Case Nos. 1D98-0713 and 1D98-0727
Florida Water Services Corporation vs. Florida Public Service Commission ("PSC");
Sugarmill Woods Civic Association, Inc. vs. Southern States Utilities, Inc. and the PSC
vs. Joseph J. DeRouin, et al.
PSC Docket No. 920199-WS

Charles L. Sweat

Late File Exhibit #97

Docket No. 920199-WS

Containing

Hartman & Associates Preliminary report on Putnman County Systems - 126 pages

PUTNAM COUNTY
UTILITY SYSTEM ANALYSIS

PRELIMINARY

Prepared for:
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October 1992

PUTNAM COUNTY
UTILITY SYSTEM ANALYSIS

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UTILITY SYSTEM ANALYSIS

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SECTION 1

SECTION 1
INTRODUCTION

1.1 OBJECTIVE

The purpose of this report is to provide Southern States Utilities (SSU), Inc. with a plan to construct facility improvements to the current water supply, storage and distribution system necessary to correct existing deficiencies, water quality violations to and serve existing and future demand.

Many of the Putnam County drinking water systems currently have noted problems with water quality or other facility deficiencies. Recent discussions and correspondence with the local FDER office on correcting the above referenced problems has prompted the preparation of this report.

1.2 BACKGROUND

Through the years, SSU has purchased or constructed water supply, storage, treatment and distribution systems for several small developments in Putnam County. SSU currently owns and operates thirteen (13) water supply, storage, treatment and distribution systems in Putnam County. However, seven (7) of these facilities have difficulties and were identified for inspection and planning. Figure 1-1 shows the approximate location of these systems. Many of these facilities currently have problems with water quality or other facility deficiencies. Unfortunately, many of these system serve less than 100 customers and therefore have a very small rate base. Due to the close proximity of these water supplies to the St. Johns River, many of the wells have had recent problems with water quality exceeding the FDER and Federal limits, such as high chlorides and total dissolved solids (TDS). In addition, many of the water supply wells are shallow in depth and have had problems with high levels of iron and manganese, typical of shallow wells.

1.3 SCOPE OF SERVICES

The scope of services for this project considered the following five (5) tasks:

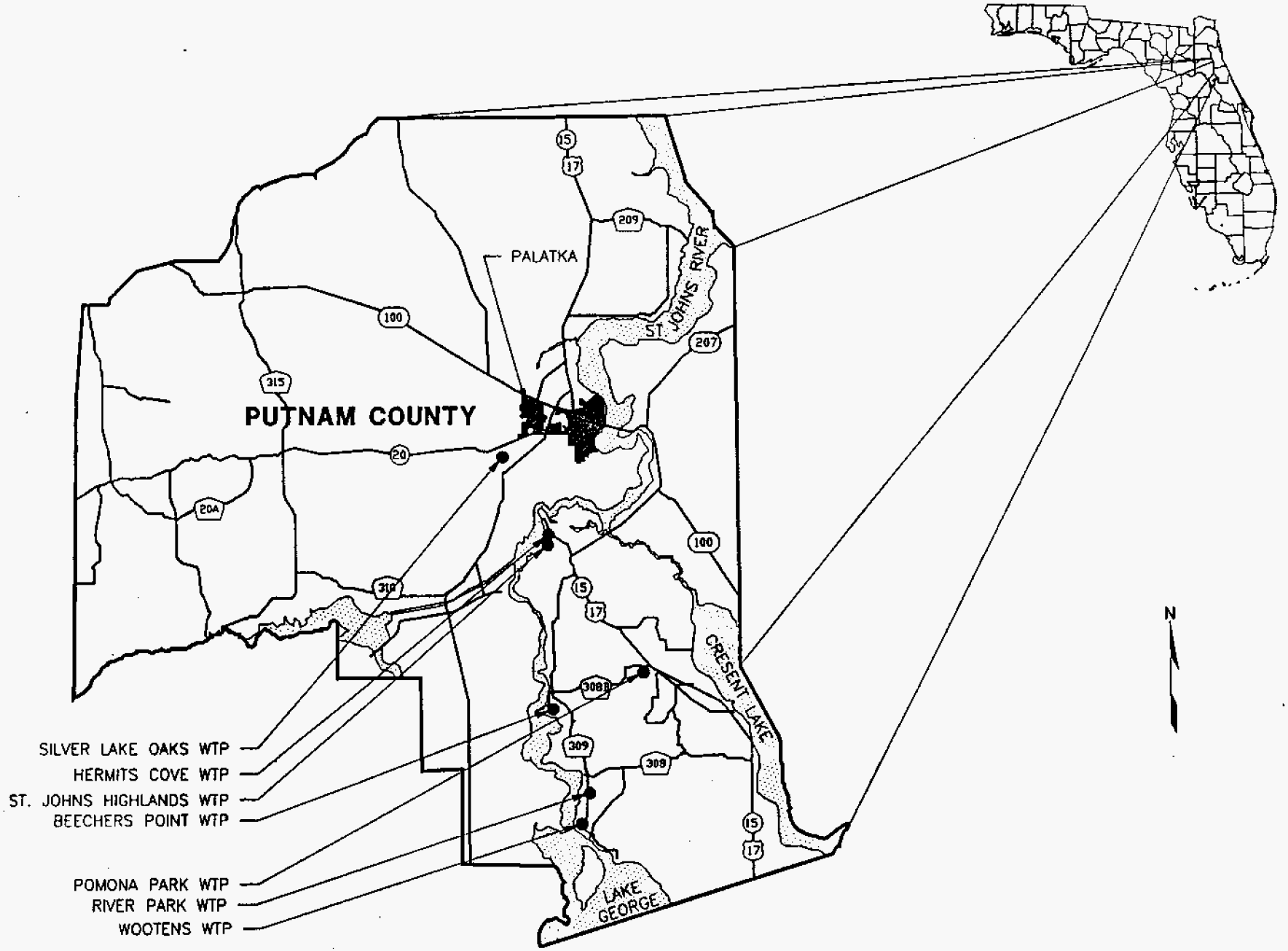

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FIGURE 1-1

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LOCATION MAP

- Collect and review all pertinent water system data.
- Perform site visits and inspections of each facility.
- Prepare a well illustrated draft report describing the findings and recommendations for improvements.
- Meet with SSU staff to review the draft report.
- Prepare final report.

SECTION 2

SECTION 2

EXISTING FACILITIES

2.1 GENERAL

This section will review the existing facilities at the water systems inspected during field inspections. This review will consist of describing each water treatment plant facilities, their respective service area, number of active customers and current mode of operation.

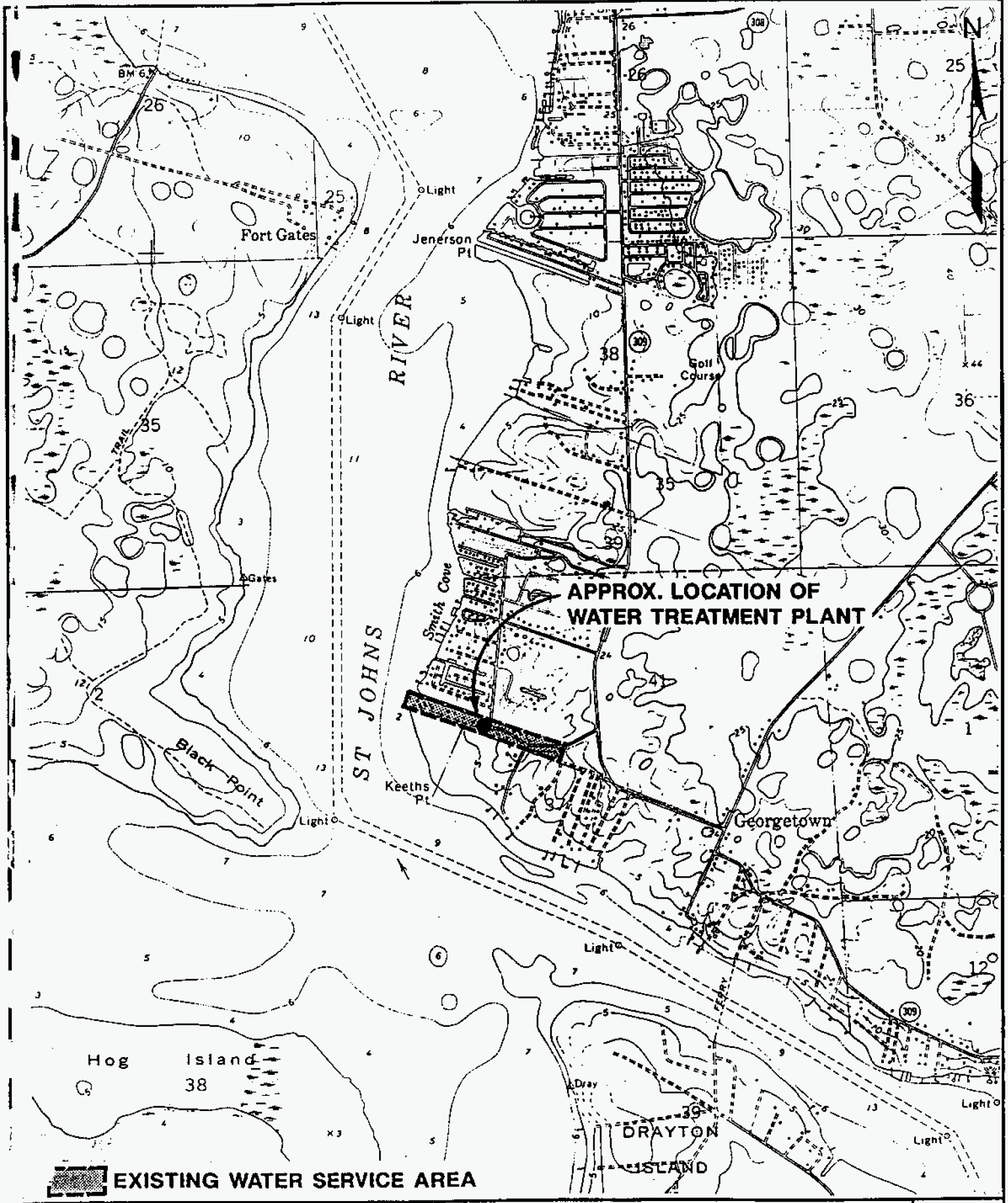
2.2 WATER PLANT FACILITIES AND OPERATION DESCRIPTION

2.2.1 Wootens

The Wootens water system is located in the southern part of Putnam County on the eastern banks of the St. Johns River just west of County Road 309. Figure 2-1 shows the general location of the Wootens water plant and the Wootens service area. The design flow for the Wootens water supply and distribution system is approximately 60,000 gpd. Recent records show that the average daily demand on this system is approximately 4,000 gpd and the system currently has 21 active customers.

The existing water supply, treatment and storage facilities consist of one (1) two-inch water supply well, two (2) well pumps and one (1) 250 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps drawing water supply from the well and pump directly into the hydropneumatic tank. The raw water is chlorinated prior to discharge into the tank. The distribution system is fed from the hydropneumatic tank. Figure 2-2 illustrates the existing facilities at the Wootens WTP.

Recent FDER inspections for water quality have noted levels in excess of the MCL's for Color, odor and turbidity. The laboratory results for water quality indicate that the turbidity levels average 16.8 NTU, the color levels average 26 CU and the odor levels average 5.75. A copy of the correspondence with FDER are provided in Appendix A.



