	2,873.83	17-555.320(5)
1995	**93CN075**	CLAY CTY/DOT UTILITY RELO	50,816.00	FS 337.403
1995	**95CO211**	LG WATER METER RETROFIT	1,502.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	115.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	35.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	2,100.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**214,199.25**	
		Lakeview Villas - Water		
1995	**95CO211**	LG WATER METER RETROFIT	18.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	1.00	62-555.320(5)a
1996	**96RO057**	LARGE METER RETROFIT	26.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**45.00**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Palm Port - Water		
1993	**92CN421**	INSTALL SOLENOID VALVE ON WELL	720.89	17-555.315
1993	**92CN378**	FLOW METERS	696.23	SJRWMD 40C-2, 17-555.320(8)
1993	**92CN451**	CHLORINE ALARM SYSTEMS	118.85	C.O. 93-0332, 17-555.320(5)
1994	**93CN050**	WTP HYDRO TANK	43,495.00	17-555.350(1)
1994	**93CN051**	REPIPE PLANT & INSTALL HPT BYPASS	4,008.17	17-555.350(1)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,640.19	17-555.320(5)
1995	**95CN399**	REPLACE AERATOR ON GST	11,905.00	62-555.350*(1)
1995	**95CN714**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	151.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	12.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	211.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**64,935.58**	
		Palm Port - Wastewater		
1993	**91CN509**	SPRAY FIELD (WWTP EFFLUENT DISP IMPR)	92,071.11	17-610.320
1994	**93CN049**	IMPROVE SEWER GRAVITY MAIN	7,425.89	17-604.130, 400, 500
1995	**95CN398**	INSTALL FLOW METER/WW PLT	4,166.75	62-601.300
1996	**96RO054**	REBUILD MAIN LIFT STATION	11,900.00	62-604.130, 400, 500
		Subtotal	**115,563.75**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Palm Valley - Water		
1993	**91CN014**	WATER DISTRIBUTIONS/SYSTEM IMPROVEMENT I	823,466.88	17-550.310, 320, 350(1), C.O. 92-1400
1993	**92CN318**	CHLORINE FEED SYSTEM	2,882.15	17-555.320(5)
1994	**91CN014**	WATER DISTRIBUTIONS/SYSTEM IMPROVEMENT II	36,693.78	17-550.310, 320, 350(1), C.O. 92-1400
1994	**92CN451**	CHLORINE ALARM SYSTEMS	2,264.16	17-555.320(5)
1994	**91CN269**	REBUILD PUMP	1,030.27	17-555.350(1)
1995	**95CO211**	LG WATER METER RETROFIT	314.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	24.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	7.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	439.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**867,121.24**	
		Park Manor - Water		
1995	**95CN402**	INSTALL FLOW METER/WW PLT	4,166.75	62-601.300
		Subtotal	**4,166.75**	
		Park Manor - Wastewater		
1994	**93CN607**	INSTALL BLOWER	5,760.67	17-600.410
		Subtotal	**5,760.67**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Pomona Park - Water		
1993	**92CN347**	WTP GENERATOR	46,337.98	C.O. 93-0332, 17-555.320(6), WL92-0072-PW54NED
1993	**92CN451**	CHLORINE ALARM SYSTEMS	2,751.67	C.O. 93-0332, 17-555.320(5)
1993	**92CN427**	CL2 REPAIR KIT & SCOTT AIR PAK	1,375.35	17-555.320(5) & 29CFR1910.134
1993	**92CN378**	FLOW METERS	696.23	17-555.320(8)
1994	**91CN410**	CHLORINATOR	1,735.09	17-555.320(5)
1994	**94CN521**	SUBMERSIBLE WELL PUMP	1,001.77	17.555.350
1994	**93CN121**	CHEMICAL FEED PUMPS (4)	601.09	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	254.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	19.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	356.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**55,134.18**	
		Postmaster Village - Water		
1993	**92CN566**	PUMP & MOTOR WELL #2	3,108.30	17-555.350
1993	**92CN502**	PUMP, MOTOR AND WIRE	1,498.67	17-555.350
1993	**92CN451**	CHLORINE ALARM SYSTEMS	452.16	FDEP Sanitary Survey 7/14/92, 17-555.320(5)
1994	**93CN076**	WTP GENERATOR	68,537.34	FDEP Sanitary Survey 7/14/92, 17-555.320(6)
1994	**90CN233**	2200 FT. OF 6" LINE - REPLACE 1 1/2"	2,738.04	17-555.350(1)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,085.79	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	238.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	18.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	332.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**78,014.30**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Remington Forest - Water		
1993	**92CN541**	CHLORINE ALARM SYSTEM	373.91	17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	23.14	17-555.320(5)
1995	**95CN406**	CHLORINE ANALYZERS	3,690.55	62-555.320(5)a
1995	**95CO211**	LG WATER METER RETROFIT	98.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	7.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	136.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**4,330.60**	
		River Grove - Water		
1993	**92CN378**	FLOW METERS	696.23	17-555.320(8)
1993	**92CN451**	CHLORINE ALARM SYSTEMS	91.82	17-555.320(5), C.O. 930332
1994	**92CN451**	CHLORINE ALARM SYSTEMS	3,286.95	17-555.320(5), C.O. 930332
1995	**95CN410**	REPLACE AERATOR ON GST	5,952.50	62-555.350*(1), FDEP Sanitary Survey 9/2/94
1995	**95CN719**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	160.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	12.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	224.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**12,400.75**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		River Park - Water		
1993	**90CN434**	WTP GENERATORS	25,093.05	17-555.320(6)
1993	**92CN451**	CHLORINE ALARM SYSTEMS	31.55	C.O. 93-0332, 17-555.320(5)
1994	**90CN451**	CHLORINE ALARM SYSTEMS	1,639.46	C.O. 93-0332, 17-555.320(5)
1994	**94CN520**	SUBMERSIBLE WELL PUMP	1,438.74	17-555.350*(1)
1994	**90CN434**	WTP GENERATORS	606.59	17-555.320(6)
1995	**95CO211**	LG WATER METER RETROFIT	536.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	41.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	13.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	750.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**30,149.39**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Salt Springs - Water		
1993	**93CW475**	CHLORINE EMERGENCY KIT	1,376.51	17-555.320(5)
1994	**92CW109**	LAB EQUIPMENT	722.47	17-550.500, 550
1995	**95CO211**	LG WATER METER RETROFIT	177.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	14.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	247.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**2,540.98**	
		Salt Springs - Wastewater		
1993	**91CW445**	WWTP IMPROVEMENTS	118,688.94	17-600.400, 405, 410
1996	**96RO061**	REPLACE L.S. ELECTRIC BOX	14,280.00	62-604.130, 400, 500
		Subtotal	**132,968.94**	
		Silver Lake Oaks - Water		
1994	**93CN055**	HYRDRO TANK	27,175.69	17-555.350(1)
1994	**90CN156**	WTP UPGRADE	2,060.48	17-555.350(1)
1994	**94CN451**	RELOCATE WATER MAIN	751.69	17-555.314(1)
1995	**95CO211**	LG WATER METER RETROFIT	40.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	3.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	55.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**30,086.86**	
		Silver Lake Oaks - Wastewater		
1994	**90CN155**	WWTP UPGRADE	22,183.58	17-600.410(6)
1994	**93CN607**	INSTALL BLOWER	6,799.60	17-600.410(6)
1995	**95CN414**	INSTALL FLOW METER/WW PLT	4,166.75	62-601.300
		Subtotal	**33,149.93**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
St. John's Highlands - Water				
1993	**90CN151**	LINE EXTENSION TO TIE INTO PLANT # 438	9,547.72	17-555.315, 320(6)
1994	**93CN120**	GAS CHLORINATORS	2,809.40	17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,610.29	17-555.320(5)
1995	**95CN421**	REPLACE ROOF	2,083.38	62-555.315(2)(d))
1995	**95CO211**	LG WATER METER RETROFIT	125.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	10.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	175.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**16,363.79**	
Welaka/Saratoga Harbour - Water				
1993	**92CN427**	CL2 REPAIR KIT & SCOTT AIR PAK	65.69	17-555.320(5), 330, 29CFR1910.134
1993	**92CN451**	CHLORINE ALARM SYSTEM	32.40	17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEM	1,639.47	17-555.320(5)
1994	**93CN121**	CHEMICAL FEED PUMPS (4)	601.09	17-555.320(4), 350(1)
1995	**95CO211**	LG WATER METER RETROFIT	206.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	16.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	287.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**2,852.65**	
Woodmere - Water				
1993	**92CN451**	CHLORINE ALARM SYSTEMS	323.59	17-555.320(5)
1994	**93CN485**	HIGH SERVICE PUMP REBUILD	4,077.22	17-555.350(1)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,060.47	17-555.320(5)
1995	**95CN439**	CHLORINE ANALYZERS	3,690.55	62-555.320(5)a
1995	**95CO211**	LG WATER METER RETROFIT	1,778.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	136.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	42.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	2,485.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**13,592.83**	

(SEB-1) EXHIBIT PAGE 17 OF 18

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Woodmere - Wastewater		
1993	**92CN567**	REFURBISH LIFT STATION	19,539.50	17-604.130, 400, 500
1993	**92CN087**	BLOWER CONTROLS	5,698.55	17-600.410
1993	**92CN541**	WARNING ALARMS: CL2 & SO2	2,513.12	29CFR1910.119, 17-600.300
1993	**92CN568**	REWIND BLOWER MOTOR	1,004.14	17-600.410
1994	**93CN124**	EMERGENCY BYPASS L/S PUMP	9,152.66	17-604.130, 400, 500
1994	**94CN470**	FLOW RECORDER	3,223.77	17-600.400*601.300
1994	**91CN011**	WWTP DECHLORINATION	3,187.26	EPA Admin. Order 93-078, 17-302
1994	**92CN271**	REFURBISH MANHOLE AT UNIVERSITY	2,208.75	17-604.130, 400, 500
1996	**96RO076**	MANHOLE REFURBISHMENT	23,800.00	62-604.130, 400, 500
		Subtotal	**70,327.75**	
		Wooten - Water		
1995	**93CN053**	WTP IMPROVEMENTS	23,671.50	17-550.310, 320, OGC-93-0332
		Subtotal	**23,671.50**	
		Wooten - Water		
1995	**95CO211**	LG WATER METER RETROFIT	32.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	2.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	45.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**80.00**	
		TOTAL	**$4,194,249.72**	

EXHIBIT (SEB-1)
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Year	Project	Description	Plant In Service Amount	Regulatory Mandate

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C.O. - Consent Order
Char. Co. Agmt. - Charlotte County Agreement
DO - Domestic Operating
DT - Domestic Temporary
FS - Florida Statutes
NNC - Notice of Non-Compliance
NWWMD - Northwest Florida Water Management District
OGC - Office of General Counsel
SFWMD - South Florida Water Management District
SJRWMD - St. Johns River Water Management District
SWFWMD - Southwest Florida Water Management District
TOP - Temporary Domestic Operating
WL - Warning Letter

Southern States Utilities, Inc. - North Region

1995 Filed and Actual FPSC Plant in Service Additions (w/o General Plant)

As of December 31, 1995

Project #	Project Description	In-Service Date		In-Service Amount		
		Filed	Actual	Filed	Actual	
AMELIA ISLAND						
95CN303	REPLACE WELL PUMP #1	03/31/95	06/16/95	11,310	10,861	
	Total Water			11,310	10,861	
94CN035	WWTP RERATING/EXPANSION	11/22/95	11/21/95	403,693	513,794	
95CN700	SUMMER BEACH EFF LINE	06/26/95	06/15/95	106,163	81,611	
95CN305	LS/MANHOLE REPLACMENT	12/31/95	11/27/95	87,383	92,252	
94CN088	LS REHAB & MANHOLE REPL	03/31/95	07/28/94	48,915	49,164	
95CN304	CATWALK ON CLARIFIER	05/31/95	12/27/95	11,905	25,663	
	Total Wastewater			658,058	762,485	
	Total Amelia Island			669,368	773,347	
BEACON HILLS						
94CN040	WTP EXPANSION & IMPROVE	05/30/95	06/09/95	796,393	733,259	(b)
93CN056	COBBLESTONE WELL #2	06/20/95	06/09/95	203,513	168,111	
93CN064	COBBLESTONE CHEMICAL FEED	12/12/95		182,078	0	
94CN037	DUVAL COUNTY UTILITY RELO	11/07/95		121,498	0	
95CN702	HIDDEN HILLS WATER MAIN	07/11/95	11/21/95	86,521	95,854	
95CN309	CHLORINE ANALYZERS(2)	05/31/95	03/01/95	7,381	7,451	
	Total Water			1,397,383	1,004,676	
93CN061	WW COLL SYS IMPROVE	07/25/95	12/28/95	283,785	388,797	
95CN314	TROUGH REPLACEMENT	04/30/95	12/21/95	29,763	21,723	
95CN313	MANHOLE REFURBISHMENTS	06/01/95	11/28/95	23,810	22,923	
95CN312	REPLACE LS PUMPS	12/31/95	11/28/95	14,286	7,291	
95CN310	REPLACE AIR DIFFUSERS	03/31/95	07/28/95	8,572	8,231	
95CN308	SHOWER/EYEWASH STATIONS	02/28/95	03/02/95	3,095	2,079	
	Total Wastewater			363,311	451,043	
	Total Beacon Hills			1,760,694	1,455,719	
BEECHER'S POINT						
95CN316	INSTALL 5,000 GAL TANK	03/31/95	11/15/95	8,929	10,357	
95CN315	INSTALL FLOW METER AT WW	Cancelled		4,167	0	
	Total Beecher's Point - Wastewater			13,096	10,357	
INTERLACHEN LAKE EST.						
95CN355	REPLACE ROOF	03/31/95	06/23/95	5,357	5,488	
	Total Interlachen Lake Est. - Water			5,357	5,488	
KEYSTONE HEIGHTS						
93CN075	CLAY CTY/DOT UTILITY RELO	12/18/95	07/24/95	50,816	42,694	
	Total Keystone Heights - Water			50,816	42,694	
NORTH REGION PLANT						
95CN209	NEW METERS/CHANGE OUT PRG	12/31/95	12/29/95	186,906	83,579	
95CN210	WATER SERVICES	12/31/95	12/29/95	60,849	42,418	
95CN207	HYDRANTS	10/31/95	12/01/95	16,905	8,274	
	Total North Region- Water			264,660	134,271	
PALM PORT						
95CN399	REPLACE AERATOR ON GST	03/31/95	08/01/95	11,905	12,085	
95CN714	LEAD AND COPPER CONTROL	Expensed		1,973	0	(a)
	Total Water			13,878	12,085	
95CN397	CULVERT & IMPRV DRIVEWAY	02/28/95	04/07/95	4,167	2,973	
95CN398	INSTALL FLOW METER/WW PLT	Cancelled		4,167	0	
	Total Wastewater			8,334	2,973	
	Total Palm Port			22,212	15,057	

(a) Completed and expensed rather than capitalized.

(b) Reflects completion of a phase, but not entire project.

(c) Not required because gov't authority did not perform it's project.

(d) Refers to Refundable Advance, with zero rate base impact.

EXHIBIT (SEB-2)

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Southern States Utilities, Inc. - North Region

1995 Filed and Actual FPSC Plant in Service Additions (w/o General Plant)

As of December 31, 1995

Project #	Project Description	In-Service Date		In-Service Amount	
		Filed	Actual	Filed	Actual
PARK MANOR					
95CN403	INSTALL 5,000 GAL TANK	02/28/95	12/19/95	8,929	32
95CN402	INSTALL FLOW METER/WW PLT	Cancelled		4,167	0
	Total Park Manor - Wastewater			13,096	32
POMONA PARK					
95CN405	INSTALL AIR RITE COMPRESS	03/31/95	06/12/95	2,083	1,058
	Total Pomona Park - Water			2,083	1,058
POSTMASTER VILLAGE					
94CN480	W DIST SYS IMPRV/PHASE I	11/09/95	11/14/95	116,296	98,076
	Total Postmaster Village - Water			116,296	98,076
REMINGTON FOREST					
95CN406	CHLORINE ANALYZERS	05/31/95	03/01/95	3,691	3,790
	Total Remington Forest - Water			3,691	3,790
RIVER GROVE					
95CN410	REPLACE AERATOR ON GST	02/28/95	08/04/95	5,953	6,058
95CN409	REPIPE PUMP ROOM	04/30/95	06/12/95	4,167	2,437
95CN408	REPLACE ROOF	04/30/95	06/12/95	2,381	2,137
95CN407	INSTALL AIR RITE COMPRESS	03/31/95	06/12/95	2,083	974
95CN719	LEAD AND COPPER CONTROL	Expensed		1,973	0 (a)
	Total River Grove - Water			16,557	11,606
SILVER LAKE OAKS					
95CN414	INSTALL FLOW METER/WW PLT	03/31/95	03/22/95	4,167	723
	Total Silver Lake Oaks - Wastewater			4,167	723
ST. JOHN'S HIGHLANDS					
95CN421	REPLACE ROOF	04/30/95	09/01/95	2,083	1,181
	Total St. John's Highlands - Water			2,083	1,181
WELAKA					
95CN434	INSTALL AIR RITE COMPRESS	03/31/95	06/12/95	2,083	2,327
95CN411	INSTALL AIR RITE COMPRESS	03/31/95	06/12/95	2,083	974
	Total Welaka - Water			4,167	3,301
WOODMERE					
95CN441	WELL #2 CONTROL PANEL	06/30/95	10/01/95	11,905	9,638
95CN439	CHLORINE ANALYZERS	05/31/95	03/01/95	3,691	3,790
	Total Water			15,596	13,428
94CN497	REFURBISH LIFT STATION	02/28/95	11/28/95	26,886	25,819
95CN442	PUMP REPLACEMENTS	12/31/95	11/28/95	14,286	4,979
95CN438	SHOWER/EYEWASH STATIONS	02/28/95	11/28/95	3,095	2,079
	Total Wastewater			44,268	32,876
	Total Woodmere			59,863	46,305
WOOTEN					
93CN053	WTP IMPROVEMENTS	06/26/95		23,672	0
	Total Wooten - Water			23,672	0
	Total 1995 Plant In-Service Additions - As Filed in MFR's			3,031,877	2,603,004
	Less: Non-FPSC Plants Project Allocation Adjustments			(50,642)	
	Total Per MFR's			2,981,235	

(a) Completed and expensed rather than capitalized.

(b) Reflects completion of a phase, but not entire project.

(c) Not required because gov't authority did not perform it's project.

(d) Refers to Refundable Advance, with zero rate base impact.

SOUTHERN STATES UTILITIES, INC.
PLANT ADDITIONS & REGULATORY REQUIREMENT(S)
Central Region

Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Apple Valley - Water		
1993	92CC344	VIRGINIA DRIVE WATER MAIN RELOC.	161,937.22	FS 337.403
1993	93CC427	DUAL CHLORINE SCALE	1,062.57	17-555.320(5)
1994	92CC344	WATER MAIN RELOCATION (VIRGINIA DR)	2,446.54	FS 337.403
1994	93CC568	FENCING FOR PLANT PROPERTIES	2,220.60	17-555.310,315
1994	93CC501	AUTO DIALER FOR CHLORINE ALARM	930.26	17-555.320(5)
1995	95CC701	LEAD AND COPPER CONTROL	6,577.50	62-551
1995	95CO211	LG WATER METER RETROFIT	1,446.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	95CC331	CHLORINATR/BSTR PMP/EJETR	111.00	62-555.320(5)a
1995	95CO101	METER TEST/INSTALL EQUIP	34.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	96RO057	LARGE METER RETROFIT	2,020.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**178,785.69**	
		Bay Lake Estates - Water		
1993	92CC503	WELL PUMP	6,634.31	17-555.315
1994	93CC559	CHLORINE ALARMS	1,079.64	17-555.320(5)
1995	95CO211	LG WATER METER RETROFIT	107.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	95CC331	CHLORINATR/BSTR PMP/EJETR	8.00	62-555.320(5)a
1995	95CO101	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	96RO057	LARGE METER RETROFIT	150.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**7,981.95**	

EXHIBIT (BP-1)
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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Buenaventura Lakes - Water		
1996	**96RO057**	LARGE METER RETROFIT	18,310.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**18,310.00**	
		Carlton Village - Water		
1993	**92CC407**	WTP GENERATOR	37,418.88	17-555.320(6)
1994	**92CC407**	WTP GENERATOR	1,466.98	17-555.320(6)
1995	**94CC017**	HYDRO TANK & NEW WELL PHASE I	117,468.54	62-555.350
1995	**94CC018**	DISTRIBUTION SYS UPGRADE	106,908.65	62-555. 350(1)
1995	**95CO211**	LG WATER METER RETROFIT	192.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	15.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**94CC017**	HYDRO TANK & NEW WELL PHASE II	123,881.00	62-555.350*(1)
1996	**96RO057**	LARGE METER RETROFIT	268.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**387,624.05**	
		Chuluota - Water		
1994	**91CC421**	SCALES FOR CHLORINE CYLINDER	915.47	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	1,012.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	77.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	24.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**94CC020**	DISTRIBUTION SYSTEM UPGRD	425,433.00	17-550,*555.350(1)
1996	**96RO057**	LARGE METER RETROFIT	1,414.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**428,875.47**	
		Chuluota - Wastewater		
1993	**91CC265**	REBUILD 2 HP LIFT PUMP	696.34	17-604.130,400,500
1993	**92CC621**	REBUILD # 1 LIFT PUMP	620.26	17-604.130,400,500
1994	**94CC498**	PLANT FLOW METER	3,362.87	17-601.200(17), *.300, FDEP Insp. Report 3/5/93, Inspection letter 11/29/94,
1994	**93CC417**	REBUILD 2 PUMPS	804.80	17-604.130,400,500
1994	**93CC540**	FLOW CHART RECORDER	784.95	17-600.410(6), FDEP Inspection Report 3/5/93
1994	**92CC281**	INSTALL 2" MONITORING WELL # 3	777.00	17-610.424, 17-522
		Subtotal	**7,046.22**	

EXHIBIT (BP-1)
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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Daetwyler Shores - Water		
1994	**92CC498**	PUMPS	6,372.02	17-555.315(5)
1995	**95CO211**	LG WATER METER RETROFIT	190.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	15.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	266.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**$6,847.02**	
		Deltona Lakes - Water		
1993	**89CN078**	WELL # 33	467,357.26	17-555.320, 350
1993	**92CN511**	WELL #23	78,808.71	17-555.320, 350
1993	**92CN451**	CHLORINE ALARM SYSTEM	3,237.37	FDEP Sanitary Survey 3/11/91, 17-555.320(5)
1993	**92CN453**	ELECTRIC POWER SENTRY MODULE	2,987.63	17-555.320(6)
1993	**92CN366**	CHLORINE VENTILATOR FAN	621.53	17-555.320(5)
1994	**93CN097**	DOT & COUNTY ROADWAY IMP/UTILITY RELOC	145,257.96	FS 337.403
1994	**89CN078**	WELL 33	10,856.83	17-555.320, 350
1994	**94CN112**	8" TURBINE WATER METERS (3)	8,571.45	17-555.320, *SJRWMD 40C-2
1994	**92CN451**	CHLORINE ALARM SYSTEMS	5,020.14	17-555.320(5)
1994	**94CN328**	CORROSION CONTROL	2,506.25	17-551.510
1994	**91CS476**	CHART RECORDER	530.05	17-555.350(1)
1995	**95CO211**	LG WATER METER RETROFIT	34,810.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC705**	VOLUSIA CTY/DOT UTILITY	13,290.00	F.S. 337.403
1995	**95CC341**	ROOF REPLACEMENTS (5)	4,464.38	62-555.315,350*(1)
1995	**95CC340**	CORROSION CONTROL EQUIP	3,571.50	Volusia Co. HRS,*62-551
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	2,660.00	62-555.320(5)a
1995	**95CC342**	TELEMETRY EQUIPMENT	2,526.57	62-160.120, *62-555.350(1)
1995	**95CO101**	METER TEST/INSTALL EQUIP	817.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	48,643.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**836,537.63**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Deltona Lakes - Wastewater		
1993	**92CN461**	ABS PUMP	4,990.04	17-604.130,400,500
1993	**92CN445**	REBUILD PUMP	1,507.77	17-604.130,400,500
1993	**92CN365**	SHAFT BEARING #3 CLARIFIER	1,079.15	17-600.410(6)
1993	**92CN602**	REBUILD RETURN PUMP	589.50	17-600.410(6)
1994	**93CN100**	WWTP SUBSTANDARD HOLDING FACILITIES	1,311,706.76	17-610.464(3)
1994	**93CN380**	DHCC - EFFLUENT DISPOSAL IMPROVEMENTS	4,042.25	17-610.320
1995	**94CN046**	FP&L EASEMENT EFF IRG.SYS	726,332.25	17-600.405, WL OWL-DW940014
1995	**94CN341**	DHCC - EFF DISP IMPROVE	330,625.00	17-600.405, WL OWL-DW940014
1995	**95CC347**	TELEMETRY EQUIP UPGRADE	9,131.14	62-555.320(5)a,*62-604.130,400,500
1995	**95CC342**	TELEMETRY EQUIPMENT	2,527.10	62-160.120*62-160.120, *62-604.500(2)(3)
1996	**96RO027**	L/S UPGRADE (5)	17,850.00	62-604.130,400,500
1996	**96RO025**	TELEMETRY EQUIPMENT WW	10,115.00	62-160.120*62-604.130,400,500
		Subtotal	**2,420,495.95**	
		Dol Ray Manor - Water		
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	FDEP Inspection letter 2/7/94, 17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	91.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	7.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO029**	CHLORINATOR EQUIPMENT	11,900.00	62-555.350, *.320(5)
1996	**96RO057**	LARGE METER RETROFIT	128.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**13,156.01**	

EXHIBIT (BP-1)
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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Druid Hills - Water		
1993	**92CC383**	AERATOR	37,341.19	FDEP Sanitary Survey 2/10/93, 17-555.320, 350(1)
1993	**92CC012**	5000 GAL HYDRO TANK	21,435.78	17-555.350(1)
1994	**94CC316**	CHLORINE BUILDING	10,832.89	17-555.320(5)
1994	**92CC383**	AERATOR	3,376.15	FDEP Sanitary Survey 2/10/93, 17-555.320, 350(1)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	FDEP Inspection letter 2/7/94, 17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	379.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	29.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	9.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	530.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**74,961.02**	
		East Lake Harris Estates - Water		
1994	**93CC630**	CHLORINATORS (4) - REGAL MODEL A210	1,625.04	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**94CC023**	PLANT IMPROVEMENTS	226,743.59	62-555.320*62-555.315
1995	**95CO211**	LG WATER METER RETROFIT	264.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	20.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	368.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**230,054.64**	
		Enterprise - Water		
1995	**95CO211**	LG WATER METER RETROFIT	332.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	25.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	8.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	464.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**829.00**	
		Enterprise - Wastewater		
1993	**92CN604**	ROOTS 45 URAL BLOWER UNIT	549.13	17-600.410
1994	**94CN416**	LIFT STATION PUMP	1,021.07	17-600*17-604.130,400,500
		Subtotal	**1,570.20**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Fern Park - Water		
1993	**93CC376**	ROOF ON STORAGE TANK	7,071.20	17-555.350(1)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	FDEP Inspection Report 2/7/94, 17-555.320(5)
1995	**94CC457**	REPLACE HYDRO TANK	24,830.42	62-555.350(1)
1995	**95CO211**	LG WATER METER RETROFIT	274.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	21.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	383.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**33,613.63**	
		Fern Terrace - Water		
1992	**91CC203**	GENERATOR 50 KW W/AUTO TRANSFER SWITCH	19,438.38	17-555.320(6)
1994	**93CC579**	FLOW METER FOR WELL PUMP	2,724.87	SJRWMD 40C-2
1994	**93CC630**	CHLORINATORS (4) - REGAL MODEL A210	1,625.04	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**91CC008**	NEW WELL # 2	565.59	17-555.315
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	187.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	14.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	262.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**26,163.21**	
		FL Central Commerce Park - Wastewater		
1993	**92CC469**	FLOW RECORDER	3,239.00	17-600.400(4), 601.300
1993	**92CC283**	POND PUMP	681.52	17-600.410
		Subtotal	**3,920.52**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Fountains - Water		
1994	**93CC559**	CHLORINE ALARMS	1,105.42	17-555.320(5)
1995	**95CC706**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	44.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	3.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	62.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
		Subtotal	**3,188.67**	
		Friendly Center - Water		
1995	**95CO211**	LG WATER METER RETROFIT	30.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	2.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	43.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**76.00**	
		Grand Terrace - Water		
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CC708**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	168.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	13.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	234.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**3,420.26**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Harmony Homes - Water		
1993	**91CC324**	BACK FLOW DEVICE	698.09	17-555.360
1994	**91CC202**	PUMP WELL	3,989.44	17-555.315
1994	**94ZZ777**	CHLORINATOR	1,792.54	17-555.320(5)
1994	**93CC490**	FENCING FOR PLANT PROPERTY	1,617.49	17-555.310, .315
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	FDEP Inspection letter 2/7/94, 17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	96.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	7.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	134.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**9,364.57**	
		Hobby Hills - Water		
1994	**93CC630**	CHLORINATORS (4) - REGAL MODEL A210	1,625.04	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**93CC018**	3" FLOW METER # 1 WELL	855.46	SJRWMD 40C-2
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	146.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	11.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	204.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**4,186.83**	
		Holiday Heights - Water		
1994	**93CC009**	3000 GALLON HYDRO TANK	43,723.36	17-555.350(1)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	81.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	6.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	113.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**44,953.37**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Imperial Mobile Terrace - Water		
1994	**94CC368**	WELL PUMP	7,338.37	17-555.350(1)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	367.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	28.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	9.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	513.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**9,283.38**	
		Intercession City - Water		
1994	**90CC190**	WTP - AUXILIARY GENERATORS	6,464.43	17-555.320(6)
1994	**93CC631**	REBUILD # 2 TURBINE WELL PUMP	4,340.77	17-555.315 & 350
1994	**93CC412**	PLANT FLOW METER	3,232.61	17-555.320(8)
1994	**93CC559**	CHLORINE ALARMS	1,079.62	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	386.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	29.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CO101**	METER TEST/INSTALL EQUIP	9.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	539.00	62-555.320(6)*(8)
		Subtotal	**16,080.43**	
		Kingswood - Water		
1993	**92CN451**	CHLORINE ALARM SYSTEM	257.61	17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEMS	1,212.19	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	94.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	7.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	132.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,704.80**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Lake Ajay - Water		
1994	**93CC036**	WTP MASTER METER	4,857.87	17-555.320(8)
1994	**92CC263**	# 1 WELL	3,315.20	17-555.320
1994	**93CC576**	CHLORINE STORAGE FACILITY	2,417.70	17-555.320(5)
1994	**90CC188**	WTP - AUXILIARY GENERATORS	1,809.02	17-555.320(6)
1994	**93CC559**	CHLORINE ALARMS	1,131.24	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	130.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	10.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	181.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
		Subtotal	**13,855.03**	
		Lake Brantley - Water		
1994	**94ZZ777**	CHLORINATOR	1,792.54	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**94CC030**	HYDRO TANK AND AERATOR	123,370.53	62-555.330*(3), 320(1), 350(1)
1995	**95CO211**	LG WATER METER RETROFIT	101.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	8.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	141.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**126,443.08**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
Lake Conway Park - Water				
1994	**92CC499**	PUMPS	3,729.96	17-555.315(5)
1995	**95CO211**	LG WATER METER RETROFIT	130.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	10.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	3.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	181.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**4,053.96**	
Lake Harriet Estates - Water				
1994	**94ZZ777**	CHLORINATOR	1,792.54	17-555.320(5)
1994	**93CC571**	CHLORINE SCALE	1,461.23	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CC358**	REPLACE AERATOR TRAYS	17,262.25	62-555.350(1)
1995	**95CO211**	LG WATER METER RETROFIT	430.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	33.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	10.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	600.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**22,617.03**	
Meredith Manor - Water				
1994	**91CC373**	NEW AERATOR ON STORAGE TANK	15,098.66	17-555.350(1)
1994	**93CC502**	AUTO DIALER FOR CHLORINE ALARM	930.26	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	992.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	76.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	23.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	1,386.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**18,505.92**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Morningview - Water		
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	55.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	4.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	77.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,479.33**	
		Oakwood - Water		
1993	**92CN451**	CHLORINE ALARM SYSTEM	344.98	17-555.320(5)
1994	**92CN451**	CHLORINE ALARM SYSTEM	1,245.49	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	309.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	24.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	7.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	432.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**2,362.47**	
		Palisades Country Club - Water		
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	52.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	4.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	72.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,157.01**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
Palms Mobile Home Park - Water				
1993	**92CC280**	IRON FILTERS	64,021.64	17-550.320
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	88.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	7.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	2.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	124.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**65,584.97**	
Picciola Island - Water				
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	201.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	15.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	281.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,844.33**	
Pine Ridge Estates - Water				
1994	**93CC575**	CHLORINE STORAGE FACILITY	3,392.60	17-555.320(5)
1994	**90CC189**	WTP - AUXILIARY GENERATIONS	3,167.96	17-555.320(6)
1994	**93CC559**	CHLORINE ALARMS	1,135.61	17-555.320(5)
1995	**95CC716**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	323.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	25.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	8.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	451.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
		Subtotal	**10,476.42**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Piney Woods - Water		
1993	**92CC471**	A-210 CHLORINATOR	1,367.21	17-555.320(5)
1994	**90CC352**	AUXILIARY GENERATOR	26,117.52	17-555.320(6)
1994	**93CC588**	CHLORINATION ALARMS	2,056.14	17-555.320(5)
1994	**93CC630**	CHLORINATORS (4) - REGAL MODEL A210	1,625.04	17-555.320(5)
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	254.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	19.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	6.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	356.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**32,115.23**	
		Quail Ridge Estates - Water		
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	23.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	2.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	1.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	32.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,086.01**	
		Silver Lake Est./W. Shores - Water		
1993	**92CC513**	REWIND 60 HP WELL PUMP MOTOR	1,302.91	17-555.350(1)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**93CC588**	CHLORINATION ALARMS	1,012.07	17-555.320(5)
1994	**90CC157**	WATER PLANT UPGRADE	670.55	17-555.320 & 350
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**94CC032**	WTP & DIST. IMPROVEMENT	862,099.56	62-555.320, 350(1)
1995	**95CO211**	LG WATER METER RETROFIT	2,051.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	157.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	48.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	2,866.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**871,549.42**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Skycrest - Water		
1993	**92CC018**	PORTABLE GENERATOR	7,897.87	17-555.320(6)
1994	**93CC014**	WTP IMPROVEMENTS	288,403.22	17-555.315, 320(6), 350(8)
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	174.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	13.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	243.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**297,763.10**	
		Stone Mountain - Water		
1995	**95CO211**	LG WATER METER RETROFIT	11.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	1.00	62-555.320(5)a
1996	**96RO057**	LARGE METER RETROFIT	15.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**27.00**	
		Sugar Mill - Water		
1994	**92CN267**	550 GALLON FUEL STORAGE TANK	10,602.42	17-761, 762, 17-555.320(6)
1994	**93CN083**	CHLORINATORS	2,981.44	17-555.320(5)
1995	**95CC721**	LEAD AND COPPER CONTROL	6,577.50	62-551
1995	**95CO211**	LG. WATER METER RETROFIT	946.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	72.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	22.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	1,322.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**22,523.36**	
		Sugar Mill - Wastewater		
1994	**94CN339**	FLOW METER - CHART RECORDER	4,515.59	17-601.200(17), *.300
1995	**95CC424**	REWORK BLOWERS (2)	3,214.35	62-604.500(2), *62-600.410(6)
1995	**95CC422**	CHLORINE CYLINDER SCALE	616.68	62.555.320(5)
		Subtotal	**8,346.62**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Sunshine Parkway - Water		
1993	**92CC473**	LADDER & SAFETY CAGE FOR STORAGE TANK	1,372.83	29CFR1910.27(d)(1)(III)
1994	**93CC041**	CHLORINATORS; BOOSTER PUMPS	5,039.66	17-555.320(5)
1994	**93CC424**	8" FLOW METERS FOR WELL PUMPS (2)	3,936.57	SJRWMD 40C-2
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	15.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	1.00	62-555.320(5)a
1996	**96RO057**	LARGE METER RETROFIT	21.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**11,414.07**	
		Sunshine Parkway - Wastewater		
1993	**88CC003**	EFFLUENT DISPOSAL SYSTEM & LAND	690,779.04	Lake Co. Reg. 6.10.01, TOP DT35-131150
1993	**91CC320**	FLOW DEVICE	689.16	17-601.300
1994	**93CC694**	ISCO AUTO SAMPLER - MODEL 3710R	4,363.74	17-601.500
1994	**94CC491**	FLOW METER	3,430.51	17-601.300, D035-220437*DO0035
		Subtotal	**699,262.45**	
		Tropical Park - Water		
1994	**90CC191**	WTP - AUXILIARY GENERATORS	4,452.76	17-555.320(6)
1994	**93CC577**	CHLORINE STORAGE FACILITY	3,467.00	17-555.320(5)
1994	**93CC559**	CHLORINE ALARMS	1,131.26	17-555.320(5)
1995	**94CC034**	HYRO TANK REPLACEMENT	46,717.54	62-555.350*(1)
1995	**95CO211**	LG WATER METER RETROFIT	827.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	63.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	19.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	1,156.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
		Subtotal	**57,833.56**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		University Shores - Water		
1993	**92CC408**	#2 TURBINE WELL PUMP IMPROVEMENTS	10,504.26	17-555.350(1)
1993	**92CC371**	CHLORINATION EQUIPMENT	2,597.15	17-555.320(5)
1993	**92CC388**	REBUILD 100HP SERVICE PUMP MOTOR	2,276.29	17-555.350(1)
1993	**92CC285**	CHLORINE SCALES	946.32	17-555.320(5)
1994	**91CC381**	SUNCREST CHLORINE MONITOR ALARM	6,192.84	17-555.320(5)
1994	**93CC556**	CHLORINATION EQUIPMENT	6,178.78	17-555.320(5)
1994	**93CC463**	REBUILD # 3 HIGH SERVICE PUMP	3,355.15	17-555.350(1)
1994	**93CC358**	REBUILD # 1 WELL PUMP MOTOR	1,451.61	17-555.320
1994	**92CC003**	CHLORINE VACUUM LOSS ALARM SYSTEM	705.21	17-555.320(5)
1994	**93CC559**	CHLORINE CAPACITY ALARMS	341.26	17-555.320(5)
1995	**95CC724**	LEAD AND COPPER CONTROL	40,251.00	62-551
1995	**95CO211**	LG WATER METER RETROFIT	5,154.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	394.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	121.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	7,201.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**87,669.87**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		University Shores - Wastewater		
1993	**92CC004**	REFURBISH STP - #1	63,423.70	17-600.410
1993	**91CC001**	IRRIGATION UPGRADE CHAPEL HILL	10,111.05	17-610.462, 463
1993	**92CC635**	REBUILD 76HP LIFT PUMP	2,461.58	17-604.130, 400, 500
1993	**92CC623**	REBUILD CLARIFIER	2,065.62	17-600.410
1993	**92CC287**	REBUILD LIFT PUMP SUNCREST L/S	1,229.94	17-604.130, 400, 500
1993	**92CC416**	REBUILD LIFT PUMP BRADFORD COVE	1,113.19	17-604.130, 400, 500
1993	**92CC384**	PROGRAMMER FOR 1MGD FILTER	969.41	17-600.410
1994	**92CC008**	EMERGENCY GENERATOR STP # 2	39,453.60	17-610.462
1994	**94CC317**	2,000 GALLON ABOVE GROUND TANK	21,256.16	17-761 & 762, Orange Co. NNC 1/3/94
1994	**94CC447**	LIFT STATION PUMPS (2)	18,893.37	17-604.500*(2),(3), WLOCDCEDW0207
1994	**93CC360**	EFFLUENT DISPOSAL MODIFICATIONS	13,475.76	17-610.320
1994	**90CC138**	DECHLORINATION	7,786.25	NPDES Permit FL0024856, 17-302
1994	**93CC371**	20 HP EFFLUENT PUMP	6,446.00	17-610.320
1994	**93CC621**	CHLORINATION EQUIPMENT	6,248.64	17-600.440
1994	**92CC474**	EFFLUENT FLOW METER / INSTALL PH METER	5,487.91	17-600.445, 601.300
1994	**91CC385**	FLOW METER RELOCATION	5,165.01	17-601.300
1994	**93CC503**	2 L/S PUMPS @ CHAPEL HILL	4,701.40	17-610.320
1994	**93CC599**	DUAL CHLORINE SCALES (3)	4,384.75	17-600.440
1994	**91CC415**	FLOW METER RELOCATION	2,807.84	17-601.300
1994	**91CC308**	CHLORINE & BLOWER ROOM DOOR	2,174.87	17-600.410
1994	**93CC384**	INSTALL 2 MONITORING WELLS	2,025.24	17-522, 610.424
1994	**92CC005**	BLOWER/GENERATOR HOUSING	1,645.46	17-600.410
1994	**93CC383**	REBUILD LIFT PUMP @ LAKE IRMA L/S	1,422.21	17-604.130, 400, 500
		Subtotal	**224,748.96**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Valencia Terrace - Water		
1995	**95CO211**	LG WATER METER RETROFIT	686.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	52.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	16.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	958.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**1,712.00**	
		Venetian Village - Water		
1993	**92CC470**	A-210 CHLORINATOR	1,367.21	17-555.320(5)
1994	**92CC020**	5000 GALLON HYDRO TANK	52,211.82	17-555.350(1)
1994	**94CC446**	FENCING AND BACKFILL	9,926.67	LAKE COUNTY ZONING
1994	**93CC588**	CHLORINATION ALARMS	1,028.01	17-555.320(5)
1994	**90CC178**	CHLORINATION EQUIPMENT	1,002.68	17-555.320(5)
1994	**93CC646**	CHLORINE SCALES	314.32	17-555.320(5)
1995	**95CO211**	LG WATER METER RETROFIT	207.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	16.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	290.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**66,368.71**	
		Westmont - Water		
1995	**95CO211**	LG WATER METER RETROFIT	200.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	15.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	5.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	279.00	62-555.320(6)*(8), SJRWMD 40C-2, 25-30.262,263,264
		Subtotal	**499.00**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
		Windsong - Water		
1994	**94CC352**	MASTER METER	1,098.81	17-555.320(8)
1994	**93CC559**	CHLORINE ALARMS	1,079.64	17-555.320(5)
1995	**95CC727**	LEAD AND COPPER CONTROL	1,973.25	62-551
1995	**95CO211**	LG WATER METER RETROFIT	160.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1995	**95CC331**	CHLORINATR/BSTR PMP/EJETR	12.00	62-555.320(5)a
1995	**95CO101**	METER TEST/INSTALL EQUIP	4.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
1996	**96RO057**	LARGE METER RETROFIT	224.00	62-555.320(6)*(8), SFWMD 40E-2, 25-30.262,263,264
		Subtotal	**4,551.70**	