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WOOTENS WTP

FIGURE 2-1

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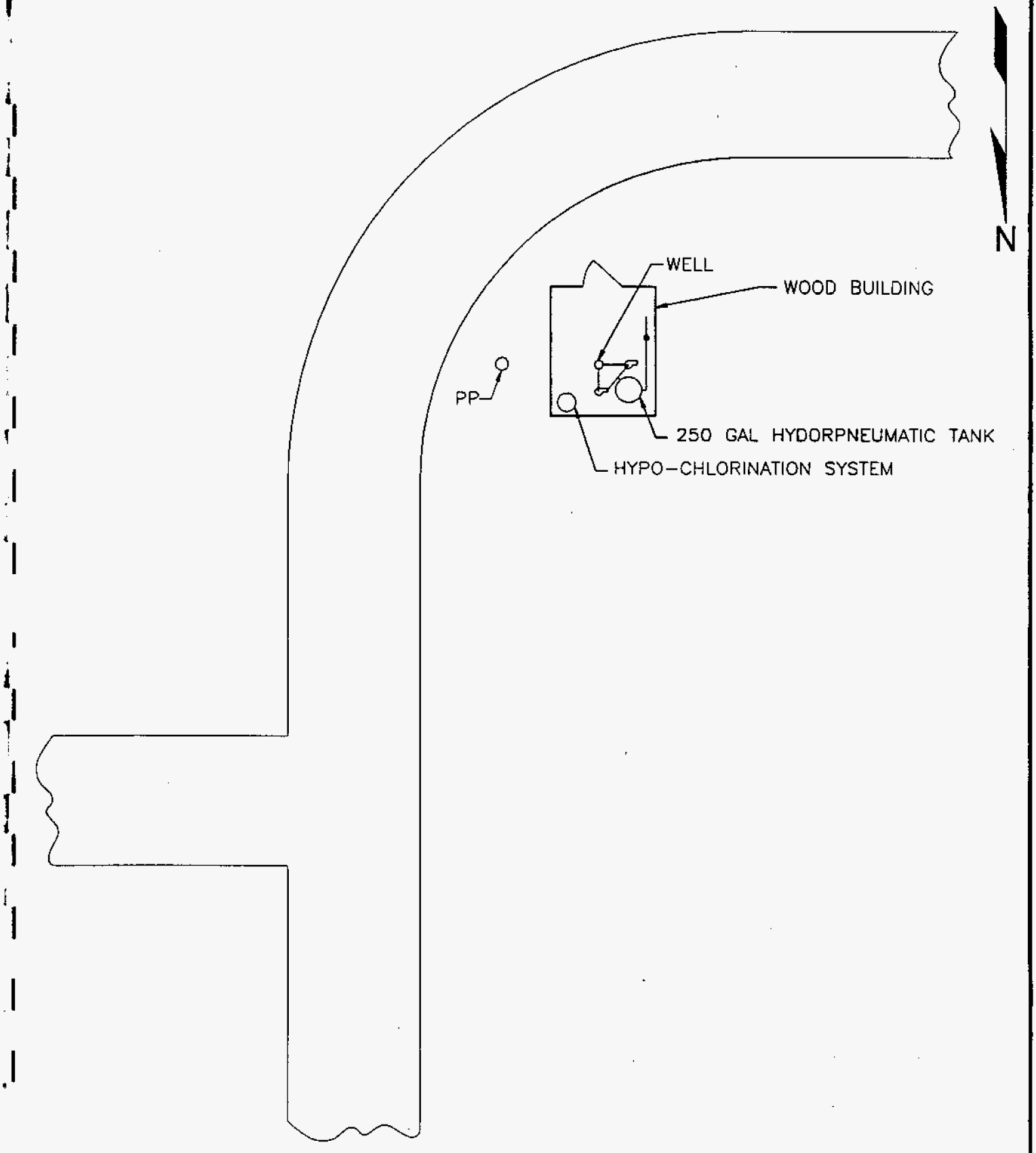

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WOOTENS WTP
SITE PLAN AND FACILITIES

FIGURE 2-2

2.2.2 Silver Lake Oaks

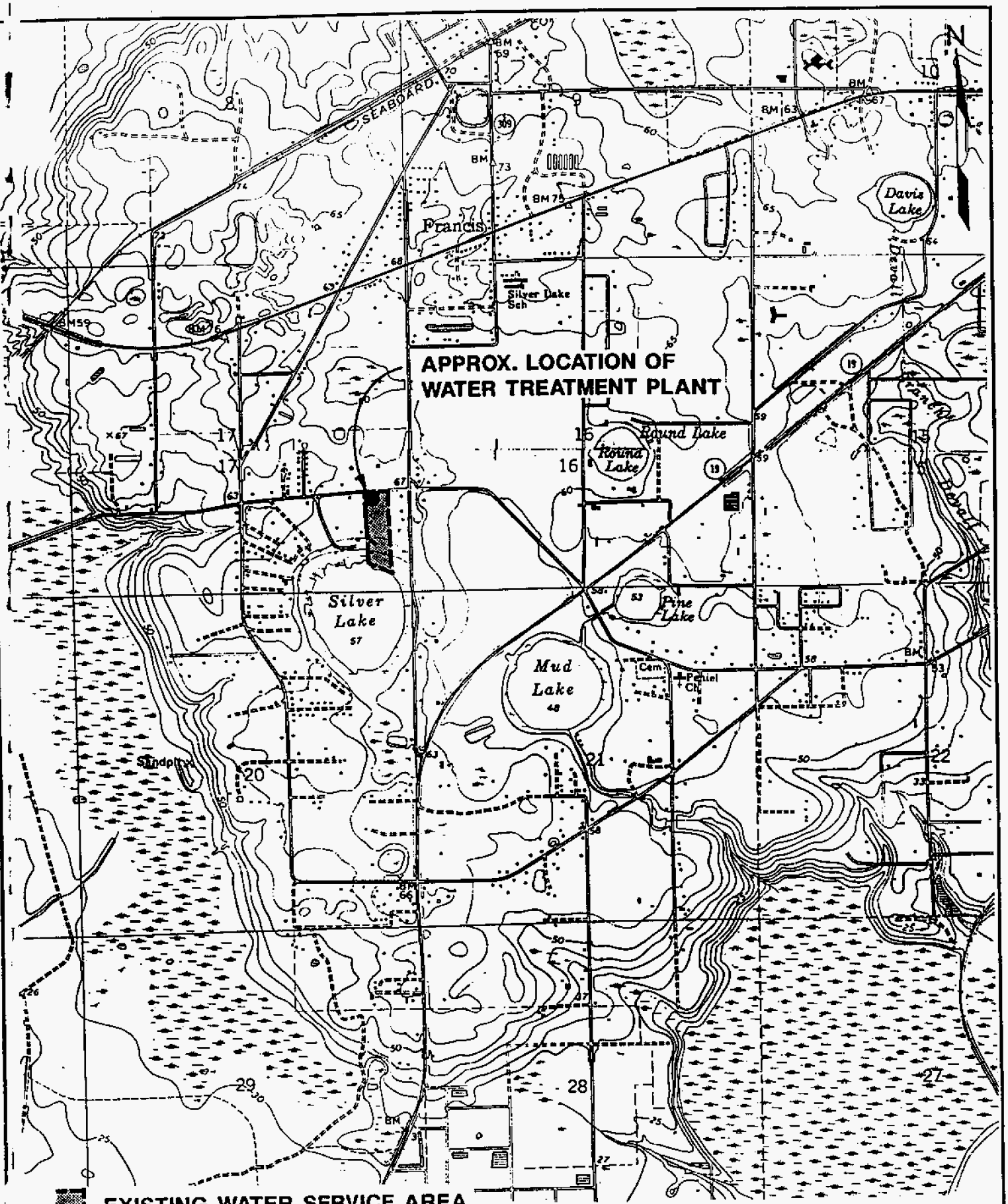
The Silver Lake Oaks water system is located in the central part of Putnam County, west of the City of Palatka on Newton Road. Figure 2-3 shows the general location of the Silver Lake Oaks water plant and the Silver Lake Oaks service area. The design flow for the Silver Lake Oaks water supply and distribution system is approximately 72,000 gpd. Recent records show that the average daily demand on this system is approximately 9,000 gpd, and the system currently has 30 active connections.

The existing water supply, treatment and storage facilities consist of two (2) four-inch water supply wells, two (2) submersible well pumps, two (2) 6,000 gallon storage tanks with an aerator, two (2) 5 hp high service pumps and one (1) 2,000 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the ground storage tanks. The two (2) ground storage tanks are operated in series. The first tank has the aerator and receives the raw ground water. The second tank receives water from the first and is the source of water for the high service pumps. The raw water is chlorinated prior to discharge into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-4 illustrates the existing facilities at the Silver Lake Oaks WTP.

The system is fairly new and in good condition. This system has had previous problems with high levels of iron and manganese in the raw water. Recent reinspection analysis of the raw water have cleared the system from noted FDER quality problems. A copy of the correspondence with FDER is provided in Appendix B.

2.2.3 St. Johns Highlands

The St. Johns Highlands water system is located in the central part of Putnam County, just south of Murphy Creek and east of the St. Johns River off State Road 309 C. Figure 2-5 shows the general location of the St. Johns Highlands water plant and the St. Johns Highlands service area. The design flow for the St. Johns Highlands water supply and distribution system is approximately 72,000 gpd. Recent records show that the average daily demand on this system is approximately 12,000 gpd and the system



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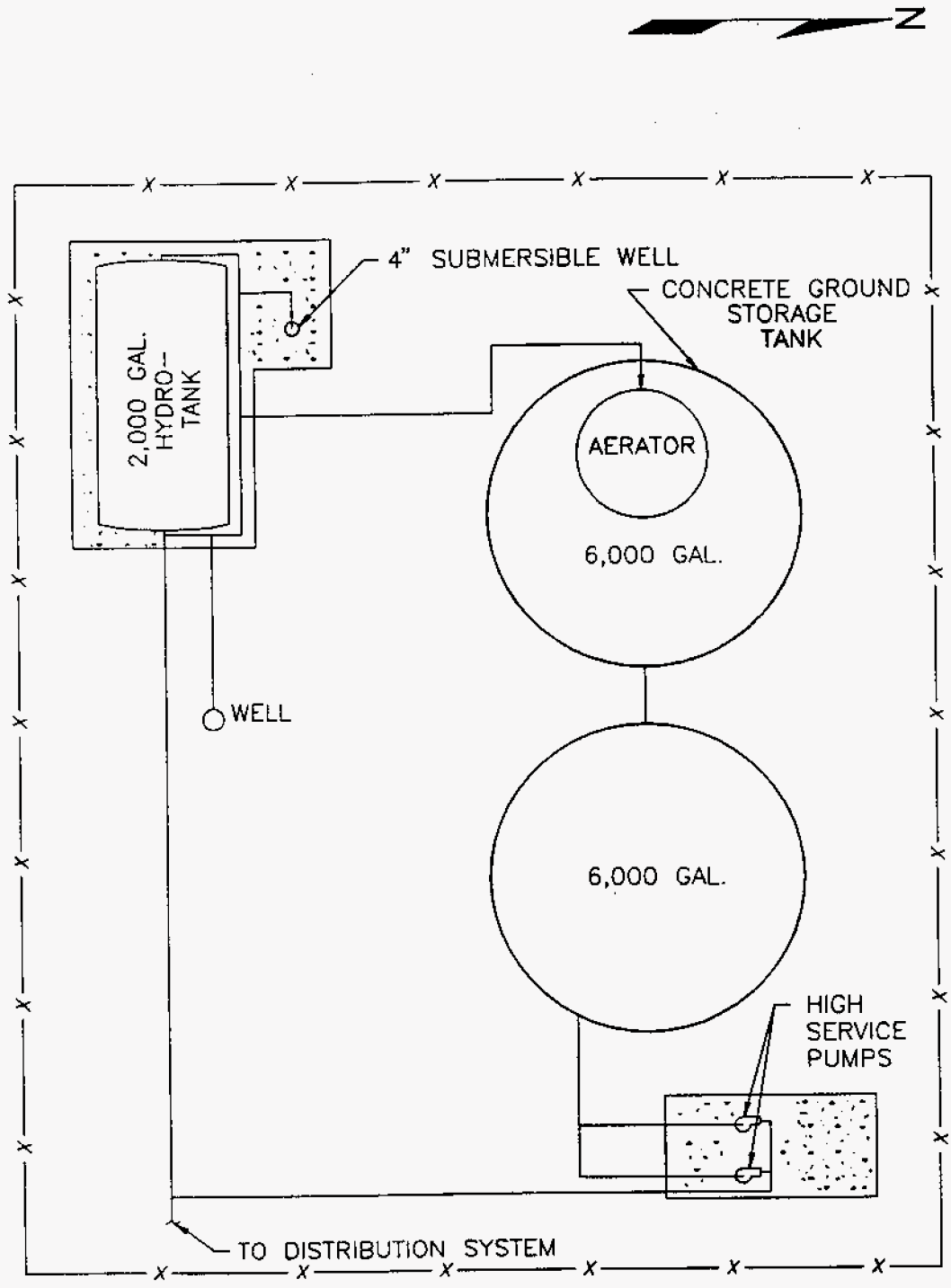
SILVER LAKE OAKS WTP

FIGURE 2-3



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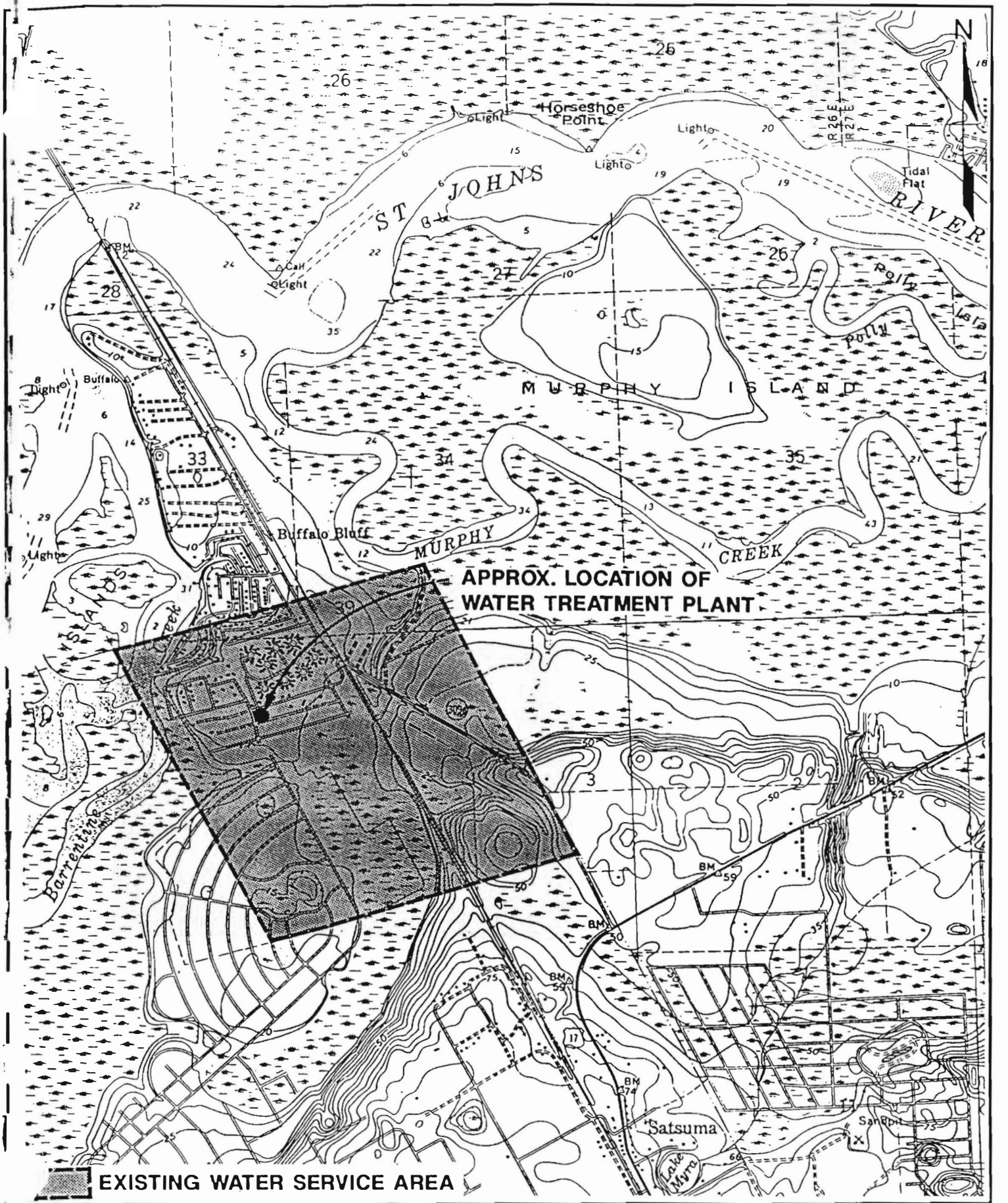
SILVER LAKE OAKS WTP
SITE PLAN AND FACILITIES

FIGURE 2-4



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ST. JOHNS HIGHLANDS WTP

FIGURE 2-5

currently has 81 active customers. Recently, the system has been receiving all of its water supply through an interconnect with the Hermits Cove water system.

The existing water supply, treatment and storage facilities consist of two (2) water supply wells, two (2) submersible well pumps, two (2) 6,000 gallon storage tanks with an aerator, two (2) 5 hp Peerless high service pumps and one (1) 2,000 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the ground storage tanks. The two (2) ground storage tanks are operated in series. The first tank has the aerator and receives the raw ground water. The second tank receives water from the first and is the source of water for the high service pumps. The raw water is chlorinated prior to discharge into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-6 illustrates the existing facilities at the St. Johns Highlands WTP.

The system is old and in fair condition. This system has had previous problems with some household cleaning items, such as insects in the ground storage tank and an un-sealed hatch on the storage tank noted in recent FDER inspection reports. Recent water quality data has shown levels in excess of the MCL's for both chlorides and TDS. These levels were noted from laboratory results only, not be FDER. The system is currently off-line until the seal around the storage tank hatch can be refurbished.

2.2.4 Beechers Point

The Beechers Point water system is located in the southern part of Putnam County, just north of Little Lake George and east of the St. Johns River off Beechers Point Drive. Figure 2-7 shows the general location of the Beechers Point water plant and the Beechers Point service area. The design flow for the Beechers Point water supply and distribution system is approximately 122,000 gpd. Recent records show that the average daily demand on this system is approximately 24,000 gpd and the system currently has 37 active customers.

The existing water supply, treatment and storage facilities consist of two (2) four-inch water supply wells, two (2) submersible well pumps, one (1) 40,000 gallon storage

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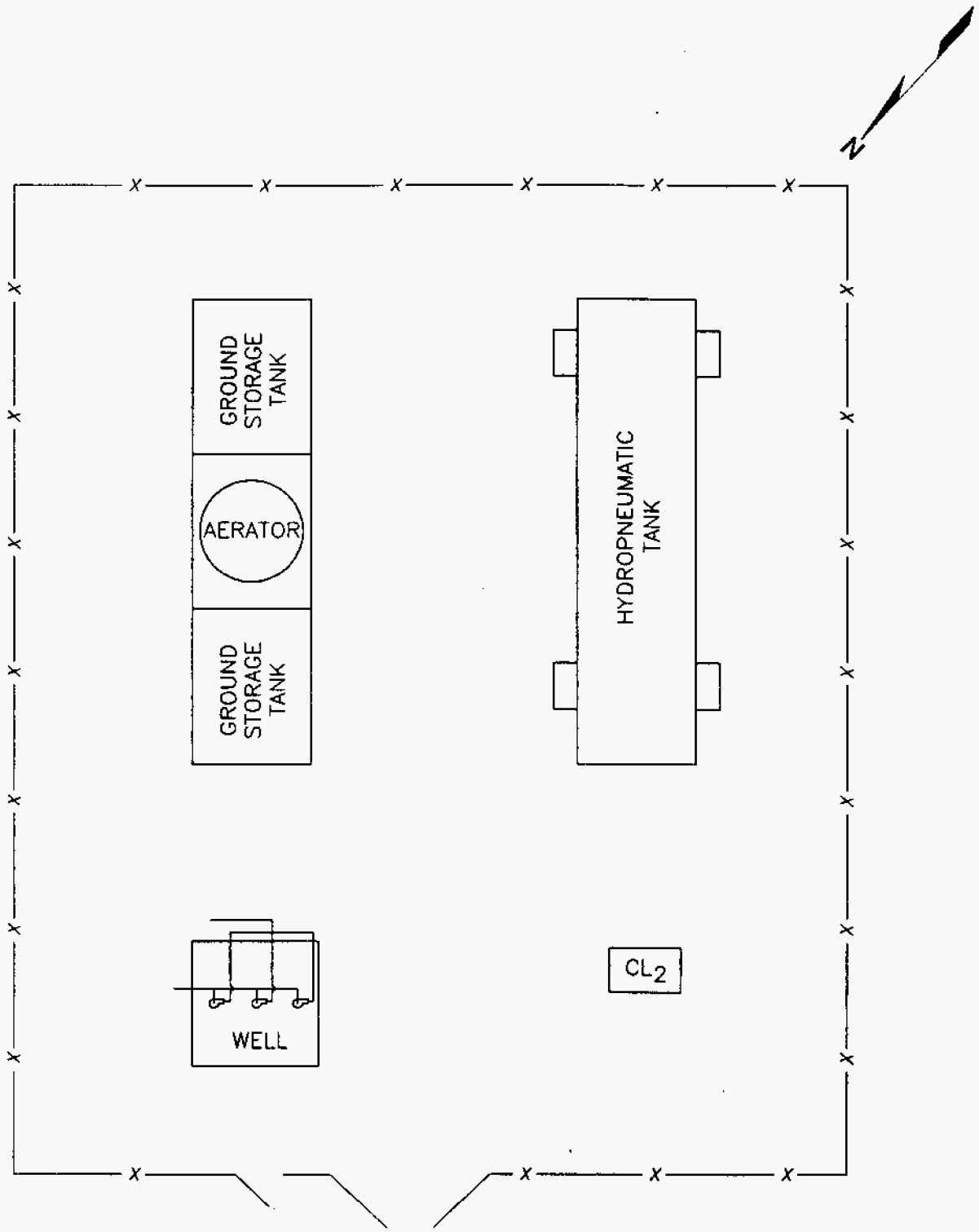

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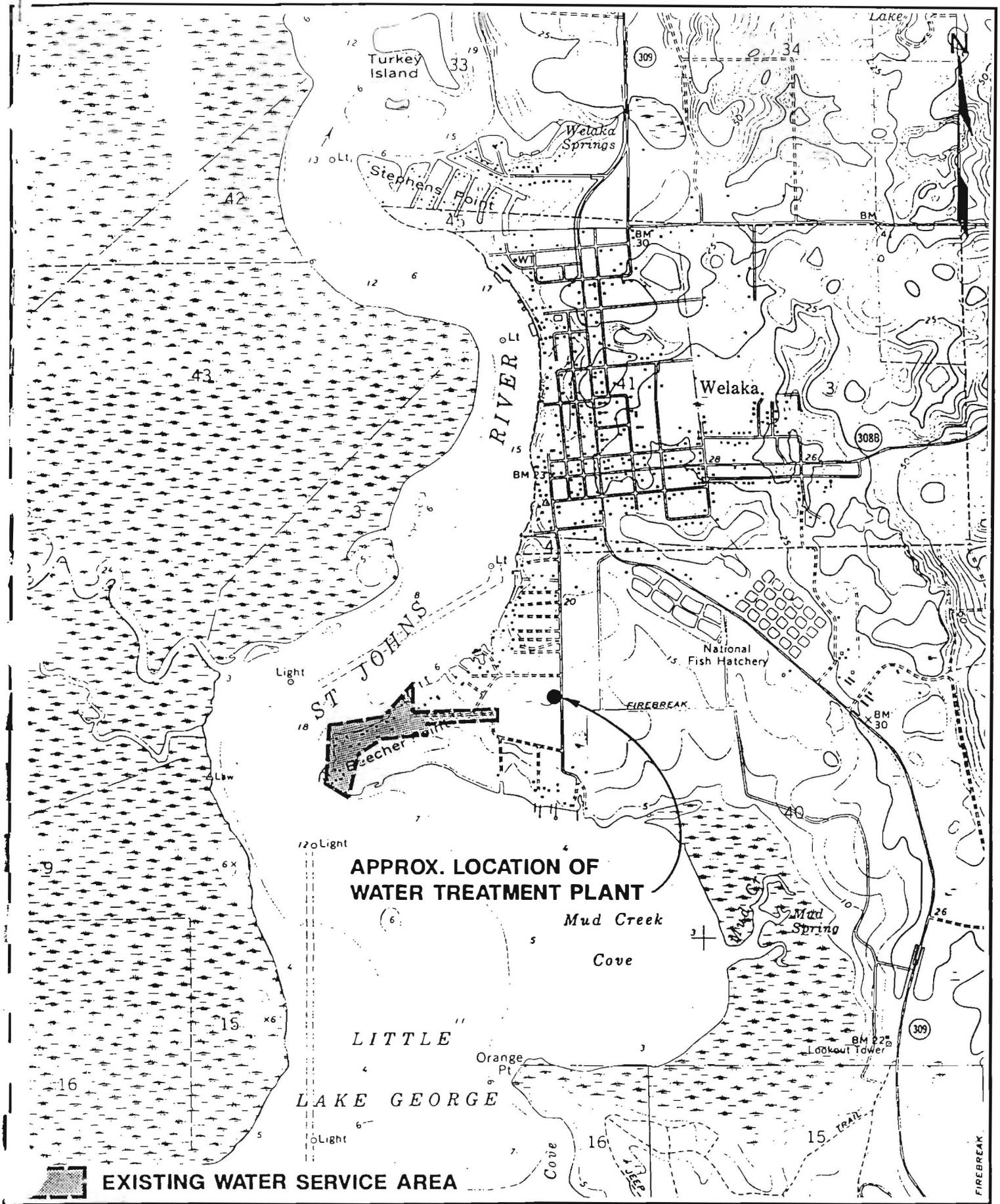
ST JOHNS HIGHLANDS
SITE PLAN AND FACILITIES