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
Administrative - General Plant				
1992	**89CS122**	4.0 MGD R.O. PLANT	10,130.87	17-555.320, 350(1)
1993	**91CW002**	WWTP EXPANSION/IMPROVEMENTS	18,592.07	17-600.405, 410
1993	**93CW278**	HYDRAULIC PIPE PUSHER	14,427.10	Marion Co. Ordinance 89-24, 17-555.320
1993	**93CN109**	LAB EQUIPMENT - LAB COUNTERS	11,032.66	17-55.320, 601.400, 550, EPA 570/9-82-002
1993	**92CA369**	UNDERGROUND STORAGE - SEWER	10,752.49	17-761, 762
1993	**92CA369**	UNDERGROUND STORAGE	10,421.09	17-761, 762
1993	**92CA369**	UNDERGROUND STORAGE	6,969.16	17-761, 762
1993	**88CS009**	PLANT EXPANSION	6,290.97	17-600.405
1993	**92CA633**	BACKFLOW PREVENTION TESTER	5,232.14	17-555.360
1993	**92CN031**	FLOW PROPORTIONAL SAMPLERS	4,485.10	Beacon Hills NPDES Permit No. FL0026778, 17-601
1993	**92CN086**	LAB EQUIPMENT	4,132.26	17-601.400
1993	**93CN518**	CONFINED SPACE ENTRY SAFETY EQUIPMENT	4,082.51	29CFR1910.146
1993	**92CC620**	INCUBATOR	3,179.48	17-601.400
1993	**93CW467**	SAFETY EQUIPMENT	2,821.93	29CFR1910.134
1993	**N/A**	GARAGE EQUIPMENT	2,632.62	29CFR1910.134
1993	**93CW272**	SAFETY EQUIPMENT	2,488.07	29CFR1910.134
1993	**93CW457**	BREATHING APPARATUS	1,997.47	29CFR1910.134
1993	**92CN427**	CL2 REPAIR KIT & SCOTT AIR PAK	1,665.68	29CFR1910.134
1993	**93CW253**	CL2 REPAIR KIT - TYPE A	1,660.36	17-555.320(5), 600.300, 440
1993	**93CW291**	CHLORINE REPAIR KITS	1,632.68	17-555.320(5)
1993	**92CN544**	REFRIGERATOR	1,524.39	17-601.400(3)
1993	**92CN542**	REFRIGERATOR	1,524.39	17-601.400(3)
1993	**92CA608**	PORTABLE TEST KIT	763.43	17-555.350, 600.410
1993	**92CS563**	SELF-CONTAINED BREATHING APPARATUS	620.83	29CFR1910.134
1993	**92CN547**	WATER LEVEL INDICATOR	594.61	SJRWMD 40D-2
1993	**92CW584**	PH METER	551.26	40CFR503 &17-640, 40CFR257
1993	**92CW634**	PH METER	543.64	40CFR503 &17-640, 40CFR257
1993	**92CN451**	CHLORINE ALARM SYSTEMS	65.21	17-555.320(5)

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
1993	93CW291	CHLORINE REPAIR KITS	1.12	17-555.320(5)
1994	92CA370	UNDERGROUND STORAGE	95,271.79	17-761, 762
1994	93CA697	SAFETY EQUIPMENT	69,825.47	29CFR1910.134
1994	93CC553	GROUND MAINTENANCE EQUIPMENT	39,081.01	17-610.320, D048193001
1994	92CN572	PORTABLE EMERGENCY PUMP	28,783.61	17-604.500(2)
1994	93CO136	ENVIRONMENTAL COMPLIANCE SOFTWARE	28,719.87	17-600.405, 17-555 & 600
1994	92CN347	WTP GENERATORS	27,570.60	17-555.320(6)
1994	92CC642	PORTABLE 4" TRASH PUMP	12,524.12	17-604.130, 400, 500
1994	94CW313	FLOW PROPORTIONED COMPOSITE SAMPLERS	12,294.83	17-600/*17-601.500
1994	93CO683	LAB EQUIPMENT	11,755.60	17-550 & 601
1994	94CA486	LOW VISION ACCOMMODATION	10,353.93	Federal Americans w. Disabilities Act
1994	94CN495	COMMUNICATION EQUIPMENT	9,047.42	17-604.400
1994	92CC579	REFURBISH LABORATORY	8,105.03	17-16, 17-601.400(3)
1994	92CA606	POLYSONIC FLOW METERS	7,835.09	17-555.350(1), 17-600.410, 604.400
1994	93CN492	SAFETY EQUIPMENT-CONFINED SPACE	7,180.79	29CFR1910.146
1994	93CW641	MONITORING WELL CONTROLLER	5,797.62	17-522, 17-601.700
1994	MFRADJ	LABORATORY EQUIPMENT	5,250.87	17-550 & 601
1994	92CC257	CHLORINE SCALES	5,098.97	17-555.320 (5)
1994	91CN451	LAB EQUIPMENT	4,919.17	17-601.400(3)
1994	92CS329	LAB EQUIPMENT	4,655.96	17-601.400(3), 17-550
1994	92CC258	CONVERT ENGINE TO 45 KW GENERATOR	4,582.56	17-600.400
1994	93CN066	AIR CONDITIONER/HEATER UNIT	4,536.55	17-600.400, 17-550, 601
1994	93CC554	ISCO AUTOMATIC SAMPLER - MODEL # 3710R	4,317.88	17-601.500
1994	92CW109	LABORATORY EQUIPMENT	4,194.04	17-600.400, 17-601.400(3)
1994	93CW258	LAB EQUIPMENT	4,061.59	17-601.400(3)
1994	90CW059	EQUIPMENT	3,719.64	17-550
1994	92CW468	PH2 CL2 ANALYZERS/COMPOSITE SAMPLER	3,685.78	17-600.445, 17-601.500
1994	93CO534	HUNTRON MODEL 1000	3,220.14	17-600.400, 604.400
1994	94CC362	FENCING OF PLANT PROPERTY	2,498.66	17-555.310, 315(2)(d), Code 93-25
1994	93CN072	CONFINED SPACE ENTRY SAFETY KIT	2,438.31	29CFR1910.146
1994	93CN128	ICE MACHINE	2,083.91	17-601.400(3)
1994	93CO533	PRESSURE CALIBRATOR	1,791.47	17-555.350, 17-600.410, 17-604.500

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Year	Project	Description	Plant In Service Amount	Regulatory Mandate
1994	94CO121	ROSEMONT SMART MAG CALIBRATOR	1,731.04	17-555.350, 17-600.410, 17-604.500
1994	93CW277	LABORATORY EQUIPMENT	1,693.91	17-601.400
1994	92CS570	PH METER	1,663.24	17-555.350(1)
1994	93CN109	LAB EQUIPMENT - LAB COUNTERS	1,316.21	17-550 & 601.400
1994	93CN627	PH METER FOR LABORATORY	1,255.09	17-601.400(3), 17-550 & 601
1994	93CN472	PH METER FOR LAB W/ ELECTRONIC STAND	1,245.12	17-601.400(3), 17-550 & 601
1994	91CC417	AMPEROMETRIC TITRATOR	1,103.67	University Shores NPDES Permit #0024856
1994	94CO122	SET CLASS S WEIGHTS	1,049.67	17-160
1994	92CW109	LAB EQUIPMENT	776.92	17-600.400, 601.400(3)
1994	93CN076	WTP GENERATOR	744.94	17-555*.320(6)
1994	91CN226	LAB EQUIPMENT	513.91	17-600.410
1994	89CS122	4.0 MGD R.O. PLANT	86.43	17-555.320, 350
1995	95CO216	AUTO DIALER BLANKET	34,589.98	62-555.320(5)
1995	95CO104	CORROSION TESTING METER	6,006.07	62-551
1995	95CO103	C.W. COX FLOW METER	5,654.88	WMD Chapters 40A-2, 40C-2, 40D-2, 40E-2
1995	95CS377	AUTO SAMPLER	4,857.24	62-601.500(1), DO11-221557
1995	95CO102	PROCESS CALIBRATOR	4,197.70	62-600.410(6), 62-555.350(1), HRS, FDEP*62-550, 601
		Subtotal	**634,503.89**	
		TOTAL	**$8,059,385.02**	

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C.O. - Consent Order
Char. Co. Agmt. - Charlotte County Agreement
DO - Domestic Operating
DT - Domestic Temporary
FS - Florida Statutes
NNC - Notice of Non-Compliance
NWWMD - Northwest Florida Water Management District
OGC - Office of General Counsel
SFWMD - South Florida Water Management District
SJRWMD - St. Johns River Water Management District
SWFWMD - Southwest Florida Water Management District
TOP - Temporary Domestic Operating

EXHIBIT (BP-1)
PAGE 24 OF 24

Year	Project	Description	Plant In Service Amount	Regulatory Mandate

WL - Warning Letter

Southern States Utilities, Inc. - Central Region

1995 Filed and Actual FPSC Plant in Service Additions (w/o General Plant)

As of December 31, 1995

Project #	Project Description	In-Service Date Filed	In-Service Date Actual	In-Service Amount Filed	In-Service Amount Actual
APPLE VALLEY					
95CC701	LEAD AND COPPER CONTROL	Expensed		6,578	0 (a)
95CC306	REPLACE MAIN ELEC BREAKER	04/30/95	12/20/95	1,429	1,142
	Total Apple Valley - Water			8,006	1,142
BAY LAKE ESTATES					
95CC307	WTP BUILDING	Cancelled		1,786	0
	Total Bay Lake Estates - Water			1,786	0
CARLTON VILLAGE					
94CC017	HYDRO TANK & NEW WELL	08/15/95		117,469	0
94CC018	DISTRIBUTION SYS UPGRADE	05/15/95	08/09/95	106,909	98,075
	Total Carlton Village - Water			224,377	98,075
CENTRAL REGION PLANT					
95CC202	WATER SERVICES	12/31/95	12/29/95	133,937	59,809
95CC203	NEW METERS/CHANGE OUT PRG	12/31/95	12/29/95	107,582	89,996
95CC331	CHLORINATR/BSTR PMP/EJETR	01/31/95	12/20/95	12,015	12,015
95CC201	WATER MAIN EXTENSIONS	12/31/95	12/29/95	5,953	16,131
95CC200	FIRE HYDRANTS	12/01/95	12/29/95	2,143	4,419
	Total Water			261,629	182,371
95CC204	HAND RAILS/WALKWAY	05/31/95	12/28/95	81,852	78,721
	Total Wastewater			81,852	78,721
	Total Central Region			343,481	261,092
CHULUOTA					
94CC019	COLLECTION SYSTEM UPGRADE	08/28/95	04/07/95	202,138	229,226
	Total Chuluota - Wastewater			202,138	229,226
DELTONA LAKES					
93CN660	WELLINGTON WTP EXPANSION	10/12/95		1,365,786	0
93CN661	AGATHA/SAXON WTP IMPRV	09/14/95		284,873	0
93CN659	SAGAMORE DR WTP DIST SYS	12/12/95		232,790	0
95CC353	PULL WELL TURBINES (4)	05/31/95	10/26/95	38,096	42,773
95CC352	REPLACE 4" WATER MAIN	02/28/95	07/28/95	35,715	9,763
95CC351	MASTER METERS	05/31/95	12/29/95	21,429	21,023
95CC705	VOLUSIA CTY/DOT UTILITY	Cancelled		13,290	0 (c)
95CC349	REPLACE VALVES - DIST SYS	Cancelled		11,857	0
95CC341	ROOF REPLACEMENTS (5)	01/31/95	08/04/95	4,464	5,029
95CC340	CORROSION CONTROL EQUIP	Cancelled		3,572	0
95CC342	TELEMETRY EQUIPMENT	01/31/95	04/04/95	2,527	2,427
	Total Water			2,014,400	81,016
94CN046	FP&L EASEMENT EFF IRG SYS	09/20/95	06/30/95	726,332	604,035
94CN341	DHCC - EFF DISP IMPROVE	05/26/95		330,625	0
95CC350	ENTERPRISE SCHOOL L/S 016	03/31/95	12/07/95	17,727	19,183
95CC348	L/S AT BRISTOL CT - 006	02/28/95	11/22/95	11,830	12,723
95CC347	TELEMETRY EQUIP UPGRADE	03/31/95	04/18/95	9,131	8,769
95CC346	DELTONA LK ELM L/S - #024	04/30/95	12/19/95	8,928	9,088
95CC345	ANTILLES L/S - 002	01/31/95	06/30/95	6,251	6,364
95CC344	JESSAMINE COURT L/S - 013	02/28/95	10/30/95	6,113	7,069
95CC338	FOUNTAINHEAD L/S - 004	01/31/95	06/30/95	2,769	2,819
95CC339	L/S AT CONDO B - #022	03/31/95	12/19/95	2,769	5,478
95CC342	TELEMETRY EQUIPMENT	01/31/95	04/04/95	2,527	2,426
	Total Wastewater			1,125,002	677,953
	Total Deltona Lakes			3,139,402	758,969

(a) Completed and expensed rather than capitalized.
(b) Reflects completion of a phase, but not entire project.
(c) Not required because gov't authority did not perform it's project.
(d) Refers to Refundable Advance, with zero rate base impact.

Southern States Utilities, Inc. - Central Region

1995 Filed and Actual FPSC Plant in Service Additions (w/o General Plant)

As of December 31, 1995

Project #	Project Description	In-Service Date Filed	In-Service Date Actual	In-Service Amount Filed	In-Service Amount Actual
EAST LAKE HARRIS EST.					
94CC022	DISTRIBUTION SYSTEM UPGRADE	06/13/95	06/16/95	262,782	248,010
94CC023	PLANT IMPROVEMENTS	04/10/95	06/09/95	226,744	247,327 (b)
	Total East Lake Harris Est. - Water			489,526	495,337
FERN PARK					
94CC457	REPLACE HYDRO TANK	03/31/95	01/19/95	24,830	24,107
	Total Fern Park - Water			24,830	24,107
FOUNTAINS					
95CC706	LEAD AND COPPER CONTROL	Expensed		1,973	0 (a)
	Total Fountains - Water			1,973	0
GRAND TERRACE					
95CC708	LEAD AND COPPER CONTROL	Expensed		1,973	0 (a)
	Total Grand Terrace - Water			1,973	0
HARMONY HOMES					
94CC027	DISTRIBUTION SYS UPGRADE	02/27/95	02/14/95	35,619	29,064
	Total Harmony Homes - Water			35,619	29,064
LAKE AJAY					
95CC356	FENCE PROPERTY	04/30/95	12/29/95	4,762	841
	Total Lake Ajay - Water			4,762	841
LAKE BRANTLEY					
94CC030	HYDRO TANK AND AERATOR	04/24/95	05/31/95	123,371	120,584
	Total Lake Brantley - Water			123,371	120,584
LAKE HARRIET					
95CC358	REPLACE AERATOR TRAYS	07/31/95	10/12/95	17,262	14,994
95CC357	ELECTRIC PANEL UPGRADE	07/31/95	12/06/95	4,762	4,998
	Total Lake Harriet - Water			22,024	19,992
MEREDITH MANOR					
95CC391	STORAGE TANK DOME	Cancelled		23,810	0
95CC390	REPLACE ROOF	06/30/95	05/24/95	3,572	1,122
	Total Meredith Manor- Water			27,382	1,122
PINE RIDGE ESTATES					
94CC414	WELL PUMP UPGRADE	02/27/95	03/07/95	14,323	12,465
95CC716	LEAD AND COPPER CONTROL	Expensed		1,973	0 (a)
	Total Pine Ridge Estates- Water			16,296	12,465
SILVER LAKE EST./W. SHORES					
94CC032	WTP & DIST. IMPROVEMENT	11/09/95		862,100	0
	Total Silver Lake/W. Shores - Water			862,100	0

(a) Completed and expensed rather than capitalized.
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Southern States Utilities, Inc. - Central Region

1995 Filed and Actual FPSC Plant in Service Additions (w/o General Plant)

As of December 31, 1995

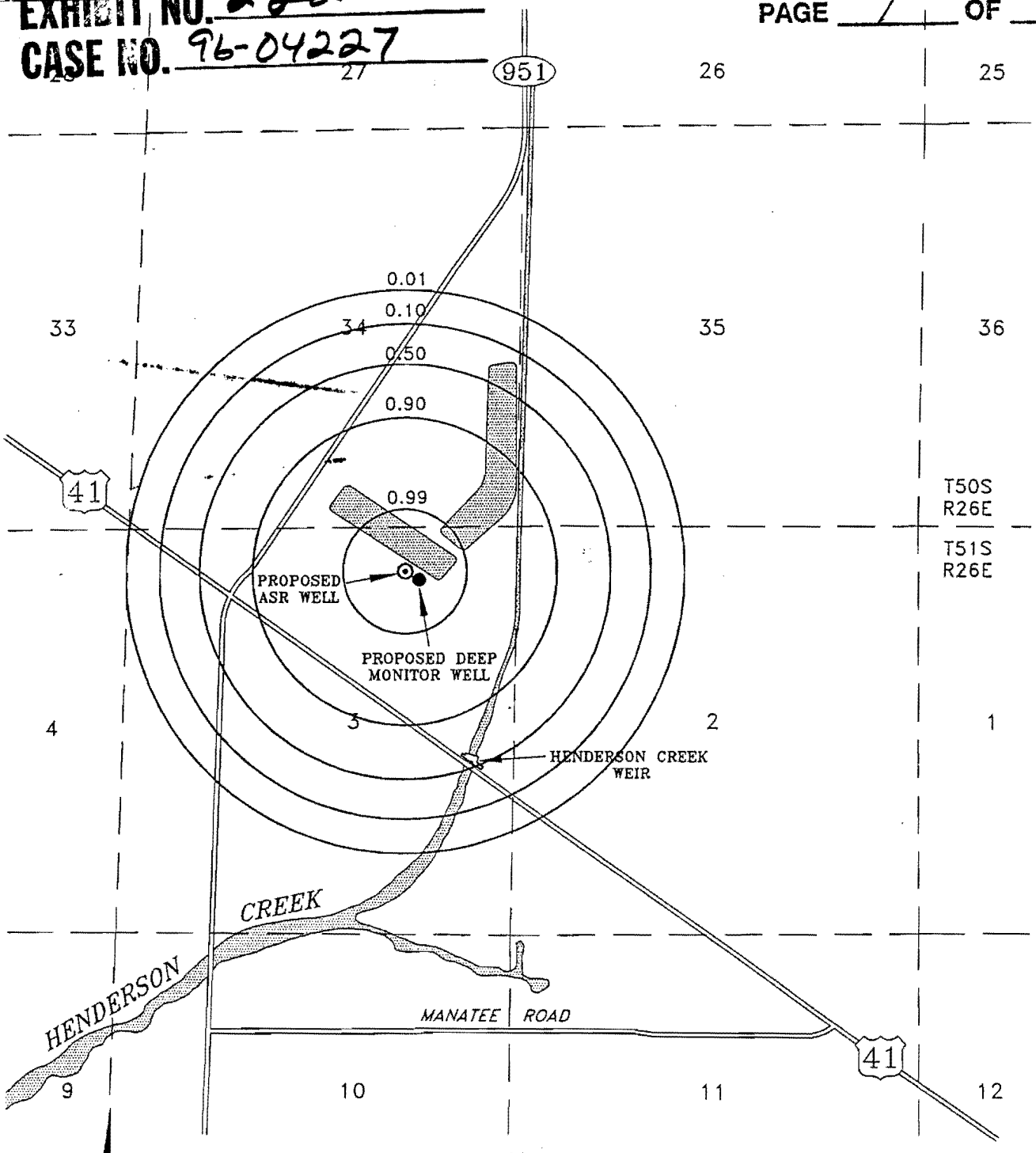
Project #	Project Description	In-Service Date Filed	In-Service Date Actual	In-Service Amount Filed	In-Service Amount Actual
SUGAR MILL CC					
95CC721	LEAD AND COPPER CONTROL	Expensed		6,578	0 (a)
95CC426	OVERHAUL #2 PUMP	01/31/95	03/23/95	4,149	3,983
95CC425	REPLACE CHLORINATOR	01/31/95	02/28/95	3,572	3,849
95CC423	REPLACE ROOF	02/28/95	02/28/95	2,976	3,029
	Total Water			17,274	10,862
95CC428	REPLACE CONTROL PANEL (2)	03/31/95	07/01/95	10,238	6,336
95CC427	REPLACE PUMPS	02/28/95	03/24/95	8,691	8,326
95CC424	REWORK BLOWERS (2)	02/28/95	05/15/95	3,214	3,267
95CC422	CHLORINE CYLINDER SCALE	01/31/95	02/23/95	617	544
	Total Wastewater			22,760	18,473
	Total Sugar Mill CC			40,034	29,335
SUNSHINE PARKWAY					
94CC512	WTP IMPROVEMENTS	11/15/95	11/02/95	189,952	161,687
94CC033	PRETREATMENT REPAIR	01/30/95	03/09/95	64,779	69,529
	Total Sunshine Parkway - Water			254,732	231,217
TROPICAL PARK					
94CC034	HYDRO TANK REPLACEMENT	09/28/95		46,718	0
	Total Tropical Park - Water			46,718	0
UNIVERSITY SHORES					
95CC724	LEAD AND COPPER CONTROL	11/15/95		40,251	0
	Total Water			40,251	0
94CC083	CHAPEL HILL CEMETERY UPGR	01/31/95	01/28/95	29,997	29,780
94CC507	MASTER LIFT STATION HOIST	03/31/95	12/30/94	5,629	3,094
	Total Wastewater			35,626	32,873
	Total University Shores			75,877	32,873
WINDSONG					
95CC727	LEAD AND COPPER CONTROL	Expensed		1,973	0 (a)
	Total Windsong - Water			1,973	0
	Total 1995 Plant In-Service Additions - As Filed in MFR's			5,948,380	2,345,440
	Less: Non-FPSC Plants Project Allocation Adjustments			(99,357)	
	Total Per MFR's			5,849,023	

(a) Completed and expensed rather than capitalized.
(b) Reflects completion of a phase, but not entire project.
(c) Not required because gov't authority did not perform it's project.
(d) Refers to Refundable Advance, with zero rate base impact.

DOCKET 950495-WS
EXHIBIT NO. 222
CASE NO. 96-04227

EXHIBIT 222 (RAT-3)

PAGE 1 OF 1



FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 222
COMPANY/
WITNESS:
DATE: 9/29/96

ViroGroup	AIR • WATER • SOIL TECHNOLOGY		
	DRN BY: CAM	DWG. NO. A-013183KB-5	DATE: 3/13/96
	PROJECT NAME: SSU - MARCO ASR		NUMBER: 01-03183.00

HORIZONTAL EXTENT OF INJECTED WATER, AS C/Co, IN THE LOWER HAWTHORN BASAL TRANSMISSIVE UNIT AFTER INJECTING AT A RATE OF 2.5 MILLION GALLONS PER DAY FOR 1,000 DAYS. C/Co OF 0.4 INDICATES 40 PERCENT INJECTED, 60 PERCENT NATIVE WATER.

supported by an engineering study certified by a professional engineer registered in the State of Florida that the hypochlorination facility would be safer than a gas chlorination system, that it would be as reliable as a gas chlorination system, and that a chlorine residual can be maintained continuously throughout the system.

(6) Auxiliary Power.

(a) Community systems that serve 350 or more persons, or have 150 or more service connections, shall provide auxiliary power for operation of the source, treatment units and pumps at a rate equal to one-half maximum daily flow.

(b) The auxiliary power requirements may be met by providing:

1. a connection to at least two independent power lines, or

2. an interconnection to at least one other public water supply system that has sufficient reserve capacity, or

3. in-place auxiliary power which, together with storage capacity, meets the requirements of Paragraph (a). In-place auxiliary power sources shall be equipped with an automatic start-up device. Portable power without an automatic start-up device may be provided where 24 hour, 7 days per week supervision is provided.

(c) The auxiliary power source shall be operated at least once per month continuously for a minimum of four hours under load to ensure dependability.

(d) For demineralization type systems such as reverse osmosis or electrodialysis, source, distribution, pumping and disinfection capability requirements only apply.

(e) Each community water system shall maintain a written auxiliary power plan that details how it meets the requirements of this subsection. This plan shall be available for review by the Department during the time of a routine sanitary survey.

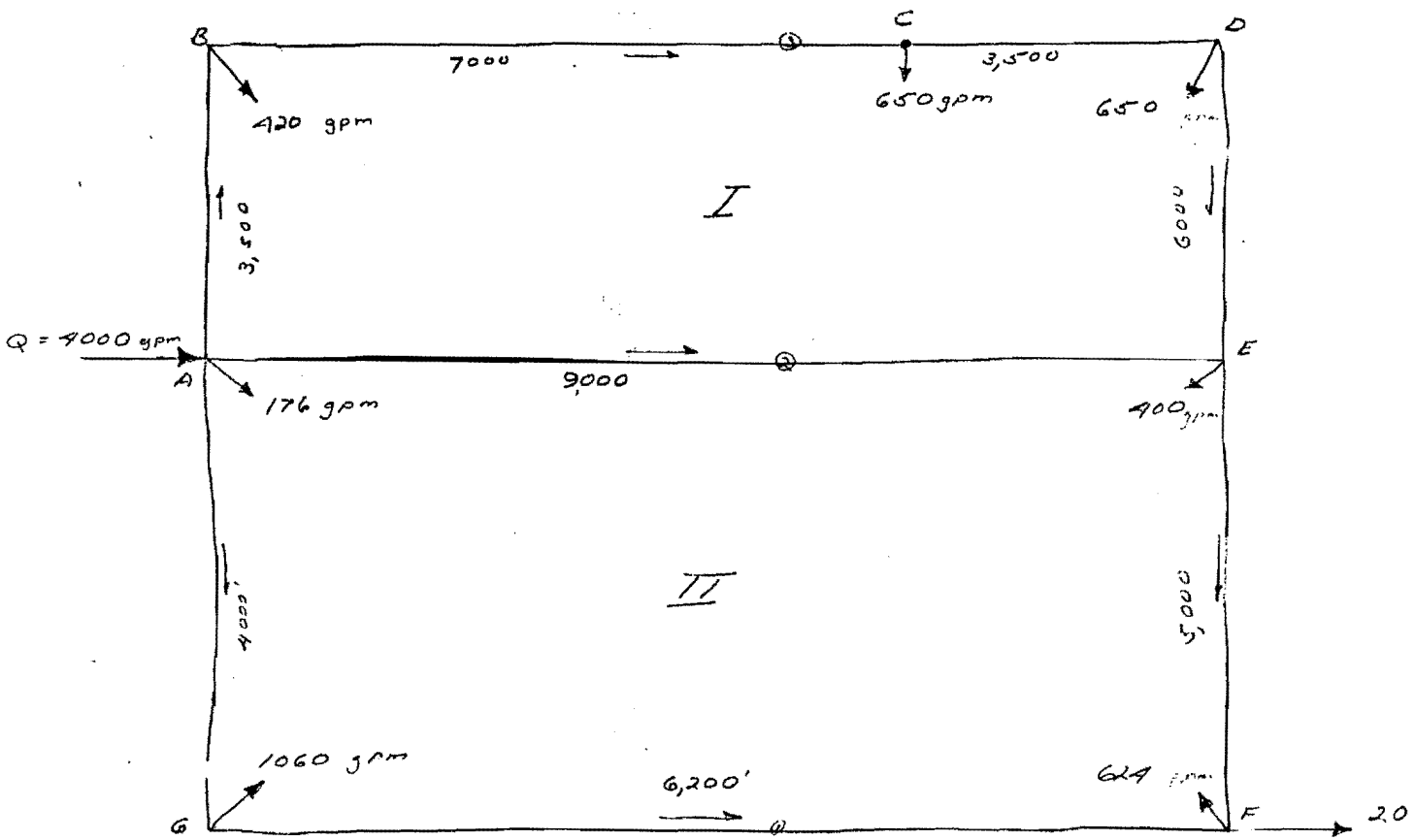
(7) High Service Pumps - High service pumping and distribution facilities shall be designed to provide maximum hourly system demand without either development of a distribution pressure lower than 20 psi or other health hazards. Elevated storage with appropriate hydraulic characteristics may be combined with service pumping units or distribution components to meet this system demand.

(8) Meters - All community water systems shall be equipped with a metering device that accurately indicates pumpage of finished water. Non-community and non-transient non-community systems shall be equipped with at least an elapsed time clock or other device in conjunction with field calibration of the pump that will permit determination of flow.

(9) Piping - All pump intake lines located outside of the water treatment plant building shall be located above grade or otherwise be protected from infiltration. The system shall demonstrate that the below grade lines will have a positive head greater than the pump inlets at their volutes under all operating conditions.

CIRCUIT FOR HARDY-CROSS ANALYSIS

7-21-64



CAW

EXHIBIT (HT-5)

PAGE 1 OF 4

HARDY CROSS ANALYSIS — 7-20-64 — GPM

		Line			Length	Diam	C	Assumed Q GPM	h_L/1000' C=100	Total h_L (ft)	h_L/Q	ΔQ	New Q GPM
Trial 1													
	I	A	B	L	3,500	16"	100	1920	2.8	9.8	0.005	+ 41	1961
		B	C	L	7,000	16"	100	1500	2.0	14.0	0.009	+ 41	1541
		C	D	L	3,500	16"	100	550	0.7	2.5	0.029	+ 41	591
		D	E	L	6,000	16"	100	200	0.1	0.6	0.003	+ 41	241
		* A	E	R	9,000	8"	100	350	4.3	38.7	0.111	- 157	193
										88.1 Σ	0.157		
	II	* A	E	R	9000	8"	100	350	4.3	38.7	0.111	- 157	193
		E	F	R	5,000	8"	100	150	0.9	4.5	0.030	- 116	34
		A	G	L	9,000	16"	100	1554	2.2	19.8	0.006	+ 116	1670
		G	F	L	6,200	16"	100	494	0.3	1.9	0.004	+ 116	610
											0.151		
		ΔQ = $\frac{\Sigma h_L - \Sigma h_R}{(1.85+1)[\frac{\Sigma h_L}{Q}+\frac{\Sigma h_R}{Q}]}$						$\Delta Q_I = \frac{26.7-38.7}{1.85(0.157)} = \frac{-12}{.29} = 41$				$\Delta Q_{II} = \frac{70.7-93.0}{1.85(0.151)} = \frac{-22.3}{0.28} = -116$	
Trial 2									h_L/1000' C=140				
	I	A	B	L	3500	16"	140	1961	1.8	6.3	0.003	- 125	1836
		B	C	L	7,000	16"	140	1591	1.3	9.1	0.006	- 125	1416
		C	D	L	3,500	16"	140	891	0.44	1.5	0.002	- 125	766
		D	E	L	6,000	16"	140	241	0.08	0.5	0.002	- 125	116
		* A	E	R	9,000	8"	140	193	0.72	6.5	0.034	+ 127	320
											0.047 Σ		
	II	* A	E	R	9,000	8"	140	193	0.72	6.5	0.034	+ 127	320
		E	F	R	5,000	8"	140	34	0.06	0.3	0.009	+ 2	36
		A	G	L	9,000	16"	140	1670	1.4	5.6	0.003	- 2	1668
		G	F	L	6,200	16"	140	610	0.23	1.7	0.002	- 2	608
											0.048 Σ		
		$\Delta Q_I = \frac{12.7-6.5}{(1.85)(0.047)} = \frac{10.9}{0.087} = 125$								$\Delta Q_{II} = \frac{(6.8-7.0)}{(1.85)(0.048)} = \frac{0.2}{0.089} = 2$			
Trial 3	I	A	B	L	3500	16"	140	1836	1.9	6.7	0.004	+ 36	1872
		B	C	L	7,000	16"	140	1416	0.9	6.3	0.004	+ 36	1452
		C	D	L	3500	16"	140	766	0.3	1.1	0.001	+ 36	802
		D	E	L	6,000	16"	140	116	0.04	0.2	0.002	+ 36	152
		* A	E	R	9,000	8"	140	320	2.1	18.9	0.059	- 53	267
											0.070		
		* A	E	R	9,000	8"	140	320	2.1	18.9	0.059	-53	267
		E	F	R	5000	8"	140	36	0.06	0.3	0.008	- 89	30
		A	G	L	9,000	16"	140	1668	1.5	6.0	0.004	+ 89	1757
		G	F	L	6,200	16"	140	608	0.2	1.2	0.002	+ 89	697
											0.073		
		$\Delta Q_{II} = \frac{19.3-18.9}{(1.85)(0.070)} = \frac{.46}{0.129} = 36$								$\Delta Q_{III} = \frac{7.2-19.2}{(1.85)(.078)} = \frac{12}{0.135} = 89$			

EXHIBIT (CHTS)
PAGE 2 OF 4

Hardy Cross Analysis 7-28-64

		Line		Length Ft	Diam (Inches)	C	Assumed Q	h_L/1000'	Total h_L	h_L/Q	ΔQ	Next Q
Trial 4	I	AB	R	3500	16	140	1872	1.8	6.3	0.003	-39	1833
		BC	R	7000	16	140	1452	1.1	7.7	0.005	-39	1413
		CD	R	3500	16	140	802	0.38	1.3	0.002	-39	763
		DE	R	6000	16	140	152	0.05	0.3	0.002	-39	113
		AE	L	9000	8	140	267	1.3	11.7	0.043	+2	269
										0.055		
	II	AE	R	9000	8	140	267	1.3	11.7	0.043	+2	269
		EF	R	5000	8	140	30	0.05	0.25	0.008	-37	30
		AG	L	4000	16	140	1757	1.6	6.4	0.004	+37	1794
		GF	L	6200	16	140	697	0.3	1.9	0.103	+37	734
				$\Delta Q_I = \frac{11.7 - 15.6}{(1.85)(0.055)}$	$= \frac{3.9}{.10}$	= 39	$\Delta Q_{II} = \frac{8.3 - 12}{(1.85)(0.055)}$	$= \frac{3.7}{.10}$	= 37			
Trial 5	I	AB	R	3500	16		1833	1.7	5.95	0.003	-17	1816
		BC	R	7000	16		1413	1.0	7.0	0.005	-17	1396
		CD	R	3500	16		763	0.35	1.22	0.002	-17	746
		DE	L	6000	16		113	0.05	0.30	0.003	-17	96
		* AE	L	9000	8		269	1.4	12.60	0.047	-19	250
				$\Delta Q_I = \frac{12.60 - 14.47}{(1.85)(0.060)}$	$= \frac{1.87}{.111}$	= 16.8 → 17				0.060		
	II	* AE	R	9000	8		269	1.4	12.60	0.047	-19	250
		EF	L	5000	8		30	0.05	0.25	0.008	-36	126
		AG	L	4000	16		1794	1.7	6.8	0.004	+36	1130
		GF	L	6200	16		734	0.33	2.0	0.003	+36	770
				$\Delta Q = \frac{8.8 - 12.85}{(1.85)(0.062)}$	$\frac{4.05}{.111}$	= 36.49 → 36				0.062		
Trial 6	I	AB	R	35	16		1816	1.7	5.95	0.003	-32	1889
		BC	R	70	16		1396	0.96	6.73	0.005	-32	1364
		CD	R	35	16		746	0.33	1.15	0.002	-32	714
		DE	R	60	16		96	0.05	0.30	0.003	-32	64
		* AE	L	90	8		250	1.2	10.8	0.043	+29	279
				$\Delta Q_I = \frac{10.8 - 14.13}{(1.85)(0.056)}$	$\frac{3.3}{.103}$	32				0.056		
		* DE	R	90	8		250	1.2	10.8	0.043	+29	279
		EF	L	50	8		126	.33	1.65	0.013	+3	129
		AG	L	40	16		1130	1.70	6.8	0.004	+3	1133
		GF	L	62	16		770	0.34	2.04	0.003	+3	773
				$\Delta Q_{II} = \frac{10.49 - 10.84}{(1.85)(.063)}$	$= \frac{.37}{0.12}$	= 3				0.063		
Trial 7	I	AB	R	35	16		1884	1.80	6.30	0.003	-29	1855
		BC	R	70	16		1364	1.0	7.0	0.004	-29	1335
		CD	R	35	16		714	0.30	1.05	0.001	-29	685
		DE	R	60	16		64	---			-29	35
		AE	L	90	8		279	1.30	11.70	0.042	+21	300
		$\Delta Q_I = \frac{11.70 - 14.35}{(1.85)}$		$= \frac{2.65}{0.0925}$	= 29		$\Delta Q_{II} = \frac{10.72 - 11.7}{(1.85)(.063)}$		$= \frac{.91}{0.12} = 8$	0.050		
	II	AE	L	90	8		279	1.30	11.70	0.042	+21	300
		EF	L	50	8		129	0.35	1.75	0.014	+8	137
		AG	L	40	16		1833	1.7	6.8	0.004	+8	1840
		GF	L	62	16		773	0.35	2.17	0.003	+8	780
										0.063		

EXHIBIT (RAI-5)
PAGE 3 OF 4

Hardy Cross Analysis 7-29-67

			1		2	3	4	5	6	7	8	9	10
			Line		Length 1000 Ft	Diam Inches	C	Assumed Q GPM	$h_L/1000'$	Total h_L	h_L/Q	ΔQ	Next Q
Trial 8	I		AB	R	3.5	16	140	1855	.180	6.3	0.003	−12	1843
			BC	R	7.0	16	140	1335	.94	6.58	0.005	−12	1323
			CD	R	3.5	16	140	685	1.10	3.85	0.005	−12	673
			DE	R	6.0	16	140	35	—	—	—	−12	23
			AE	L	9.0	8	140	300	1.70	15.3	0.051	−19	280
		$\Delta Q_I = \frac{16.23 - 15.3}{(1.85)(0.064)} = \frac{1.43}{.12} = 12$									0.064		
	II		AE	R	9.0	8	140	300	1.7	15.3	0.051	+19	280
			EF	L	5.0	8	140	137	.40	2.0	0.015	+31	168
			AG	L	4.0	16	140	1840	.170	6.8	0.004	+31	1871
			GF	L	6.2	16	140	780	.34	2.1	0.003	+31	810
		$\Delta Q_{II} = \frac{10.9 - 15.3}{(1.85)(0.023)} = \frac{-4.4}{(.14)} = 31$									0.023		
Trial 9													
	I		AB	R									
			AC	R									
			CD	R									
			DE	R									
			AE	L									
			AE	R									
			EF	L									
			AG	L									
			GF	L									

EXHIBIT (RM5)

PAGE 4 OF 4

EXHIBIT (RAT-6)

PAGE 1 OF 1

WATER DISTRIBUTION—FLOW IN PIPES—HARDY CROSS†

BASIC EQUATIONS

$$h_f = k Q_m^{1.85}$$

$$C_f = \frac{\text{Difference of } h_f}{1.85 \times \Sigma k Q_m^{0.85}}$$

h_f = loss of head factor.
k = Value in Table B - below. ††
Q = total flow (100 g.p.m. in example below).
Q_m = % of Q in any pipe.
C_f = correction factor to Q_m.

Note: h_f must balance in any loop. This involves a process of trial & error.

EXAMPLE: Given system shown in Fig. A, Q = 100 g.p.m. at A & D.
Required: Loss of head between A & D. Solution: Assume Q_m values shown thus (50) in Fig. A.
Determine k from Table B. Proceed as in First and Second Trials below.

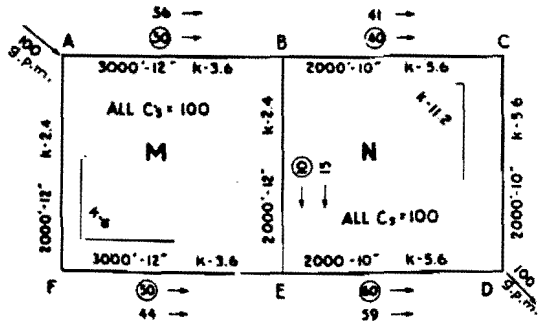


FIG. A-SYSTEM OF TWO CIRCUITS.

Note: $kQ_m^{1.85} = kQ_m^{0.85} \times Q_m$

First Trial

Loop	$(k \times Q_m^{0.85} = kQ_m^{0.85}) \times Q_m =$	h_f	
	Circuit M		
AB	$(3.6 \times 27.8 = 100) \times 50 =$	5000	
BE	$(2.4 \times 7.1 = 17) \times 10 =$	170	
			5170
AFE	$(6.0 \times 27.8 = 167) \times 50 =$	8330	—8330
	284*		3160**

*Adding the $kQ_m^{0.85} = 284$.
**Subtracting the h_f values = 3160.

$$C_f = \text{Correction} = \frac{3160}{1.85 \times 284} = 6.02$$

First Trial Continued:-

	$(k \times Q_m^{0.85} = kQ_m^{0.85}) \times Q_m =$	h_f	
	Circuit N		
BCD	$(11.2 \times 23 = 258) \times 40 =$	10310	—10310
BE	$(2.4 \times 7.1 = 17) \times 10 =$	170	
ED	$(5.6 \times 32.4 = 181) \times 60 =$	10900	—11070
	456		760

$$C_f = \text{Correction} = \frac{760}{1.85 \times 456} = 0.902$$

In making this correction it should be noted that while circuit M requires a correction of 6, circuit N requires a correction of only 1. This means that the flow from A to B should be increased 6 but at point B this flow should be divided between BCD and BE so that the flow in BCD is increased only 1; therefore, 1 is added to BCD and 5 is added to BE.

Second Trial

Loop	$(k \times Q_m^{0.85} = kQ_m^{0.85}) \times Q_m =$	h_f	
	Circuit M		
AB	$(3.6 \times 30.6 = 110) \times 56 =$	6165	
BE	$(2.4 \times 10.0 = 24) \times 15 =$	360	—6525
AFE	$(6.0 \times 25.0 = 150) \times 44 =$	6600	—6600
	284		75

$$C_f = \text{Correction} = \frac{75}{1.85 \times 284} = 0.143$$

	Circuit N		
BCD	$(11.2 \times 23.5 = 263) \times 41 =$	10800	—10800
BE	$(2.4 \times 10.0 = 24) \times 15 =$	360	
ED	$(5.6 \times 32.0 = 179) \times 59 =$	10560	—10920
	466		120

$$C_f = \text{Correction} = \frac{120}{1.85 \times 466} = 0.139$$

When h_f balances in a circuit the assumed per cent of flow is correct. Having determined % of flow in piping, determine Q for any pipe by multiplying Q_m x total Q, 100 g.p.m. in example above. With Q and size of pipe known, the total loss of head can be computed using Fig. A, Page 22-04.

TABLE B-VALUES OF K FOR 1000 FT. OF PIPE.††

PIPE DIA.	"C" VALUES (SEE TABLE A PG. 6-61) 90	100	110	120	130	140
4	300.0	248.0	208.0	177.0	153.0	133.0
6	41.0	33.7	28.4	24.2	20.9	18.2
8	10.0	8.4	7.0	6.0	5.2	4.5
10	3.4	2.8	2.4	2.0	1.7	1.5
12	1.5	1.2	1.0	.85	.71	.62
14	.66	.55	.46	.39	.34	.30
16	.35	.29	.24	.20	.18	.15
18	.20	.16	.14	.12	.10	.09
20	.12	.10	.08	.07	.06	.05
24	.049	.04	.03	.03	.02	.02
30	.016	.013	.011	.010	.008	.007
36	.0067	.0054	.0046	.0039	.0034	.003

EXAMPLE: Given: D = 12", C = 100
Required: k
Solution: k = 1.2

TABLE C-VALUES OF THE 0.85 POWER OF NUMBERS.

№	0	1	2	3	4	5	6	7	8	9
0	0	1.0	1.8	2.5	3.2	3.9	4.6	5.2	5.9	6.5
10	7.1	7.7	8.3	8.9	9.4	10.0	10.6	11.1	11.6	12.2
20	12.8	13.3	13.8	14.4	14.9	15.4	15.9	16.5	17.0	17.5
30	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5
40	23.0	23.5	24.0	24.5	25.0	25.4	25.8	26.4	26.8	27.3
50	27.8	28.2	28.7	29.2	29.6	30.1	30.6	31.0	31.4	32.0
60	32.4	33.0	33.3	33.9	34.2	34.7	35.1	35.6	36.0	36.5
70	37.0	37.4	37.9	38.3	38.8	39.1	39.6	40.0	40.5	41.0
80	41.5	42.0	42.4	42.8	43.3	43.7	44.1	44.5	45.0	45.4
90	45.8	46.3	46.7	47.1	47.6	48.0	48.4	48.8	49.2	49.6

EXAMPLE: Given: Number 54
Required: $54^{0.85}$
Solution: $54^{0.85} = 29.6$

† Doland System for using Hardy Cross method, from Water Works & Sewage-June '1943 article by R.D. Taylor. †† Based on Hazen-Williams Formula.

EXHIBIT (RAT-7)

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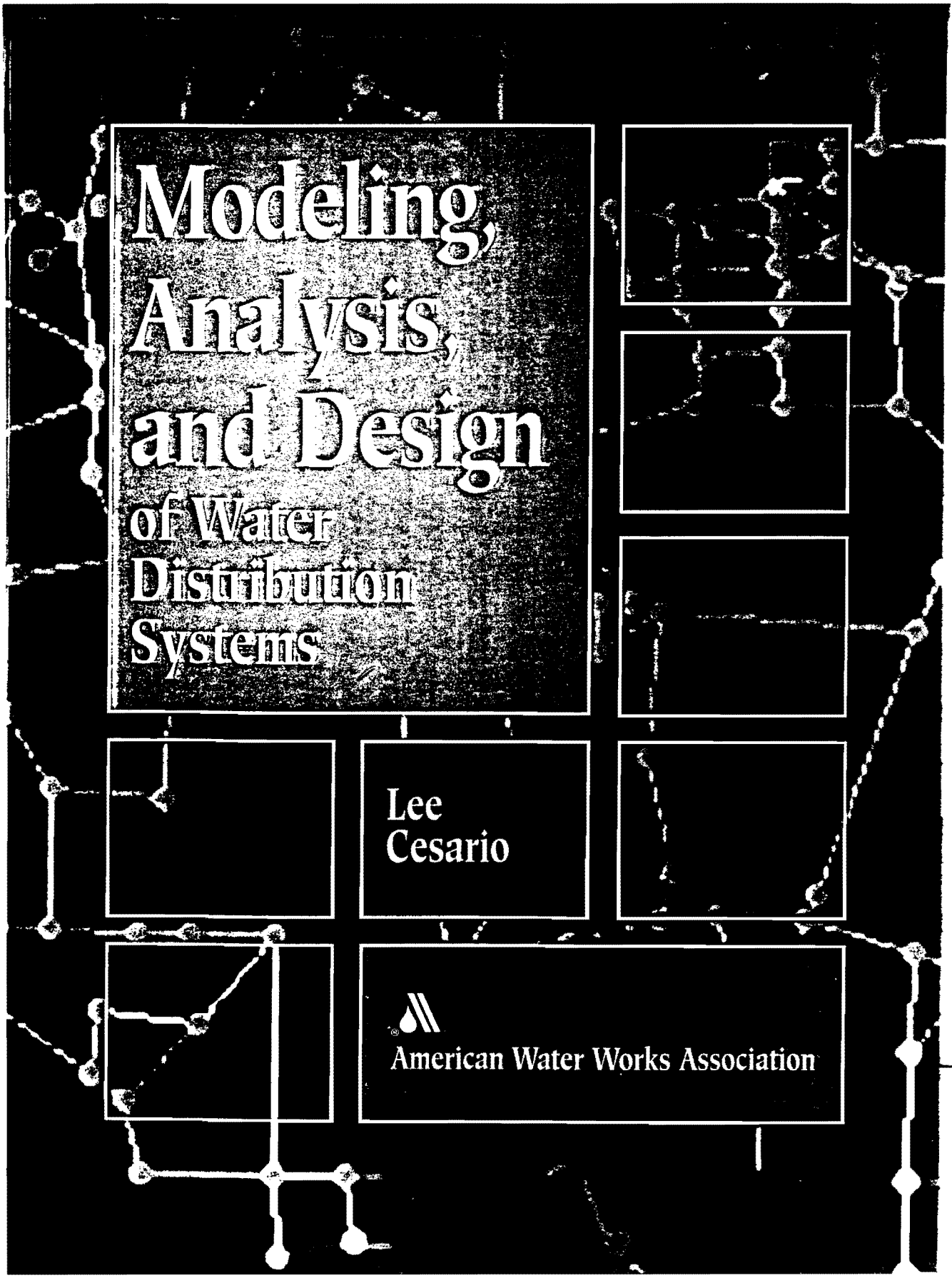


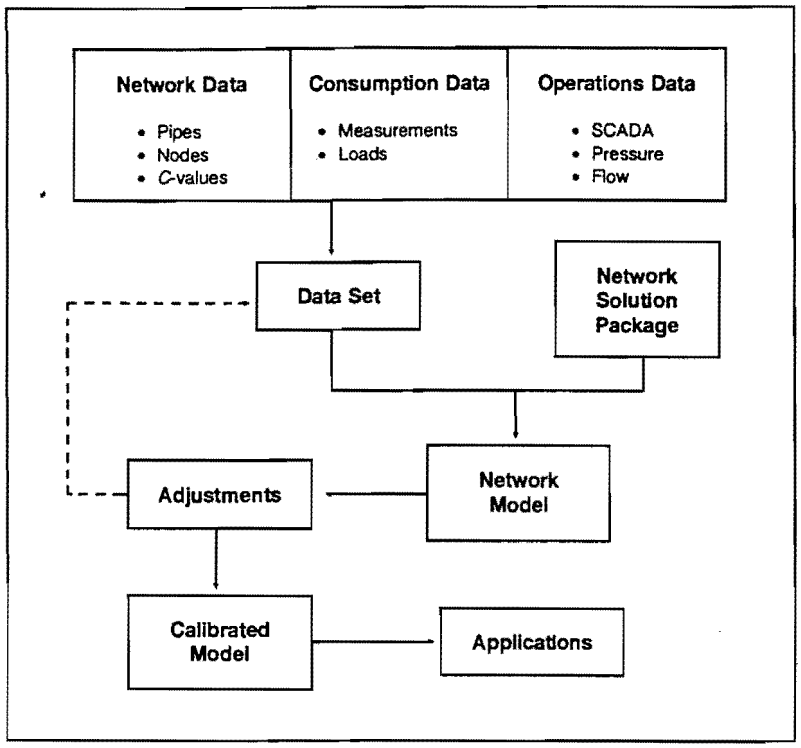


Figure 1-2
Schematic of the modeling process

History of Analysis, Modeling, and Applications

A brief overview of the history of analysis, modeling, and applications in North America can help put the state of the art into perspective. A sense of history is sometimes needed to appreciate the present. Network analysis has changed considerably during the past 10 years and will continue to do so during the next 10.

Analysis

Analysis of water systems was limited in the years before computers, when fluid mechanics was in its infancy. Early engineers such as Allen Hazen and Gardner Williams performed laboratory and field tests to determine the flow characteristics of pipes for various conditions, flow rates, and pipe materials. Tables were developed and used as references for engineers who sized and designed pipelines. The Hazen–Williams tables (Williams and Hazen 1947) became the "hydraulican's" bible. Thus, "cookbook" hydraulic engineering began taking shape, but engineers often had to use their own judgment to take into account peculiar conditions. By nature, engineers tended to be conservative, and they sometimes oversized pipes in order to be safe. Analysis was limited primarily to single-pipeline sizing because calculations involving loops were tedious and time consuming.

Modeling

Early computer models and programs. Analog models consisting of electronic circuitry were used in the 1950s. Computer programs for network modeling began to appear in the 1960s. Often called mathematical models, these models consisted of a network solver (i.e., a network solution program or network modeling system) and a network data file. The network solver performed the calculations and provided results based on the network data file, which described the physical components of the network.

Advantages of using computer modeling. As simple and slow as the early computer programs were, they were still a faster and more efficient means of computing pressures, flows, and velocities in pipelines than manual methods. In addition, computer programs made it feasible to solve larger networks. Manual Hardy Cross calculation methods were just too time consuming to be used on networks containing more than a few loops. Thus, computer programs made it feasible to study larger systems and so enabled the engineer or planner to spend more time thinking and less time on tedious, time-consuming calculations. Computer modeling allowed analysis of larger systems in a time-saving, cost-effective manner.

Advancements in computer modeling packages. With time, additional capabilities were added to standard network solution programs. For example, sophisticated routines to generate pressure contours, reservoir use graphs, pumping costs, and automated hydrant flows were developed. Of course, the introduction of graphics, including the ability to generate network plots (drawings) and display pressure and flow values, was one of the first major additions to traditional capabilities.

Steady-state and extended-period simulations. Early modeling applications focused primarily on steady-state conditions. *Steady-state* refers to conditions that remain constant with time. For example, it was common to model only maximum-hour and minimum-hour conditions. Maximum hour represents the highest consumption during a one-hour period for the entire year. Minimum hour, sometimes referred to as replenishment, represents the lowest consumption during a one-hour time period. Thus, to provide steady-state solutions, the system would be modeled for each time period separately. Maximum hour would represent the time period during which the system would be most stressed, whereas replenishment was modeled to ensure that reservoirs could be refilled; sometimes pipeline usage is greater during replenishment when reservoirs are being refilled and nighttime demands are being met.

Today, extended-period simulation (EPS) refers to simulating the system for many consecutive time periods, e.g., 24 hourly time periods in a single day. Thus, it is assumed that flows and pressure are constant for the interval of time between solutions — an hour in this case. EPS can be especially useful for studying the operation of small systems. Flow in and out of tanks on an hourly basis, hourly pump rates, and hourly flow rates in pipes can be determined easily; facility sizing can therefore be done more effectively. Thus, pressure and flow values for the mystery time periods occurring between maximum hour and replenishment can be determined. Of course, EPS can be applied to large distribution systems, but the amount of data required increases substantially and calibration becomes more difficult.

The changing role of consultants. In the early years, network analysis programs were expensive and required considerable maintenance; as a result,

they were beyond the resources of most water utilities. Utilities would hire an engineering consulting firm to develop a master plan. The consultant would develop a model of the water system and use that model to develop the plan. In some cases the model would be turned over to the utility, and in other cases the consulting firm would retain the model, update it periodically, and use it to solve other problems as requested by the utility.

As the price of network solution packages and computer hardware decreased, more and more water utilities purchased their own packages and created their own network databases. Today, all utilities can afford the price of a modeling package. In fact, the trend seems to be that a utility cannot afford *not* to have one. The challenge today is in creating and maintaining the database and managing the tools, support, and applications.

Applications

The use of models, or applications, has also evolved over the years as technology has improved. The results of the Treated-Water System Modeling Questionnaire (appendix D) show that 63 percent of utilities that have a model use it at least monthly and often weekly for a wide variety of applications. The results also show that models are most often used by the engineering group (250 responses), followed by planning (106) and operations (76). Historically, the group with the expertise generally does most of the modeling. It is interesting to note the number of times that operations groups use the models. Chapter 8 goes into detail about numerous applications. The following is a brief overview of some of these applications.

Pipe sizing. Early applications of computer models focused on sizing a particular pipe proposed as part of new development. A calibrated model of the system provided the benchmark, or starting point. System performance could be studied for current demand and for the new demand created by the new development. Various combinations of routing and sizing of the new pipe could be simulated relatively easily at a minimal cost (relative to the cost of installing the new main) to arrive at an "optimal" solution of route and size. The potential to save money was great. Without a model, a designer might tend to oversize the main to be safe. Modeling provided a more scientific method of properly sizing mains and other facilities.

Master plan. The next step was development of a master plan for the water system's future. Modeling allowed a systematic method of determining the size and timing required for new facilities. Thus, a size, schedule, and cost could be determined for the facilities necessary to meet a projected demand for a particular time in the future. The plan was often associated with a specific year, but it could have been developed for a particular future demand regardless of the expected year. Computers allowed numerous scenarios to be analyzed relatively quickly and easily.

Operations studies. Models also provided a sophisticated means to study current operations and thus help solve current operations problems. Plans could be developed to solve problems that were causing low pressure in particular areas, to plan for facility outages, and to examine emergency "what if" situations; thus, the industry entered the age of using models to develop operations strategies.

In-house modeling and system integration. Because of the decreasing costs of software and hardware, many utilities have eagerly developed their own models and maintain them. Thus, in-house experts create, maintain, and

use models on a regular basis in many utilities. Vendors and engineering consultants are still used, but in a somewhat different capacity. For instance, conversion of existing network data and data file creation are often done by consultants. Of course, master plans are still developed, but now time and effort are often focused on integrating the network modeling package with other packages, such as a supervisory control and data acquisition (SCADA) system, a geographic information system (GIS), and a customer information system (CIS).

Modeling From Various Perspectives

For one to understand the importance of modeling and the significance it can have throughout a water utility, it helps to imagine wearing different hats and being responsible for different organizational functions. One's perspective on modeling differs depending on one's position and job duties. The following is a discussion of modeling from the perspectives of planning, engineering, operations, and management (Cesario 1991).

Planning

Planning is the process of examining the present, recognizing trends, making projections, and designing programs to meet established goals. In other words, planning is generally the process of developing plans, maintenance programs, and policies to ensure adequate service to customers in the future. Modeling is the basis for preliminary design in terms of sizing and phasing new facilities and maximizing use of existing facilities. Models can also be used to compare existing system performance to that under various scenarios.

For the chief planner, modeling should form the basis for numerous programs, such as the main rehabilitation program, system improvement program, long-range capital plan, annual capital plan, fire flow studies, water availability studies, system design criteria, and emergency planning. Modeling can be used to determine new facility requirements to maintain present pressure standards, determine pressure increases resulting from the installation of a new facility, estimate operating costs, track water from various sources, and perform a myriad of other applications.

Modeling is a tool to examine system performance and provide answers to "what if" questions. If a major facility must be taken out of service, what operational changes, if any, must be made to the system? What if the primary and secondary sources of raw water are reversed from year to year? What treated-water system operations will be necessary to maximize use of the source?

Modeling can be used to assess the impact of a major new development, such as a shopping center or airport, and to determine facility requirements. Flow to meet fire demand requirements can be modeled to determine system performance characteristics and operations changes. Modeling also provides a basis for developing a master plan and system design. Pressure zones, facilities, and operations can be planned, implemented, and examined before changes are made to the real system.

Modeling can be used to examine how the water system currently operates and to determine operations strategies that will maximize use of the

system and minimize operating costs. The effects of possible conservation plans can also be studied.

Engineering. Engineering is responsible for final sizing, designing, building, and inspecting of the facility and turning it over to operations personnel. What use is modeling to the chief of engineering? Modeling, usually done by the planning people, provides the base data — a solid starting point — for design. Values for pipe size, tank capacity, high water elevation, and pump capacity and head are all determined during the modeling and design stages. Engineers must therefore work with the planning department to design facilities that will meet the overall systemwide specifications.

Operations. Operations is concerned about utilizing the existing distribution system to provide adequate supply and pressure to customers, to meet emergency situations, and to meet operational strategies. The use of models by the planning department or the operations people themselves can provide insight into these issues, and it is operations people who provide data for the modeler. Furthermore, models can be excellent training tools for operators.

Management. Managers should be especially concerned about modeling because it is the technical backbone of programs and policies. Modeling provides a foundation for programs and policies and gives numbers and values to justify them. It provides a basis for developing such vital features as the system improvement program, the capital plan, the main rehabilitation program, and the operations plan; and it helps determine equipment requirements and the resulting costs for system improvements. Modeling also provides an indication of when new facilities are required, which impacts income, revenue, and financing.

In addition to these applications, management must be concerned about data management and data maintenance because both are essential to developing answers accurately and quickly. Staffing, budgeting, coordinating, and other routine management functions apply to modeling and are important

Table 1-1
Applications and organization functions of network modeling

Application	Organization Functional Area		
	Planning	Engineering	Operations
Capital budgeting	x		
Conservation studies	x		x
Emergency planning	x		x
Fire flow studies	x		
Long-range planning	x	x	
Main rehabilitation	x	x	x
Model calibration	x		x
Operations	x		x
Operations efficiency	x		x
Operator training			x
Planned outages	x	x	x
Pump station sizing	x	x	x
Reservoir siting	x	x	
Reservoir sizing	x	x	x
Source tracking	x		x
Substance tracking	x		x
System improvements	x	x	x
Valve sizing	x	x	x
Water quality	x	x	x

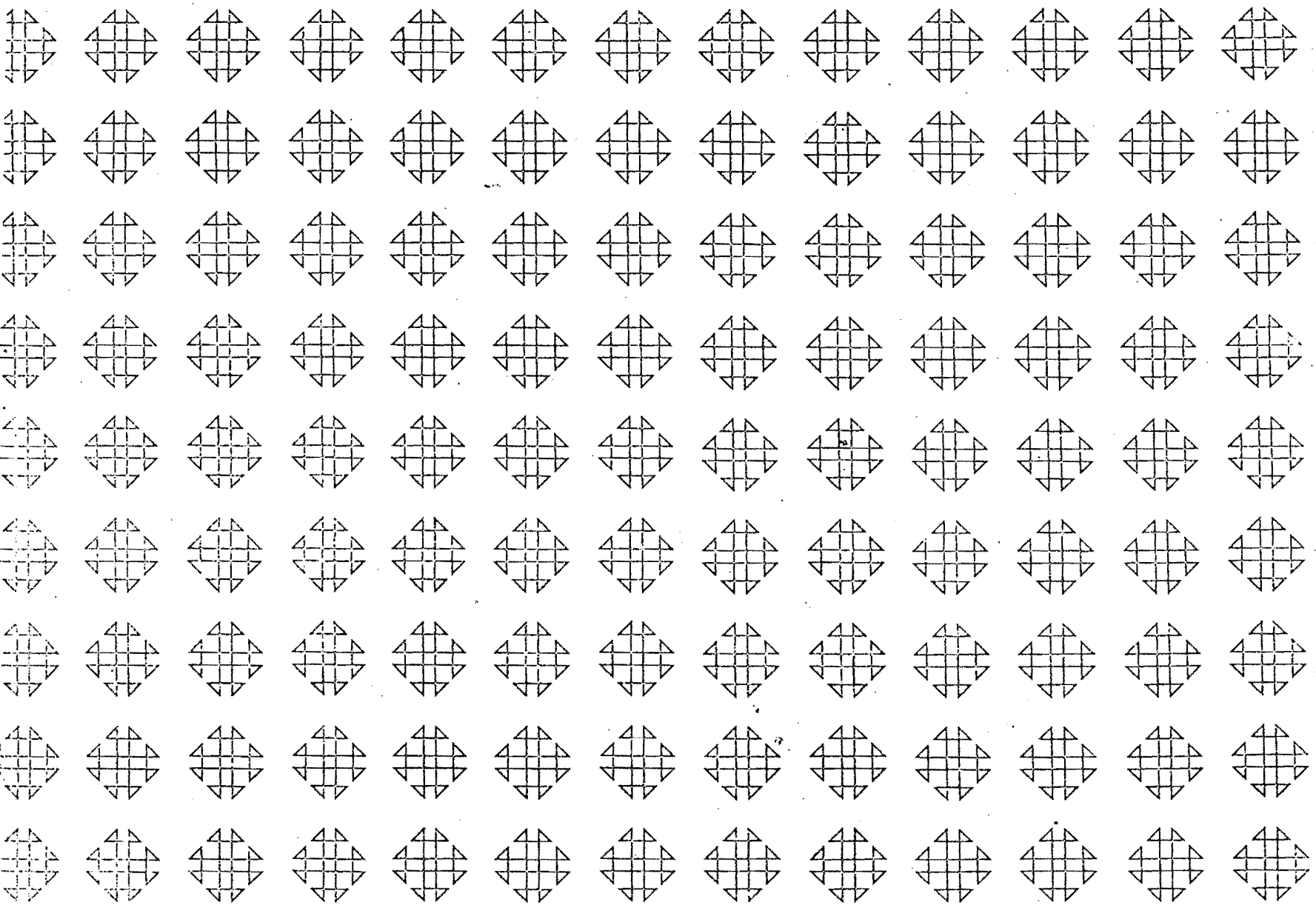
in forming and maintaining an effective group of modeling personnel. Obviously, good systems have been built without the benefits of computers; modeling simply provides another tool that can produce quantifiable results for the manager. The manager must use good judgment in applying it.

Table 1-1 shows several modeling applications and their corresponding functional areas of concern. Management is not listed because for it *all* applications should be of concern. The purpose of this table is to provide an overview of the functional areas and their relationship to the organization structure. Not all of the applications have been defined yet. Any new terms should become familiar as the reader works through the following chapters.

References

Cesario, A.L. 1991. Network Analysis From Planning, Engineering, Operations, and Management Perspectives. *Jour. AWWA*, 83(2):38–42.

Williams, G.S., and A. Hazen. 1947. *Hydraulic Tables*. 3d ed. New York: Wiley.



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1620 USERS GROUP PROGRAM REVIEW AND EVALUATION

(fill out in typewriter or pencil, do not use ink)

Program No. _____ Date _____

Program Name: _____

1. Does the abstract adequately describe what the program is and what it does? Yes___ No___
   Comment _____

2. Does the program do what the abstract says? Yes___ No___
   Comment _____

3. Is the Description clear, understandable, and adequate? Yes___ No___
   Comment _____

4. Are the Operating Instructions understandable and in sufficient detail? Yes___ No___
   Comment _____
   Are the Sense Switch options adequately described (if applicable)? Yes___ No___
   Are the mnemonic labels identified or sufficiently understandable? Yes___ No___
   Comment _____

5. Does the source program compile satisfactorily (if applicable)? Yes___ No___
   Comment _____

6. Does the object program run satisfactorily? Yes___ No___
   Comment _____

7. Number of test cases run_____. Are any restrictions as to data, size, range, etc. covered adequately in description? Yes___ No___
   Comment _____

8. Does the Program Meet the minimal standards of the 1620 Users Group? Yes___ No___
   Comment _____

9. Were all necessary parts of the program received? Yes___ No___
   Comment _____

10. Please list on the back any suggestions to improve the usefulness of the program. These will be passed onto the author for his consideration.

Please return to:

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WATER FLOW IN A PIPE NETWORK BY HARDY CROSS SOLUTION

D.R. Wood
Calgary Power Limited
140 - 1st Avenue West
Calgary, Alberta

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for IBM Data Processing Systems. When such an announcement occurs, users should order a complete new program from the Program Information Department.

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1620 USERS GROUP LIBRARY

Program Abstract.

Title: Water Flow in a Pipe Network by Hardy Cross Solution.

Subject Classification: Engineering (Other) - 9.7

Author; Organization: D. R. Wood, Calgary Power Ltd., 140 - 1st Avenue West, Calgary, Alberta.

Purpose/Description: This program calculates the water flow in a pipe network by means of the Hardy Cross iterative technique. The IBM 1620 program, "Distribution of Water Flow in a Pipe Network", file number 9.7.001 solves the basic water flow problem but is limited because it was restricted to a 20,000 digit storage computer. This program has been rewritten with many modifications for a 40,000 digit storage computer. Some advantages of this program are: a different Hazen-Williams Coefficient can be used for each pipe eliminating the necessity of calculating an equivalent length of pipe for the one Hazen-Williams coefficient used; output consists of the corrected flow in gallons per minute and, in addition, the resistance factor and resultant pressure drop for each pipe. The accuracy control to stop calculations has been changed from "the sum of the absolute value of the correction currents for an iteration" to the maximum algebraic sum of the pressure drops (or error of closure) allowable around any one loop. In addition the larger storage allows the storing of the actual pipe numbers assigned and does not assume the sequential storing of the pipes thus allowing the same three digit number assigned to be used for the same pipe in all problems.

Computer: This program requires card input with a 40,000 digit storage computer. It was written in Fortran with format control ~~[illegible]~~ and automatic divide.

Program Details:

Range - A pipe network with up to 150 pipes and 70 loops can be calculated. This could be expanded with a small program modification.