FIGURE 2-6



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BEECHERS POINT WTP

FIGURE 2-7

tank with an aerator, two (2) 7.5 hp high service pumps and one (1) 4,000 gallon hydropneumatic pressure tank. The system, when on-line operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the aerator at the ground storage tank. The high service pumps pull the raw water from the ground storage tank and pump into the hydropneumatic tank. The raw water is chlorinated prior to discharge into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-8 illustrates the existing facilities at the Beechers Point WTP.

Overall, the plant is in good condition. This system has had previous problems with high levels of sodium (Na), chlorides (Cl) and total dissolved solids (TDS) in the raw water. The laboratory results for water quality indicate that the sodium levels average 190 mg/l, the chloride levels average 352 mg/l and the TDS levels average 904 mg/l. A copy of the correspondence with FDER is provided in Appendix D. In addition, several household items have been noted during the inspections by FDER staff. These items include; rust on the ground storage tank underneath the aerator and sulfur bacteria growth on the tank. Low chlorine residuals have also been noted in parts of the distribution system.

2.2.5 Pomona Park

The Pomona Park water system is located in the south eastern part of Putnam County, south of Lake Broward off of State Road 17 in the City of Pomona Park. Figure 2-9 shows the general location of the Pomona Park water plant and the Pomona Park service area. The design flow for the Pomona Park water supply and distribution system is approximately 187,000 gpd. Recent records show that the average daily demand on this system is approximately 29,000 gpd and the system currently has 175 active customers.

The existing water supply, treatment and storage facilities consist of two (2) four-inch water supply wells, two (2) well pumps (one submersible and one vertical turbine) and one (1) 5,000 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the hydropneumatic tank. The raw water is chlorinated prior to discharge

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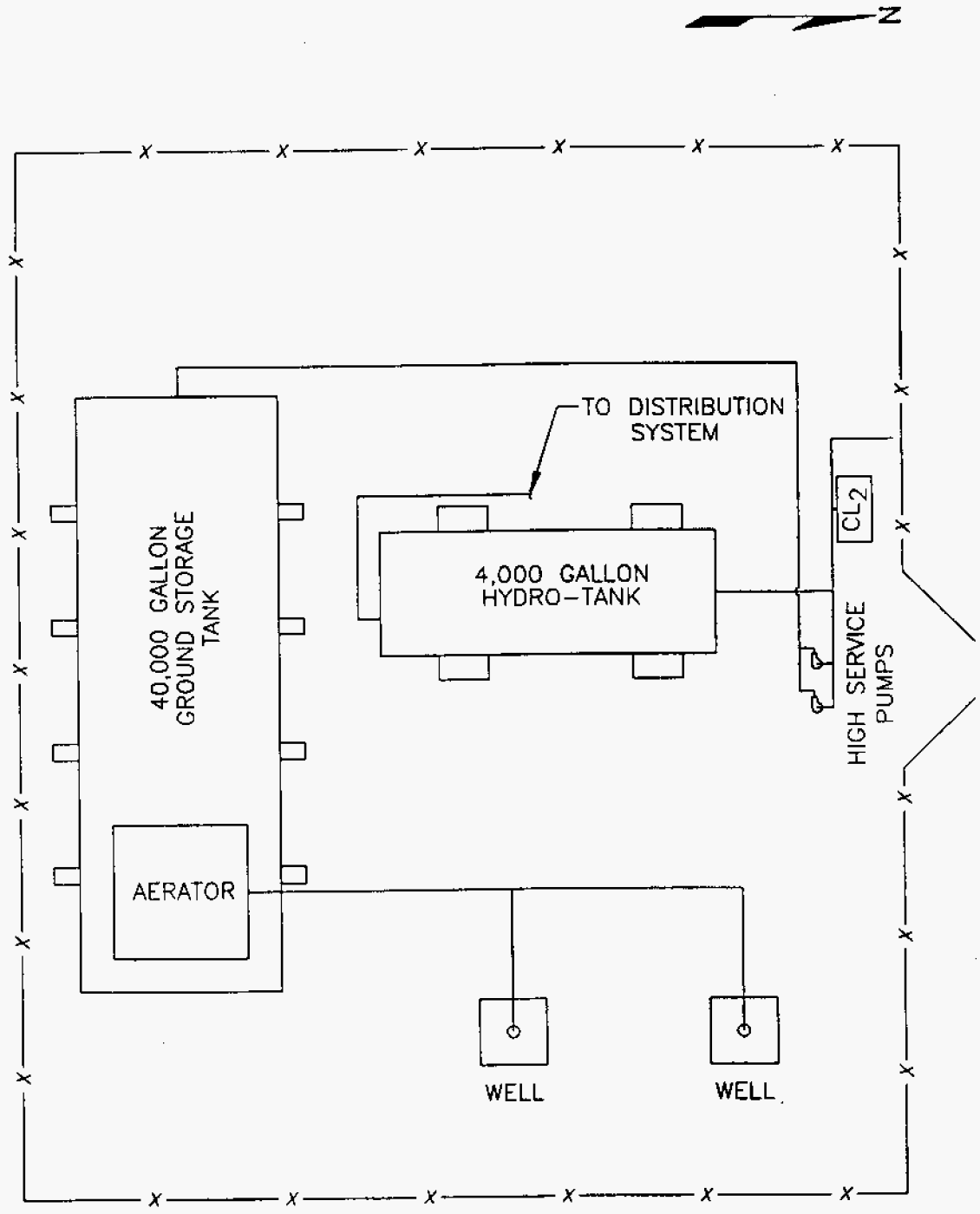

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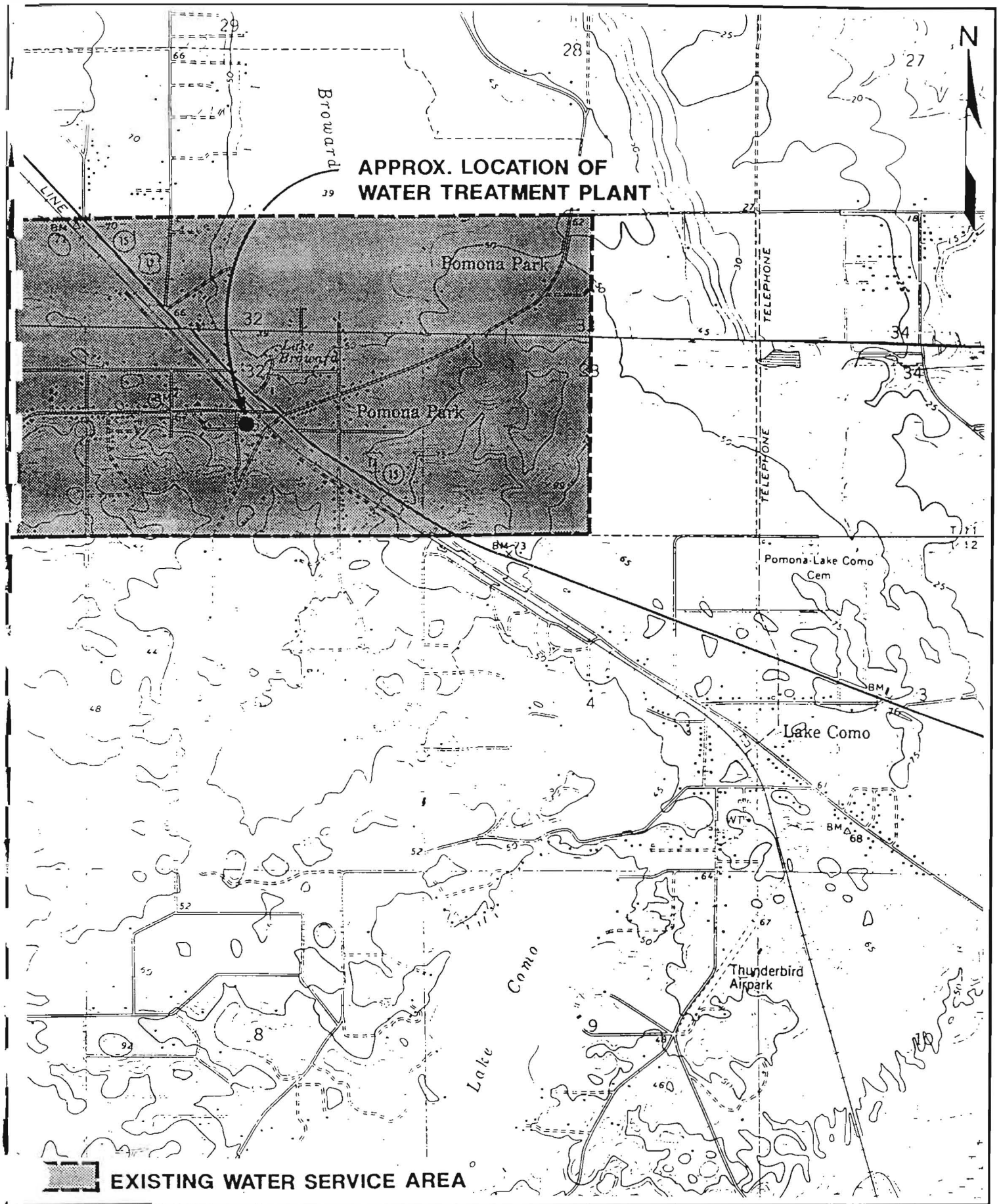
BEECHERS POINT WTP
SITE PLAN AND FACILITIES

FIGURE 2-8



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POMONA PARK WTP

FIGURE
2-9

into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-10 illustrates the existing facilities at the Pomona Park WTP.

This system has had previous problems with high levels of Manganese (Mn) in the raw water. The laboratory results for water quality indicate that the manganese levels average 0.060 mg/l. A copy of the correspondence with FDER is provided in Appendix E.

2.2.6 Hermits Cove

The Hermits Cove water system is located in the central part of Putnam County, west of Murphy Creek and Murphy Island and east of the St. Johns River on County Road 309 B. Figure 2-11 shows the general location of the Hermits Cove water plant and the Hermits Cove service area. The design flow for the Hermits Cove water supply and distribution system is approximately 187,000 gpd. Recent records show that the average daily demand on this system is approximately 41,000 gpd and the system currently has 180 active customers.