Storage Requirements - The entire 40,000 digits are used with the exception of the area from approximately 14,200 to approximately 24,000.

Running Time - The data card reading time is about 1 3/4 seconds per card with the punching time at rated speed. If the output is desired on the typewriter it averages about 11 seconds per pipe. The calculating time is about 4/5 second per pipe per iteration with the number of iterations dependent upon the accuracy desired and the original flows estimated.

Water Flow Program Description

The program uses the Hardy Cross method using the Hazen-Williams pipe coefficient.

The formulae used are:

$$H = RQ^{1.85}$$

$$R = \frac{10.43\ L}{C^{1.85} \times D^{4.87}}$$

Where H = head loss in feet
Q = water flow in U.S. gallons per minute
R = pipe resistance factor
C = Hazen-Williams constant
L = pipe length in feet
D = pipe diameter in inches

$$\Delta Q = \frac{-\Sigma H}{1.85\ \Sigma |RQ^{0.85}|}$$

Where ΔQ = flow correction factor for loop
H = the algebraic sum of the head loss around any loop. (Clockwise direction is arbitrarily chosen as positive).
R and Q are defined above.

Note:- In this program it was desirable for the input and output of flow to be in imperial gallons. Therefore, immediately upon reading Q (Imp.) it is multiplied by 1.2009 to convert it to Q (U.S.) and stored. After calculations are completed Q is reconverted back to Imperial gallons. An alternative method would have been to change the basic formula for R to calculate the head loss directly from Imperial gallons. This was not done because R is printed and the value listed was more familiar. If it is desirable to have input and output in U.S. gallons the two conversion instructions indicated should be removed.

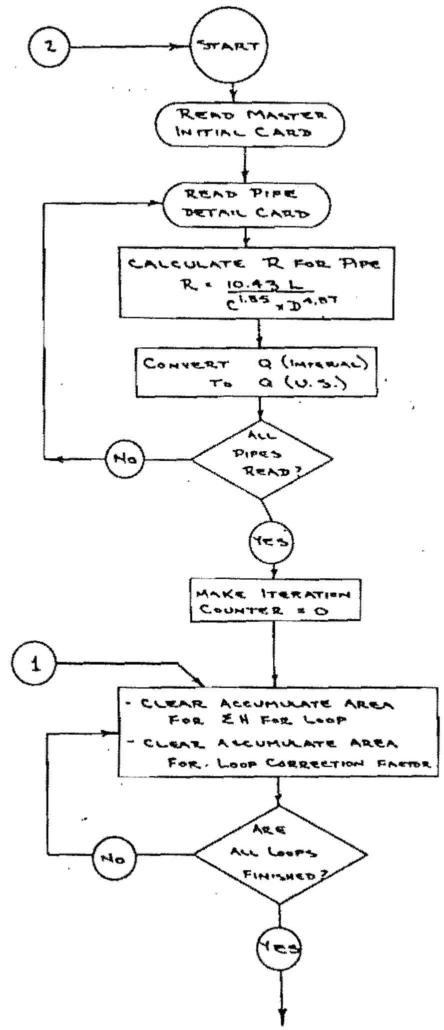
The program reads one master card followed by one detail card for each pipe. The master card contains the job number, the number of pipes, the number of loops and the accuracy desired. The accuracy is the maximum magnitude of the algebraic sum of the head loss around any one loop with clockwise flow arbitrarily chosen as positive. The detail cards contain the pipe number which may be any three digit number, the pipe diameter in inches, the Hazen-Williams constant, the pipe length in feet, the primary loop number,

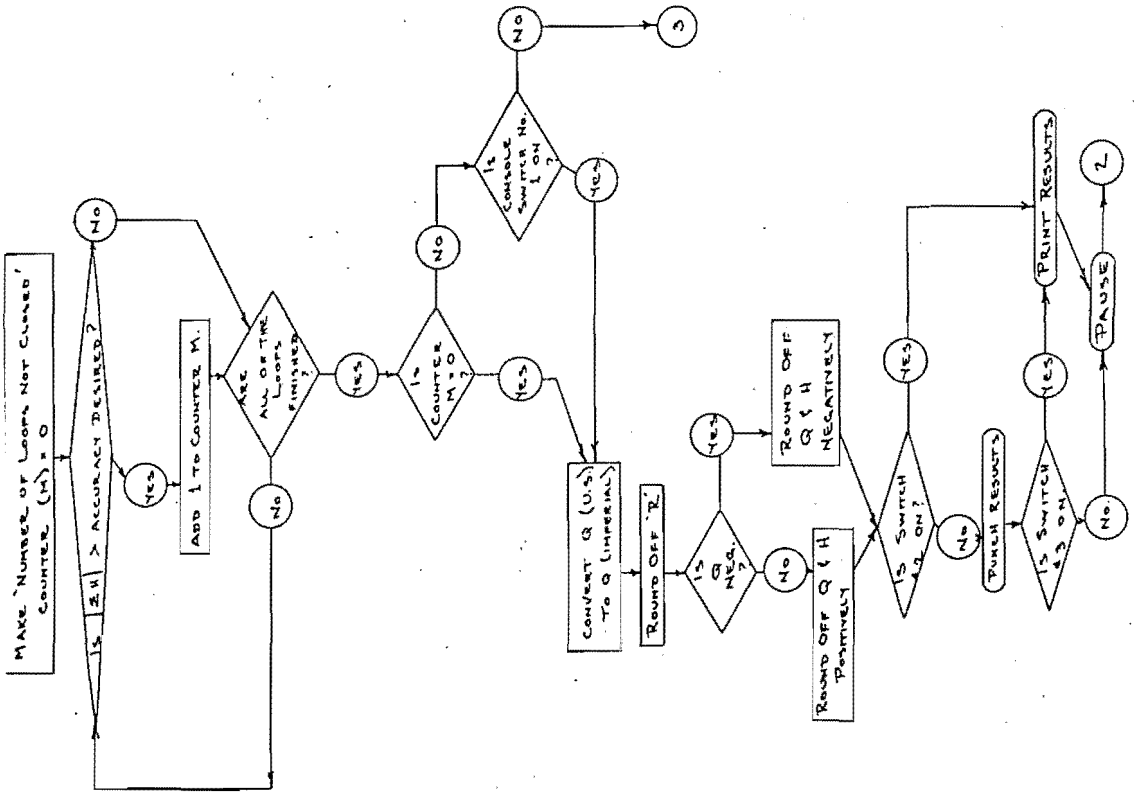
the secondary loop number (which is 00 if there is no secondary loop), and the estimated water flow which is in Imperial gallons per minute in this program. After reading each pipe detail card the pipe resistance factor (R) is calculated and stored. It should be noted that although the pipe numbers are just an identification number and any three digit numbers may be used, the loop numbers must be continuous. For example, a problem with 10 loops must have them numbered 1 through to 10. A loop number of 12 would not be allowed in this problem.

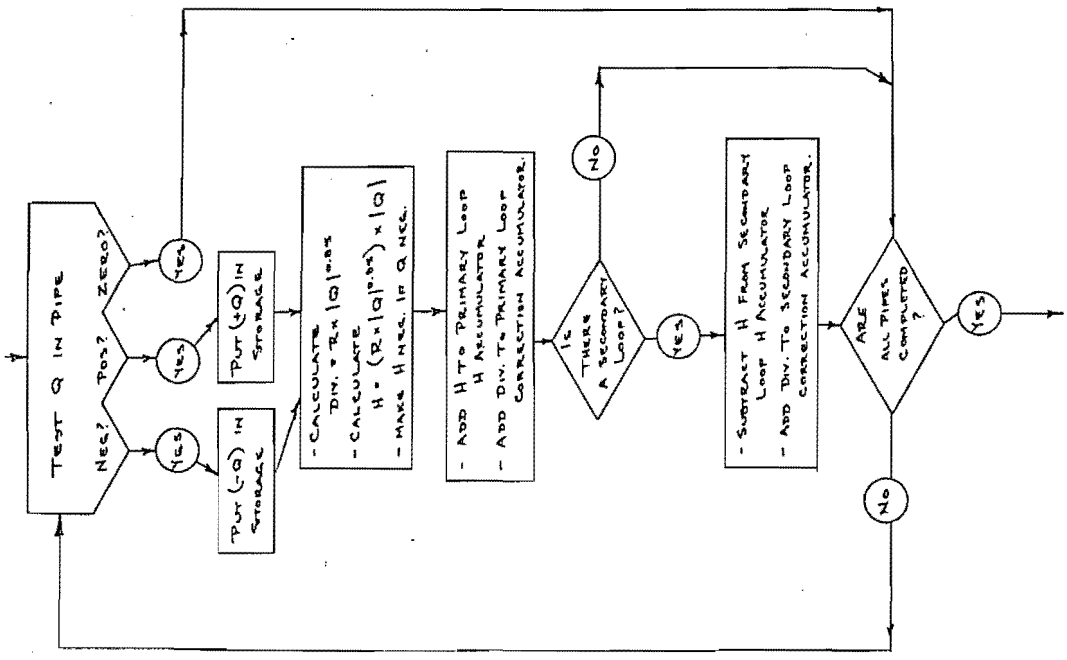
After the last pipe detail card is read (controlled by a count of the number of pipes punched in the master card) the program calculates the head loss in each pipe. The head loss is then totaled around each loop and stored. If the error of closure around every loop is less than the accuracy desired, the results are either punched on cards or typed or both, as determined by the console switches. If the accuracy is not achieved, a flow correction (ΔQ) is calculated for each loop and applied to each pipe depending upon its primary and secondary loop numbers. After completing the flow adjustments a new head loss is calculated for each pipe and the entire procedure is repeated until the desired accuracy is achieved. If the results do not come out in what is considered to be a reasonable time, turning console switch number one to on will cause an output of the results after the next head loss calculations are completed. The first output card will list the job number, the number of iterations calculated, the accuracy desired, and the number of loops not closed to the accuracy desired. The number of loops not closed will be zero unless the output has been achieved by putting switch number one on. This first card is then followed by detail cards for each pipe giving information identical to the input cards with the exception of the corrected water flow and the addition of the pipe resistance factor and head loss. The output card is arranged in such a fashion that it could be used as input for some other problem if all details are applicable.

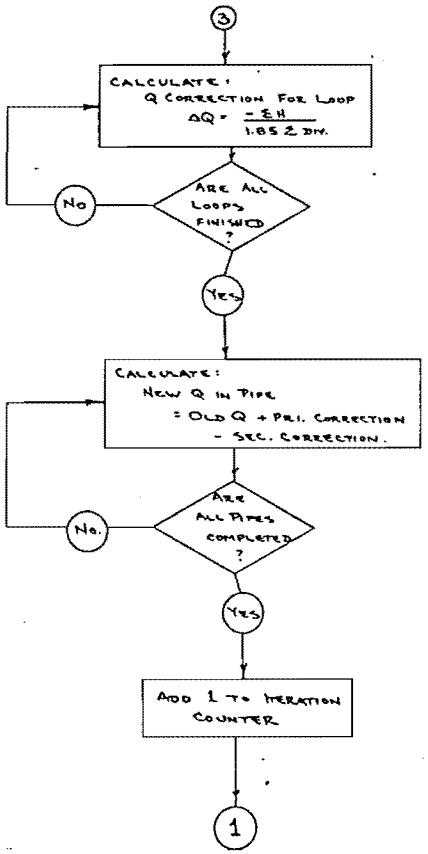
FLOW CHART

— WATER FLOW CALCULATIONS —




MAKE 'NUMBER OF LOOPS NOT CLOSED' COUNTER (M) = 0
IS |ΔH| > ACCURACY DESIRED?
ADD 1 TO COUNTER M.
ARE ALL OF THE LOOPS FINISHED?
IS COUNTER M = 0?
IS CONSOLE SWITCH No. 1 ON?
CONVERT Q (U.S.) TO Q (IMPERIAL)
ROUND OFF 'R'
IS Q NEG.?
ROUND OFF Q & H NEGATIVELY
ROUND OFF Q & H POSITIVELY
IS SWITCH 2 ON?
PUNCH RESULTS
IS SWITCH 3 ON?
PRINT RESULTS
PAUSE
YES
NO
1
2
3


TEST Q IN PIPE
NEG? POS? ZERO?
PUT (-Q) IN STORAGE
PUT (+Q) IN STORAGE
- CALCULATE DIA. = $R_N |Q|^{0.5}$
- CALCULATE H = $(R \times |Q|^{0.5}) \times |Q|$
- MAKE H NEG. IF Q NEG.
- ADD H TO PRIMARY LOOP H ACCUMULATOR
- ADD DIV. TO PRIMARY LOOP CORRECTION ACCUMULATOR.
IS THERE A SECONDARY LOOP?
- SUBTRACT H FROM SECONDARY LOOP H ACCUMULATOR
- ADD DIV. TO SECONDARY LOOP CORRECTION ACCUMULATOR.
ARE ALL PIPES COMPLETED?
YES
NO



Input Format.

1. Master Card -

Column	Format	Description
1 - 4	xxxx	Job number
5 - 7	xxx	Number of pipes
8 - 9	xx	Number of loops
10 - 12	xxx	Accuracy in feet

Note: Although the accuracy is in the form xx.x feet the decimal point is not punched.

2. Pipe Detail Cards -

Column	Format	Description
2 - 4	xxx	Pipe number
7 - 8	xx	Pipe diameter in inches
13 - 15	xxx	Pipe Hazen-Williams constant
20 - 26	xxxxx.x	Pipe length in feet
42 - 43	xx	Primary loop number
47 - 48	xx	Secondary loop number
51 - 58	± xxxxx.x	Pipe flow in Imperial gallons per minute

Note: Decimal points and signs are punched where indicated.
If there is no secondary loop, 00 is punched for secondary loop number.

Output Format

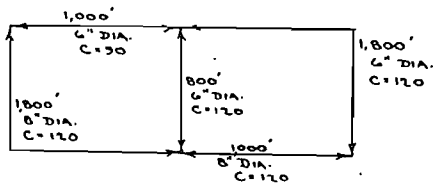
The output is on punched card or typewriter or both depending upon the console switches. The program lists the answers in columns with headings. Listing the cards on a tabulator with a standard 80 column board will give the same output format as that on the typewriter. The card output is punched with the same format as the input and could therefore be used as new input for another problem if the values are reasonable and data correct. For example:- If output is obtained by turning switch number one on and the results seem reasonable but not quite accurate enough, the original master card followed by the output pipe detail cards will be acceptable for the input to a new pass through, thus continuing the calculation from the point where calculations had stopped.

Note: If the format does not seem to allow for the range of numbers desired a change in the Fortran Input and Output Format Statements should be made. It should also be noted that the numbers are "rounded off" before the output and may also have to be revised if any change is made to the size of numbers.

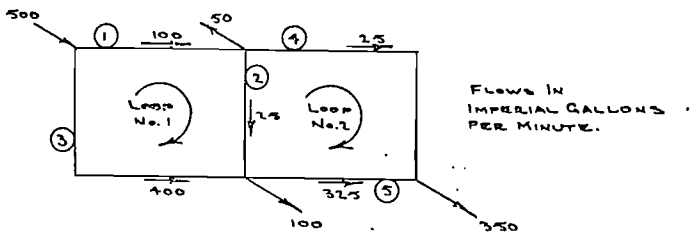
EXHIBIT (RAES)
PAGE 8 OF 12

WATER FLOW - SAMPLE PROBLEM

PIPE NETWORK



PIPE & LOOP NUMBERS WITH ESTIMATED FLOWS



FLOWS IN IMPERIAL GALLONS PER MINUTE.

FLOWS ARE ESTIMATED TO SATISFY LOAD AND SUPPLY.

INPUT INFORMATION -

JOB No. 623
No. OF PIPES 5
No. OF LOOPS 2
ACCURACY DESIRED 0.5'

- PUNCHING. -

(REFER TO INPUT FORMAT - PAGE 8)

CARD COLUMN	1-4	5-6	7-8	9-10	11-15	16-20	21-30	31-32	33-34	35-40
MASTER CARD	0623	005	01	005						
DETAIL CARD #1	001	06		090			01000.0	01	00	+00100.0
#2	002	06		120			00025.0	01	02	+00025.0
#3	003	08		120			01000.0	01	00	-00400.0
#4	004	06		120			01800.0	02	00	+00025.0
#5	005	08		120			01000.0	02	00	-00325.0

PIPE NO. | PIPE DIA. | HAZEN-WILLIAMS CONSTANT | PIPE LENGTH | PRIMARY LOOP No. | SECONDARY LOOP No. | ESTIMATED Q. (POSITIVE PRI. LOOP CLOCKWISE)

LOAD DATA
WATER NETWORK - FLOW CALCULATIONS

JOB NO.	ITERATIONS	ACCURACY	LOOPS NOT CLOSED
+623	+2	+.5	+0

PIPE	DIA	C	LENGTH	R	PRI	SEC	Q	H
+1	+6.	+90.	+1000.0	+.00041052	+1	+0	+163.0	+7.1
+2	+6.	+120.	+25.0	+.00000603	+1	+2	+22.2	+.0
+3	+8.	+120.	+1000.0	+.00010691	+1	+0	-337.0	-7.1
+4	+6.	+120.	+1800.0	+.00043399	+2	+0	+90.8	+2.6
+5	+8.	+120.	+1000.0	+.00005940	+2	+0	-259.2	-2.4

EXHIBIT (CBT-9)
PAGE 9 OF 12

Operating Instructions

Console Settings:

Switch Number 1 on causes the results to be output before the desired accuracy is achieved.

Switch Number 2 in the off position causes the answers to be on punched cards.

Switch Number 2 in the on position results in the answers to be on the typewriter.

Switch Number 3 is used in conjunction with switch number 2 to obtain output on both punched cards and typewriter. For this condition switch No. 2 should be off and switch No. 3 on.

Procedure:

1. Set Console switches as desired (normally all off).
2. Clear machine, push reset, and load object deck followed by data cards.
3. "Load Data" will be typed out. Push start.
4. If two or more separate problems are to be done sequentially the start button must be pushed after each problem is completed.

MW:gb
Jan. 24/62

```
ENTER SOURCE PROGRAM, PUSH START
C NOTE- SWITCH 1 ON - OUTPUT RESULTS OVERRIDING THE ACCURACY CONTROL
C       SWITCH 2 OFF- OUTPUT ON PUNCHED CARDS
C       SWITCH 3 ON - OUTPUT ON TYPEWRITER
C  SWITCHES 2 AND 3 MAY BE USED TOGETHER FOR BOTH CARD AND TYPED OUTPU
    1 FORMAT(4,I3,I2,F3.1)
    2 FORMAT(1X13,2XF2.0,4XF3.0,4XF7.1,15X12,3X12,2XF8.1)
  3 FORMAT(22HJOB NO.      ITERATIONS5X8HACCURACY6X16HLOOPS NOT CLOSED/
    4 FORMAT(14HPIPE  DIA    C5X6HLENGTH8X1HR6X6HPRI  SEC6X1HQ8X1HH/)
    5 FORMAT(15,9X15,9XF5.1,14X14//)
    6 FORMAT(14,1XF4.0,2XF5.0,2XF8.1,2XF10.8,2XI3,2XI3,2XF8.1,2XF7.1)
    8 FORMAT(1X////)
   85 FORMAT(33HWATER NETWORK - FLOW CALCULATIONS/)
      DIMENSION R(150),NO(150),D(150),C(150),AL(150),NP(150),NS(150)
      DIMENSION Q(150),H(150),SUMH(70),SUMD(70)
    9 READ 1,JOBNO,N,L,ACC
      DO 10 I=1,N
      READ 2,NO(I),D(I),C(I),AL(I),NP(I),NS(I),Q(I)
      Q(I)=Q(I)*1.2009
   10 R(I)=(10.43*AL(I))/(C(I)**1.85*D(I)**4.87)
      IT=0
   11 DO 12 I=1,L
      SUMH(I)=0.0
   12 SUMD(I)=0.0
      DO 20 I=1,N
      QW=Q(I)
      IF (QW) 13,20,14
   13 QW=-QW
   14 DIV=R(I)*QW**0.85
      H(I)=DIV*QW
      IF (Q(I)) 15,20,16
   15 H(I)=-H(I)
   16 J=NP(I)
      K=NS(I)
      SUMH(J)=SUMH(J)+H(I)
      SUMD(J)=SUMD(J)+DIV
      IF (K) 20,20,17
   17 SUMH(K)=SUMH(K)-H(I)
      SUMD(K)=SUMD(K)+DIV
   20 CONTINUE
      M=0
      DO 30 I=1,L
      IF (SUMH(I)) 21,22,22
   21 IF (SUMH(I)+ACC) 24,30,30
   22 IF (SUMH(I)-ACC) 30,30,24
   24 M=M+1
   30 CONTINUE
      IF (M) 60,60,31
   31 IF (SENSE SWITCH 1) 60,32
   32 DO 40 I=1,L
      IF (SUMD(I)) 33,40,33
   33 SUMD(I)=-SUMH(I)/(SUMD(I)*1.85)
   40 CONTINUE
      DO 50 I=1,N
      J=NP(I)
      K=NS(I)
      IF (K) 42,42,41
   41 Q(I)=Q(I)+SUMD(J)-SUMD(K)
      GO TO 50
   42 Q(I)=Q(I)+SUMD(J)
   50 CONTINUE
      IT=IT+1
      GO TO 11
```

EXHIBIT (QAT-8)
PAGE 10 OF 13

```
12204        R()=R()+0.000000005
T288       F (Q()) 63,65,64
T2368    63 Q(I)=Q(I)-0.05
T2452       H(I)=H(I)-0.05
T2536       GO TO 65
T2544    64 Q(I)=Q(I)+0.05
T2628       H(I)=H(I)+0.05
T2712    65 CONTINUE
T2748       IF (SENSE SWITCH 2) 70,61
T2768    61 PUNCH 85,
T2780       PUNCH 3,
T2792       PUNCH 5,JOBNO,IT,ACC,M
T2852       PUNCH 4,
T2864       DO 62 I=1,N
T2876    62 PUNCH 6,NO(I),D(I),C(I),AL(I),R(I),NP(I),NS(I),Q(I),H(I)
T3248       PUNCH 8,
T3260       IF (SENSE SWITCH 3) 70,80
T3280    70 PRINT 85,
T3292       PRINT 3,
T3304       PRINT 5,JOBNO,IT,ACC,M
T3364       PRINT 4,
T3376       DO 79 I=1,N
T3388    79 PRINT 6,NO(I),D(I),C(I),AL(I),R(I),NP(I),NS(I),Q(I),H(I)
T3760       PRINT 8,
T3772    80 PAUSE
T3784       GO TO 9
T3792       END

PROG SW 1 ONFOR SYMBOL TABLE, PUSH START
39999 SIN
39989 SINF
39979 COS
39969 COSF
39959 ATAN
39949 ATANF
39939 EXP
39929 EXPF
39919 LOG
39909 LOGF
39899 SQRT
39889 SQRTF
39879 0001
39869 0001
39859 000
39849 000
39839 0003
39829 0003
39819 0004
39809 0004
39799 0005
39789 0005
39779 0006
39769 0006
39759 0008
39749 0008
39739 0085
39729 0085
39719 R      38229
38219 NO     36729
36719 D      35229
35219 C      33729
33719 AL     32229
32219 NP     30729
30719 NS     29229
```



```
26219 SUMH   25529
25519 SUMD   24829
24819 0009
24809 JOBNO
24799 N
24789 L
24779 ACC
24769 001C
24759 I
24749 T200900001
24739 000
24729 T043000002
24719 001
24709 T050000001
4699 003
24689 4870000001
24679 004
24669 IT
24659 0000
4649 0011
4639 001
24629 0000000099
24619 0020
24609 QW
24599 0013
4589 0014
4579 DIV
24569 8500000000
24559 0015
24549 0016
24539 J
24529 K
24519 0017
24509 M
24499 0030
24489 0021
24479 002
4469 004
4459 000T
4449 0060
4439 0031
4429 0032
24419 0040
24409 0033
4399 0050
4389 0042
24379 0041
24369 0065
24359 8327088000
24349 5000000008
4339 0063
24329 0064
24319 5000000001
24309 0070
24299 0061
24289 0062
24279 0080
24269 0079

SW 1 OFF TO IGNORE SUBROUTINES, PUSH START
1620 FORTRAN SUBR. AUTO DIV  9/30/61
PROCESSING COMPLETE
```

EXHIBIT (EHZ-8)

PAGE 11 OF 12

```
C NOTE- SWITCH 1 ON - OUTPUT RESULTS OVERRIDING THE ACCURACY CONTROL
C       SWITCH 2 OFF- OUTPUT ON PUNCHED CARDS
C       SWITCH 3 ON - OUTPUT ON TYPEWRITER
C   SWITCHES 2 AND 3 MAY BE USED TOGETHER FOR BOTH CARD AND TYPED OUTPUT
    1 FORMAT(I4,I3,I2,F3.1)
    2 FORMAT(IXI3,2XF2.0,4XF3.0,4XF7.1,15XI2,3XI2,2XF8.1)
    3 FORMAT(22HJOB NO.      ITERATIONS5X8HACCURACY6X16HLOOPS NOT CLOSED/)
    4 FORMAT(14HPIPE  DIA     C5X6HLENGTH8X1HR6X8HPRI  SEC6X1H08X1HH/)
    5 FORMAT(I5,9XI5,9XF5.1,14XI4//)
    6 FORMAT(I4,1XF4.0,2XF5.0,2XF8.1,2XF10.8,2XI3,2XI3,2XF8.1,2XF7.1)
    8 FORMAT(1X////)
   85 FORMAT(33HWATER NETWORK - FLOW CALCULATIONS/)
      DIMENSION R(150),NO(150),D(150),C(150),AL(150),NP(150),NS(150)
      DIMENSION Q(150),H(150),SUMH(70),SUMD(70)
    9 READ 1,JOBNO,N,L,ACC
      DO 10 I=1,N
      READ 2,NO(I),D(I),C(I),AL(I),NP(I),NS(I),Q(I)
      Q(I)=Q(I)*1.2009
   10 R(I)=(10.43*AL(I))/(C(I)**1.85*D(I)**4.87)
      IT=0
   11 DO 12 I=1,L
      SUMH(I)=0.0
   12 SUMD(I)=0.0
      DO 20 I=1,N
      QW=Q(I)
      IF (QW) 13,20,14
   13 QW=-QW
   14 DIV=R(I)*QW**0.85
      H(I)=DIV*QW
      IF (Q(I)) 15,20,16
   15 H(I)=-H(I)
   16 J=NP(I)
      K=NS(I)
      SUMH(J)=SUMH(J)+H(I)
      SUMD(J)=SUMD(J)+DIV
      IF (K) 20,20,17
   17 SUMH(K)=SUMH(K)-H(I)
      SUMD(K)=SUMD(K)+DIV
   20 CONTINUE
      M=0
      DO 30 I=1,L
      IF (SUMH(I)) 21,22,22
   21 IF (SUMH(I)+ACC) 24,30,30
   22 IF (SUMH(I)-ACC) 30,30,24
   24 M=M+1
   30 CONTINUE
      IF (M) 60,60,31
   31 IF (SENSE SWITCH 1) 60,32
   32 DO 40 I=1,L
      IF (SUMD(I)) 33,40,33
   33 SUMD(I)=-SUMH(I)/(SUMD(I)*1.85)
   40 CONTINUE
      DO 50 I=1,N
      J=NP(I)
      K=NS(I)
      IF (K) 42,42,41
   41 Q(I)=Q(I)+SUMD(J)-SUMD(K)
      GO TO 50
   42 Q(I)=Q(I)+SUMD(J)
   50 CONTINUE
      IT=IT+1
      GO TO 11
   60 DO 65 I=1,N
      Q(I)=Q(I)*0.8327088
      R(I)=R(I)+0.000000005
      IF (Q(I)) 63,65,64
   63 Q(I)=Q(I)-0.05
      H(I)=H(I)-0.05
      GO TO 65
   64 Q(I)=Q(I)+0.05
      H(I)=H(I)+0.05
   65 CONTINUE
      IF (SENSE SWITCH 2) 70,61
   61 PUNCH 85,
      PUNCH 3,
      PUNCH 5,JOBNO,IT,ACC,M
      PUNCH 4,
      DO 62 I=1,N
   62 PUNCH 6,NO(I),D(I),C(I),AL(I),R(I),NP(I),NS(I),Q(I),H(I)
      PUNCH 8,
      IF (SENSE SWITCH 3) 70,80
   70 PRINT 85,
      PRINT 3,
      PRINT 5,JOBNO,IT,ACC,M
      PRINT 4,
      DO 79 I=1,N
   79 PRINT 6,NO(I),D(I),C(I),AL(I),R(I),NP(I),NS(I),Q(I),H(I)
      PRINT 8,
   80 PAUSE
      GO TO 9
      END
```

EXHIBIT (DFT-8)

PAGE 12 OF 12

EXHIBIT (RAI-9)

PAGE 1 OF 2

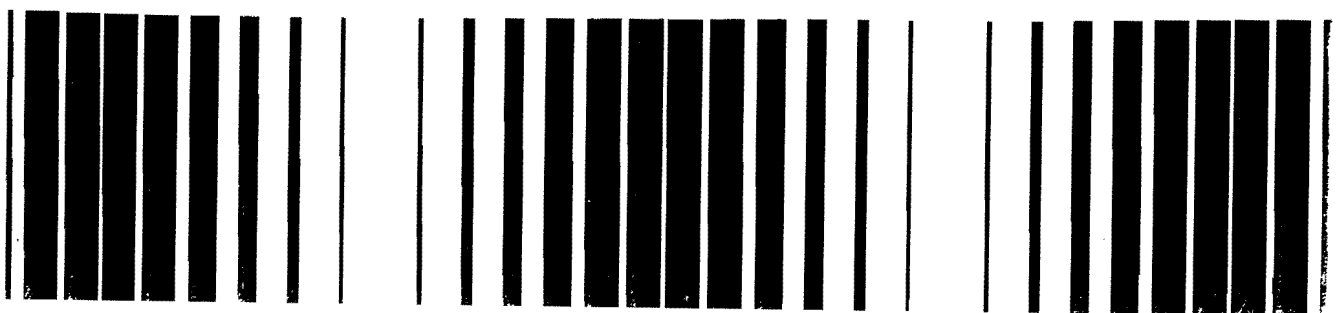
United States Environmental Protection Agency | Office of Research and Development Cincinnati, OH 45268 | EPA/625/6-91/030 October 1991

Technology Transfer

EPA

Handbook

Sewer System Infrastructure Analysis and Rehabilitation



CHAPTER 2

Regulatory Requirements

2.1 Historical Background

The Water Pollution Control Act Amendments (Public Law 92-500, October 18, 1972), require that the U.S. EPA construction grant applicants investigate the condition of their sewer systems. The grant cannot be approved unless it is documented that each sewer system discharging into such treatment works is not subject to "excessive infiltration and inflow." This requirement was implemented in the Rules and Regulations for Sewer Evaluation and Rehabilitation (40CFR35.927). In addition, I/I analysis and Sewer System Evaluation Surveys (SSES) were required to be conducted on a routine basis to document I/I, and also to indicate the most cost effective method of rehabilitation required to correct the sewer pipe and manhole structure damage.[1]

The I/I analysis should document the non-existence or possible existence of excessive I/I in each sewer system tributary to the treatment works. The analysis should identify the presence and type of I/I that exists in the sewer system including estimated flow rates. The following information should be evaluated and included:

- Estimated flow data at the treatment facility, all significant overflows and bypasses, and, if necessary, flows at key points within the sewer system
- Relationship of existing population and industrial contribution to flows in the sewer system
- Geographical and geological conditions which may affect the present and future flow rates or correction costs for the I/I
- A discussion of age, length, type, materials of construction and known physical conditions of the sewer system

The SSES should include a systematic examination of the sewer system to determine the specific locations, estimated flow rates, method of rehabilitation and cost of rehabilitation versus the cost of transportation and treatment for each defined source of infiltration and each defined source of inflow.[1] The results of the SSES should be summarized in a report that should include:[2]

- A justification for each sewer section cleaned and internally inspected
- A proposed rehabilitation program for the sewer system to eliminate all defined excessive I/I

2.2 Summary of Applicable U.S. EPA and State Regulations

The following is a Summary of Federal and State Regulations and Guidelines for I/I analysis and SSES applicable under the U.S. EPA construction grant program.[1,3]

The grant applicant must determine the I/I conditions in the sewer system by analyzing the preceding year's flow records from existing treatment plant and pump stations. For smaller systems where flow records may not be available, the grant applicant shall obtain flow data by conducting flow monitoring at a single point at the treatment plant during high groundwater periods and also during rainstorms. If there is a likelihood of excessive I/I in a portion of the collection system, it is desirable to monitor that portion separately. No further I/I analysis will be necessary if domestic wastewater plus non-excessive infiltration does not exceed 120 gallons per capita per day (gpcd) during periods of high groundwater. The total daily flow during a storm should not exceed 275 gpcd, and there should be no operational problems, such as surcharges, bypasses or poor treatment performance resulting from hydraulic overloading of the treatment works during storm events. The flow rate of 120 gpcd for infiltration analysis contains two flow components: 80 gpcd of domestic base flow and 40 gpcd of non-excessive infiltration. This is a national average based on the results of a needs survey of 270 Standard Metropolitan Statistical Area Cities. Where the flow rate (domestic base flow and infiltration based on the highest 7 to 14 day average) does not significantly exceed 120 gpcd (in the range of 130 gpcd) the city may proceed with the treatment works design without further analysis. When infiltration significantly exceeds 120 gpcd, further evaluation of the sewer system must be performed to determine the possibility of excessive I/I through a cost effectiveness

EXHIBIT (RAT-10)

PAGE 1 OF 2

Berryman & Henigar

BSI Consultants, Inc. • Henigar & Ray, Inc.

CAPACITY ANALYSIS REPORT

FOR

SUGARMILL WOODS
WASTEWATER TREATMENT FACILITY

Citrus County, Florida

GMS NO. 4009P05400
PERMIT NO. DO09-158879
PLANT INSPECTION: JUNE 19, 1995

Prepared by:
BERRYMAN & HENIGAR
640 East Highway 44
Crystal River, Florida 34429-4399

Prepared For:
Southern States Utilities, Inc.
1000 Color Place
Apopka, Florida 32703

OCTOBER 1995

The remaining, permitted work that will be constructed at a later date includes: the second clarifier and the additional sprayfield (expansion from 33 acres to 53.35 acres). The reasons for delaying the construction of these items are presented below:

Second Clarifier

The maximum three month average daily flow (M3MADF) for the years 1992, 1993, 1994, and 1995 was 0.264 mgd, 0.242 mgd, 0.260 mgd, and 0.294 mgd, respectively. These flows are significantly less than the flow projections presented in the Engineering Report. Because the existing single clarifier is capable of handling 0.4 mgd, the construction of the second clarifier is not needed, at this time, and has therefore been delayed. According to current projections, the second clarifier will need to be constructed in early 1998. The RAS and WAS improvements would be made concurrent with the construction of the second clarifier.

Sprayfield Expansion

The effluent sprayfield was originally permitted for 1.5 mgd on 50 acres, at a loading rate of approximately 7.5 inches per week. At this rate, the existing 33-acre sprayfield would have a capacity of approximately 0.99 mgd. Because this capacity is greater than the current plant flows (0.294 mgd, M3MADF for 1995), the construction of the remaining 20.35 acres of sprayfield has been postponed. A revised hydrogeological study for the 33-acre site, only, is currently being prepared. This report will include a revised groundwater monitoring plan for the 33 acre site. Based on the latest flow projections, the sprayfield expansion will not be required for at least ten years.