The existing water supply, treatment and storage facilities consist of two (2) water supply wells, two (2) well pumps, one (1) 40,000 gallon storage tank, two (2) 7.5 hp high service pumps and one (1) 4,000 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the ground storage tank. The high service pumps pull the raw water from the ground storage tank and pump into the hydropneumatic tank. The raw water is chlorinated prior to discharge into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-12 illustrates the existing facilities at the Hermits Cove WTP.

The system is old and some plant components are in poor condition. A new emergency power generator was recently installed. This system has had previous problems with high levels of Manganese (Mn) and total dissolved solids (TDS) in the raw water. The water quality laboratory results indicate the manganese levels average 0.48 mg/l and the TDS levels average 731 mg/l.

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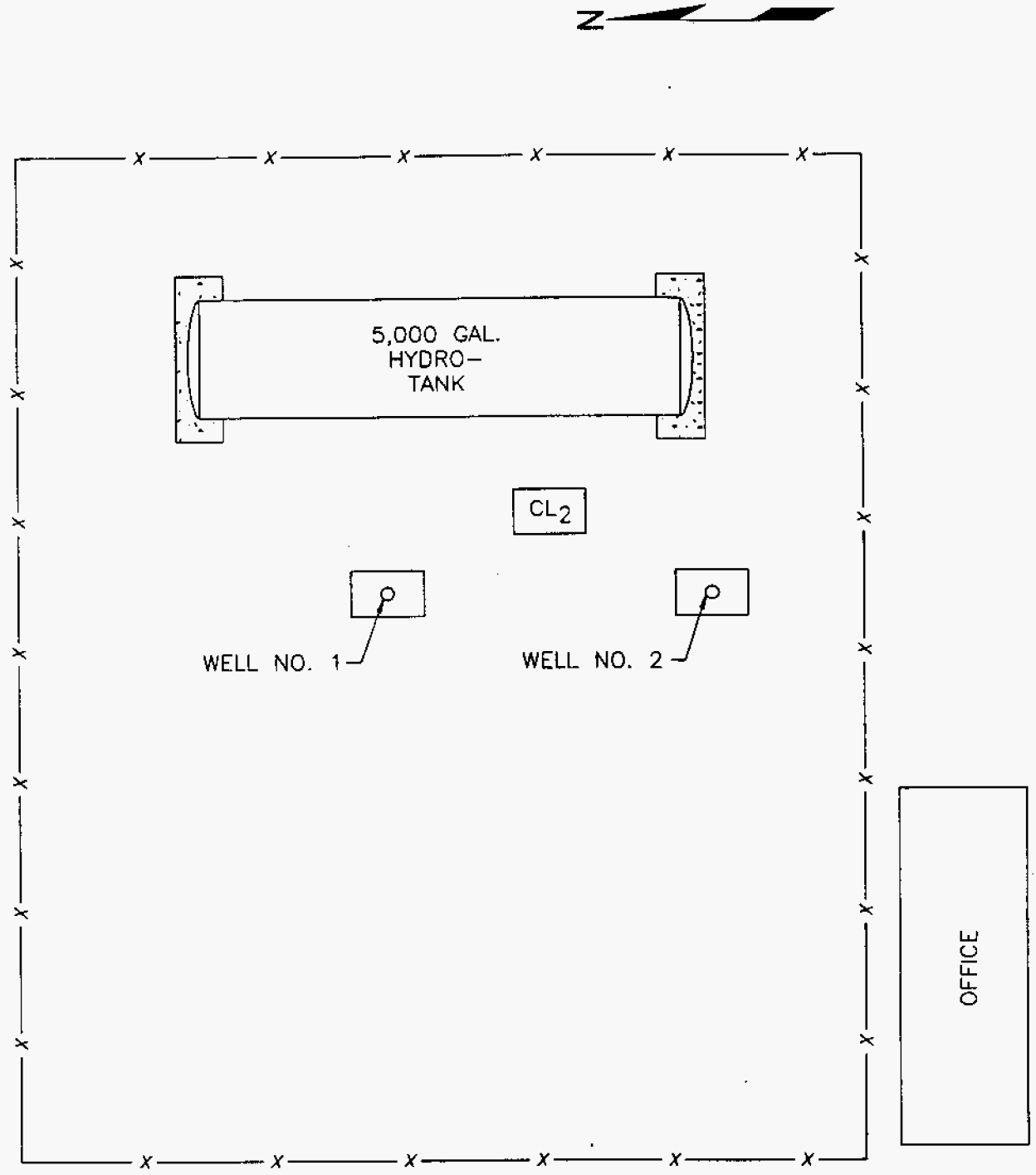

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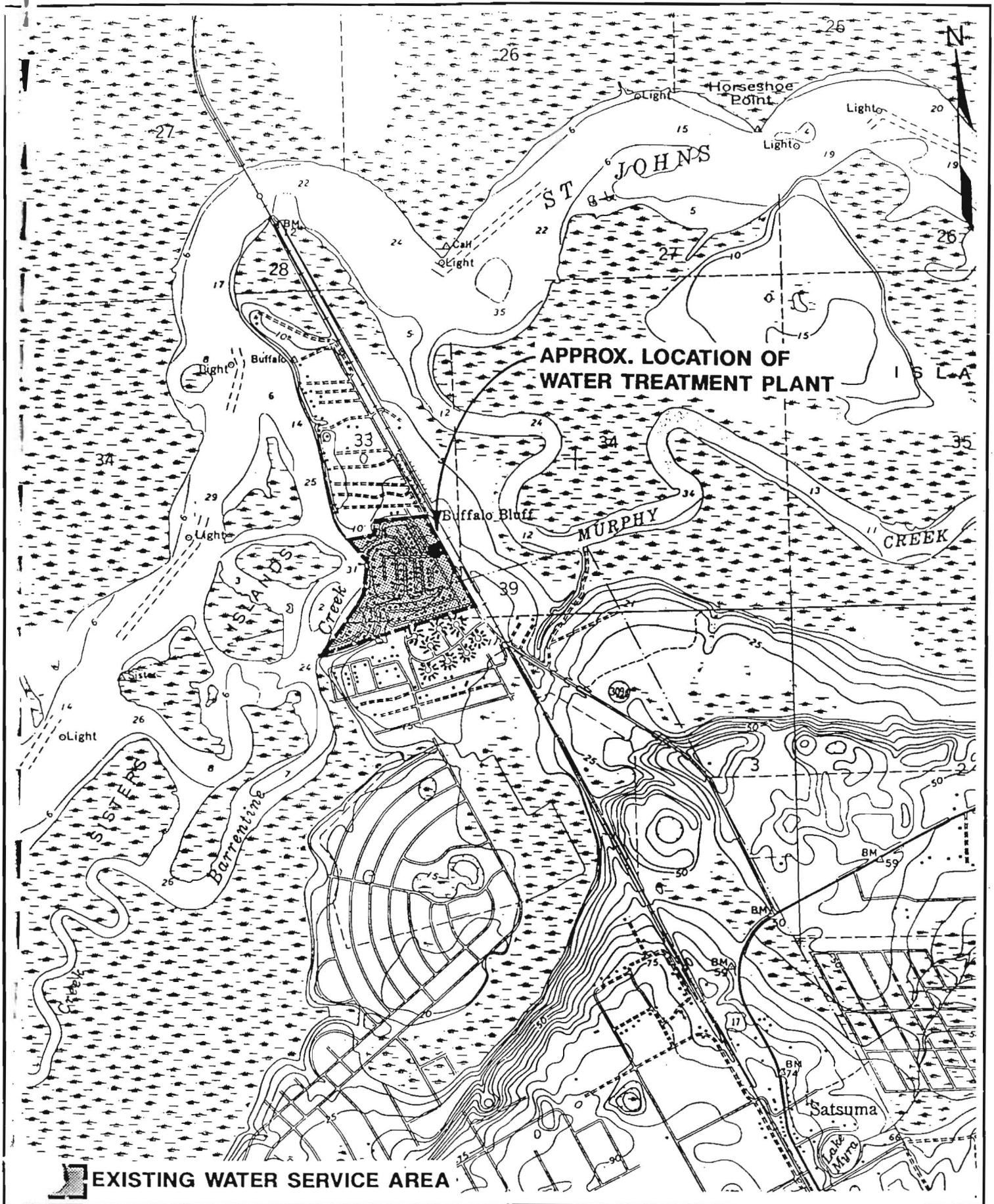
POMONA PARK WTP
SITE PLAN AND FACILITIES

FIGURE 2-10



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HERMITS COVE WTP

FIGURE
2-11

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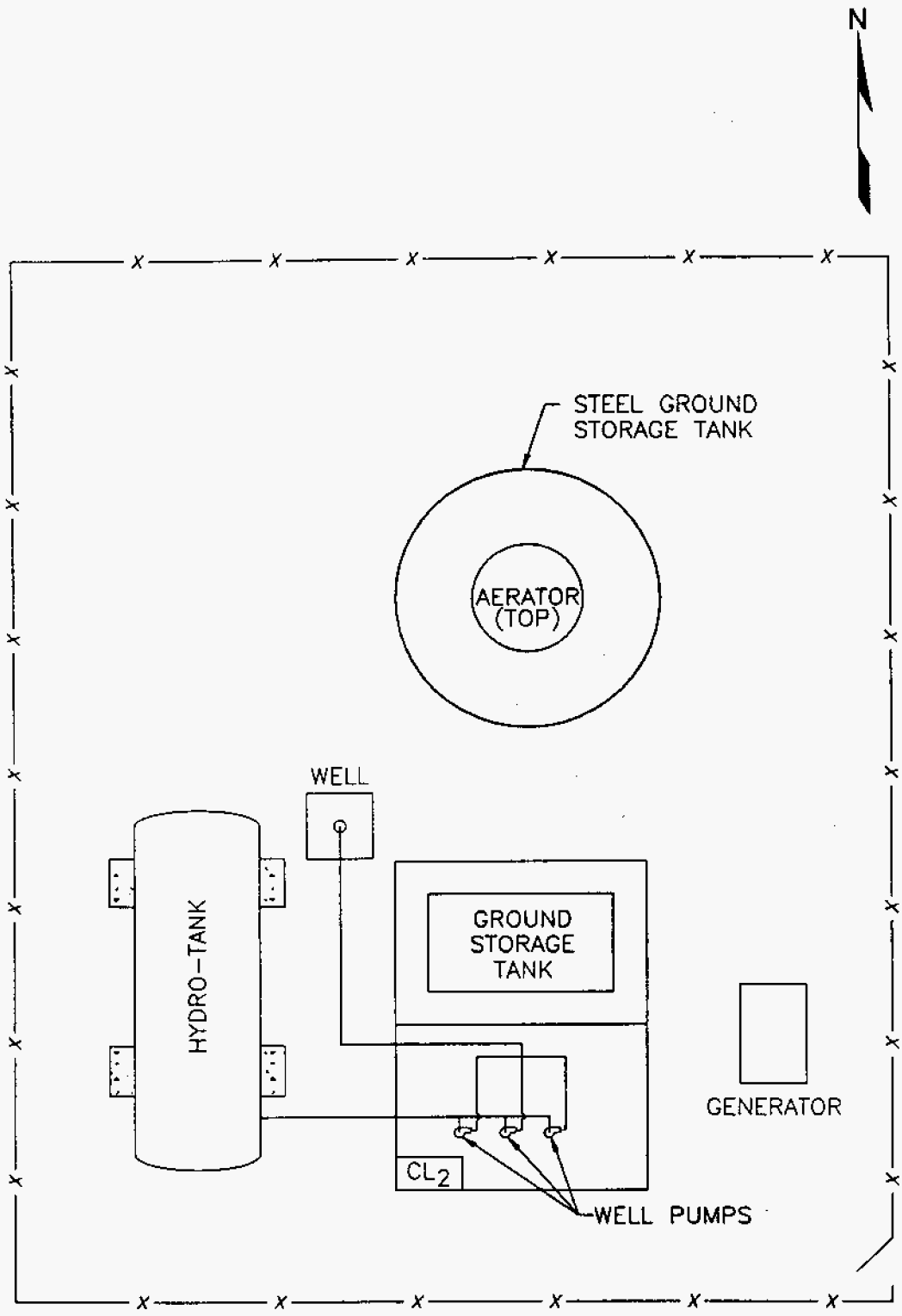

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HERMITS COVE
SITE PLAN AND FACILITIES

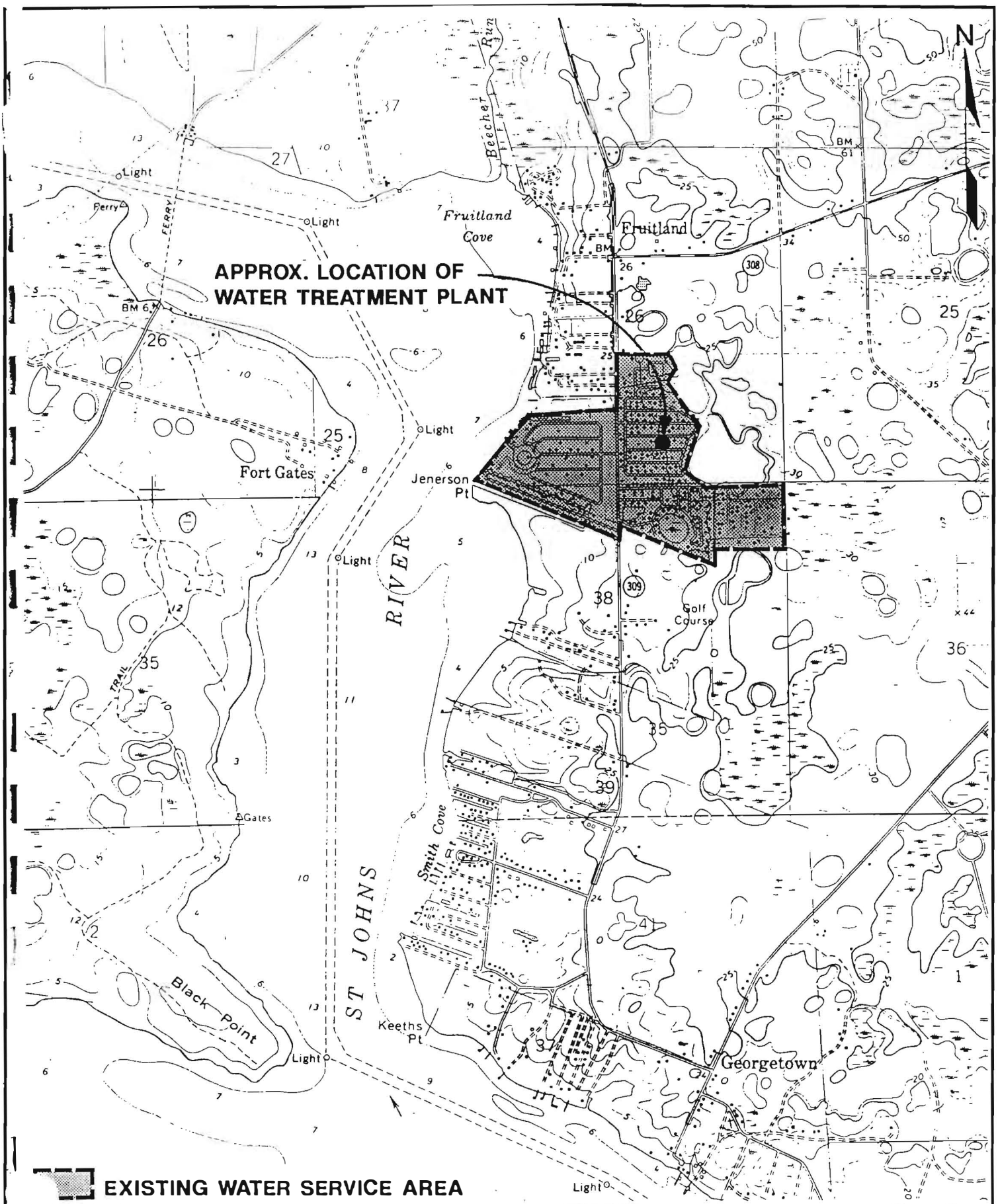
FIGURE 2-12

2.2.7 River Park

The River Park water system is located in the southern part of Putnam County, west of Lake Maxine and east of the St. Johns River on County Road 309. Figure 2-13 shows the general location of the River Park water plant and the River Park service area. The design flow for the River Park water supply and distribution system is approximately 370,000 gpd. Recent records show that the average daily demand on this system is approximately 26,000 gpd and the system currently has 363 active customers.

The existing water supply, treatment and storage facilities consist of two (2) water supply wells, two (2) well pumps, one (1) 40,000 gallon storage tank with an aerator, two (2) 7.5 hp high service pumps and one (1) 4,000 gallon hydropneumatic pressure tank. The system currently operates by one of the two (2) well pumps draw water supply from their respective well and pump directly into the ground storage tank. The high service pumps pull the raw water from the ground storage tank and pump into the hydropneumatic tank. The raw water is chlorinated prior to discharge into the hydropneumatic tank. The distribution system is fed from the hydropneumatic tank. Figure 2-14 illustrates the existing facilities at the River Park #3 WTP

A new emergency power generator was recently installed. This system has had previous problems with high levels of Iron (Fe) in the raw water and several housekeeping cleaning items. The laboratory results for water quality indicate the iron levels average 0.575 mg/l. A copy of the correspondence with FDER is provided in Appendix G. These household items include; minor leaks at the piping manifold and iron settlement on the aerator.



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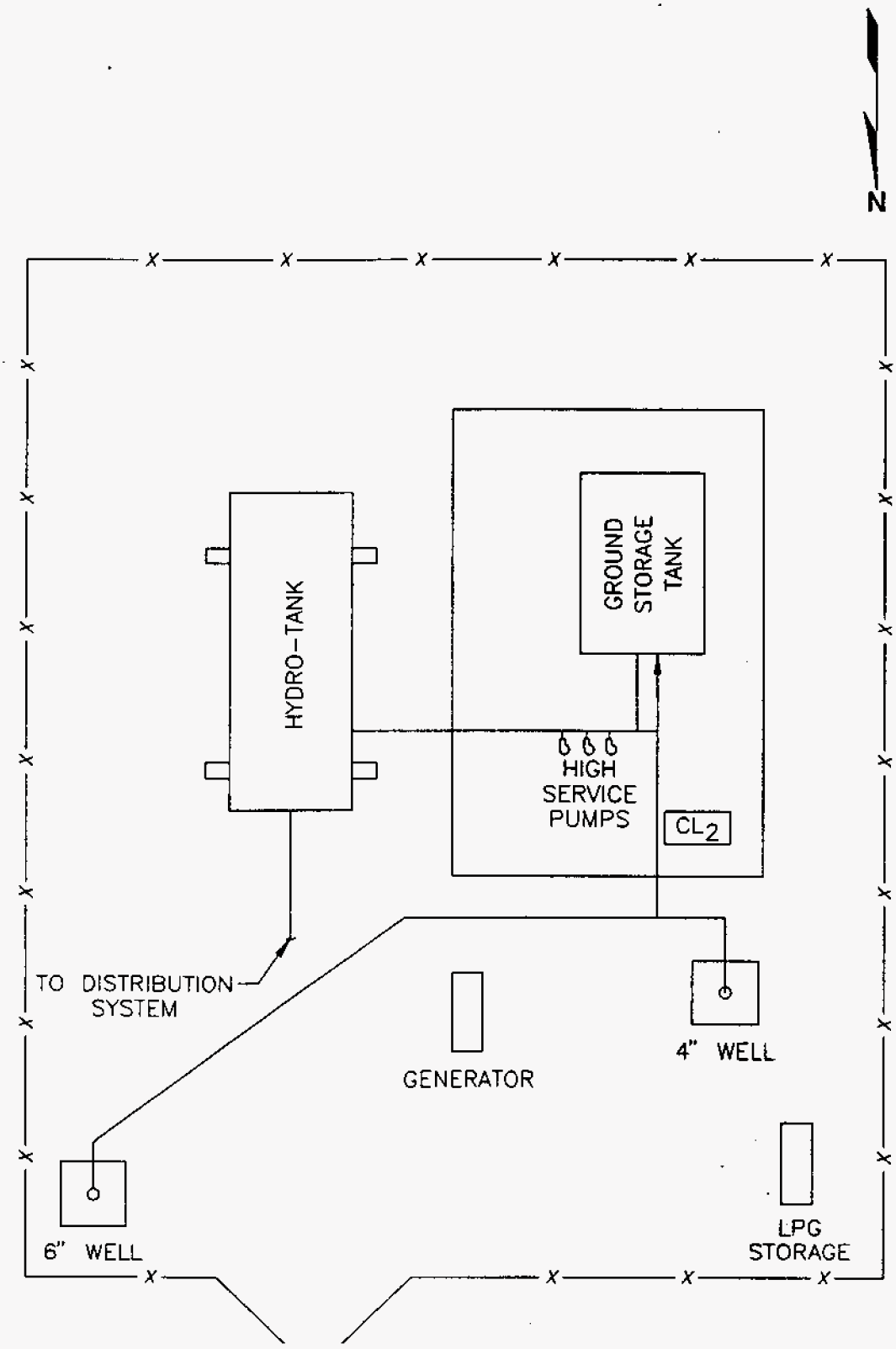
RIVER PARK WTP

FIGURE 2-13



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RIVER PARK
SITE PLAN AND FACILITIES

FIGURE 2-14

SECTION 3

SECTION 3

WATER QUALITY AND TREATMENT

PRELIMINARY

3.1 GENERAL

This section will review the water quality problems noted in the water systems in Putnam County and discuss some alternative methods of treatment. This section will only review the theoretical aspects of water quality and treatment. The subsequent section will discuss recommendations and construction cost estimates.

3.2 WATER QUALITY REGULATIONS

This section will review the current state and federal water quality regulations and also review alternative methods of treating several specific water quality problems.

The water distribution and treatment facilities must meet the requirements of the FDER and United States Environmental Protection Agency (USEPA). The primary rules and regulations which apply to this facility are Chapters 17-550, 17-555 and 17-560, of the Florida Administrative Code (FAC), as well as the amendments to the Safe Drinking Water Act (SDWA). The purpose of these rules are to assure that public water systems supply drinking water which meets the minimum requirements of the SDWA (PL 93-523) and the Florida Safe Drinking Water Act (Sections 403.850-403.864 of the Florida Statutes). Generally, the state rules adopt the national primary and secondary drinking water standards of the federal government and otherwise create additional rules to fulfill state and federal requirements.

Chapter 17-550, Permitting and Construction of Public Water Systems, FAC, establishes the requirements for permitting, construction, and operation and maintenance of a public water system from collection through treatment, storage and distribution. In general, this rule establishes setback requirements for water supply wells, number of water supply wells required, the method of construction of the water supply wells, requirements of water treatment, storage and distribution facilities, cross-connection control, and water, field and other samples required for permitting. In addition, this rule sets forth the requirements for permitting various types of raw water supply, treatment, storage and distribution systems.

Chapter 17-550, Drinking Water Standards, Monitoring, and Reporting, FAC, set forth the water quality standards that must be met, the collection and analyses of water samples, monitoring frequency and reporting requirements. Summarized in Table 3-1 are the primary and secondary standards that must be met by the Putnam County water treatment facilities.

Chapter 17-560, Requirements for Public Water Systems Out of Compliance, FAC, sets forth the acts that are prohibited and therefore considered violations, requirements for public notification and requirements for variances, exemptions and waivers.

3.3 WATER TREATMENT ALTERNATIVES

The following section will review the theoretical aspects of the specific water quality problems noted in the field inspection and engineering evaluation of the Putnam County Water Systems. The water treatment alternatives to be evaluated are the removal of manganese, iron, chlorides, TDS, sodium, turbidity, color and odor.