Based on the information presented above, SSU would like to modify the construction schedule included as Specific Condition No. 25 of the Operating permit. We have completed DEP form 62-620.910(9) "Application for a Minor Revision to a Wastewater Facility Permit" for this schedule modification request (see Attachment A). The revised construction schedule is presented below:

A. Prepare final design drawings by 04/01/94
B. Obtain State and County permits by 05/01/94
C. Bid/Award project by ~~08/01/94~~ 03/22/95
~~D. Begin construction (Notice to Proceed) by 09/01/94~~
~~E.~~ D. Substantial completion (In-Service) by ~~02/01/95~~ 11/26/95
~~F.~~ E. Final Completion by ~~04/01/95~~ 12/26/95
~~G.~~ F. Modification of this operation permit by 10/01/95

In addition to the schedule above, SSU proposes to submit DEP form 62-620.910(1) "Wastewater Permit Application Form 1 General Information" and DEP form 62-620.910(2)

Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:

Orange Osceola Utilities, Inc.
2507 Boggy Creek Road, Suite D
Kissimmee, Florida 34744

Mike Johnson, General Manager

PERMIT NUMBER: FL0039446-001
ISSUANCE DATE:
PATS NUMBER: 219202-268476
EXPIRATION DATE: October 10, 2000
FACILITY I.D. NO.: 3049P00029

FACILITY:

Buenaventura Lakes WWTP
839C West Birchwood Circle
Osceola County
Kissimmee, Florida
Latitude: 28° 19' 28" N Longitude: 81° 22' 22" W

This permit is issued under the provisions of Chapter 403, Florida Statutes, and applicable rules of the Florida Administrative Code and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. The above named permittee is hereby authorized to construct and/or operate the facilities shown on the application and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TREATMENT FACILITIES:

An existing 1.8 MGD annual average daily flow (AADF) permitted capacity Bardenpho process wastewater treatment plant consisting of influent screening, grit removal, surge control, fermentation zone, first anoxic zone, aeration, second anoxic zone, reaeration zone, clarification, chemical feed facilities, filtration, disinfection by chlorination, a 4-cell, inline 6-acre hyacinth polishing pond (3 days detention time), post aeration, aerobic storage of residuals, rotary drum thickener and lime stabilization with:

EFFLUENT DISPOSAL:

Surface Water Discharge: An existing 1.080 MGD AADF permitted capacity rapid-rate land application system consisting of three (3) rapid exfiltration basins (REB's) with an effective seepage length of 520 linear feet each. Effluent is discharged to surface waters by seepage through the easterly exfiltration berms of the REB's to an adjacent stormwater canal, which discharges to Bass Slough and hence to Lake Tohopekaliga, all Class III waters. Emergency discharge from each REB is westerly to the south wetland cell. The point of discharge (D004) and REB's are located approximately at latitude 28° 19' 15" N, longitude 81° 22' 07" W. Construction of REB #4 is hereby authorized adjacent to and north of the existing REB's, with an effective seepage length of 450 linear feet and an increase in permitted capacity of 0.250 MGD AADF of the REB system to a total disposal capacity of 1.33 MGD AADF.

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REUSE:

Surface Water Discharge: An existing 0.100 MGD AADF permitted capacity non-jurisdictional, 3-cell, 169 acre, treatment wetland reuse system (R001) required to hold emergency discharge from the REB's, storage during wet weather and reuse water for wetlands enhancement to maintain a productive wildlife habitat. Discharge from the wetland system is only authorized due to a 10-year 24-hour storm event. The discharge point (D001) from the overflow structure of the south wetland cell to the adjacent stormwater canal, which discharges to Bass Slough and hence to Lake Tohopekaliga, is located approximately at latitude 28° 19' 07" N, longitude 81° 22' 10" W. (Note: Previous outfalls D002 and D003 have been sealed and abandoned.)

Land Application: An existing 0.500 MGD AADF permitted capacity public access reuse system (R002) consisting of golf course pond reclaimed water storage and irrigation of the 65-acre Buenaventura Lakes Golf Course located approximately at latitude 28 ° 20 ' 20 " N, longitude 81 ° 22 ' 00 " W.

DISPOSAL CAPACITY SUMMARY	MGD AADF
1. REB's #1, #2 #3 & #4	1.330
2. Golf Course	0.500
3. Wetland System	0.100
Total:	1.930

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions set forth in Part I 11 pages, Part II 2 pages, Part III 2 pages, Part IV 2 pages, Part V 1 page, Part VI 1 page, Part VII 0 pages, Part VIII 2 pages and Part IX 5 pages of this permit, including the enclosed Discharge Monitoring Reports (DMR's) , Ground Water Monitoring Well Completion Report and Groundwater Monitoring Reports.

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from **REB's Outfall D004** to the adjacent stormwater canal, which discharges to Bass Slough and hence to Lake Tohopekaliga. Such discharge shall be limited and monitored by the permittee as specified below:
[62-600, 6-8-93], [62-601, 5-31-93], [62-650, 11-27-89], [62-302, 1-5-93], [62-610.860, 4-2-90]

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Maximum	1.33	-	-	-	Continuous	Flow Meter	ML005	See Item I.A.4.
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Maximum	3.3	4.125	-	6.6	1 day/week	See Notes	ML004	See Item I.A.7.
Total Suspended Solids	mg/L	Maximum	5.0	6.25	-	10.0	1 day/week	See Notes	ML004	See Item I.A.7.
Fecal Coliform Bacteria	See Permit Condition I. A. 5.						1 day/week	Grab	ML004	
pH	std. units	Range	-	-	-	6.0-8.5	7 days/week	Grab	ML004	
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	0.5	Continuous	Analyzer	ML007	See Items I.A.3. & 6.
Total Residual Chlorine (For Dechlorination)	mg/L	Maximum	-	-	-	0.01	7 days/week	Grab	ML004	
Dissolved Oxygen (DO)	mg/L	Minimum	-	-	-	6.0	7 days/week	Grab	ML004	
Total Nitrogen (as N)	mg/L	Maximum	1.25	1.56	-	2.5	1 day/week	See Notes	ML004	See Item I.A.7.
Total Phosphorus (as P)	mg/L	Maximum	0.20	0.25	-	0.40	1 day/week	See Notes	ML004	See Item I.A.7.
$CBOD_5$	See Permit Condition I. A. 8.									

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2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I. A. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
ML004	Post aeration tank pump station wetwell
ML005	Flow meter to REB system after post aeration tank
ML007	Discharge from final chlorination tank

3. Hourly measurement during the period of required operator attendance may be substituted for continuous measurement. *[Chapter 62-601, Figure 2, Footnotes 1 and 2, 5-31-93]*

4. Recording flow meters and totalizers shall be utilized to measure flow. *[62-601.200(17) and .500(6), 5-31-93]*

5. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. *[62-600.440(4)(c), 6-8-93]*

6. A minimum of 0.5 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(4)(b), 6-8-93]*

7. Flow proportioned 16-hour composite sample is required. *[62-601.500(3), 5-31-93]*

8. The annual average value of $CBOD_5$ shall not exceed 2.5 mg/L as sampled from any of the ground water monitoring wells located in the effluent discharge berms of the REB's and as recorded on the quarterly ground water monitoring reports for wells MW-1 through MW-4 identified in permit condition III. 3. *[62-620.320(6), 11-29-94]*

9. As a result of this discharge, surface water quality monitoring shall be required at stations BS-1 and BS-2, as previously established at the Lapaz Drive overflow structure and Boggy Creek Road overpass, respectively. Grab samples shall be collected quarterly during January, April, July and October of each year and the data submitted, in accordance with the previously established format, by the 28th day following each sample month for the following parameters: *[62-620.320(6), 11-29-94]*

   a. Flow
   b. $CBOD_5$
   c. TSS
   d. Chlorides
   e. Conductivity
   f. pH
   g. Dissolved Oxygen (DO)
   h. TKN (as N)
   i. Nitrates/Nitrites (as N)
   j. Ammonia (as N)
   k. Total Phosphorus (as P)
   l. Temperature
   m. Macroinvertebrates (semi-annually during January and July using Hester-Dendy artificial substrates)

10. Florida water quality criteria and standards shall not be violated as a result of the discharge. Should violations occur, the permittee shall provide additional treatment by modifications or additions to the wastewater treatment facilities. *[Chapter 62-600.500, 6-8-93]*

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

A. Surface water Discharges

11. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is not authorized to discharge to surface waters from **Wetlands Outfall D001**, except as provided by permit condition I.A.14. Such discharge shall be monitored by the permittee as specified below: *[62-600, 6-8-93], [62-601, 5-31-93], [62-610, 4-2-90], [62-620.320(6), 11-29-94]*

			Discharge Data				Monitoring Requirements			
Parameter	Units	Max./ Min.	Annual Average	Monthly Average	Weekly Average	Daily Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Report	-	-	-	-	Daily	-	ML010	See Item I.A.13.
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Report	-	-	-	-	Daily	Grab	ML009	
Total Suspended Solids	mg/L	Report	-	-	-	-	Daily	Grab	ML009	
Fecal Coliform Bacteria	#/ 100	Report	-	-	-	-	Daily	Grab	ML009	
pH	std. units	Report	-	-	-	-	Daily	Grab	ML009	
Total Residual Chlorine (For Dechlorination)	mg/L	Report	-	-	-	-	Daily	Grab	ML009	
Total Nitrogen (as N)	mg/L	Report	-	-	-	-	Daily	Grab	ML009	
Total Phosphorus (as P)	mg/L	Report	-	-	-	-	Daily	Grab	ML009	
Rainfall	inchs	Report	-	-	-	-	Daily	-	ML012	See Item I.A.14.

EXHIBIT (RAI-11)
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12. Reclaimed water samples shall be taken at the monitoring site locations listed in Permit Condition I. A. 11. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
ML009	South wetland cell overflow structure
ML010	Weir in south wetland cell overflow structure
ML012	Master rain gauge at wastewater treatment plant

13. The daily volume discharged (in MGD) based on calculations shall be recorded on the Discharge Monitoring Report (DMR) and the calculations provided as an attachment to the DMR. If no discharge occurs during the reporting period, so indicate on the DMR, but report daily rainfall data.

[62-620.610(18), 11-29-94]

14. The graph included on the following page, entitled "10-Year Localized Storm Curve, Orange Osceola Utilities, Inc.", shall be used to determine when a discharge is allowed. In order to support a permissible discharge, it is required that rain gauge readings be taken at the same time on each day. Compare the number of inches of rain received in a given time period to the graph. If the point lies on or above the curve on the graph, the discharge is permissible. If the point lies below the curve on the graph, a discharge will be in violation to this permit.

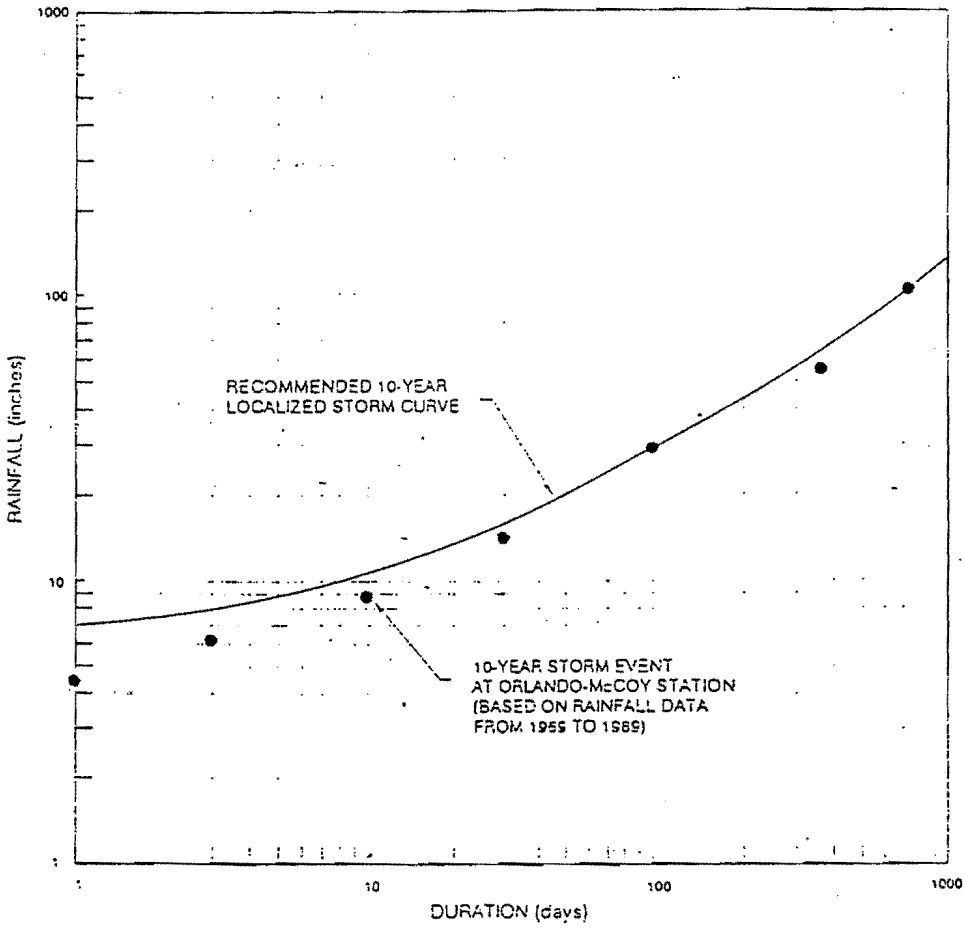
    The actual rainfall period used for comparison to the graph must be a period of consecutive days of cumulative rainfall. The period of consecutive days of cumulative rainfall may include days for which no rainfall occurs. Discharge is allowed only in amounts equal to the volume of excess rainfall (i.e., rainfall in excess of the 10-year storm times the surface area of the 169-acre wetlands).

    A minimum one (1) foot of freeboard should be maintained in all wetland cells at all times to preclude any discharge to surface waters.

    [62-620.320(6), 11-29-94], [62-600.500, 6-8-93]

15. Upon review of any information provided by the permittee as a result of any discharge, this permit may be modified or alternatively revoked and reissued to require additional or more stringent conditions or effluent limitations.

    [62-620.345, 11-29-94]



10-YEAR LOCALIZED STORM CURVE

ORANGE OSCEOLA UTILITIES, INC.

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

LOCALIZED STORM CURVE
ORANGE OSCEOLA UTILITIES, INC.
OSCEOLA COUNTY, FLORIDA

WWC WWC GENESIS

92-125

FIGURE 1

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

B. Reuse and Land Application Systems

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to land apply reclaimed water from Wetlands Reuse System R001. Such reclaimed water shall be limited and monitored by the permittee as specified below: *[62-600, 6-8-93], [62-601, 5-31-93], [62-610, 4-2-90]*

			Reclaimed Water Limitations				Monitoring Requirements			
Parameter	Units	Max /Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Maximum	0.100	-	-	-	Continuous	Flow Meter	ML002 or ML005	See Items I.B.3 & 6.
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Maximum	20	30	45	60	1 day/week	16-hour flow proportioned composite	ML004 or ML008	
Total Suspended Solids	mg/L	Maximum	20	30	45	60	1 day/week	16-hour flow proportioned composite	ML004 or ML008	
Fecal Coliform Bacteria	See Permit Condition I. C. 4.						1 day/week	Grab	ML004 or ML008	
pH	std. units	Range	-	-	-	6.0-8.5	Daily	Grab	ML004 or ML008	
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	0.5	Daily	Grab	ML007 or ML008	See Item I.B.5.

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2. Reclaimed water samples shall be taken at the monitoring site locations listed in Permit Condition I. B. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
ML004	Post aeration tank pump station wetwell
ML005	Flow meter after post aeration tank
ML008	Gravity flow from per-filter dosing tank
ML002	Master flow meter at pre-filter chlorination tank
ML007	Discharge from final chlorination tank

3. Recording flow meters and totalizers shall be utilized to measure flow.

[62-601.200(17) and .500(6), 5-31-93]

4. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of reclaimed water sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of reclaimed water, each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample.

[62-600.440(4)(c), 6-8-93]

5. A minimum of 0.5 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow.

[62-600.440(4)(b), 6-8-93]

6. Gravity flow to the wetlands shall be the difference between the master flow meter data and the measured flows to the REB's and/or golf course reclaimed water holding pond.

[62-601.200(17), 5-31-93]

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

C. Reuse and Land Application Systems

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to land apply reclaimed water from Golf Course Reuse System R002. Such reclaimed water shall be limited and monitored by the permittee as specified below:

[62-600, 6-8-93], [62-601, 5-31-93], [62-610, 4-2-90]

			Reclaimed Water Limitations				Monitoring Requirements			
Parameter	Units	Max./Min.	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Maximum	0.500				Continuous	Flow Meter	ML003	See Item I.C.3.
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Maximum	20	30	45	60	1 day/week	16-hour flow proportioned composite	ML007	
Total Suspended Solids	mg/L	Maximum	-	-	-	5.0	4 days/week	Grab	ML006	See Item I.C.4.
Fecal Coliform Bacteria	See Permit Condition I. C. 4.						4 days/week	Grab	ML007	
pH	std. units	Range	-	-	-	6.0-8.5	7 days/week	Grab	ML007	
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	1.0	Continuous	Analyzer	ML007	See Item I. C. 5.
Turbidity	NTU	Maximum	See Permit Condition I. C. 6.				Continuous	Analyzer	ML006	

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2. Reclaimed water samples shall be taken at the monitoring site locations listed in Permit Condition I. C. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
ML003	Flow meter to public access reuse system
ML006	After filtration and prior to disinfection
ML007	Discharge from final chlorination tank

3. Recording flow meters and totalizers shall be utilized to measure flow.

[62-601.200(17) and .500(6), 5-31-93]

4. Over a 30 day period, 75 percent of the fecal coliform values shall be below the detection limits. Any one sample shall not exceed 25 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 5.0 milligrams per liter of total suspended solids (TSS) at a point before application of the disinfectant.

[62-600.440(5)(f), 6-8-93]

5. The minimum total chlorine residual shall be limited as described in the approved operating protocol, such that the permit limitation for fecal coliform bacteria will be achieved. In no case shall the total chlorine residual be less than 1.0 mg/L.

[62-600.440(5)(b) and (6)(b), 6-8-93]

6. The maximum turbidity shall be limited as described in the approved operating protocol, such that the permit limitations for total suspended solids and fecal coliforms will be achieved.

[62-610.463, 4-2-90]

I. RECLAIMED WATER AND EFFLUENT LIMITIONS AND MONITORING REQUIREMENTS (continued)

D. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below:

[62-601.300(1), 5-31-93]

			Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Report	-	-	-	-	Weekly	16-hour flow proportioned composite	ML001	See Item I.D.3.
Total Suspended Solids	mg/L	Report	-	-	-	-	Weekly	16-hour flow proportioned composite	ML001	See Item I. D. 3.
Dissolved Oxygen (DO)	mg/L	Minimum	5.0	-	-	-	Weekly	Grab	ML011	See Items I.D.4. & I.D.5.

EXHIBIT (KATE)
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2. Samples shall be taken at the monitoring site locations listed in Permit Condition I. D. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
ML001	Influent discharge to headworks barscreen
ML011	Between canal surface aerator and REB's exfiltration berms

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters.

[62-601.500(4), 5-31-93]

4. The permittee shall maintain in operable condition at all times the surface aerator located in the stormwater canal adjacent to the REB's discharge point(s).

[62-620.320(6), 11-29-94]

5. Dissolved oxygen data for the stormwater canal shall be recorded on the DMR for outfall D004.

6. All flow measuring device(s) shall be calibrated at least annually.

[62-601.500(6) and 62-601.200(17), 5-31-93]

7. Parameters which must be monitored as a result of a surface water discharge shall be analyzed using a sufficiently sensitive method in accordance with 40 CFR Part 136. Parameters which must be monitored as a result of a ground water discharge (i.e., underground injection or land application system) shall be analyzed in accordance with Chapter 62-601, F.A.C.

[62-620.610(18), 11-29-94]

8. The permittee shall provide safe access points for obtaining representative influent, reclaimed water, and effluent samples which are required by this permit.

[62-601.500(5), 5-31-93]

9. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department on a monthly basis a Discharge Monitoring Report (DMR), Form 62-620.910(10), for each outfall, discharge point, and reuse system specified in Item(s) I.A., I.B., & I.C. above. Each DMR shall include the test results for the parameters required to be sampled on the enclosed DMR forms. The permittee shall make copies of these partially completed forms for future monthly submittals. All DMR forms shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation at the address specified below:

Florida Department of Environmental Protection
Wastewater Facilities Regulation Section, Mail Station 3550
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

[62-620.610(18), 11-29-94][62-601.300(1),(2), and (3), 5-31-93]

OPS

10. During the period of operation authorized by this permit, reclaimed water or effluent shall be monitored annually for the primary and secondary drinking water standards contained in Chapter 62-550, F.A.C., (except for turbidity, total coliforms, color, and corrosivity). Twenty-four hour composite samples shall be used to analyze reclaimed water or effluent for the primary and secondary drinking water standards. These monitoring results shall be reported to the Department annually on the Reclaimed Water or Effluent Analysis Report, Form 62-601.900(4), or in another format if requested by the permittee and if approved by the Department as being compatible with data entry into the Department's computer system. During years when a permit is not renewed, a certification stating that no new non-domestic wastewater dischargers have been added to the collection system since the last reclaimed water or effluent analysis was conducted may be submitted in lieu of the report. The annual reclaimed water or effluent analysis report or the certification shall be completed and submitted in a timely manner so as to be received by the Department's Central District Office by August 31 of each year.

[62-601.300(4), 5-31-93], [62-601.500(3), 5-31-93]

11. Within 90 days of placing the new REB #4 in operation, the permittee shall characterize the volume and composition of the effluent discharged to ground waters. The DMR for the domestic wastewater treatment facility, at that time, shall satisfy this requirement. The initial quarterly ground water monitoring report shall be deemed sufficient to characterize the receiving ground water at the new monitoring well (MW-4) location.

[62-522.600(11)(a), 4/14/94]

12. Unless specified otherwise in this permit, all reports and notifications required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Central District Office at the address specified below:

Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Phone Number - (407)894-7555
FAX Number - (407)897-2966

Note: All FAX copies shall be followed by original copies.

Orange Osceola Utilities, Inc.
Buenaventura Lakes WWTP

Permit Number: FL0039446-001
Facility I. D. Number: 3049P00029

II. RESIDUALS MANAGEMENT REQUIREMENTS

1. The method of residuals use or disposal by this facility is land application.

2. Land application of residuals shall be in accordance with the conditions of this permit and the requirements of Chapter 62-640, F.A.C. *[62-640, 3-1-91]*

3. The domestic wastewater residuals for this facility are classified as stabilization Class B.

4. The wastewater treatment facility permittee shall be responsible for proper handling, use, and disposal of its residuals and will be held responsible for any disposal violations that occur unless the permittee can demonstrate that it has delivered residuals that meet the chemical criteria and appropriate stabilization requirements of this permit and that the disposer (e.g. hauler, contractor, or disposal/land application site owner) has legally agreed in writing to accept responsibility for proper disposal. *[62-640.300(3), 3-1-91]*

5. The permittee shall sample and analyze the residuals at least once every 3 months. All samples shall be representative and shall be taken after final treatment of the residuals but before use or disposal. Sampling and analysis shall be in accordance with the U.S. Environmental Protection Agency publication - POTW Sludge Sampling and Analysis Guidance Document, 1989. The following parameters shall be sampled and analyzed:

Parameter	Maximum Concentration	Maximum Cumulative Loading
Total Nitrogen	(Report only) % dry weight	Not applicable
Total Phosphorus	(Report only) % dry weight	Not applicable
Total Potassium	(Report only) % dry weight	Not applicable
Cadmium	100 mg/kg dry weight	4.4 pounds /acre
Copper	3000 mg/kg dry weight	125 pounds/acre
Lead	1500 mg/kg dry weight	500 pounds/acre
Nickel	500 mg/kg dry weight	125 pounds/acre
Zinc	10,000 mg/kg dry weight	250 pounds/acre
pH	(Report only) standard units	Not applicable
Total Solids	(Report only) %	Not applicable

6. Florida water quality criteria and standards shall not be violated as a result of land application of residuals. *[62-640.700(3)(c), 3-1-91]*

7. Class B residuals shall not be used on unrestricted access areas. *[62-640.600(6)(b), 3-1-91]*

8. Class B residuals application shall be in accordance with the Agricultural Use Plans (AUP's) approved by the Department for this facility. *[62-640.300(1), 3-1-91]*

9. Root crops, and fruits and vegetables which touch the soil and which are to be consumed raw shall not be grown on the application site for 18 months after the last application of Class B residuals. *[62-640.600(6)(c), 3-1-91]*

10. Pasture vegetation on the application site shall not be cut or used for grazing by livestock for 30 days following the last application of Class B residuals. *[62-640.600(6)(e), 3-1-91]*

11. The public shall be restricted from the application area for 12 months after the last application of Class B residuals. *[62-640.600(6)(f), 3-1-91]*

12. The wastewater treatment facility permittee shall notify the Department's Central District Office by letter of any modifications or expansions of the approved residuals land application sites. The notice shall be submitted prior to such expansion or modification. Expansions include additional site locations for the permittee's residuals. The letter shall include a site location map and shall state how the modified or expanded residuals land application site will be operated in accordance with all requirements of Chapter 62-640, F.A.C. A new or revised AUP shall be submitted to the Department's Central District Office with the annual update required by Rule 62-640.500(1)(f), F.A.C. The current AUP's identify residuals landspreading on 140 dedicated acres at the Cresent O Ranch located southwest of the Florida Turnpike, south of Canoe Creek and 140 dedicated acres at the L. J. Harvy site located northwest of Kenansville, both in Osceola County, Florida. *[62-640.300(2), 3-1-91]*

13. Annual residuals application rates shall not exceed the agronomic rates based on the nitrogen requirements of the site vegetation in accordance with the approved AUP. *[62-640.700(3)(d), 3-1-91]*

14 Residuals shall be applied with techniques and equipment to assure uniform application over the site. *[62-640.700(3)(n), 3-1-91]*

15. The pH of the domestic wastewater residuals soil mixture shall be 6.5 or greater at the time domestic wastewater residuals are applied. At a minimum, testing shall be done annually. *[62-640.700(3)(h), 3-1-91]*

16. The permittee shall maintain records of application areas and application rates on DEP Form 62-640.900(3) and shall have these records available for inspection upon request by the Department or the appropriate Local Environmental Program. These records shall include:

    a. Date of application of the residuals,
    b. Location of the residuals application site,
    c. Amount of residuals applied or delivered,
    d. Identification of specific areas of the site where residuals were applied and acreage of that area,
    e. Method of incorporation of residuals (if any),
    f. Water table level at time of application, and
    g. Concentration of nitrogen and heavy metals in the residuals, percent solids, and date of last analysis.

    The permittee shall provide annual updates to the AUP's as required by permit condition II.12.; summaries of the total residuals, nitrogen, and heavy metals applied on an annual basis; and annual summaries of the cumulative metals applied. Updates to the AUP and annual summaries, including copies of the wastewater residuals analysis for that period, shall be submitted to the Department's Central District Office by August 31 of each year. *[62-640.700(3)(e) and (p), 3-1-91]*

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III. GROUND WATER MONITORING REQUIREMENTS

1. During the period of operation authorized by this permit, the permittee shall continue to sample ground water at the existing monitoring wells identified in Item III. 3., below, in accordance with this permit and the approved ground water monitoring plan prepared in accordance with Rule 62-522.600, F.A.C. Within 90 days of placing the REB #4 in operation, the permittee shall begin sampling ground water at the new monitoring well identified in Item III. 3., below, in accordance with this permit and the approved groundwater monitoring plan. *[62-522.600, 4-14-94], [62-610.424, 62-610.474, 62-610.524, 62-610.574, 62-610.624, 62-610.660, and 62-610.830(1)(d), 4-2-90]*

2. The new ground water monitoring well identified in Item III. 3., below, shall be installed within 90 days of issuance of this permit. Within 30 days of installation of a new monitoring well, the permittee shall submit to the Department's Central District Office detailed information on the well's location and construction on the enclosed DEP Form 62-522.900(3), Monitor Well Completion Report. *[62-522.600, 4/14/94]*

3. The following monitoring wells shall be sampled quarterly.

DEP Well Name	OOU Label	Monitoring Location Site Number	Aquifer Monitored	Well Type	New or Existing
REB's					
MW-1	NW-1	6305	Shallow	Compliance	Existing
MW-2	NW-2	6304	Shallow	Compliance	Existing
MW-3	NW-3	6303	Shallow	Compliance	Existing
MW-4	NW-4	24323	Shallow	Compliance	New
Wetlands					
1L	LW-1	6314	Shallow	Intermediate	Existing
2L	LW-2	6323	Shallow	Intermediate	Existing
3L	LW-3	6319	Shallow	Background	Existing
4L	LW-4	6322	Shallow	Intermediate	Existing
5L	LW-5	6320	Shallow	Intermediate	Existing
6L	LW-6	6321	Shallow	Compliance	Existing
7U	LW-7	6325	Shallow	Compliance	Existing
8U	LW-8	6327	Shallow	Intermediate	Existing
10U	LW-10	6328	Shallow	Intermediate	Existing
11U	LW-11	6324	Shallow	Intermediate	Existing
Golf Course					
MW-1	UGC-1	6299	Shallow	Intermediate	Existing
MW-2	UGC-2	6317	Shallow	Background	Existing
MW-3	UGC-3	6312	Shallow	Compliance	Existing
MW-4	LGC-4	6316	Shallow	Intermediate	Existing
MW-5	LGC--5	6318	Shallow	Background	Existing
MW-6	LGC--6	6313	Shallow	Compliance	Existing
MW-7	UGC-6	6315	Shallow	Intermediate	Existing

[62-522.600, 4-14-94], [62-610.424, .474, .524, .624, .660, and 62-610.830(1)(d), 4-2-90]

4. The following parameters shall be analyzed quarterly for the monitoring wells identified in Item III. 3.

   a. Water level (field measurement)
   b. Nitrate (as N)
   c. Total dissolved solids
   d. Chloride
   e. Fecal Coliform
   f. pH
   g. Turbidity
   h. $CBOD_5$

   (Note: $CBOD_5$ for REB's only)

   [62-522.600(11)(b), 4-1-94], [62-601.300(3), 62.601.700, and Figure 3 of 62-601]

5. Ground water monitoring parameters shall be analyzed in accordance with Chapter 62-601, F.A.C.

   [62-620.610(18), 11-29-94]

6. Ground water monitoring test results shall be submitted on Part D of Form 62-620.910(10). Results shall be submitted with the April, July, October and January DMR's for each year during the period of operation allowed by this permit.

   [62-522.600(10) and (11)(b), 4-14-94], [62-601.300(3), 62.601.700, and Figure 3 of 62-601, 5-31-93], [62-620.610(18), 11-29-94]

7. Ground water monitoring wells shall be purged prior to sampling to obtain representative samples.

   [62-601.700(5), 5-31-93]

8. In accordance with Part D of Form 62-620.910(10), water levels shall be recorded before evacuating wells for sample collection. Elevation references shall include the top of the well casing and land surface at each well site (NVGD allowable) at a precision of plus or minus 0.1 foot.

   [62-610.424(3), 4-2-94]

9. Prior to construction of the new ground water monitoring well, a soil boring shall be made at the new monitoring well location in order to properly size the well depth and screen interval.

   [62-522.900(3), 4-14-94]

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IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

1. This reuse system includes the following major users (i.e., using 0.1 mgd or more of reclaimed water):

User Name	User Type	Capacity (mgd)
Buenaventura Lakes	Golf Course Irrigation	0.500
Wetlands System	Enhancement	0.100
Future Reuse	Green Areas Irrigation	-
	Total	0.600

[62-610.820(1), 4/2/90]

2. All ground water quality criteria specified in Chapter 62-520, F.A.C., shall be met at the edge of the zone of discharge. For major users of reclaimed water (i.e., using 0.1 mgd or more), the zone of discharge shall extend horizontally to the site property line and vertically to the base of the surficial aquifer.

[62-520.200(23), 4-14-94], [62-522.400 and 62-522.410, 4-14-94]

3. The treatment facilities shall be operated in accordance with the approved operating protocol. Only reclaimed water that meets the criteria established in the approved operating protocol may be released to system storage or to the golf course for irrigation. Reclaimed water that fails to meet the criteria in the approved operating protocol shall be directed to either the wetlands system (D001) or to the rapid exfiltration basins (D004). The operating protocol shall be reviewed and updated periodically (at least once each year) to ensure continuous compliance with the minimum treatment and disinfection requirements. Updated operating protocols shall be submitted to the Department's Central District Office for review and approval by August 31 of each year.

[62-610.463(2), 4-2-90]

4. Cross-connections to the potable water system are prohibited. *[62-610.470(1), 4-2-90]*

5. Maximum obtainable separation of reclaimed water lines and potable water lines shall be provided and the minimum separation distances specified in Rule 62-610.470(3), F.A.C., shall be provided. Reuse facilities shall be color coded or marked.

[62-610.470(3) and (4), 4-2-90]

6. In constructing reclaimed water distribution piping, the permittee shall maintain a 75-foot setback distance from a reclaimed water transmission facility to public water supply wells. No setback distances are required to other potable water supply wells or to any nonpotable water supply wells.

[62-610.471(3), 4-2-90]

7. A setback distance of 75 feet shall be maintained between the edge of the wetted area and potable water supply wells, unless the utility adopts and enforces an ordinance, or other legal means, prohibiting private potable water supply wells within the Buenaventura Lakes Developement. No setback distances are required to any nonpotable water supply wells, to any surface waters, to any developed areas, or to any private swimming pools, hot tubs, spas, saunas, picnic tables, barbecue pits, or barbecue grills.

[62-610.471(1),(2),(5) and (7), 4-2-90]

8. Reclaimed water shall not be used to fill swimming pools, hot tubs, or wading pools.

   [62-610.469(3), 4-2-90]

9. Low trajectory nozzles, or other means to minimize aerosol formation shall be used within 100 feet from outdoor public eating, drinking, or bathing facilities.

   [62-610.471(6), 4-2-90]

10. The public shall be notified of the use of reclaimed water. This shall be accomplished by posting of advisory signs in areas where reuse is practiced, notes on scorecards, or other methods.

    [62-610.468(2), 4-2-94]

11. Routine aquatic weed control and regular maintenance of reuse storage pond embankments and access areas are required.

    [62-610.415(6), 4-2-90]

12. Overflows from emergency discharge facilities on the golf course irrigation reclaimed water storage pond , which discharge to the north wetland cell, shall be reported as an abnormal event to the Department's Central District Office within 24 hours of an occurrence as an abnormal event. The provisions of Rule 62-610.880, F.A.C., shall be met.

    [62-610.880, 62-610.415(5), and 62-610.465, 4-2-90]

13. Reclaimed water shall only be released to the reuse system storage pond or reuse systems during periods of operator attendance in compliance with the approved operating protocol or in accordance with permit condition V.1.

    [62-610.462(2), 4-2-90]

14. Exfiltration basins or trenches, and storage ponds shall be enclosed with a fence or provided with features to discourage the entry of animals and unauthorized persons.

    [62-610.518, 4-2-90]

15. Rapid-rate systems shall be routinely maintained to control vegetation growth and to maintain percolation capability by scarification or removal of deposited solids.

    [62-610.523(6), 4-2-90]

16. Overflows from exfiltration ponds, basins, or trenches shall be reported as an abnormal event to the Department's Central District Office within 24 hours of an occurrence as an abnormal event. The provisions of Rule 62-610.880, F.A.C., shall be met.

    [62-610.880, 62-610.415(5), 62-610.515, and 62-610.516, 4-2-90]

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V. OPERATION AND MAINTENANCE REQUIREMENTS

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of operators certified in accordance with Chapter 61E12-41, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category I, Class B facility and, at a minimum, operators with appropriate certification must be on the site as follows: A Class C or higher operator 16 hours/day for 7 days/week. The lead operator must be a Class B operator, or higher, and must be on-site for eight (8) hours per day for five (5) days per week, provided a lead/chief operator, or a backup Class B lead operator, is available by phone or pager during weekends and/or holidays and must be capable of immediately responding to any emergency situation that may occur at the plant. Acceptable quality reclaimed water may be diverted to public access reuse systems at all times contingent upon the following: Automatic computer/telemetry controls, monitoring equipment and automatic diversion equipment must be in operation and functional at all times including weekends and/or holidays; and a Class C certified operator, or higher, must be available by phone or pager at all times when not in attendance at the wastewater treatment plant site. *[62-699, 5-20-94], [62-620.630(3), 11-29-94], [62-699.311(3), 5-20-92], [62-610.462(2), 4-2-90]*

2. The application to renew this permit shall include an updated Capacity Analysis Report prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5), 6-8-93]*

3. The application to renew this permit shall include a detailed Operation and Maintenance Performance Report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1), 6-8-93]*

4. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility:

   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed:
   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the residuals use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least three years from the date of sampling or measurement;
   e. A copy of the current permit;
   f. A copy of the current operation and maintenance manual as required by Chapter 62-600,. F.A.C.;
   g. A copy of the facility record drawings;
   h. Copies of the licenses of the current certified operators; and
   i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and certification number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities; tests performed and samples taken; and major repairs made. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed.

[62-620.350,11-29-94][61E12-41.010(1)(e), 11-02-93]

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VI. COMPLIANCE SCHEDULES AND SELF-IMPOSED IMPROVEMENT SCHEDULES

1. In accordance with the Operation and Maintenance Performance Report submitted as part of the permit application for this facility, dated April 1995 and prepared by Dyer, Riddle, Mills and Precourt, Inc., the following corrective actions shall be completed according to the following schedule:

Corrective Action	Scheduled Completion Date
1. Post reclaimed water signs at the golf course holding pond.	November 1, 1995
2. Post non-potable water signs near all appropriate spigots and hose bibbs at the wastewater treatment plant site.	November 1, 1995
3. Install appropriate safety eyewash station near lime stabilization facilities as required in the construction plans.	November 1, 1995
4. Install appropriate safety shower and eyewash station near chlorine storage area and alum pump room as required in the construction plans.	November 1, 1995

[62-600.735(1), 6-8-93]

2. The following construction schedule for new REB #4 shall be followed, unless notification of a schedule revision is provided to the Department:

Implementation Step	Scheduled Completion Date
1. Complete detailed plans and specifications.	Complete
2. Start construction.	December 1, 1995
3. Place the new REB #4 in operation.	February 1, 1996
4. Comply with effluent limitations for REB #4.	February 1, 1996

[62-620.450(3)(a), 11-29-94]

3. The permittee shall develope additional reuse sites and implement public access irrigation at the 9-hole golf course and little league ballfield complex, as a minimum, according to the following schedule:

Implementation Step	Scheduled Completion Date
1. Submit permit application and supporting design documentation.	March 1, 1996
2. Start construction.	June 1, 1996
3. Complete construction.	September 1, 1996
4. Submit notification of completion and place in operation.	October 1, 1996

[62-620, 11-29-94]

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS (N/A)

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VIII. OTHER SPECIFIC CONDITIONS

1. Prior to placing REB #4 into operation for any purpose other than testing equipment for leaks and operation, the permittee shall complete and submit to the Department DEP Form 62-620.910(12), Notification of Completion of Construction for Domestic Wastewater Facilities.

   [62-620.630(2), 11-29-94]

2. Within six months after REB #4 is placed in operation, the permittee shall provide written certification to the Department on Form 62-620.910(13) that record drawings pursuant to Chapter 62-600, F.A.C., and that a revised operation and maintenance manual pursuant to Chapters 62-600 and 62-610, F.A.C., as applicable, are available at the location specified on the form.

   [62-620.630(7), 11-29-94]

3. If the permittee wishes to continue operation of this wastewater facility after the expiration date of this permit, the permittee shall submit an application for renewal, using Department Forms 62-620.910(1) and (2), no later than one-hundred and eighty days (180) prior to the expiration date of this permit.

   [62-620.410(5), 11-26-94]

4. The facilities shall comply with any conditions that the Secretary of the Army (United States Army Corps of Engineers) considers necessary to ensure that navigation and anchorage will not be substantially impaired.

   [62-620.620(1)(q), 11-29-94]

5 In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department.

   [62-600.410(8), 6-8-93]

6. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited.

   [62-604.130(3), 5-31-93]

7. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20.

   [62-604.550, 5-31-93], [62-620.610(20), 11-29-94]

8. The acceptance, by the operating authority of a collection/transmission system or by the permittee of a treatment plant, of connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   e. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in treatment plant discharges having temperatures above 40°C,

   is prohibited.

   [62-604.130(4), 5-31-93]

9. The treatment facility shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons.

   [2-600.400(2)(b), 6-8-93]

10. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt and disposal of screenings and grit.

    [62-7.540, 12-10-85]

11. The permittee shall provide adequate notice to the Department of the following:

    a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

    b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

       Adequate notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

       [62-620.625(2), 11-29-94]

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IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1), 11-29-94]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2), 11-29-94]*

3. As provided in Subsection 403.087(6), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3), 11-29-94]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4), 11-29-94]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5), 11-29-94]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6), 11-29-94]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7), 11-29-94]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8), 11-29-94]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

b. Have access to and copy any records that shall be kept under the conditions of this permit;

c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

[62-620.610(9), 11-29-94]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, Florida Statutes, or Rule 62-620.302, Florida Administrative Code. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10), 11-29-94]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11), 11-29-94]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12), 11-29-94]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13), 11-29-94]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14), 11-29-94]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15), 11-29-94]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, 62-620.420 or 62-620.450, F.A.C., as applicable, at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.300 for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16), 11-29-94]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    a. A description of the anticipated noncompliance;

    b. The period of the anticipated noncompliance, including dates and times; and

    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17), 11-29-94]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246, Chapters
    62-160 and 62-601, F.A.C., and 40 CFR 136, as appropriate.

    a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10).

    b. If the permittee monitors any contaminate more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

    c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

    d. Any laboratory test required by this permit for domestic wastewater facilities shall be performed by a laboratory that has been certified by the Department of Health and Rehabilitative Services (DHRS) under Chapter 10D41, F.A.C., to perform the test. On-site tests for dissolved oxygen, pH, and total chlorine residual shall be performed by a laboratory certified to test for those parameters or under the direction of an operator certified under Chapter 61E12-41, F.A.C.

    e. Under Chapter 62-160, F.A.C., sample collection shall be performed by following the protocols outlined in "DER Standard Operating Procedures for Laboratory Operations and Sample Collection Activities" (DER-QA-001/92). Alternatively, sample collection may be performed by an organization who has an approved Comprehensive Quality Assurance Plan (CompQAP) on file with the Department. The CompQAP shall be approved for collection of samples from the required matrices and for the required tests.

    [62-620.610(18), 11-29-94]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19), 11-29-94]*

20. The permittee shall report to the Department any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and

time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

a. The following shall be included as information which must be reported within 24 hours under this condition:

1. Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge.

2. Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,

3. Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and

4. Any unauthorized discharge to surface or ground waters.

b. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department shall waive the written report. *[62-620.610(20), 11-29-94]*

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX. 18. and 19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX. 20 of this permit. *[62-620.610(21), 11-29-94]*

22. Bypass Provisions.

a. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:

1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

3. The permittee submitted notices as required under Permit Condition IX. 22. b. of this permit.

b. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX. 20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

c. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX. 22. a. 1. through 3. of this permit.

d. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX. 22. a. through c. of this permit.

[62-620.610(22), 11-29-94]

23. Upset Provisions

a. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the permittee can identify the cause(s) of the upset;

2. The permitted facility was at the time being properly operated;

3. The permittee submitted notice of the upset as required in Permit Condition IX. 20. of this permit; and

4. The permittee complied with any remedial measures required under Permit Condition IX. 5. of this permit.

b. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

c. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23), 11-29-94]

Executed in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Christianne C. Ferraro

Christianne C. Ferraro, P.E.
Program Administrator
Water Facilities

DATE: October 18, 1995

FDEP MONITORING WELL COMPLETION REPORT

FACILITY NAME / COUNTY: Buena Ventura Lakes / Osceola County

FDEP PERMIT NUMBER: _____ Site ID NUMBER: FL0039446

FDEP WELL NUMBER: 24323 WELL NAME: MW-4

AQUIFER MONITORED: _____ WELL TYPE: Compliance

DATE INSTALLED: _____ DRILLING METHOD: _____

INSTALLED BY: _____

HOLE DIAMETER: _____ TOTAL DEPTH: _____ BLS*

CASING TYPE: _____ CASING DIAMETER / LENGTH: _____

SCREEN TYPE: _____ SCREEN SLOT SIZE / LENGTH: _____

FILTER PACK TYPE / SIZE: _____ INTERVAL: _____ to _____ BLS

SEALANT TYPE: _____ INTERVAL: _____ to _____ BLS

GROUT TYPE: _____ INTERVAL: _____ to _____ BLS

WELL MEASURING POINT: _____ ELEVATION (NGVD): _____

GROUND SURFACE ELEVATION (NGVD): _____

STATIC WATER LEVEL ELEVATION (NGVD): _____

WELL LATITUDE AND LONGITUDE: _____

DESCRIBE WELL DEVELOPMENT (METHOD, APPROXIMATE VOLUME REMOVED, FINAL WATER CLARITY, PROBLEMS?):

_____

_____

NAME / TITLE OF PERSON PREPARING REPORT: _____

ATTACH AS-BUILT MONITORING WELL CONSTRUCTION DIAGRAM AND LITHOLOGIC LOG FOR THIS INDIVIDUAL WELL.

* BLS = Below Land Surface.

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446 Test Site ID: 6305

Sample Period -From Month/Year: To Month/Year Well Type: Compliance

Date Sample Obtained: Ground Water Class: GII

Was the well purged before sampling? Yes No Well Name: MW-1

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						
$CBOD_5$	80082						

Comments and Explanations:

EXHIBIT (RAT-11)

PAGE 32 OF 51

GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6304

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-2

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						
$CBOD_5$	80082						

Comments and Explanations:

EXHIBIT (RATE) PAGE 33 OF 51

GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446 Test Site ID: 6303

Sample Period -From Month/Year: To Month/Year Well Type: Compliance

Date Sample Obtained: Ground Water Class: GII

Was the well purged before sampling? __Yes __No Well Name: MW-3

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						
$CBOD_5$	80082						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 24323

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-4

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						
$CBOD_5$	80082						

Comments and Explanations:

EXHIBIT (RAT-1)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6314

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 1L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RATH)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446 Test Site ID: 6323

Sample Period -From Month/Year: To Month/Year Well Type: Intermediate

Date Sample Obtained: Ground Water Class: GII

Was the well purged before sampling? Yes No Well Name: 2L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-1)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6319

Sample Period -From Month/Year: To Month/Year

Well Type: Background

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 3L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6322

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 4L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (PAT-1)

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Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6320

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 5L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6321

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 6L

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6325

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 7U

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RATH)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6327

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 8U

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (PART-1)

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Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6328

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: 10U

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RATH) PAGE 44 OF 51

GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446 Test Site ID: 6324

Sample Period -From Month/Year: To Month/Year Well Type: Intermediate

Date Sample Obtained: Ground Water Class: GII

Was the well purged before sampling? Yes No Well Name: 11U

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAIL)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6299

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-1

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6317

Sample Period -From Month/Year: To Month/Year

Well Type: Background

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-2

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6312

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-3

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6316

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-4

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6318

Sample Period -From Month/Year: To Month/Year

Well Type: Background

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-5

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAI-1)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6313

Sample Period -From Month/Year: To Month/Year

Well Type: Compliance

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? __Yes __No

Well Name: MW-6

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-11)

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GROUNDWATER MONITORING REPORT - PART D
Buena Ventura Lakes - Osceola County

Facility ID Number: FL0039446

Test Site ID: 6315

Sample Period -From Month/Year: To Month/Year

Well Type: Intermediate

Date Sample Obtained:

Ground Water Class: GII

Was the well purged before sampling? Yes No

Well Name: MW-7

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level	82545						
Nitrate (mg/L as N)	618						
TDS (mg/L)	70301						
Chloride (mg/L)	942						
Fecal Coliform (#/100ML)	31611						
pH (standard units)	406						
Turbidity	76						

Comments and Explanations:

EXHIBIT (RAT-12)

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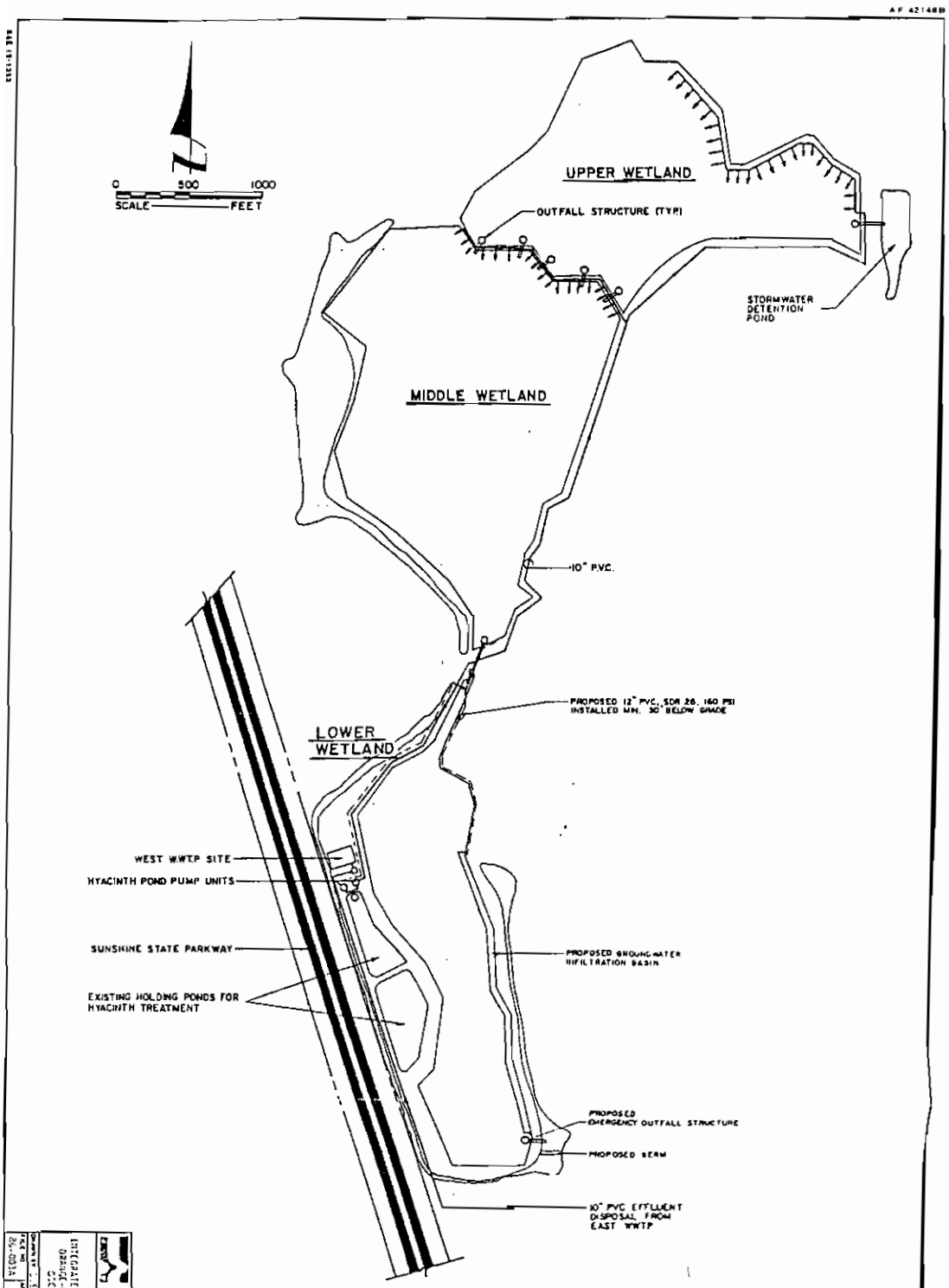


SCHEMATIC OF WETLAND DISPOSAL AREA

EXHIBIT (RAT-13)

PAGE 1 OF 8

Exhibit PJ-1 (Page 1 of 8)

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619
813-744-6100

Virginia B. Wetherell
Secretary

April 20, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Citrus County DW

Mr. Rafael A. Terrero, P.E.
Chief Engineer
Southern States Utilities
1000 Color Place
Apopka, FL 32703

WARNING LETTER No. 94-0031DW09SWD
Subject: Apache Shores STP

Dear Mr. Terrero:

A field inspection conducted on 4/19/93, 6/10/93, and 3/23/94 and a review of the file of the above referenced facility indicates that a violation of Chapter 403, Florida Statutes, and the rules promulgated thereunder may exist at the above described facility. Department personnel observed the following.

1. A sample of the effluent was taken during the 3/23/94 inspection and analyzed at the Department's laboratory. The result was 355 mg/L for TSS which exceeds the permitted maximum limitation of 60 mg/L.

2. A sample of the effluent was taken during the 4/19/93 inspection and analyzed at the Department's laboratory. The results were 2483 mg/L for TSS, and 271 mg/L for $CBOD_5$.

3. A review of the file show no record of the Capacity Analysis Report. The three month average daily flow reported on the Monthly Operating Reports exceeded 50 percent of the 0.017 MGD permitted capacity on the months below in 1993 and 1994 to date.

Month	Three Month Average
February 1994	0.011 MGD
January 1994	0.010 MGD
April 1993	0.009 MGD
March 1993	0.009 MGD
February 1993	0.010 MGD
January 1993	0.010 MGD

4. The file shows the previous sludge analysis was performed on 2/4/93.

5. The Department has no record of flow calibration.

6. A review of the operator's calibration records indicated that the pH meter and colorimeter for chlorine residual measurements were last calibrated on 12/20/93.

7. A review of the on-site operator log indicated that on 11/26/93 the blower was tripping out, and on 12/10/93 the blower was not working. The Department was not notified of these abnormal events.

8. An excessive amount of wet and dried sludge was observed on the bottom of the percolation pond, which indicated frequent plant upsets. The Department was not notified of these plant upsets.

9. The effluent distribution system for the percolation was predominantly plugged with solids. The threaded plugs at the ends of the distribution pipe were removed to allow the effluent to flow into the pond.

It is a violation of Rule 17-600.740(1)(b)1.d., Florida Administrative Code (F.A.C.), to exceed 60 mg/L of $CBOD_5$, and TSS on any one sample of effluent.

It is a violation of Rule 17-600.405(3), F.A.C., to fail to submit to the Department a capacity analysis report when the most recent three-month average daily flow exceed 50 percent of the permitted capacity of the treatment plant.

It is a violation of Rule 17-640.700(1), F.A.C., to fail to perform domestic wastewater residuals analysis every 12 months for a Type III facility.

It is a violation of Rule 17-601.200(17)(b), F.A.C., to fail to calibrate a flow metering device at least annually.

It is a violation of Rule 17-601.400, F.A.C., to fail to use approved test procedures and established quality control procedures for field testing and laboratory testing.

It is a violation of Rule 17-600.750(1), F.A.C., to fail to notify the department within 24 hours of events which result in the violation of any condition of a permit.

WARNING LETTER No. 94-0031DW096WD
Subject: Apache Shores STP
Page Four

by the Department in the Notice of Violation. The Department can also resolve any violation through entry into a Consent Order.

Sincerely,

Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

cc: Dawn Shaw, Citrus County PHU

P 079 940 696

CEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
FOR INTERNATIONAL MAIL
(See Reverse)

ER:
ete items 1 and/or 2 for additional services.
ete items 3, and 4a & b.
our name and address on the reverse of this form so that we can
s card to you.
this form to the front of the mailpiece, or on the back if space
ermits.
Return Receipt Requested" on the mailpiece below the article number.
turn Receipt will show to whom the article was delivered and the date

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery
Consult postmaster for fee.

icle Addressed to:
ael A. Terrero, P.E.
ef Engineer
thern States Utilities
0 Color Place
pka, FL 32703

4a. Article Number
P 079 940 696

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
4.22.94

8. Addressee's Address (Only if requested and fee is paid)

ature (Addressee)

ature (Agent)

Thank you for using Return Receipt Service.

3811, December 1991 *U.S. GPO: 1992—323-402 DOMESTIC RETURN RECEIPT

PENALTY COMPUTATION WORKSHEET

Violator's Name: Southern States Utilities

Identify Violator's Facility: Apache Shores WWTP

Name of Department Staff Responsible for the Penalty Computations:

Phyllis James

Date: April 28, 1995

PART I - Class B (no penalty) Determination

Rationale for Class B determination: N/A

PART II - Class A Penalty Determinations

	Violation Type	Potential for Harm	Extent of Dev.	Matrix Amount	Multi-day	Adjustments	Total
				(600- 1199)			
1.	Poor effluent	Minor	Mod.	$600.00		(-$300.00)	$300.00
				(2,000-3199)			
2.	Lack of records	Mod.	Mod.	$2,000.00		(-$1,000.00)	$1,000.00
				(1200-1999)			
3.	Failure to main. equip.	Mod.	Minor	$1200.00		(-600.00)	$600.00
				(3200-4599)			
4.	Failure to notify	Mod.	Major	$3200.00		(-$1600.00)	$1600.00

Total Penalties for all Violations:	$3,500.00
Department Expenses	250.00
Total Proposed Settlement	$3,750.00

PENALTY COMPUTATION WORKSHEET

Part III - Multi-day Penalties and Adjustments

ADJUSTMENTS	Dollar Amount
Good faith/Lack of good faith prior to discovery:	
Justification:	
Good faith/Lack of good faith after discovery:	(-$3,500.00)
Justification: Good faith after discovery	
History of non-compliance:	
Justification:	
Economic benefit of non-compliance:	
Justification:	
Ability to pay:	
Justification:	
Total Adjustments:	(-$3,500.00)

MULTI-DAY PENALTIES	Dollar Amount
Number of days adjustment factor(s) to be applied:	
Justification:	
Or	
Number of days matrix amount is to be multiplied:	
Justification:	

PENALTY ASSESSMENT MATRIX*

EXTENT OF DEVIATION FROM REQUIREMENT

POTENTIAL FOR HARM	MAJOR	MODERATE	MINOR
MAJOR	$10,000 to $ 8,000	$ 7,999 to $ 6,000	$ 5,999 to $ 4,600
MODERATE	$ 4,599 to $ 3,200	$ 3,199 to $ 2,000	$ 1,999 to $ 1,200
MINOR	$ 1,199 to $ 600	$599 to $200	$199 to $100

*Reduced by 1/2 all categories for potable water cases.

Exhibit PJ-1 (Page 7 of 8)

D.E.P.
MAY 19 1995
SOUTHWEST DISTRICT
TAMPA

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

May 5 ,1995
Citrus County

Scott Vierma, Interim President
Southern States Utilities
1000 Color Place
Apopka, Florida 32703

Re: Proposed Settlement by Short Form Consent Order in Case of Southern States Utilities dba Apache Shores WWTP, OGC File No. 95-0314.

Dear Mr. Vierma:

The purpose of this letter is to complete the settlement of the violations previously identified by the Department of Environmental Protection ("DEP") in Warning Letter No. WL94-0031DW09SWD dated April 20, 1994, which is attached. The corrective actions required to bring your facility into compliance have been performed. However, you must pay to the Department the amount of $3,500.00 in civil penalties to complete settlement of the violations described in the attached Warning Letter along with $250.00 to reimburse DEP's costs, for a total of $3,750.00. This payment must be made to "The Department of Environmental Protection" by certified check or money order and shall include thereon the OGC number assigned above and the notation "Pollution Recovery Fund". The payment shall be sent to the Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318 within 20 days of your signing this letter.

Your signing of this letter where indicated at the end of page two of this letter constitutes your acceptance of DEP's offer to settle this case on these terms. If you sign this letter, please return it to DEP at the address above. DEP will then countersign the letter and file it with the Clerk of the DEP. When the signed letter is filed with the Clerk, the letter shall constitute a Consent Order, which is final agency action of the DEP, the terms and conditions of

which may be enforced in a court of competent jurisdiction pursuant to Sections 120.69 and 403.121, Florida Statutes. Failure to comply with the terms of this letter once signed by you and entered by the DEP Clerk shall constitute a violation of Section 403.161(1)(b), Florida Statutes.

By countersigning this settlement offer, DEP waives its right to seek judicial imposition of damages, costs and expenses, or civil penalties for the violations described above. By accepting this settlement offer, you waive your right to an administrative hearing to contest this settlement pursuant to Section 120.57, Florida Statutes, and your right to appeal this settlement pursuant to Section 120.69, Florida Statutes. This offer to settle is open until May 26, 1995 or until DEP otherwise withdraws the offer. If you do not sign and return this letter to the Department at the Southwest District address given above by this date, the case will be referred to the DEP's Office of General Counsel with a recommendation that formal enforcement action be taken against you. None of your rights or substantial interests are determined by this letter unless you sign it and it is filed with the DEP Clerk.

Sincerely,

Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

I ACCEPT THE TERMS OF THIS SETTLEMENT OFFER.

For Southern States Utilities:

By: _____
Scott Vierma, Interim Pres.
Southern States Utilities
1000 Color Place
Apopka, Florida 32703

For the DEP:

By: _____
Richard D. Garrity, Ph.D.
Director of District Management
State of Florida Department of
Environmental Protection

ENTERED this 30th day of May, 1995, in TAMPA, FLORIDA.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ 5-30-95
Clerk Date

: Citrus County PHU

Attachments

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:

Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

Attn.: Mr. Rafael Terrero, P.E.
Manager, Environmental Services

PERMIT NUMBER	**FLA012669**
ISSUANCE DATE	2/27/96
EXPIRATION DATE	**11/29/00**
FACILITY I.D. NO	**FLA012669**

Received
FEB 2 9 1996
Environmental Services

FACILITY:

Marion Oaks WWTF
14170 S.W. 34th Terrace
Marion County
Ocala, FL 34473
Latitude: 29° 00' 06" N Longitude: 82° 10' 44" W

This permit is issued under the provisions of Chapter 403, Florida Statutes, and applicable rules of the Florida Administrative Code. The above named permittee is hereby authorized to operate the facilities shown on the application and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TREATMENT FACILITIES:

An existing 0.200 MGD three-month average daily flow permitted capacity, Type II extended aeration secondary wastewater treatment facility consisting of one (1) aeration tank with a capacity of approximately 200,000 gallons, one (1) clarifier with a capacity of approximately 85,000 gallons and a surface area of approximately 1,256 square feet, two (2) chlorine contact chambers of 25,224 gallons total volume and three (3) digesters of 128,000 gallons total volume with:

EFFLUENT DISPOSAL:

Land Application: An existing 0.200 MGD three-month average daily flow permitted capacity rapid rate (R001) land application system consisting of two (2) rapid-rate restricted public access Part IV percolation/evaporation basins of approximately 86,600 square feet total bottom area.
Land application system R001 is located approximately at latitude 29° 00' 06" N, longitude 82° 10' 44" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions as set forth in Pages 1 through 18 of this permit and the enclosed Discharge Monitoring Report (DMR) and Ground Water Monitoring Report (GWMR).

PERMITTEE: Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

PERMIT NUMBER: FLA012669
EXPIRATION DATE: 11/29/00
FACILITY I.D. NO.: FLA012669

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Reuse and Land Application Systems

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to land apply effluent from land application System R001. Such land application shall be limited and monitored by the permittee as specified below:

			Reclaimed Water Limitations				Monitoring Requirements			
Parameter	Units	Max./Min.	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Maximum	0.200	-	-	-	Continuous	Recording Flowmeter and Totalizer	EFF-13393	See Condition I.A.4.
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Maximum	20	30	45	60	Every Two Weeks	8-hour flow proportioned composite	EFF-13393	
Total Suspended Solids	mg/L	Maximum	20	30	45	60	Every Two Weeks	8-hour flow proportioned composite	EFF-13393	
Fecal Coliform Bacteria	See Permit Condition I.A.5.						Every Two Weeks	grab	EFF-13393	See Condition I.A.5.
pH	std. units	Range	-	-	-	6.0-8.5	Daily, 5/week	grab	EFF-13393	
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	0.5	Daily, 5/week	grab	EFF-13393	See Condition I.A.6.
Nitrate (as N)	mg/L	Maximum	-	-	-	12	Every Two Weeks	8-hour flow proportioned composite	EFF-13393	

EXHIBIT (PAGE 14)
PAGE 2 OF 26

PERMITTEE: Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

PERMIT NUMBER: FLA012669
EXPIRATION DATE: 11/29/00
FACILITY I.D. NO.: FLA012669

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I. A. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
EFF-13393	After disinfection and prior to discharge to ponds

3. The three month average daily flow to Land Application System R001 shall not exceed 0.200 mgd.

4. Recording flowmeter and totalizer shall be utilized to measure flow and shall be calibrated at least annually. *[62-601.200(17) and .500(6), 5-31-93]*

5. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of Effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of Effluent, each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected the 90th percentile value during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. Note: To report the 90th percentile value, list the fecal coliform values obtained during the month in ascending order. Report the value of the sample that corresponds to the 90th percentile (multiply the number of samples by 0.9). For example, for 30 samples, report the corresponding fecal coliform number for the 27th value of ascending order. *[62-600.440(4)(c), 6-8-93]*

6. A minimum of 0.5 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(4)(b), 6-8-93]*

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning period and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below:

			Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	Report	–	–	–	–	monthly	8-hour flow proportioned composite	INF-24803	See I.B.3
Total Suspended Solids	mg/L	Report	–	–	–	–	monthly	8-hour flow proportioned composite	INF-24803	See I.B.3.

PERMITTEE: Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

PERMIT NUMBER: FLA012669
~~EXPIRATION DATE: 11/29/00~~
FACILITY I.D. NO.: FLA012669

2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
INF-24803	At headworks, prior to treatment and ahead of return activated sludge line

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. *[62-601.500(4), 5-31-93]*

4. Parameters which must be monitored as a result of a ground water discharge (i.e., underground injection or land application system) shall be analyzed in accordance with Chapter 62-601, F.A.C. *[62-620.610(18), 11-29-94]*

5. The permittee shall provide safe access points for obtaining representative influent, reclaimed water, and effluent samples which are required by this permit. *[62-601.500(5), 5-31-93]*

6. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department on a monthly basis Discharge Monitoring Report(s) (DMR), Form 62-620.910(10), as attached to this permit. The permittee shall make copies of the attached DMR form(s) and shall submit the completed DMR form(s) to the Southwest District Office at the address specified in Permit Condition I. B. 7 by the twenty-eighth (28th) of the month following the month of operation.

   [62-620.610(18), 11-29-94][62-601.300(1), (2), and (3), 5-31-93]

7. Unless specified otherwise in this permit, all reports and notifications required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southwest District Office at the address specified below:

   Florida Department of Environmental Protection
   Southwest District Office
   3804 Coconut Palm Drive
   Tampa, Florida 33619-8318

   Phone Number - (813) 744-6100
   FAX Number - (813) 744-8198

II. RESIDUALS MANAGEMENT REQUIREMENTS

Basic Management Requirements

1. The residuals generated by this facility shall be lime stabilized to stabilization Class B in accordance with 40 CFR Part 503 and the Operating Protocol submitted with the application for this permit. The lime stabilized residuals shall be land applied.

2. Land application of residuals shall be in accordance with the conditions of this permit and the requirements of Chapter 62-640, F.A.C. *[62-640, 3-1-91]*

3. The wastewater treatment facility permittee shall be responsible for proper handling, use, and disposal of its residuals and will be held responsible for any disposal violations that occur unless the permittee can demonstrate that it has delivered residuals that meet the chemical criteria and appropriate stabilization requirements of this permit and that the

disposer (e.g. hauler, contractor, or disposal/land application site owner) has legally agreed in writing to accept responsibility for proper disposal. [62-640.300(3), 3-1-91]

4. The permittee shall sample and analyze the residuals at least once every 12 months. All samples shall be representative and shall be taken after final treatment of the residuals but before use or disposal. Sampling and analysis shall be in accordance with the U.S. Environmental Protection Agency publication - POTW Sludge Sampling and Analysis Guidance Document, 1989. The following parameters shall be sampled and analyzed:

Parameter	Maximum Concentration	Maximum Cumulative Loading
Total Nitrogen	(Report only) % dry weight	Not applicable
Total Phosphorus	(Report only) % dry weight	Not applicable
Total Potassium	(Report only) % dry weight	Not applicable
Cadmium	100 mg/kg dry weight	4.4 pounds /acre
Copper	3000 mg/kg dry weight	125 pounds/acre
Lead	1500 mg/kg dry weight	500 pounds/acre
Nickel	500 mg/kg dry weight	125 pounds/acre
Zinc	10,000 mg/kg dry weight	250 pounds/acre
pH	(Report only) standard units	Not applicable
Total Solids	(Report only) %	Not applicable

5. The annual application rate for cadmium shall not exceed 0.5 lbs/acre/year. *[62-640.700(3)(e), 3-1-91]*

6. Florida water quality criteria and standards shall not be violated as a result of land application of residuals. [62-640.700(3)(c), 3-1-91]

Agricultural Sites

7. Class B residuals shall not be used on unrestricted access areas. *[62-640.600(6)(b), 3-1-91]*

8. Class B residuals application shall be in accordance with the Agricultural Use Plan approved by the Department for this facility. *[62-640.300(1), 3-1-91]*

9. Root crops, and fruits and vegetables which touch the soil and which are to be consumed raw shall not be grown on the application site for 18 months after the last application of Class B residuals. *[62-640.600(6)(c), 3-1-91]*

10. Fruits and vegetables which do not touch the soil and which are to be consumed raw shall not be harvested from the application site for 30 days following the last application of Class B residuals. Orchard tree crops, which do not come in contact with the residuals due to the

application method, are exempted. This exemption does not apply to orchard tree crops which have fallen to the ground before harvesting. *[62-640.600(6)(d), 3-1-91]*

11. Pasture vegetation on the application site shall not be cut or used for grazing by livestock for 30 days following the last application of Class B residuals. *[62-640.600(6)(e), 3-1-91]*

12. The public shall be restricted from the application area for 12 months after the last application of Class B residuals. *[62-640.600(6)(f), 3-1-91]*

13. The wastewater treatment facility permittee shall apply for a minor permit revision on DEP Form 62-620.910(9) for new, modified, or expanded residuals land application sites. The facility's permit shall be revised to include the new or revised Agricultural Use Plan(s) prior to application of residuals to the new, modified, or expanded sites. The current Agricultural Use Plan identifies that the residuals shall be lime stabilized prior to land spreading on the following sites:

Site Name	Area in acres Application/Total	Section, Township, and Range	Latitude and Longitude	County	Hauler
Homer Gary - West	15.14 / 100	37 / 16S / 22E	29° 07' 30" N 82° 08' 40" W	Marion	American Pipe & Tank
Homer Gary - South	130 / 160	5 / 16S / 22E	29° 07' 55" N 82° 07' 58" W	Marion	American Pipe & Tank
Gary Garner - North	208 / 276	34 / 13S / 22E	29° 19' 15 " N 82° 06' 08" W	Marion	American Pipe & Tank
Hampton Site	40 / 48	11 / 16S / 22E	29° 07' 30" N 82° 04' 03" W	Marion	American Pipe & Tank

[62-620.330, 11-29-94]

14. Annual residuals application rates shall not exceed the agronomic rates based on the nitrogen requirements of the site vegetation in accordance with the approved Agricultural Use Plan. *[62-640.700(3)(d), 3-1-91]*

15. Residuals shall be applied with techniques and equipment to assure uniform application over the site. *[62-640.700(3)(n), 3-1-91]*

16. The pH of the domestic wastewater residuals soil mixture shall be 6.5 or greater at the time domestic wastewater residuals are applied. At a minimum, testing shall be done annually. *[62-640.700(3)(h), 3-1-91]*

17. The permittee shall maintain records of application areas and application rates on DEP Form 62-640.900(3) and shall have these records available for inspection upon request by the Department or the appropriate Local Environmental Program. These records shall include:

a. Date of application of the residuals,
b. Location of the residuals application site,
c. Amount of residuals applied or delivered,
d. Identification of specific areas of the site where residuals were applied and acreage of that area,
e. Method of incorporation of residuals (if any),
f. Water table level at time of application, and
g. Concentration of nitrogen and heavy metals in the residuals, percent solids, and date of last analysis.