3.3.1 Theory

Iron and Manganese

Removing high levels of iron and manganese can be evaluated in the same manner, due to the extreme similarities in these two elements. The most popular approach used involves oxidation of the more soluble iron (II) and manganese (II) sometimes encountered in natural water to the relatively insoluble iron (III) and manganese (IV) complexes. The removal of the precipitates is performed by subsequent filtration. Molecular oxygen (aeration), free available chlorine (chlorination) and potassium permanganate (chemical oxidation) have all been used successfully as oxidizing agents in the removal of these two elements. Both of these elements can be removed in the lime softening process, but this process is not generally used solely for the removal of iron and manganese.

Iron and manganese removal using "super" or "over"-chlorination is not usually recommended for small systems such as the Putnam County plants, where operator

TABLE 3-1

PRIMARY AND SECONDARY DRINKING WATER STANDARDS[1]

Contaminant	Concentration (mg/l)
Arsenic	0.05
Baricin	1
Cadmium	0.010
Chromium	0.05
Fluoride	4
Lead	0.05
Mercury	0.002
Nitrate (as N)	10
Selenium	0.01
Silver	0.05
Sodium	160
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
2,4 - dichlorophenoxyacetic acid	0.1
2,4,5 - trichlorophenoxypropionic acid	0.10
Total trihalomethanes	0.10
Trichloroethene	0.003
Tetrachloroethene	0.003
Carbon tetrachloride (Tetrachloromethane)	0.003
Vinyl chloride	0.001
1,1,1 - trichloroethane	0.2
1,2 - dichloroethane	0.003
Benzene	0.001
Ethylene dibromide	0.00002
p-dichlorobenzene	0.075
1,1 dichloroethene	0.007
Turbidity	1[2]
Coliform	4/100 ml[3]
Combined radium - 226 and radium - 228	5[4]
Gross alpha particle activity (including radium - 226 but excluding radon and uranium)	15[4]
Chloride	250

TABLE 3-1 (Continued)

PRIMARY AND SECONDARY DRINKING WATER STANDARDS[1]

Contaminant	Concentration (mg/l)
Color	15[5]
Copper	1
Corrosivity	(6)
Fluoride	2
Foaming agents	0.5
Iron	0.3
Manganese	0.05
Odor	3(7)
pH (at collection point)	6.5 - 8.5[8]
Sulfate	250
Total Dissolved Solids	500[9]
Zinc	5

Notes:

1. Chapter 17-555, Drinking Water Standards, Monitoring, and Reporting, FAC.
2. Turbidity reported in NTU's.
3. Coliform reported in number of bacteria per 100 milliliter sample.
4. Reported as picocuries per liter.
5. Color reported in color units.
6. Noncorrosive.
7. Odor reported in threshold odor number.
8. pH reported in standard units.
9. The total dissolved solids concentration may be higher if no other contaminant is exceeded.

attention is not frequent. Recent studies into disinfection by-products has also limited this treatment practice.

Molecular oxygen addition is another method of removing iron and manganese. This process is generally performed by aerating the raw water, much as is done in stripping hydrogen sulfide (H_2S). Diffused aeration systems may also be constructed in ground storage facilities, but this practice is seldom done. The aeration method is also not highly regarded due to the low rates of oxidation. The typical aeration processes of adding molecular oxygen to the raw water do not generally provide a strong enough oxidant to remove sufficient quantities of iron and manganese.

The most popular approach to remove iron and manganese is by adding a strong chemical oxidant to the raw water, such as potassium permanganate. Oxidation converts the iron and manganese from the soluble state to insoluble. The precipitate is then filtered out prior to storage and distribution. Special filters utilizing "green-sand" media are used to improve iron and manganese removal.

Another alternative with merit in this situation is the addition of a "masking" agent to the raw water. These masking agents or sequestering agents bond to the specific ion, such as iron, and prevent the ion from being oxidized and precipitating out as a compound. Typical sequestering agents include silicates and polyphosphates. Recent conversations with the local FDER office noted that he proposed revisions to the rules due out in January will allow this option for systems with iron levels under 1.0 mgd/l.

Chlorides and TDS

Chlorides and TDS have the same similarities in treatment and removal, much like the similarities between the removal of iron and manganese. Typically these parameters are removed by one method of treatment, reverse osmosis. Reverse osmosis is the passage of water through a membrane against the natural osmotic pressure to accomplish separation of water from a solution of dissolved salts. The rate of flow through a reverse osmosis membrane is directly proportional to the effective pressure applied.

Sodium

The need for sodium removal is rare in water supply systems. Sodium is generally used as the sacrificial ion in most ion exchange systems used for softening or other removal systems. Sodium levels can be decreased by utilizing membrane treatment processes, such as reverse osmosis.

Turbidity

Turbidity is generally caused by colloidal dispersions in water consisting of small discrete particles. These discrete particles are similarly charged and therefore repulse each other. This repulsion prohibits flocculation or the lack of tendency to agglomerate. The removal of turbidity is typically accomplished first by destabilizing the charge on the colloids, then allowing the particles to aggregate. The two (2) basic mechanisms for this procedure are coagulation and flocculation. Coagulation refers to reducing the net electrical repulsive forces at particle surfaces by electrolytes in solution. Flocculation refers to the aggregation of the particles by forming chemical bridges between the particles. A coagulant is introduced into the raw water and allowed sufficient time to mix thoroughly. Typical coagulants include alum and polymers. Coagulation and flocculation are typically followed by sedimentation and filtration or in some cases simply filtration.

Taste and Odor

Taste and odor problems can be either naturally induced or man-made. Naturally occurring problems include those produced by microscopic organisms, notably algae and bacteria. Man-made taste and odor problems include those caused by contamination of the water supply by industrial chemicals, by compounds generated by certain water treatment processes or by substances that leach from linings of water pipes and storage facilities. Taste and odor problems in raw drinking water are usually treated by one of two methods, either oxidation or adsorption. The method selected for taste and odor removal depends greatly on the cause of the problem.

Aeration (oxidation) is the typical treatment for taste and odor problems caused by both organic compounds and dissolved volatile gases. The dissolved volatile gases can be easily removed by aeration or in other terms "air-stripping". Aeration is another method of oxidizing compounds, as previously discussed. Other methods of oxidation such as chlorination and permanganates, as discussed above, can also be used.

Another method of taste and odor removal is by granular activated carbon (GAC). Most organic compounds that cause taste and odor problems are typically difficult to remove by oxidation methods, but readily removed by adsorption on activated carbon beds. GAC on a large scale is more expensive than simple aeration, but may be the only solution. Smaller applications may use pressurized vessels with GAC cartridge units.

Color

Color problems are also caused by small or microscopic particles in the raw water. Color removal, much like taste and odor problems, depends on the chemical or compound causing the color problem. Typical treatment removal processes for color include both GAC and coagulation, flocculation and filtration.

SECTION 4

SECTION 4

ALTERNATIVE ANALYSIS

4.1 FACILITY IMPROVEMENTS AND OPERATION ANALYSIS

The following section will review several alternative improvements scenarios for each of the seven (7) water facilities being evaluated. The evaluation will consider the water quality problems associated with each facility, water plant facility improvements and the number of active customers served (rate base). In addition, system consolidation will be considered on a case by case basis, depending on the distance between adjacent systems.

4.1.1 Wootens

As noted in the previous section, the Wootens water plant has had noted MCL violations with color, odor and turbidity. The alternatives for correction or treatment of these quality problems include, construction/installation of a new water supply, installation of a polymer feed and filtration system and the installation of a carbon filter system.

The first alternative is the construction/installation of a new water well. In this case there is no guarantee that the new well will produce better quality water then the original well. Given the proximity of the site to the St. Johns River, SSU is fortunate that chlorides are not a problem at this site.

A second alternative would be to install specific water treatment equipment for the specific problem. In the case of the Wootens system, a carbon filtering system would remove the complexes causing the color and odor problems. This system may or may not solve the turbidity problem. The cost for a small carbon filter system for the Wootens water plant is estimated to cost approximately $5,000. This unit can be installed in-line in the existing piping with some modifications.

The Wootens water plant is approximately 12,000 linear feet from the nearest water system (River Park). The cost to install an interconnect is estimated between $100,000

to $150,000. This assumes that the interconnect main size would be 6-inch PVC or 8-inch PVC C-900 water pipe. This cost is prohibitively high and justifies the on-site treatment alternative. In conversation with the operations staff, it appears that a possible cause of he color and taste problems may be due to the accumulation of sediment and rust over the years in the existing hydropneumatic tank. The tank is very old and no provisions for properly draining the entire tank. Due to the age, existing condition and probable cause of water quality problems, the tank should be replaced first prior to adding the filter.

Other noted facility improvements include some electrical system up-grades.

4.1.2 Silver Lake Oaks

As noted in the previous section, the Silver Lake Oaks water plant has had noted MCL violations with iron and manganese, but has been subsequently cleared from any MCL violations. Given the plants records, water quality appears to vary. At some point in the future, SSU may be forced to implement a treatment system if the detection of high levels of iron and manganese reoccur.

Some facility improvements are recommended for the Silver Lake Oaks water plant. The existing hydropneumatic tank was observed to have pinhole leaks in the tank. It was also noted that previous leaks have been stopped by welding metal to the outside of the tank. Leaks found on a hydropneumatic tank are generally caused by corrosion of the tank. External corrosion is very easy to quantify, where as internal corrosion is not. It is highly recommended that a new hydropneumatic tank be installed immediately. The pinhole repairs are only temporary and lead to further corrosion. Tank explosions from corroding tanks are not uncommon. The cost to install a new hydropneumatic tank is estimated at approximately $10,000 to $20,000.

In the case of the Silver lake Oaks system, it appears that a potassium permanganate feed system followed by a filtering system would remove the iron and manganese if the MCL's were exceeded in the future. The cost for a small iron and manganese removal system for the Silver Lake Oaks water plant is estimated to cost approximately $50,000.

The Silver Lake Oaks water plant is clearly too far from any nearby water system to consider system consolidation.

4.1.3 St. Johns Highlands

As noted in the previous section, the St. Johns Highlands water plant has been off-line recently and the system is currently being fed by the Hermits Cove system. The operations staff indicated that the ground storage tank is currently being repaired to maintain a proper seal around the tank hatch.

It should be noted again that high levels of TDS and chlorides have been detected. It is recommended that rechecks are performed for these two (2) parameters. If the concentration levels for these two (2) parameters persist, SSU should evaluate the following alternatives:

Alternative No. 1 would be to design, permit and install a R.O. treatment system. The cost for this system is estimated at $75,000.

Alternative No. 2 would be to continue to feed the system with the water from the Hermits Cover system. Since this is the current practice, it would obviously cost no additional money to continue.

Alternative No. 3 would be to blend the water supply with the water from the Hermits Cove system. This alternative may be necessary if system capacity becomes a concern. As noted previously, the Hermits Cove system has also had high levels of TDS noted in water quality checks. Therefore, the blending may need to be tested prior to placing on-line. It appears that there would not be any additional cost of this alternative.

4.1.4 Beechers Point

The Beechers Point water plant has had noted MCL violations with sodium, chlorides and TDS.

One alternative would be to install specific water treatment equipment for the specific problems. In the case of the Beechers Point system, a reverse osmosis (R.O.) water treatment system would reduce the TDS and chloride levels. The cost for a R.O. system for the Beechers Point water plant is estimated to cost approximately $75,000. At this time, this alternative does not appear to be feasible. Permits for discharge of R.O. reject water have become nearly impossible to obtain due to the "industrial waste" classification of reject. It is assumed that this alternative would be cost prohibitive due to both high capital and permitting costs.

Another alternative would be to connect to a nearby water system. Beechers Point is located just south of the City of Welaka's water system. This alternative has been previously discussed with Welaka's mayor and has received a favorable response. Copies of past correspondence on this subject is provided in the Appendix. It appears that this alternative would be the most cost effective solution. This alternative has been estimated to cost $60,000. Water purchased from Welaka could be blended with the water supply for the WTP. This will help keep operating costs to a minimum.

4.1.5 Pomona Park

As noted in the previous section, the Pomona Park water plant has had noted MCL violations with manganese.

One alternative would be to install specific water treatment equipment for the specific problems. In the case of the Pomona Park system, a potassium permanganate feed system followed by a filtering system would remove the manganese. The cost for a small manganese removal system for the Pomona Park water plant is estimated to cost approximately $50,000.