The permittee shall provide: annual updates to the Agricultural Use Plan(s) to reflect any changes in domestic wastewater residuals characteristics or agricultural practices; summaries of the total residuals, nitrogen, and heavy metals applied on an annual basis; and annual summaries of the cumulative metals applied. Updates to the Agricultural Use Plan and annual summaries, including copies of applicable analytical laboratory reports for the wastewater residuals analysis for that period, shall be submitted to the Department's Southwest District Office by March 1 of each year. *[62-640.700(3)(e) and (p), 3-1-91]*

III. Ground Water Monitoring Plan

1. During the period of operation authorized by this permit, the permittee shall sample ground water at the existing monitoring wells identified in Item III.2., permit condition below, in accordance with Rule 62-522.600, F.A.C. [62-522.600, 4/14/94]

2. The following monitoring wells shall be sampled quarterly:

Well Name	Monitoring Location	Depth (feet)	Aquifer Monitored	Well Type	New or Existing
MW-2A	MWB-13399	20	U. Floridan	B	Existing
MW-4A	MWC-13397	20	U. Floridan	C	Existing
MW-5A	MWC-13396	20	U. Floridan	C	Existing

[62-522.600(11)(b), 4/14/94]

3. If any monitoring well becomes damaged of inoperable, the permittee shall notify the Department immediately and a detailed written report shall follow within seven (7) days. The written report shall detail what problem has occurred and remedial measures that have been taken to prevent the recurrence. All monitoring well design and replacement shall be approved by the Department prior to installation. [62-522.600, 4/14/94]

4. Ground water monitor well samples shall be analyzed in accordance with Department document; DER - QA - 001/92, Standard Operating Procedures for Laboratory Operations and Sample Collection Activities as specified in Chapter 62-520, FAC, and Chapter 62-522, FAC. [62-520.300, and 62-520.420, 4/14/94, 62-522.600(1), 4/14/94]

5. The following parameters shall be analyzed quarterly for each of the monitor well(s) previously identified in Item III.3.:

a. Water level (field measurement)
b. Nitrate (as N)
c. Total dissolved solids

d. Sodium
e. Chloride
f. Fecal Coliform
g. pH (field measurement)
h. Sulfate
i. Ammonia
j. Specific Conductance (field measurement)
k. Temperature (field measurement)
l. Turbidity

[62-522.600(11)(b), 4/14/94]

6. All ground water monitoring wells shall be sampled, analyzed and the results reported in accordance with the following schedule:

Sample Period	Report Due Date
1st Quarter (January-March)	April 15
2nd Quarter (April-June)	July 15
3rd Quarter (July-September)	October 15
4th Quarter (October-December)	January 15

[62-522.600(11)(b), 4/14/94]

7. Ground water monitoring well test results shall be submitted on Part D of Form 62-620.910(10). Results shall be submitted at the intervals specified in Permit Condition III.9. for each year during the period of operation allowed by this permit. Results shall be submitted with the DMR in accordance with Permit Condition I.D.2. [62-522.600(11)(b), 4/14/94] [62-601.300(3), 62.601.700 and Figure 3 of 62-601] [62-620.610.(18), 11/29/94]

8. The permittee shall submit to the Department an annual cumulative summary of the quarterly ground water data. This document will be submitted with the 3rd Quarter DMR pursuant to Item III.9. The data shall be presented in both graphical and tabular formats for each ground water monitoring well. The specific parameters are to include the following:

Nitrate (as N)	mg/L
Sodium	mg/L
Chlorides	mg/L
Total Dissolved Solids (TDS)	mg/L
Ammonia (NH_3 as N)	mg/L
Fecal Coliform	cts/100 ml
Specific Conductivity	uhmos/cm
pH	stnd.units
Turbidity	NTUs
Water Level	feet (above Mean Sea Level)

[62-522.600(11)(b), 4/14/94]

9. The ground water minimum criteria specified in Rule 62-520.400, shall be met within the zone of discharge. [62-520.400 and 62-522.300(1), 4/14/94]

10. All ground water quality criteria specified in Chapter 62-520 and Chapter 62-522 shall be met at the edge of the zone of discharge. The zone of discharge shall extend horizontally

100 feet or to the site property line, whichever is less, and vertically to the base of the surficial aquifer. [62-520.200(23), 62-520.400, 62-520.420, 4/14/94, 62-522.300(1), 62-522.400, and 62-522.410, 4/14/94]

11. If at any time, background ground water standards are exceeded at the edge of the zone of discharge, the permittee has fifteen (15) days from receipt of the laboratory analysis in which to resample the monitor well(s) to verify the original analysis. The monitoring test results must be submitted to the Department within fifteen (15) days of receipt of the reanalyses from the laboratory. Should the permittee choose not resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility. [62-522.500, 4/14/94]

12. Sixty (60) days prior to the submittal of the wastewater facility renewal application of this permit, the permittee shall sample all groundwater monitor wells for the Florida Primary and Secondary Drinking Water Standards contained in Chapter 62-550, F.A.C.(excluding asbestos, acrylamide, and epichlorohydrin), fecal coliform, and EPA Methods 601 and 602. The analyses shall be submitted on Part D of Form 62-620.910(10) to the Department and with the renewal application. [62-522.500, 4/14/94]

13. Sixty (60) days prior to the submittal of the wastewater facility renewal application of this permit, the permittee shall provide a 24 hour composite effluent sample prior to discharge to the facility reuse system. The composite sample shall be analyzed for the Florida Primary and Secondary Drinking Water Standards in accordance with Chapter 62-550, F.A.C., the EPA Priority Pollutants and fecal coliform. The effluent analysis shall be submitted to the Department with the renewal application. The analyses results will be reported on Form 62-601.900(4), or a Department approved exact replica, compatible with the data entry into the Department's computer system. [62-522.500, 4/14/94]

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

Part IV Rapid-rate/restricted access system(s)

1. All ground water quality criteria specified in Chapter 62-520, F.A.C., shall be met at the edge of the zone of discharge. The zone of discharge for this project shall extend horizontally to the site property line and vertically to the base of the surficial aquifer. *[62-520.200(23), 4/14/94] [62-522.400 and 62-522.410, 4/14/94]*

2. Warning signs shall be posted around the site boundaries to designate the nature of the project area. *[62-610.518, 4/2/90]*

3. Percolation ponds, infiltration basins or trenches, and storage ponds shall be enclosed with a fence or provided with features to discourage the entry of animals and unauthorized persons. *[62-610.518, 4/2/90]*

4. The annual average hydraulic loading rate shall be limited to a maximum of 3 inches per day (as applied to the entire bottom area). *[62-610.523(3), 4/2/90]*

5. Rapid-rate systems shall be routinely maintained to control vegetation growth and to maintain percolation capability by scarification or removal of deposited solids. *[62-610.523(6), 4/2/90]*

6. Routine aquatic weed control and regular maintenance of storage pond embankments and access areas are required. *[62-610.515 and 62-610.415(6), 4/2/90]*

7. Overflows from emergency discharge facilities on storage ponds or on infiltration ponds, basins, or trenches shall be reported as an abnormal event to the Department's Southwest District Office, within 24 hours of an occurrence as an abnormal event. The provisions of Rule 62-610.880, F.A.C., shall be met. *[62-610.880, 62-610.415(5), 62-610.515, and 62-610.516, 4/2/90]*

V. OPERATION AND MAINTENANCE REQUIREMENTS

Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 61E12-41, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category III, Class C facility and, at a minimum, operators with appropriate certification must be on the site as follows:

   A Class C or higher operator 1/2 hour/day for 5 days/week and one weekend visit. The lead operator must be a Class C operator, or higher.

2. A certified operator shall be on call during periods the plant is unattended. *[62-699.311(1), 5-20-92]*

Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

3. An updated capacity analysis report shall be submitted to the Department with the next wastewater permit renewal application. The updated capacity analysis report shall be prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5), 6-8-93]*

4. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1), 6-8-93]*

Recordkeeping Requirements

5. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility:.

   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;

   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;

   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;

   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the residuals use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least three years from the date of sampling or measurement;

e. A copy of the current permit;

f. A copy of the current operation and maintenance manual as required by Chapter 62-600,. F.A.C.;

g. A copy of the facility record drawings;

h. Copies of the licenses of the current certified operators; and

i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and certification number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities; tests performed and samples taken; and major repairs made. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed.

[62-620.350,11-29-94][61E12-41.010(1)(e), 11-02-93]

VI. COMPLIANCE SCHEDULES AND SELF-IMPOSED IMPROVEMENT SCHEDULES

NA

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

NA

VIII. OTHER SPECIFIC CONDITIONS

1. If the permittee wishes to continue operation of this wastewater facility after the expiration date of this permit, the permittee shall submit an application for renewal, using Department Forms 62-620.910(1) and (2), no later than one-hundred and eighty days (180) prior to the expiration date of this permit. *[62-620.410(5), 11-26-94]*

2. The facilities shall comply with any conditions that the Secretary of the Army (United States Army Corps of Engineers) considers necessary to ensure that navigation and anchorage will not be substantially impaired. *[62-620.620(1)(q), 11-29-94]*

3. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department. *[62-600.410(8), 6-8-93]*

4. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited. *[62-604.130(3), 5-31-93]*

5. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20. *[62-604.550, 5-31-93] [62-620.610(20), 11-29-94]*

6. The acceptance, by the operating authority of a collection/transmission system or by the permittee of a treatment plant, of connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in treatment plant discharges having temperatures above 40° C is prohibited.

   [62-604.130(4), 5-31-93]

7. The treatment facility shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. *[62-600.400(2)(b), 6-8-93]*

8. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. *[62-7.540, 12-10-85]*

9. The permittee shall provide adequate notice to the Department of the following:

   a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C. if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

   Adequate notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

   [62-620.625(2), 11-29-94]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[6 620.610(1), 11-29-94]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved

drawings, exhibits, specifications or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2), 11-29-94]*

3. As provided in Subsection 403.087(6), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3), 11-29-94]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4), 11-29-94]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5), 11-29-94]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6), 11-29-94]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7), 11-29-94]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8), 11-29-94]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   b. Have access to and copy any records that shall be kept under the conditions of this permit;

c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

[62-620.610(9), 11-29-94]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, Florida Statutes, or Rule 62-620.302, Florida Administrative Code. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10), 11-29-94]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11), 11-29-94]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12), 11-29-94]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13), 11-29-94]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14), 11-29-94]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15), 11-29-94]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, 62-620.420 or 62-620.450, F.A.C., as applicable, at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.300 for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16), 11-29-94]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    a. A description of the anticipated noncompliance;

    b. The period of the anticipated noncompliance, including dates and times; and

    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17), 11-29-94]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246, Chapters 62-160 and 62-601, F.A.C., and 40 CFR 136, as appropriate.

    a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10).

    b. If the permittee monitors any contaminate more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

    c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

    d. Any laboratory test required by this permit for domestic wastewater facilities shall be performed by a laboratory that has been certified by the Department of Health and Rehabilitative Services (DHRS) under Chapter 10D41, F.A.C., to perform the test. On-site tests for dissolved oxygen, pH, and total chlorine residual shall be performed by a laboratory certified to test for those parameters or under the direction of an operator certified under Chapter 61E12-41, F.A.C.

    e. Under Chapter 62-160, F.A.C., sample collection shall be performed by following the protocols outlined in "DER Standard Operating Procedures for Laboratory Operations and Sample Collection Activities" (DER-QA-001/92). Alternatively, sample collection may be performed by an organization who has an approved Comprehensive Quality Assurance Plan (CompQAP) on file with the Department. The CompQAP shall be approved for collection of samples from the required matrices and for the required tests.

    [62-620.610(18), 11-29-94]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19), 11-29-94]*

20. The permittee shall report to the Department any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not

been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

a. The following shall be included as information which must be reported within 24 hours under this condition:

1. Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,

2. Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,

3. Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and

4. Any unauthorized discharge to surface or ground waters.

b. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department shall waive the written report.

[62-620.610(20), 11-29-94]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX. 18. and 19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX. 20 of this permit. *[62-620.610(21), 11-29-94]*

22. Bypass Provisions.

a. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:

1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

3. The permittee submitted notices as required under Permit Condition IX. 22. b. of this permit.

b. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX. 20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

c. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX. 22. a. 1. through 3. of this permit.

d. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX. 22. a. through c. of this permit.

[62-620.610(22), 11-29-94]

23. Upset Provisions

a. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the permittee can identify the cause(s) of the upset;

2. The permitted facility was at the time being properly operated;

3. The permittee submitted notice of the upset as required in Permit Condition IX. 20. of this permit; and

4. The permittee complied with any remedial measures required under Permit Condition IX. 5. of this permit.

b. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

c. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23), 11-29-94]

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

HEN COMPLETED MAIL THIS REPORT TO: FDEP; Water Facilities Section; 4 Coconut Palm Drive; Tampa, FL 33619-8318 Marion County

ERMITTEE NAME: Southern States Utilities, Inc.
AILING ADDRESS: 1000 Color Place
Apopka, FL 34473

ACILITY: Marion Oaks WWTF
OCATION: 14170 S.W. 34th Terrace, Ocala, FL 34473

PERMIT NUMBER: FLA012669
MONITORING PERIOD--From: To:
LIMIT: Final
CLASS SIZE: Minor GROUP: Domestic
FACILITY ID: FLA012669
DISCHARGE POINT NUMBER: R001 (13393)
PLANT SIZE/TREATMENT TYPE: 3C

Please read instructions before completing this form.

Parameter		Quantity or Loading			Quality or Concentration				No. Ex.	Frequency of Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
Flow (Three-Month Annual Average Daily Flow)	Sample Measurement		*****	MGD	*****	*****	*****	*****			
Storet No.: 50053	Permit Requirement	0.200	*****	MGD	*****	*****	*****	*****		Continuous	Record Flowmeters and Totalizer
CBOD, 5 day 20°C	Sample Measurement	*****	*****	*****	*****			mg/L			
Storet No.: 80082	Permit Requirement	*****	*****	*****	*****	20 Annual 30 Monthly 45 Weekly	60 Single Sample	mg/L		Every Two Weeks	Grab
Solids, Total Suspended	Sample Measurement	*****	*****	*****	*****			mg/L			
Storet No.: 00530	Permit Requirement	*****	*****	*****	*****	20 Annual 30 Monthly 45 Weekly	60 Single Sample	mg/L		Every Two Weeks	Grab
Fecal Coliform Bacteria	Sample Measurement	*****	*****	*****	*****			#/100 mL			
Storet No.: 31616	Permit Requirement	*****	*****	*****	*****	200 Annual 200 Monthly	800/100 mL Single Sample	#/100 mL		Every Two Weeks	Grab
pH	Sample Measurement	*****	*****	*****		*****		Standard			
Storet No.: 00400	Permit Requirement	*****	*****	*****	6.00	*****	8.50	Standard		Daily, 5/wk	Grab
Total Residual Chlorine (For disinfection)	Sample Measurement	*****	*****	*****		*****	*****	mg/L			
Storet No.: 50060	Permit Requirement	*****	*****	*****	0.5	*****	*****	mg/L		Daily, 5/wk	Grab
Nitrate (as N)	Sample Measurement	*****	*****	*****	*****	*****		mg/L			
Storet No.: 00620	Permit Requirement	*****	*****	*****	*****	*****	12.0 Single Sample	mg/L		Every Two Weeks	Grab

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT (Type or Print)	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO.	DATE (YY/MM/DD)
		( )	

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DEP Form 62-620.910(10), effective November 29, 1994

EXHIBIT (PART-H)
PAGE 19 OF 26

DDITIONA' 'IEET 1 (To be used if more space is needed)

ERMITTEE NAME: Southern States Utilities, Inc.
AILING ADDRESS: 1000 Color Place
Apopka, FL 34473

ACILITY: Marion Oaks WWTF
OCATION: 14170 S.W. 34th Terrace, Ocala, FL 34473

PERMIT NUMBER: FLA012669
MONITORING PERIOD--From: To:
LIMIT: Final
CLASS SIZE: Minor GROUP: Domestic
FACILITY ID: FLA012669
DISCHARGE POINT NUMBER: Effluent Point 24803
PLANT SIZE/TREATMENT TYPE: 3C

Please read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				No. Ex.	Frequency of Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
COOD, 5 day 20°C	Sample Measurement	**********	**********	*******	**********		**********	mg/L	*****		
(INFLUENT) Storet No.: 80082	Permit Requirement	**********	**********	*******	**********	Report Monthly Sample	**********	mg/L	*****	Monthly	Grab
Soilds, Total Suspended	Sample Measurement	**********	**********	*******	**********		**********	mg/L	*****		
(INFLUENT) Storet No.: 00530	Permit Requirement	**********	**********	*******	**********	Report Monthly Sample	**********	mg/L	*****	Monthly	Grab

EXHIBIT (PART-14)
PAGE 20 OF 26

DAILY SAMPL' ESULTS - PART B

icility ID: FLA[illegible]69
onth/Year:

Three-month Average Daily Flow:
Daily Flow % of Permitted Capacity:

Days of the Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30/31
Flow (MGD)																														
Chlorine Residual after Contact (mg/L as Cl_2)																														
CBOD, Influent (mg/L as O_2)																														
TSS Influent (mg/L)																														
CBOD, Effluent (mg/L as O_2)																														
TSS Effluent (mg/L)																														
pH Effluent (standard units)																														
Fecal Coliform (#/100ML)																														

PLANT STAFFING:

Day Shift Operator	Class:	Certificate No.:	Name:	
Evening Shift Operator	Class:	Certificate No.:	Name:	
Night Shift Operator	Class:	Certificate No.:	Name:	
Lead Operator	Class:	Certificate No.:	Name:	

Type of Effluent Disposal or Reclaimed Water Reuse:
Limited Wet Weather Discharge Activated: Yes: No: Not Applicable: If yes, cumulative days of wet weather discharge:
*Attach additional sheets if necessary to list all certified operators.

EXHIBIT (PAGE 14)
PAGE 21 OF 26

GROUNDWATER MON RING REPORT - PART D

:ility ID: FLA012699
)nth/Year:
ıe Sample Obtained:
ıs the well pumped before sampling? Yes No

Test Site ID: 13399 (MW-2A)
Well Type: Background
Ground Water Class: G-2

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level (feet) above Mean Sea Level							
Nitrate (mg/L as N)							
TDS (mg/L)							
Sodium (mg/L)							
Chloride (mg/L)							
Fecal Coliform (#/100ML)							
pH (standard units) (field measurement)							
Sulfate							
Ammonia (NH_3 as N)							
Specific Conductance (uhmos/cm) (field measurement)							
Temperature (° C) (field measurement)							
Turbidity (NTUs)							

Comments and Explanations:

DEP Form 62-620 910(10), Effective November 29, 1994

EXHIBIT RRT-14
PAGE 22 OF 26

GROUNDWATER MON RING REPORT - PART D

:ility ID: FLA012699
nth/Year:
te Sample Obtained:
is the well pumped before sampling? Yes No

Test Site ID: 13397 (MW-4A)
Well Type: Compliance
Ground Water Class: G-2

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level (feet) above Mean Sea Level							
Nitrate (mg/L as N)							
TDS (mg/L)							
Sodium (mg/L)							
Chloride (mg/L)							
Fecal Coliform (#/100ML)							
pH (standard units) (field measurement)							
Sulfate							
Ammonia (NH_3 as N)							
Specific Conductance (uhmos/cm) (field measurement)							
Temperature (° C) (field measurement)							
Turbidity (NTUs)							

Comments and Explanations:

EXHIBIT (RAT-4)
PAGE 23 OF 26

GROUNDWATER MON RING REPORT - PART D

acility ID: FLA012699
onth/Year:
ate Sample Obtained:
'as the well pumped before sampling? Yes No

Test Site ID: 13396 (MW-5A)
Well Type: Compliance
Ground Water Class: G-2

Parameter	Storet Code	Sampling Method	Samples Filtered (Y/N)	Preservatives Added	Analysis Method	Analysis Result/Units	Detection Limits/Units
Water Level (feet) above Mean Sea Level							
Nitrate (mg/L as N)							
TDS (mg/L)							
Sodium (mg/L)							
Chloride (mg/L)							
Fecal Coliform (#/100ML)							
pH (standard units) (field measurement)							
Sulfate							
Ammonia (NH_3 as N)							
Specific Conductance (uhmos/cm) (field measurement)							
Temperature (° C) (field measurement)							
Turbidity (NTUs)							

Comments and Explanations:

DEP Form 62-620.910(10), Effective November 29, 1994

EXHIBIT (RAT-14)
PAGE 24 OF 26

'ART B - DAILY ' 'MPLE RESULTS contd.

:nter the rype of effluent disposal or reclaimed water reuse (surface water discharge, ocean outfall, slow rate land application-public access, slow rate land application-restricted public access, rapid rate land application, bsorption field, underground injection).

f this plant does not have a limited wet weather discharge permitted under the provision of Rule 62-610.860, F.A.C., check not applicable. If the plant activated the wet weather discharge during the reporting month, check yes nd attach PART C - LIMITED WET WEATHER DISCHARGE.

'ART C - LIMITED WET WEATHER DISCHARGE

This part is applicable only to limited wet weather discharges from reuse systems describe in Rule 62-610.860, F.A.C. If applicable, this part is to be completed and submitted each month reclaimed water or effluent is ischarged by a limited wet weather discharge. For months with no discharge, Part C need not be submitted. All information is to be provided for each day on which the limited wet weather discharge was activated. All nformation is to be typed or printed in ink.

Facility ID: This is the identification number assigned by the Department for the facility.
Month/Year: This is the period during which the data on this report was collected and analyzed.
Rainfall Information: Rainfall gauging station requires entry of the name and location of the station. Source of Climatological (normal rainfall) data is the source of the information required for Cumulative rainfall for the average rainfall year which is the amount of rain, in inches, which falls during an average rainfall year from January through the month for which this part contains data. Cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this Part contains data.
Date: Enter the date on which the discharge occurred.
Duration of Discharge: Enter the number of hours, to the nearest 0.1 of an hour (0.1 = 6 min.) during each day of discharge that reclaimed water was actually discharged to surface waters.
Gallons Discharged: Enter the quantity in millions of gallons of reclaimed water discharged during the period shown in Duration of Discharge. Show the units as millions of gallons (mg), accurate to the nearest 0.01.
Average Discharge Flow Rate: Divide Gallons Discharged by Duration of Discharge. Record in million gallons per day (MGD).
Average Upstream Flow Rate: Enter the average flow rate in the receiving stream upstream from the point of discharge for the period shown in Duration of Discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Stream Dilution Factor: Enter the stream dilution ratio accurate to the nearest 0.1. To calculate the factor, divide the Average Upstream Flow Rate by the Average Discharge Flow Rate.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in Duration of Discharge.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in Duration of Discharge.
Reason for Discharge: Provide a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

PART D - GROUNDWATER MONITORING REPORT

This part is applicable only to groundwater monitoring wells. Type or print in ink the required data. All samples shall be collected and analyzed in accordance with Chapter 62-160, F.A.C. Laboratory reports shall be kept on file in the location indicated in your permit and made available for inspection upon request by the Department.

Facility ID: This is the identification number of the facility assigned by the Department.
Test Site ID: This is the identification number of the sampling site listed in your permit.
Month/Year: This is the period during which the data on this report was collected and analyzed. If the period is greater than one month, indicate beginning month to ending month.
Well Type: Indicate if the well being sampled is background, intermediate, compliance, or other. If other, explain in the comment section.
Date Sample Obtained: This is the date the sample was taken.
Ground Water Class: This is the classification of the ground water under Chapter 62-522, F.A.C.
Parameter: Analyze the parameters the permit requires. List any additional parameters from the permit which are not pre-listed here. If there are any parameters listed here which are not required by your permit, enter NR on that line.
Storet Code: Enter the Storet Code associated with the parameter.
Sampling Method: Describe the sampling method used.
Samples Filtered: Indicate whether the sample obtained was filtered (Y) or unfiltered (N).
Preservatives Added: State what preservatives were added to the sample.
Analysis Method: Indicate the analytical method used. Record the number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Analysis Result/Units: Record the results of the analysis. If the result was below the minimum detection limit, indicate that. Enter the units associated with the results of the analysis.
Detection Limits/Units: Record the detection limits and the units associated with them.
Comments and Explanations: Use this space to make any comments on or explanations of results which are unexpected.

EXHIBIT (RAI-14)
PAGE 25 OF 26

QUARTERLY REPORT ON GROUND WATER MONITORING

Permit Number FLA012699 Date _____

Marion Oaks WWTF
Facility/Installation Name

_____
Address City State Zip County

_____ _____
Owner or Authorized Representative's Name Title

Method of Discharge _____

Type of Industry _____

Report for Period _____ to _____
Date Date

Attach monitoring data as approved in monitoring plan using parameter monitoring report forms. When applicable, attach additional sheets describing any changes in the background water quality and the discharge plume since the last reported description. Include any changes in size, direction of movement, rate of movement, and concentration changes of plume constituents in violation of the applicable standards.

NOTE: Pursuant to Rule 62-4.700(6)(k)3., at any time there is a change in the permitted volume, location or chemical, physical or microbiological composition of the discharge plume, the permittee shall notify the Department and, if required by the Department, submit a new report stating the volume and chemical, physical and microbiological compositions of the discharge at the point of release or contact with the ground water at the site boundary.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____ _____
Owner or Authorized Representative's Signature Date

DOCKET 950495-WS
EXHIBIT NO. 223
CASE NO. 96-04227

EXHIBIT NO. 223

WITNESS: TERRERO

DOCKET NO. 950495-WS

APPLICATION FOR RATE INCREASE BY

SOUTHERN STATES UTILITIES, INC.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DESCRIPTION:

RECENT WATER ANALYSES AT
LEISURE LAKES

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 223
COMPANY/
WITNESS:
DATE 4/24/96

SOUTHERN STATES UTILITIES, INC.
RESPONSE TO REQUEST FOR PRODUCTION OF DOCUMENTS
DOCKET NO.: 950495-WS

REQUESTED BY:	FPSC
SET NO:	11
DOCUMENT REQUEST NO:	80
ISSUE DATE:	03/18/96
WITNESS:	Rafael A. Terrero
RESPONDENT:	Rafael A. Terrero

DOCUMENT REQUEST: 80

Please provide the results, if any, of any testing done on Leisure Lakes' drinking water completed since the February 7, 1996 service hearing.

RESPONSE: 80

Attached as Appendix 80-A are copies of Leisure Lakes' test results.

04/10/1996 09:38 8136394 BURNTSTORE PAGE 02

State of Florida
Department of Health and Rehabilitative Services
Office of Laboratory Services
Jacksonville, Miami, Pensacola
Tampa, West Palm Beach

FOR LAB USE ONLY

Short Environmental Labs HRS #85344
Received On: 2-13-96 @ 1410
Received By: Q. Watkins
Date/Time of Analysis: 2-13-96 @ 1715

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME: Southern States Utilities SYSTEM I.D. NO: 5280064 SYSTEM PHONE #: 493-6118

ADDRESS: 1000 Color Place, Apopka COUNTY: Highlands DER DISTRICT: 5

COLLECTOR: Scott Faircloth COLLECTOR PHONE #: 471-1400

SAMPLE SITE (Locality or Subdivision): Leisure Lakes/Covered Bridge, Lake Placid

DATE AND TIME COLLECTED: 2-13-96 1:30 Pm

TYPE OF SUPPLY(Circle one): (Community water system) Noncommunity water system Nontransient - noncommunity water system
Private well Swimming pool Bottled water Limited use system

TYPE OF SAMPLE(Circle one): (Compliance) Repeat Replacement Main clearance Well survey Other _____ (Specify)
(Check Box)
[✓] Distribution
[✓] Raw
(Check Box)
[ ] TNTC or C
[ ] Turbid
[ ]

REMARKS:

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD (Circle one): MF MTF (MMO-MUG) PA				
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL E. COLI	SAMPLE NUMBER
1	10" Well - Raw	—	6.9		A			46580
2	4" Well - Raw	—	5.0		A			46581
3	Clubhouse	1.2	7.6		A			46582
4	101 Hillcrest	1.4	7.7		A			46583

Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms are present C - Confluent growth TA - Turbid, Absence of gas or acid
A - Coliforms are absent TNTC - Too numerous to count

INTERPRETATIONS-REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

Short Utility Service, Inc.
P.O. Box 1088
Sebring, FL 33871

( )
( ) SATISFACTORY
( ) INCOMPLETE COLLECTION INFORMATION
( ) COLLECT REPEAT SAMPLES
( ) COLLECT REPLACEMENT SAMPLES

REVIEWING OFFICIAL: _____

HRS

State of Florida
Department of Health and Rehabilitative Services
Office of Laboratory Services
Jacksonville, Miami, Pensacola
Tampa, West Palm Beach

FOR LAB USE ONLY

Received On: 3-26-96 @ 1250
Received By: A. Wittkins
Date/Time of Analysis: 3-26-96 @ 1700

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME: Southern States Utilities SYSTEM I.D. NO: 5280064 SYSTEM PHONE #: 639-0331

ADDRESS: 1000 Color Place, Apopka COUNTY: Highlands DER DISTRICT: 5

COLLECTOR: Scott Faircloth COLLECTOR PHONE #: 471-1400

SAMPLE SITE (Locality or Subdivision): Leisure Lakes/Covered Bridge, Lake Placid

DATE AND TIME COLLECTED: 3-26-96 9:40 AM

TYPE OF SUPPLY (Circle one): (Community water system) Noncommunity water system Nontransient - noncommunity water system Private well Swimming pool Bottled water Limited use system

TYPE OF SAMPLE (Circle one): (Compliance) Repeat Replacement Main clearance Well survey Other ______ (Specify)

(Check Box) [✓] Distribution [✓] Raw

Replacement (Check Box) [ ] TNTC or C [ ] Turbid [ ]

REMARKS:

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB — ANALYSIS METHOD (Circle one): MF MTF MMO-MUG (PA)				
COLL. NO.	SAMPLE POINT (Specific Address)	CL RES'D	pH	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL E. COLI	SAMPLE NUMBER
1	10" Well - Raw	—	6.8		A			47876
2	4" Well - Raw	—	4.9		A			47877
3	Clubhouse	2.0	7.8		A			47878
4	101 Hillcrest	1.8	7.8		A			47879

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms are present C - Confluent growth TA - Turbid, Absence of gas or acid
A - Coliforms are absent TNTC - Too numerous to count

INTERPRETATIONS-REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

Short Utility Service, Inc.
P.O. Box 1088
Sebring, FL 33871

( )
( ) SATISFACTORY
( ) INCOMPLETE COLLECTION INFORMATION
( ) COLLECT REPEAT SAMPLES
( ) COLLECT REPLACEMENT SAMPLES

REVIEWING OFFICIAL: ______

TITLE: ______

March 25,1996

Mr. Gary Maier
Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers. Florida 33901-3881

Re: Highlands County - PW
SSU / Leisure Lakes WTP
PWS I.D. Number: 5280064

Dear Mr. Maier:

The finished water meter at Leisure Lakes has been replaced. The entire system was flushed to assure a chlorine residual at the ends of all lines. Attached are the results of the bacteriological samples taken after the installation of the finished water meter. If you have any questions, please call at 941-639-0331.

Sincerely,

Wayne Vowell

Wayne Vowell

TITLE:

04/09/1996 15:33 8136394665 BURNTSTORE PAGE 03

State of Florida
Department of Health and Rehabilitative Services
Office of Laboratory Services
Jacksonville, Miami, Pensacola
Tampa, West Palm Beach

FOR LAB USE ONLY

Short Environmental Labs HRS #85344
Received On: 3-13-96 @ 1140
Received By: A. Watkins
Date/Time of Analysis: 3-13-96 @ 1825

DRINKING WATER BACTERIOLOGICAL ANALYSIS

Press hard, (5) copies (SSU)

YSTEM NAME: Covered Bridge SYSTEM I.D. NO: 5280064 SYSTEM PHONE #: 493-6118

DDRESS: 1000 Color Place, Apopka COUNTY: Highlands DISTRICT: 5

OLLECTOR: Scott Faircloth COLLECTOR PHONE #: 941 471 1400

MPLE SITE (Locality or Subdivision): Covered Bridge

TE AND TIME COLLECTED: 3-13-96 10:00 Am

PE OF SUPPLY(Circle one): (Community water system) Noncommunity water system Nontransient - noncommunity water system
Private well Swimming pool Bottled water Limited Use system

PE OF SAMPLE(Circle one): Compliance (Check Box) [ ] Distribution [ ] Raw Repeat Replacement Routine Survey Well survey (Other) CHANGED OUT METER AT WATER PLANT

[ ] Check here if payment made to county public health unit

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD: MF MTF MMO-MUG (PA)				
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL E. COLI	SAMPLE NUMBER
1	108 Hillcrest	1.0	7.8		A			47414

*Results in this column are presumptive. Total coliform and fecal coliform or E. coli confirmation will follow in 24-48 hours.

P - Coliforms are present C - Confluent growth TA - Turbid, Absence of gas or acid
A - Coliforms are absent TNTC - Too numerous to count

INVOICE ADDRESS (if different than address below):

INTERPRETATIONS-REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

SHORT UTILITY SERVICE INC
P O BOX 1088
SEBRING FL 33871

( )
( ) SATISFACTORY
( ) INCOMPLETE COLLECTION INFORMATION
( ) REPEAT SAMPLES
( ) REPLACEMENT SAMPLES

REVIEWING OFFICIAL: _____

TITLE:

P O BOX 1088
SEBRING FL 33871

( ) INCOMPLETE COLLECTION INFORMATION
( ) COLLECT REPEAT SAMPLES
( ) COLLECT REPLACEMENT SAMPLES

04/09/1996 15:33 8136394665 BURNTSTORE PAGE 04

State of Florida
Department of Health and Rehabilitative Services
Office of Laboratory Services
Jacksonville, Miami, Pensacola
Tampa, West Palm Beach

FOR LAB USE ONLY

Short Environmental Labs HRS #85344
Received On: 3-12-96 @ 1240
Received By: R. Watkins
Time of Analysis: 3-12-96 @ 1720

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME: COVERED Bridge (S.S.U.) SYSTEM I.D. NO: 5280064 SYSTEM PHONE #: 493-6118

ADDRESS: 1000 COLOR PLACE, APOPKA COUNTY: HIGHLANDS DER DISTRICT: 5

COLLECTOR: Scott FAIRCloth COLLECTOR PHONE #: 941 471-14

SAMPLE SITE (Locality or Subdivision): COVERED Bridge

DATE AND TIME COLLECTED: 3-12-96 11:50AM

TYPE OF SUPPLY(Circle one): (Community water system) Noncommunity water system Nontransient - noncommunity water system
Private well Swimming pool Bottled water Limited use system

TYPE OF SAMPLE(Circle one): Compliance (Check Box) [ ] Distribution [ ] Raw Repeat Replacement (Check Box) [ ] TNTC or C [ ] Turbid [ ] Well survey (Other) CHANGED OUT HEATER AT (Specify) WATER PLANT

REMARKS:

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD (Circle one): MF MTF				MMO-MUG (PA)
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL E. COLI	SAMPLE NUMBER
	108 Hillcrest st.	1.0	7.6		A			47374

Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms are present
A - Coliforms are absent
C - Confluent growth
TNTC - Too numerous to count
TA - Turbid, Absence of gas or acid

INTERPRETATIONS-REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

SHORT UTILITY SERVICE INC
P O BOX 1088
SEBRING FL 33871

( )
( ) SATISFACTORY
( ) INCOMPLETE COLLECTION INFORMATION
( ) COLLECT REPEAT SAMPLES
( ) COLLECT REPLACEMENT SAMPLES

REVIEWING OFFICIAL:

DOCKET 950495-WS
EXHIBIT NO. 224
ORD. NO. 96-04227

EXHIBIT NO. 224

WITNESS: TERRERO

DOCKET NO. 950495-WS

APPLICATION FOR RATE INCREASE BY

SOUTHERN STATES UTILITIES, INC.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DESCRIPTION:

LATE FILED DEPOSITION EXHIBIT NO. 6
FROM MR. TERRERO'S JANUARY 1996
DEPOSITION PERTAINING TO
MARCO ISLAND/MARCO SHORES
EFFLUENT DISPOSAL

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 224
COMPANY/
WITNESS:
DATE: 4/29/96

Rafael A. Terrero

Deposition Late File Exhibits 4, 5 and 6

Gallons of effluent by month into the injection well under column titled, "Deep Well Inj. WWTP (MG)"

Gallons of concentrate (brine) by month into injection well under column titled, "Deep Well Inj. Brine (MG)"

Gallons of effluent per month to golf courses under columns titled, "Marco Shores Golf Course (MG)", "Marco Island Golf Course (MG)"

Effluent to percolation ponds from Marco Shores under column titled, "Marco Shores Perc Ponds, (MG)"

MARCO ISLAND
EFFLUENT DISPOSAL

DATE	DEEP WELL INJ. BRINE (MG)	DEEP WELL INJ. WWTP EFFL. (MG)	TOTAL INJ. (MG)	MARCO ISLAND PERC PONDS (MG.)	MARCO SHORES GOLF COURSE (MG)	MARCO ISLAND GOLF COURSE (MG.)	GOLF COURSES TOTAL (MG.)	MARCO SHORES PERC PONDS (MG)
DEC 95								
TOTAL	29.224	38.692	67.916		6.073	4.592	10.665	1.110
NOV 95								
TOTAL	26.753	32.337	58.919		11.407	7.679	18.862	1.192
OCT 95								
TOTAL	19.816	58.949	78.765		3.305	0.003	3.308	1.115
SEP 95								
TOTAL	16.383	49.566	65.949		1.886	0.012	1.898	0.708
AUG 95								
TOTAL	6.008	43.423	49.431		7.157	4.336	11.493	0.930
JUL 95								
TOTAL	20.162	56.314	76.476		2.756	0.000	2.756	0.921
JUN 95								
TOTAL	26.102	53.947	79.636		2.661	0.872	3.533	0.943
MAY 95								
TOTAL	36.929	28.440	65.369		6.490	7.014	13.504	1.111
APR 95								
TOTAL	36.464	49.616	86.080		5.923	2.970	8.893	1.697
MAR 95								
TOTAL	35.775	47.083	82.858		9.147	11.697	20.844	2.385
FEB 95								
TOTAL	28.887	53.674	82.561		3.363	5.553	8.916	2.293
JAN 95								
TOTAL	34.908	58.721	93.629		2.383	3.485	5.868	2.029

MARCO ISLAND
EFFLUENT DISPOSAL

DATE	DEEP WELL INJ. BRINE (MG)	DEEP WELL INJ. WWTP EFFL. (MG)	TOTAL INJ. (MG.)	MARCO ISLAND PERC PONDS (MG)	MARCO SHORES GOLF COURSE (MG.)	MARCO ISLAND GOLF COURSE (MG)	GOLF COURSES TOTAL (MG)	MARCO SHORES PERC PONDS (MG)
DEC 94								
TOTAL	48.685	42.665	91.350		3.882	3.845	7.727	1.549
NOV 94								
TOTAL	33.323	37.785	71.108		4.092	5.086	9.178	1.543
OCT 94								
TOTAL	32.451	34.279	66.730		4.328	4.075	8.403	1.256
SEP 94								
TOTAL	19.406	37.192	56.598		1.134	2.444	3.578	1.032
AUG 94								
TOTAL	22.945	45.368	68.313		2.175	1.704	3.879	1.269
JUL 94								
TOTAL	35.843	49.287	85.130		0.979	2.886	3.865	1.338
JUN 94								
TOTAL	48.875	26.218	75.093		6.880	5.890	12.770	1.181
MAY 94								
TOTAL	64.677	16.606	81.283		7.516	12.084	19.600	1.148
APR 94								
TOTAL	64.478	39.663	104.141		5.662	9.792	15.454	1.546
MAR 94								
TOTAL	61.288	52.267	113.555		9.063	8.381	17.444	1.923
FEB 94								
TOTAL	40.786	48.809	89.595		5.024	6.790	11.814	1.755
JAN 94								
TOTAL	46.832	40.965	87.797		4.408	4.752	9.160	1.623

MARCO ISLAND
EFFLUENT DISPOSAL

DATE	DEEP WELL INJ. BRINE (MG)	DEEP WELL INJ. WWTP EFFL. (MG)	TOTAL INJ. (MG)	MARCO ISLAND PERC PONDS (MG)	MARCO SHORES GOLF COURSE (MG)	MARCO ISLAND GOLF COURSE (MG)	GOLF COURSES TOTAL (MG)	MARCO SHORES PERC PONDS (MG)
DEC 93								
TOTAL	50.395	29.499	79.894		6.515	8.167	14.682	1.148
NOV 93								
TOTAL	35.438	41.660	77.098		0.491	3.519	4.010	1.038
OCT 93								
TOTAL	28.301	41.262	69.563		0.784	5.038	5.822	0.968
SEP 93								
TOTAL	19.676	42.536	62.212		0.000	0.000	0.000	0.842
AUG 93								
TOTAL	19.025	32.297	51.322	7.989	6.006	3.488	9.494	0.908
JUL 93								
TOTAL	31.393	32.145	63.538		3.273	9.443	12.716	0.958
JUN 93								
TOTAL	28.421	18.933	47.354		5.525	0.013	5.538	0.935
MAY 93								
TOTAL	35.095	7.140	42.235	24.861	9.850	3.410	13.260	0.933
APR 93								
TOTAL	33.074	32.959	66.033	10.640	9.392	9.313	18.705	1.301
MAR 93								
TOTAL	36.696	57.615	94.311	3.358	6.326	7.011	13.337	1.879
FEB 93								
TOTAL	40.988	55.570	96.558		5.085	4.644	9.729	1.882
JAN 93								
TOTAL	27.873	49.600	77.473	13.370	1.903	3.402	5.305	1.547

MARCO ISLAND
EFFLUENT DISPOSAL

DATE	DEEP WELL INJ. BRINE (MG)	DEEP WELL INJ. WWTP EFFL. (MG)	TOTAL INJ. (MG.)	MARCO ISLAND PERC PONDS (MG)	MARCO SHORES GOLF COURSE (MG)	MARCO ISLAND GOLF COURSE (MG.)	GOLF COURSES TOTAL (MG.)	MARCO SHORES PERC PONDS (MG)
DEC 92								
TOTAL					23.259	7.616	30.875	1.056

DOCKET 950495-WS
EXHIBIT NO. 225
CASE NO. 96-04227

EXHIBIT NO. 225

WITNESS: UNDETERMINED

DOCKET NO. 950495-WS

APPLICATION FOR RATE INCREASE BY

SOUTHERN STATES UTILITIES, INC.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DESCRIPTION:

SSU RESPONSE TO FPSC INTERROGATORY NO. 305
REGARDING THE MARCO ISLAND PERC PONDS
AND ALLOCATIONS TO MARCO SHORES

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 225
COMPANY/
WITNESS:
DATE 4/25/96

SOUTHERN STATES UTILITIES, INC.
DOCKET NO.: 950495-WS
RESPONSE TO INTERROGATORIES

REQUESTED BY:	FPSC
SET NO:	6
INTERROGATORY NO:	305
ISSUE DATE:	12/12/95
WITNESS:	Undetermined
RESPONDENT:	J. Dennis Westrick

INTERROGATORY NO: 305

Please refer to the Utility's capital addition project number 91CS015, which pertains to the off-site perc ponds for Marco Island. Is/was any of the capital addition allocated to Marco Shores? If not, why not?

RESPONSE: 305

The entire addition for work order 91CS015 was recorded as Marco Island plant in service. It is the company's policy to record assets where they are physically residing, to assist in implementation of a fixed asset inventory as well as to properly record tangible personal property for property tax assessment purposes.

DOCKET 950495-WS
EXHIBIT NO. 226
CASE NO. 96-04227

EXHIBIT NO. 226

WITNESS: TERRERO

DOCKET NO. 950495-WS

APPLICATION FOR RATE INCREASE BY

SOUTHERN STATES UTILITIES, INC.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DESCRIPTION:

EPA HANDBOOK (EPA/625/6-91/030)

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 226
COMPANY/
WITNESS:
DATE: 4/24/96

United States
Environmental Protection
Agency

Office of
Research and Development
Cincinnati, OH 45268

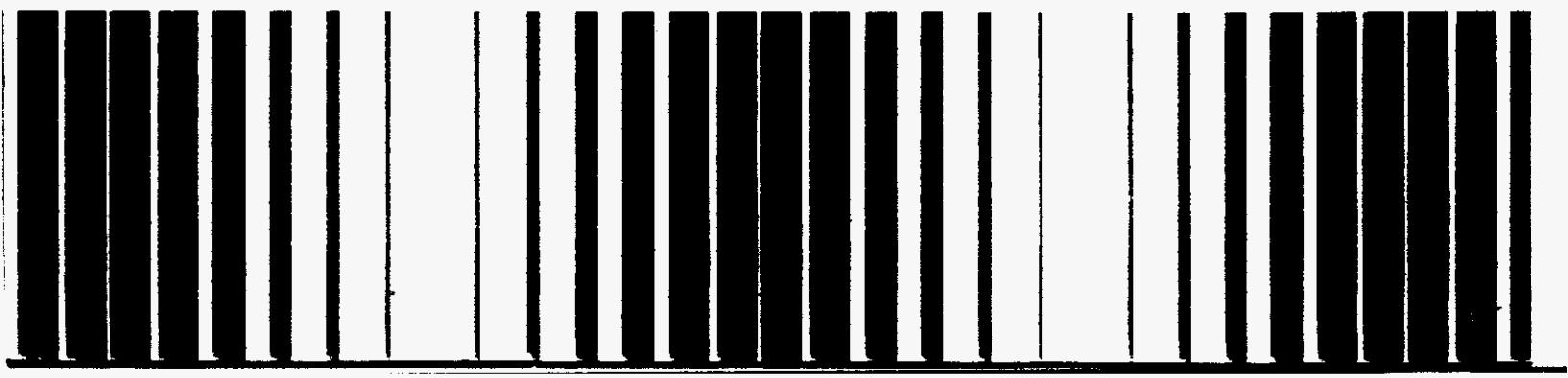
EPA/625/6-91/030
October 1991

Technology Transfer

EPA

Handbook

Sewer System Infrastructure Analysis and Rehabilitation



other cases it might be channelled by sewer trenches to potential points of direct human exposure. Data based on a study conducted by the U.S. EPA indicates the following conclusions and findings regarding the impact of RII:[3]

- RII is a type of infiltration since it enters the sewer system through defects. However, its flow characteristics resemble those of inflow i.e., there is a rapid increase in flow which mirrors the rainfall event followed by a decrease as the rain stops.
- Because of its flow characteristics, RII has occasionally been misidentified as inflow in many cases. Consequently, rehabilitation programs aimed at inflow sources have not achieved the anticipated reduction in extraneous flows in these cases.
- RII appears to represent a significant portion of the flow to some wastewater treatment plants during wet weather periods. In the 10 case studies conducted by U.S. EPA, the peak wet weather flows were 3.5-20 times the dry weather flow. The contribution from RII was estimated to be between 60-90 percent of the wet weather flows, the remainder being groundwater infiltration and inflow.
- Collection and treatment systems often do not have the capacity to handle peak wet weather flows. Peak flows, therefore, can cause wastewater backups into buildings, overflows and treatment system bypasses. Such occurrences are a hazard to public health and a violation of the municipality's discharge permit.
- Sewer trenches can act as collectors of rainfall percolating into the soil. The trenches channel the water, thus providing multiple opportunities for the water to seep into the collection system at defective points.
- The shallow portions of a collection system, e.g. building laterals, manhole defects, etc. are more vulnerable to RII. Interceptors sewers, which are typically deeper, do not appear to be a significant entry point for RII, but are more likely sources of groundwater infiltration, which normally minimizes peak to average flow ratios.
- The extent of RII problems in sanitary sewer systems is related to the age and condition of the sewers, material of construction, pipe, lateral and manhole defects, climate, geology, groundwater levels, and depth of sewers.

Figure 3-6 presents the typical entry points of RII.

3.5.7.4 Method of Analysis

The following techniques can be used to estimate the total infiltration in a sewer system:

a. Water Use Evaluation

This method uses the water supply records for the purpose of estimating the amount of domestic wastewater discharged to the sanitary sewer system. Monthly water use records are obtained. As an estimate, the percentage of the water that would reach the sanitary sewer would range from 70 percent in summer to 90 percent in winter. Given these facts, the rates at which domestic, industrial and commercial wastewater should flow into the sanitary sewers can be determined. These calculated flow rates can be subtracted from the total flow measured at the wastewater treatment plant to obtain an estimate of the infiltration entering the sewer system. Factors that should be considered when using this method for infiltration analysis are:

- Confirmation of the consumptive use mentioned above
- The amount of unaccounted water supplied through the system through wells, springs, or reservoirs that would not be accurately measured due to faulty or inaccurate meters or lack of metering. Unaccounted for water also includes illegal taps and unmetered withdrawals from fire fighting lines, street flushing fire lines, or hydrants.
- For areas supplied with a secondary water system, the water balance must include this source.

b. BOD Evaluation

The mass BOD loading from domestic and industrial sources are used in this method. The method assumes that the average BOD of domestic waste without infiltration is 200 mg/L. Monthly treatment plant flow records are used to determine total flow and average actual BOD daily loading. The industrial flow and BOD loading must also be estimated in order to use this method.

First, the total BOD load to the treatment plant is calculated in mass/d from the plant influent flow and actual influent BOD. Next the industrial flow and BOD load is estimated and subtracted from the total plant load. The normal domestic flow is calculated by knowing the domestic BOD load and using an influent BOD concentration of 200 mg/L. The infiltration is then calculated by subtracting the calculated domestic flow plus the estimated industrial flow from the actual plant flow. The procedure can be completed on a daily, monthly or annual basis. The accuracy of the procedure depends on the accuracy of estimating industrial flow and BOD load. It should be applied to the total system rather than to sub-systems because of limitations due to unequal distribution of domestic and industrial flows in smaller sub-systems.

c. Maximum-Minimum Daily Flow Comparison

This method assumes that infiltration will be constant throughout the day if there is no precipitation. Industrial flows are also assumed to be constant throughout the day, so the daily flow variations measured are strictly attributed to the domestic flow contribution. Treatment plant influent data can be evaluated to obtain the domestic

DOCKET 950495-WS Ex. No. 227
EXHIBIT NO. 227
CASE NO. 96-04227

SSU Southern States Utilities • 255 Enterprise Rd. • Deltona, FL 32725 • 407/574-6130 • DELTONA OFFICE

January 23, 1996

Mr. Mark A. Halverstadt
Environmental Specialist II
Environmental Health Engineering
Volusia County Public Health Unit
Post Office Box 9190
Daytona Beach, FL 32120-9190

RE: SANITARY SURVEY DATED 12/07/95

Dear Mr. Halverstadt:

This letter is in reference to the sanitary survey dated 12/07/95 to Mr. Daniel DeBaca, Chief Operator, and William M. Schrader, Lead Operator. The survey was in reference to the Deltona system permitted under ID #3640237.

The following is to address each deficiency in the order of your survey:

1. Maintenance problem (housekeeping) and cross-connection were corrected. Routine plant maintenance and inspection program. Please note a copy of standard operating protocol which addresses these issues. Four out of five tanks scheduled for painting were completed in 1995. The two million tank at Sagamore (Plant #12) will be done in 1996. The unused equipment is now being addressed through our Engineering Department. This should be completed in 1996. We are reviewing our fuel containment structures, and we believe two will have to be sealed again. These two are Plants #6 and #14. This work will be completed by 2/16/95.

2. The auxiliary generators were reviewed, and we found that some were exercising, but the timer was not recording. This item has been corrected and will be monitored in the future.

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 227
COMPANY/
WITNESS:
DATE 4/24/96

Mr. Mark A. Halverstadt
RE: SANITARY SURVEY DATED 12/07/95
January 23, 1996

3. Please note the attached Engineering report concerning this request of the Deltona Lakes Water Supply System Auxiliary Power Plan.

4. There has been work done on a valve maintenance program of which I am attaching a sample sheet. I do agree that maybe a more formal plan should be drafted and submitted to your department for review. I will be processing a plan that will be added to our Standard Operating Protocol.

5. The fire hydrants in Deltona are not the responsibility of Southern States. The Deltona Fire District is totally responsible for their installation operations and maintenance.

6. Please note a plan was approved and submitted to DEP in August, 1992. I am attaching a copy for your records.

7. We have reviewed your concerns, and they are now monitoring 6 sites daily for remote chlorine residuals. We will also make this a part of our Standard Operating Protocol for both chlorine residuals and flushing program.

8. We have finished tying in Wells #3 and #25 blending water leaving this site. We believe this will correct the 1.0 mg per liter for phosphate reclestering.

Please advise if there are any further questions you wish us to consider.

We again want to thank your Department for a positive approach to areas of both our concerns.

Thank you,

Douglas Lovell
Area Supervisor II

DL:kj

Environmental Health

VOLUSIA COUNTY PUBLIC HEALTH UNIT
ENVIRONMENTAL HEALTH

904/947-3435

FAX TELEPHONE NUMBER 904/947-3485

The following material consists of 5 pages including cover page.

DELIVER TO: Doug Lovell

PHONE NUMBER: (407) 574-1680

FAX NUMBER: (407)

SPECIAL INSTRUCTIONS: Here is a preliminary look at my survey letter. A few things on it will probably change

FROM: Mark A. Halvorstadt

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

CERTIFIED Z 309 921 259

October 5, 1995

Southern States Utilities/Deltona
Attn.: Mr. Daniel DeBaca, Chief Operator and
Mr. William M. Schrader, Lead Operator
255 Enterprise Road
Deltona, Fl 32725

Southern States Utilities/Deltona
***PWS ID NUMBER:* 3640287**
Volusia County CWS

Dear Mr.'s DeBaca and Schrader,

This letter confirms my visit to the Deltona community public water system on December 29-30, 1994 in the presence of Dan DeBaca-Chief Operator, Bill Schrader-Lead Operator, and Ray Van Loon of HRS for the purpose of conducting a sanitary survey. The completed sanitary survey is enclosed for your reference and records.

Deficiencies were noted during the survey and were also determined from records on file in this office. On page six of the enclosed sanitary survey, deficiencies are listed with reference to the pertinent section of the Florida Administrative Code.

The following is a description of each noted deficiency:

1. There is no working chlorine gas alarm to indicate loss of gas pressure or chlorine residual at the following locations: Plant #3, Plant 5-wells #6 and #7, Plant #9, and Plant #12. OK OK OK OK being installed

complete (2) There are hole(s) in the wall(s) of the chlorine rooms potentially venting chlorine gas to the pump rooms in the following locations: Plant #1-well #1, Plant #4-well #4, Plant #5-well #6, and Plant #10-well #20, and Plant #11-well #21.

complete 3. The required vents for floor level chlorine room ventilation are missing at the following locations: Plant #28-well #15, Plant #9-well #19, Plant #10-well #20, and Plant #15-well #29.

complete 4. Warning signs with emergency phone numbers are required at each chlorine storage site, and are missing or badly faded at the following locations: Plant #1-well #3, Plant #3-well #25, Plant #5-well #6, Plant #16-well #33, and Plant #28-well #15.

complete 5. There were two unsecured gas chlorine cylinders at Plant #3-well #25, a potential safety/fire hazard.

VOLUSIA COUNTY PUBLIC HEALTH UNIT
P.O. BOX 9190 • 501 S. CLYDE MORRIS BLVD.
DAYTONA BEACH, FL 32120-9190

2

5. There is no record of a fire hydrant maintenance program in our files. Please provide the Department with one and give data on how many full-time equivalent people are or have been assigned to it. This may be combined with the valve maintenance program.

6. There is no written backflow preventer testing program in our records. Please provide one and include data on: how many full-time equivalent people are assigned to it, who is responsible, how records are maintained, and an inventory by number and type.

7. There were areas of the distribution system found to be less than 0.2 mg/l free available chlorine. A series of complaints in the records also indicates that this is a recurring problem. Develop a specific verifiable written program of flushing and residual maintenance to ensure compliance with the rules, and forward a copy to this Department.

8. There is an iron level of 1.2 mg/l in well #25, which is in excess of the 1.0 mg/l level acceptably treatable by phosphate sequestration. Please inform this Department as to the approximate time table for completion of the permitted modifications designed to correct this problem.

Furthermore, please inform the Department of any updates to the cross connection control program, and who is assigned the responsibility of ensuring that it is carried out.

You are required to correct the above deficiencies for the subject system and to provide a written statement to this Department no later than February 07, 1996 certifying that all listed deficiencies have been corrected, or listing specific reasonable dates for completion. If any items need further explanation, please contact this Department immediately.

Please provide the information, where available, for items marked unknown ("unk") on the sanitary survey report. When such unknown information is not readily available, please note this as "NA".

The following reference materials: Chapters 62-550, 62-551, 62-555, 62-560 and 62-699 of the Florida Administrative Codes, (FAC), are available for a fee upon telephone request to Mrs. Kristine Sheets at (904) 947-3436.

If you have any questions concerning this letter, please feel free to contact me at (904) 947-3421.

Sincerely,

Mark A. Halverstadt

Mark A. Halverstadt
Environmental Specialist II
Environmental Health Engineering

MAH/mah
Enclosures
cc: L. Faircloth
R. Van Loon
PWS File (last-81.doc)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

CERTIFIED Z 309 921 259

October 5, 1995

Southern States Utilities/Deltona
Attn.: Mr. Daniel DeBaca, Chief Operator and
Mr. William M. Schrader, Lead Operator
255 Enterprise Road
Deltona, Fl 32725

Southern States Utilities/Deltona
PWS ID NUMBER: 3640287
Volusia County CWS

Dear Mr.'s DeBaca and Schrader,

This letter confirms my visit to the Deltona community public water system on December 29-30, 1994 in the presence of Dan DeBaca-Chief Operator, Bill Schrader-Lead Operator, and Ray Van Loon of HRS for the purpose of conducting a sanitary survey. The completed sanitary survey is enclosed for your reference and records.

Deficiencies were noted during the survey and were also determined from records on file in this office. On page six of the enclosed sanitary survey, deficiencies are listed with reference to the pertinent section of the Florida Administrative Code.

The following is a description of each noted deficiency:

1. There is no working chlorine gas alarm to indicate loss of gas pressure or chlorine residual at the following locations: Plant #3, Plant 5-wells #6 and #27, Plant #8, and Plant #12.

2. There are hole(s) in the wall(s) of the chlorine rooms potentially venting chlorine gas to the pump rooms in the following locations: Plant #1-well #1, Plant #4-well #4, Plant #5-well #6, and Plant #10-well #20, and Plant #11-well #21.

3. The required vents for floor level chlorine room ventilation are missing at the following locations: Plant #28-well #15, Plant #9-well #19, Plant #10-well #20, and Plant #15-well #29.

4. Warning signs with emergency phone numbers are required at each chlorine storage site, and are missing or badly faded at the following locations: Plant #2-well #3, Plant #3-well #25, Plant #5-well #6, Plant #16-well #33, and Plant #28-well #15.

5. There were two unsecured gas chlorine cylinders at Plant #3-well #25, a potential safety/fire hazard.

VOLUSIA COUNTY PUBLIC HEALTH UNIT
P.O. BOX 9190 • 501 S. CLYDE MORRIS BLVD.
DAYTONA BEACH, FL 32120-9190

LAWTON CHILES, GOVERNOR

There was not adequate lighting in the chlorine rooms at the following locations: Plant#4-well #4, Plant #10-well #20, Plant #11-well #21, and Plant #14-well #24 because of burned out light bulbs. The light switch at Plant #9-well #19 was broken and should be replaced.

6. There are openings to the following wells that pose potential contamination hazards:
   - Air/vacuum release valve drain openings need screening at wells nos.: 1, 16; 20, 21, 24, and 32 (each of the last three also should be turned down), and nos. 28 and 34.
   - Cover the vents at wells #24 and #25.
   - Cap the blow-off valve on well #1.
   - The air line level check openings need the proper plug seals at wells nos. 16, 22, 28, and 32.

7. The following facility repairs and maintenance are required:

   - Repair the door vent to well room for Plant #15-well #28.
   - Secure/repair or improve the fencing at Plants nos.: 6, 7, 14, and 15, to limit access and keep out potential vandals.
   - Outside Plant #7, remove the heavily-rusted southside liquid petroleum gas tank that is no longer in use.
   - Repair or replace the hinges in the master meter pit at Plant #7.
   - Repair, cover, or remove the exposed electrical wires in the master meter pit at the following locations: Plant #7, the uncovered electrical box near well #12 inside Plant #7, the exposed wires in Plant #16 near well #33 that were used for a chart recorder, the open conduit connector cover at Plant #9-well #19 for the remote reading meter, the exposed wires for the chlorine booster pump at Plant #7-well #12 and the exposed wires at Plant #1-well #2, Plant #12-wells #22 and #32 .
   - Window repairs are required at Plant #6-well #27, and Plant #8-wells #15 and #17
   - Diesel containment structures were flooded leading to extreme corrosion and loss of containment volume at Plant #3-well #28, Plant #11-well #21, Plant #12-well #22, high service pump buildings at Plant #8 and Plant #12, Plant #13-well #23, and Plant #15-well #28.

8. Plant #7 is in need of interior cleaning to improve safety.

9. Tank, piping and equipment repairs are required at the following locations:

   - At Plant #7 the ground storage tank air vent had missing screening, resulting in numerous small insects floating in the tank. Please furnish a ground storage tank cleaning schedule. The Department recommends that the air vents on the ground storage tanks be checked periodically for screening.
   - The larger high service pump in Plant #12 has a leaking knife valve.
   - The sanitary seal of Plant #1-well #2 is damaged and should be replaced or repaired.
   - Plant #7-well #14 has a leaking air and vacuum release valve, and a meter that is difficult to read.

- There is a leaking line to the chlorine booster pump at Plant #3-well #25 and extreme corrosion on the small pipe before the check valve.
- Safety cages around connected linkages of manual auxiliary generators were not installed at all locations. This could be a serious safety problem under operating conditions.
- There is a muffler from an auxiliary generator venting its exhaust directly into a chlorination outdoor facility area; a potential safety/fire problem at Plant #7.

10. The auxiliary generators are not being run a minimum of four continuous hours per month under load.

11. There is no written auxiliary power plan in our records. Please provide this Department with one, and an assessment of the adequacy of current emergency power equipment by a professional engineer.

12. There are cross connections which need immediate correction:

- Air/vacuum release valve and bearing packing combined drain piping for the vertical turbines for wells #33 and #35. An air gap of two pipe diameters is required between the pipe outlet and the ground.
- Threaded raw sampling taps and/or hose bibbs without vacuum breakers at wells nos. 2, 6, 16, 19, 21, 22, 24, 28, Plant #8 high service pump #2, and at the eyewash station at the chlorine facility for Plant #12.
- Remove the fire hose connected to Plant 12.

13. There is no written valve maintenance program. Please provide this Department with one, and give data on who will be responsible and how many full-time people are assigned to carry it out.

14. There is no record of a fire hydrant maintenance program in our files. Please provide the Department with one and give data on how many full-time equivalent people are or have been assigned to it. This may be combined with the valve maintenance program.

15. There is no written backflow preventer testing program in our records. Please provide one and include data on: how many full-time equivalent people are assigned to it, who is responsible, how records are maintained, and an inventory by number and type.

16. There were areas of the distribution system found to be less than 0.2 mg/l free available chlorine. A series of complaints in the records also indicates that this is a recurring problem. Develop a specific verifiable written program of flushing and residual maintenance to ensure compliance with the rules and forward a copy to this Department.

17. There is an iron level of 1.2 mg/l in well #25, which is in excess of the 1.0 mg/l level acceptably treatable by phosphate sequestration. Please inform this Department as to the approximate time table for completion of the permitted modifications designed to correct this problem.

Furthermore, please inform the Department of any updates to the cross connection control program, and who is assigned the responsibility of ensuring that it is carried out.

You are required to correct the above deficiencies for the subject system and to provide a written statement to this Department no later than December 5, 1995 certifying that all listed deficiencies have been corrected, or listing specific reasonable dates for completion. If any items need further explanation, please contact this Department immediately.

Please provide the information, where available, for items marked unknown ("unk") on the sanitary survey report. When such unknown information is not readily available, please note this as "NA".

The following reference materials: Chapters 62-550, 62-551, 62-555,62-560, and 62-699 of the Florida Administrative Codes, (FAC), are available for a fee upon telephone request to Mrs. Kristine Sheets at (904) 947-3436.

If you have any questions concerning this letter, please feel free to contact this writer at (904) 947-3421.

Sincerely,

Mark A. Halverstadt
Environmental Specialist II
Environmental Health Engineering

MAH/mah
Enclosures
cc: L. Faircloth
R. Van Loon
PWS File (ss94-81.doc)

7

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

CERTIFIED Z 309 921 259

December 7, 1995

Southern States Utilities/Deltona
Attn. Mr. Daniel DeBaca, Chief Operator and
Mr. William M. Schrader, Lead Operator
255 Enterprise Road
Deltona, Fl 32725

Southern States Utilities/Deltona
PWS ID NUMBER: 3640287
Volusia County CWS

Dear Mr.'s DeBaca and Schrader,

This letter confirms my visit to the Deltona community public water system on December 29-30, 1994 in the presence of Dan DeBaca-Chief Operator, Bill Schrader-Lead Operator, and Ray Van Loon of HRS for the purpose of conducting a sanitary survey. The completed sanitary survey is enclosed for your reference and records.

Deficiencies were noted during the survey and were also determined from records on file in this office. On page six of the enclosed sanitary survey, deficiencies are listed with reference to the pertinent section of the Florida Administrative Code.

The following is a description of each noted deficiency:

1. Various maintenance problems and cross-connections were noted in an earlier preliminary copy of this report transmitted to you. They were corrected, according to our phone conversation. A routine plant maintenance and inspection program, including written plant and tanks cleaning and painting schedules is needed. Please inform this Department as to whether the tanks needing painting were actually painted, or when they will be scheduled for painting. Remove unused equipment instead of abandoning it in place. The fuel spill containment basins under the Diesel tanks must be leak tested, since some of them obviously did not hold water from the large amount of rain the area had received in months prior to the inspection.

2. The auxiliary generators are not being run a minimum of four continuous hours per month under load.

3. There is no written auxiliary power plan in our records. Please provide this Department with one, and an assessment of the adequacy of current emergency power equipment by a professional engineer.

4. There is no written valve maintenance program. Please provide this Department with one, and give data on who will be responsible and how many full-time people are assigned to carry it out.

Comp. There was not adequate lighting in the chlorine rooms at the following locations: Plant#4-well #4, Plant #10-well #20, Plant #11-well #21, and Plant #14-well #24 because of burned out light bulbs. The light switch at Plant #9-well #19 was broken and should be replaced.

6. There are openings to the following wells that pose potential contamination hazards:

Complete
- Air/vacuum release valve drain openings need screening at wells nos.: 1, 16; 20, 21, 24, and 32 (each of the last three also should be turned down), and nos. 28 and 34.
- Cover the vents at wells #24 and #25.
- Cap the blow-off valve on well #1.

Comp. ⊙ The air line level check openings need the proper plug seals at wells nos. 16, 22, 28, and 32.

7. The following facility repairs and maintenance are required:

OK • Repair the door vent to well room for Plant #15-well #28.

OK • Secure/repair or improve the fencing at Plants nos.: 6, 7, 14, and 15, to limit access and keep out potential vandals.

OK • Outside Plant #7, remove the heavily-rusted southside liquid petroleum gas tank that is no longer in use.

OK • Repair or replace the hinges in the master meter pit at Plant #7.

⊙ Repair, cover, or remove the exposed electrical wires in the master meter pit at the following locations: Plant #7, the uncovered electrical box near well #12 UNK inside Plant #7, the exposed wires in Plant #16 near well #3 that were used for a chart recorder, the open conduit connector cover at Plant #9-well #19 for the remote reading meter, the exposed wires for the chlorine booster pump at Plant #7-well #12 and the exposed wires at Plant #1-well #2, Plant #12-wells #22 and #32.

OK • Window repairs are required at Plant #6-well #27, and Plant #8-wells #15 and #17.

OK • Diesel containment structures were flooded leading to extreme corrosion and loss of containment volume at Plant #3-well #28, Plant #11-well #21, Plant #12-well #22, high service pump buildings at Plant #8 and Plant #12, Plant #13-well #23, and Plant #15-well #28.

OK 8. Plant #7 is in need of interior cleaning to improve safety.

9. Tank, piping and equipment repairs are required at the following locations:

OK • At Plant #7 the ground storage tank air vent had missing screening, resulting in numerous small insects floating in the tank. Please furnish the ground storage tank cleaning schedule. The Department recommends that the air vents on the ground storage tanks be checked periodically for screening.

OK • The larger high service pump in Plant #12 has a leaking knife valve.

Leak ⊙ The sanitary seal of Plant #1-well #2 is damaged and should be replaced or repaired.

OK ⊙ Plant #7-well #14 has a leaking air and vacuum release valve, and a meter that is difficult to read.

OK ⊙ There is a leaking line to the chlorine booster pump at Plant # -well #25 and extreme corrosion on the small pipe before the check valve.

NOT USED ⊙ Safety cages around connected linkages of manual auxiliary g ne ators were not installed at all locations. This could be a serious safety pr ble n under operating conditions.

NEW GEN ⊙ There is a muffler from an auxiliary generator venting its exh us directly into a chlorination outdoor facility area; a potential safety/fire prob m at Plant #7.

OK – 10. The auxiliary generators are not being run a minimum of four contin ou hours per month under load.

BRUCE —— 11. There is no written auxiliary power plan in our records. Please provi le his Department with one, and an assessment of the adequacy of current em rgency power equipment by a professional engineer.

12. There are cross connections which need immediate correction:

OK ⊙ Air/vacuum release valve and bearing packing combined drain p pir 3 for the vertical turbines for wells #33 and #35. An air gap of two pipe ian eters is required between the pipe outlet and the ground.

OK ⊙ Threaded raw sampling taps and/or hose bibbs without vacuum pre kers at wells nos. 2, 6, 16, 19, 21, 22, 24, 28, Plant #8 high service pump #2 and at the eyewash station at the chlorine facility for Plant #12.

OK ⊙ Remove the fire hose connected to Plant 12.

? —— (13.) There is no written valve maintenance program. Please provide this Department with one, and give data on who will be responsible and how many full-ti ne people are assigned to carry it out.

FIRE DEPT (14) There is no record of a fire hydrant maintenance program in our fil s. Please provide the Department with one and give data on how many full-time equ val nt people are or have been assigned to it. This may be combined with the valve mai ne ance program.

? (15) There is no written backflow preventer testing program in our rec rd . Please provide one and include data on: how many full-time equivalent people ar as igned to it, who is responsible, how records are maintained, and an inventory by nu mb r and type.

BRANCHES (16) There were areas of the distribution system found to be less than 0.2 mg/l free available chlorine. A series of complaints in the records also indic es that this is a recurring problem. Develop a specific verifiable written program f flushing and residual maintenance to ensure compliance with the rules and for ard a copy to this Department.

HAVE ESTABLISHED & CHECK DAILY

COMPLETE (17) There is an iron level of 1.2 mg/l in well #25, which is in excess o th 1.0 mg/l level acceptably treatable by phosphate sequestration. Please inform th s D partment as to the approximate time table for completion of the permitted modif cat ons designed to correct this problem.

10

Furthermore, please inform the Department of any updates to the cross connection control program, and who is assigned the responsibility of ensuring that it is carried out.

You are required to correct the above deficiencies for the subject system and to provide a written statement to this Department no later than December 5, 1995 certifying that all listed deficiencies have been corrected, or listing specific reasonable dates for completion. If any items need further explanation, please contact this Department immediately.

Please provide the information, where available, for items marked unknown ("unk") on the sanitary survey report. When such unknown information is not readily available, please note this as "NA".

The following reference materials: Chapters 62-550, 62-551, 62-555, 62-560, and 62-699 of the Florida Administrative Codes, (FAC), are available for a fee upon telephone request to Mrs. Kristine Sheets at (904) 947-3436.

If you have any questions concerning this letter, please feel free to contact this writer at (904) 947-3421.

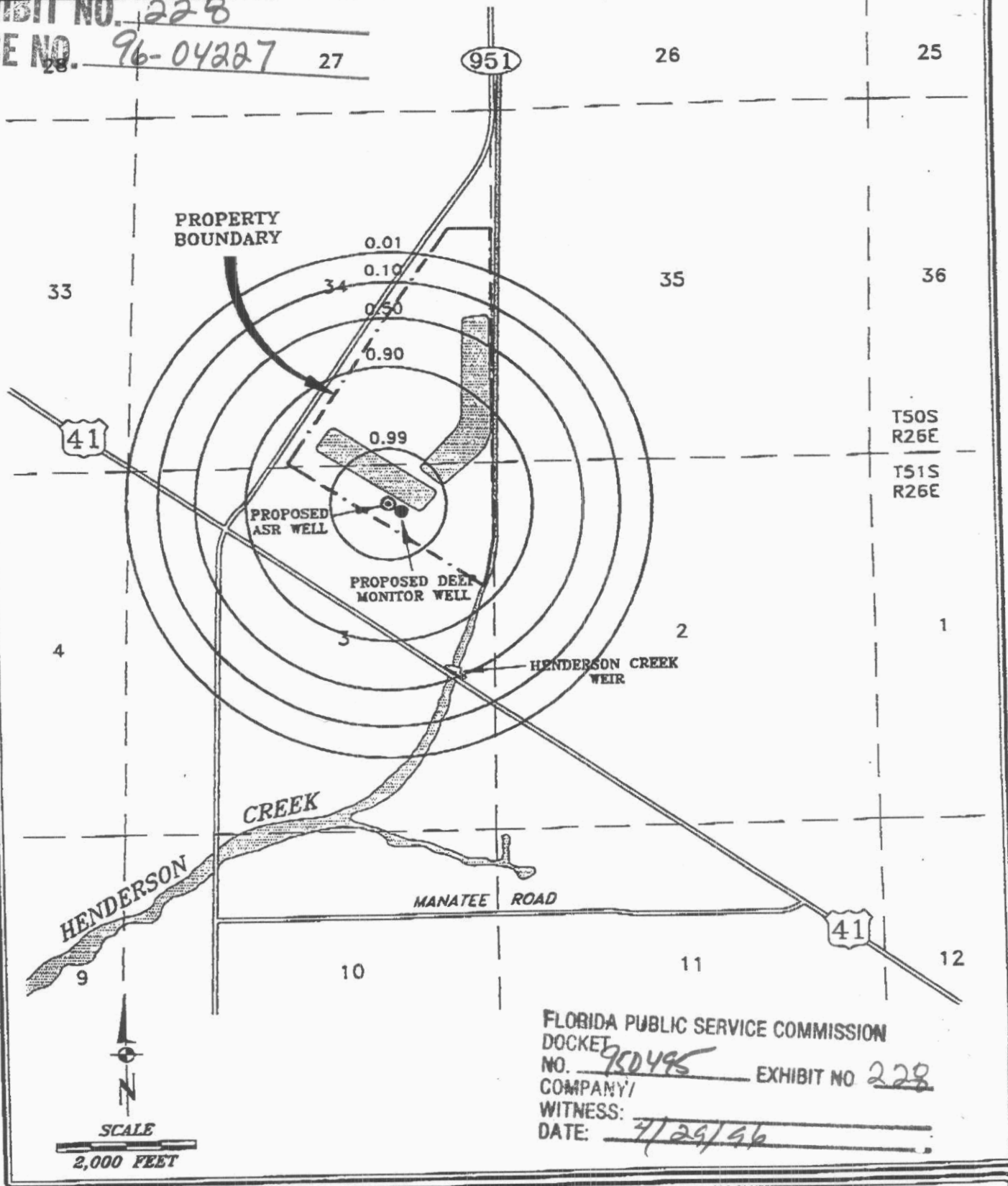
Sincerely,

Mark A. Halverstadt
Environmental Specialist II
Environmental Health Engineering

MAH/mah
Enclosures
cc: L. Faircloth
R. Van Loon
PWS File (ss94-81.doc)

11

DOCKET 950495-WS
EXHIBIT NO. 228
CASE NO. 96-04227



FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 950495 EXHIBIT NO 228
COMPANY/
WITNESS:
DATE: 7/29/96

ViroGroup

AIR • WATER • SOIL TECHNOLOGY

DRN BY: CAM DWG. NO. A-013183KB-5 DATE: 4/25/96
PROJECT NAME: SSU – MARCO ASR NUMBER: 01-03183.00

HORIZONTAL EXTENT OF INJECTED WATER, AS C/Co, IN THE LOWER HAWTHORN BASAL TRANSMISSIVE UNIT AFTER INJECTING AT A RATE OF 2.5 MILLION GALLONS PER DAY FOR 1,000 DAYS. C/Co OF 0.4 INDICATES 40 PERCENT INJECTED, 60 PERCENT NATIVE WATER.