The Pomona Park water plant is clearly to far from any nearby water system to consider system consolidation.

4.1.6 Hermits Cove

As noted in the previous section, the Hermits Cove water plant has had noted MCL violations with manganese and TDS. FDER a allows TDS levels in excess of 500 mg/l if no other MCL violations occur.

One alternative would be to install specific water treatment equipment for the specific problems. In the case of the Hermit Cove system, it appears that a reverse osmosis (R.O.) water treatment system would reduce the TDS and a potassium permanganate system would reduce the manganese levels. The cost for a R.O. system for the Hermits Cove water plant is estimated to cost approximately $75,000. As noted in the previous section, this alternative is not feasible. The cost for a potassium permanganate system for the Hermits Cove water plant is estimated to cost approximately $50,000. The plant could operate by removing the manganese to exceed 500 mg/l as allowed by the Department, if it is the only MCL exceeded.

The Hermits Cove water system is currently interconnected with the St. Johns Highland system.

4.1.7 River Park

As noted in the previous section, the River Park water plant has had noted MCL violations with iron.

Another alternative would be to install specific water treatment equipment for the specific problems. In the case of the Hermit Cove system, it appears that a potassium permanganate and green sand filtering system would reduce the iron levels. The cost for a potassium permanganate system for the River Park water plant is estimated to cost approximately $50,000.

Some facility improvements are recommended for the River Park water plant. The existing aeration system for the ground storage tank was observed to be virtually non-existent. In addition, the ground storage volume appears to be grossly under-sized for the number of customers served. Typically, ground storage is designed to provide

storage between 50 to 100% of average day. The current ground storage tank volume is estimated at approximately 5,000 to 6,000 gallons. This is 15 to 20 percent of the average daily flow as opposed to 50 to 100 percent as desired. The cost to install a new ground storage tank with aeration is estimated at approximately $75,000.

The River Park water plant is approximately 12,000 linear feet from the nearest water system (Wootens). The cost to install an interconnect is estimated between $100,000 to $150,000. This assumes that the interconnect main size would be 6-inch PVC or 8-inch PVC C-900 water pipe. This cost is prohibitively high and justifies the on-site treatment alternative.

SECTION 5

SECTION 5

ELECTRICAL

PRELIMINARY

5.1 EXISTING FACILITIES

The existing electrical system with the service conductors exposed and suspended in air should be replaced with conductors installed in an underground raceway.

5.1.1 General

The purpose of this portion of the report is to describe the existing electrical systems and ascertain their condition. The report will emphasize potential trouble areas and recommend a course of action.

Fault analysis was performed on each system to determine if a hazardous condition existed. A hazardous condition would be defined as electrical equipment that could not withstand a short circuit with the possibility of an explosion. Finally, Alternative analysis will depict each systems relative size and determine if expandability would be feasible.

5.1.2 Wooten

The Wooten WTP utilizes a 120/240 volt, 1 phase, 3 weir overhead service. The service entrance main breaker is of the fuse clip style The wiring system is open type (no conduit) on a number of feeders. The electrical equipment is old and does not have a fault rating .The system does not have stand-by power.

5.1.3 Silver Lake Oaks

The Silver Lake Oaks WTP utilizes a 120/240 volt, 1 phase, 3 wire overhead open delta service. The service is rated for 150 ampere. A circuit breaker panel board is used to distribute power. A single control panel provides control of the two (2) high service pumps and one (1) well. The submersible well is fed directly from the power

panel. Fault analysis indicates a maximum fault current of 8,500 ampere available. The system is rated of 10,000 ampere therefore, it should be able to withstand a fault. The system does not have a stand-by generator.

The raw water pumps are controlled by probes mounted in a stilling well located on the side of the raw water tank. The high service pumps are pressured controlled. The hydropneumatic tank is monitored automatically by a small air-compressor mounted on the top of the tank.

Fault analysis indicates a maximum fault current of 6,000 ampere available. The system is rated for 10,000 ampere therefore, it should be able to withstand a fault.

The system high service pumps are controlled by pressure switches. The hydropneumatic tank air-blanket is monitored automatically by a small air-compressor mounted on top of the tank. There is no stand-by generator provided on this system.

5.1.4 Beechers Point

The Beechers Point WTP utilizes a 120/240 volt, 3 phase, 4 wire open delta overhead service. The service is rated 150 ampere. Power is distributed by one (1) circuit breaker panel board.

A single control panel is used to control the wells, high service pumping and hydropneumatic tank. Fault analysis indicated a maximum fault current of 21,000 ampere available. The system is rated by 10,000 ampere. Therefore, it is doubtful that the system would withstand a bolted short-circuit. Stand-by generator is not utilized on this system.

The control panel houses all necessary controls for raw water and high service pumping. The raw water pumps are controlled by float switches in the storage in the hydropneumatic tank. The air-blanket in the hydropneumatic tank is manually controlled.

5.1.5. Pomona Park

The Pomona Park WTP utilizes a 120.240 volt, 1 phase, 3 wire service. The service is rated for the submersible and vertical turbine pumps. the submersible pump is automatically controlled by a pressure switch located in the hydropneumatic tank. Fault analysis indicates a maximum of 7,00 ampere available. The electrical service is rated for 10,000 ampere therefore, the system should be able to withstand a fault. Air blanket in the hydropneumatic tank is monitored manually. The system does not have a stand-by generator.

5.1.6 Hermits Cove

The Hermit Cove WTP utilizes a 120/240 volt, 3 phase, 4 wire closed delta distribution system. the overhead service is rated for 150 ampere. The system is back-up by a standby-by generator rated 31.2KVA. Fault analysis indicated a maximum 4,800 ampere fault available. The system is rated for 10,000 ampere. Therefore, the system should be able to withstand a fault.

The system high service pumps are controlled by pressure switches, whereas, the wells are controlled by the float switches in the raw water storage tank.

5.1.7 River Park #3

The River Park #3 WTP utilizes a 120/240 volt, 1 phase, 3 wire open delta distribution system. The service is rated for 200 ampere. However, the feeder conductor feeding the 200 ampere circuit breaker panel is rated only 60 ampere. The system is backed-up by a stand-by generator rated for 25KVA. However, at this time, it is not wired into the system .Fault analysis indicated a maximum of 5,200 ampere available. The system is rated for 10,000 ampere . Therefore, the system should be able to withstand a fault.

The system is controlled by pressure switches. The hydropneumatic tank air-blanket is maintained manually.

5.2 ALTERNATIVE ANALYSIS

5.2.1 Wootens

The electrical system is in poor condition and can not be used for any additional loads or any electrical system modifications. Modification to the electrical system will require a new service and service entrance and distribution equipment. The existing electrical system with the service conductors exposed and suspended in air should be replaced with conductors installed in an underground raceway. The approximate cost would be $3,000.00.

5.2.2 Silver Lake Oaks

The electrical system is in good condition and can be utilized for an additional 15HP of motor loads.

5.2.3 St. Johns Highlands

The electrical system is in good condition and can be utilized for an additional 20HP of motor loads.

5.2.4 Beechers Point

The electrical system is in good condition. However, the available fault current to the system is dangerously high. Therefore, we recommend adding some current limiting device ahead of the service so as to limit the fault current to an acceptable level. The electrical system as sized to date can be utilized for an additional 15HP of motor loads.

5.2.5 Pomona Park

The electrical system is in poor condition and can not be used for any additional loads or any modifications. Modification to the electrical system will require a new service and service entrance equipment. The approximate cost would be $3,000.00.

5.2.3 Hermits Cove

The electrical system is in good condition and can be utilized for an additional 15HP of motor loads. The stand-by generator was sized to maintain the high service and raw water pumping. Spare capacity is not available.

5.2.4 River Park #3

The electrical system improvements are currently being implemented at this time. When complete, the system should be in good condition and can be utilized for an additional 15HP of motor loads The stand-by generator was sized to maintain the high service and raw water well pumping Spare capacity is not available.

SECTION 6

SECTION 6

SUMMARY

6.1 GENERAL

This section provides a summary of the findings of the field investigation and review of the water quality data for several of the water plants in Putnam County. The observations, conclusion and recommendations of this investigation are described herein.

6.2 OBSERVATIONS

Most of the water supply systems inspected have equipment at or nearing the end of their expected service life. It will be recommended later in this section that certain equipment be replaced in order to maintain the level of service expected from the overall system. The systems are currently being operated very well considering the facilities available. Several of the water plants inspected do not have any storage or treatment facilities. The raw water is chlorinated and discharge directly into the distribution system. Most of these systems are located in the vicinity of the St. Johns River and this might be the cause for some of the water quality problems encountered. The water quality violations noted have been either high levels of iron, manganese, TDS or chlorides. In some cases, more than one of these parameter's MCL's have been exceeded. The water quality problems noted in these systems can be attributed to shallow wells in the vicinity of the river. Most of these systems serve individual subdivisions or small communities and have a very small customer base. In addition these systems are located in remote areas which discourages interconnection with other local systems.

6.3 CONCLUSIONS

As described in the previous sections, the specific water quality problems noted will require specific water treatment methods. The number of customers served by each system may make some of these treatment systems or alternative supply methods cost prohibitive. In the case of a private utility, the rate of return of investment must also be considered prior to initiating corrective action measures such as expensive water treatment facilities.

Iron and manganese water quality problems are typical of shallow well construction. Removal of high levels of iron or manganese requires specific treatment processes, such as an oxidation and filtration system. The addition of sequestering or masking agents may be a viable alternative for several of the small systems. This alternative must be first seriously considered, since it is analogous to just placing a band-aid on a wound as opposed to fully treating the wound. In that it is covered up, but not removed. Therefore, a full treatment system may be warranted.

Water quality problems requiring membrane treatment systems, such as high levels of chlorides and TDS, may be of a major concern. Designing, permitting and constructing these types of systems can be very costly. Recent FDER Regulations make the permitting process of reject water disposal systems long and costly. It is concluded that this alternative may be cost prohibitive under any circumstances for the Putnam County systems with high levels of chlorides and TDS.

6.4 RECOMMENDATIONS

6.4.1 Wootens

It is recommended that SSU perform a two (2) stage approach to the problems at the Wootens water plant. The first step would be to replace the existing hydropneumatic tank at the WTP site. It has been noted based on conversation with the operations staff, that the tank may be the cause of the taste, color and odor problems noted in the water quality surveys. In addition, this tank is very old and needs to be replaced in the near future anyway. The building housing the tank may need to be modified for the new tank. Repairs and up-grades to the electrical system are also recommended. If replacing the tank proves to solve the problem with the water cause of the water quality problems then step No. 2 will not be necessary.

Step No. 2 would consist of installing an in-line carbon filter between the water supply well and the hydropneumatic tank. The chlorine feed would need to be modified to inject downstream of the carbon filter just prior to storage. This treatment unit should reduce or eliminate the organics causing taste, color and odor problems.

6.4.2 Silver Lake Oaks

It is recommended that SSU perform rechecks of the water supply frequently to confirm or deny high levels of iron. Recent rechecks have cleared this system of iron MCL violations. It is recommended that split samples be taken to different laboratories to insure quality control. If the water supply continues to indicate high levels of iron, then it is recommended that a small iron removal system be installed. This system would consist of a potassium permanganate feed system, a "green-sand" filter, and a backwashing system. The backwashing system will consist of a small storage or clear well and backwash pumps and piping. Provisions need to be made to dispose of the backwash water. The provisions may either be a small percolation pond or discharge into the central sewer system, if available.

Also, the existing hydropneumatic tank located on this site was noted to have several pin-hole leaks. The leaks are indicators as to the corrosion occurring on and in this tank. Historically the tanks will continue to corrode even if the leaks are patched over. The tanks are operated under high pressures and can become dangerous if this situation continues. It is highly recommended that this tank be replaced as soon as possible to avoid any down time or operator injury due to a tank rupture.

6.4.3 St. Johns Highland

It is recommended that SSU continue to sample the water supply at St. Johns Highlands for high levels of TDS and chlorides. It appears from the FDER correspondence that the Department has not noted water quality violations for these parameters. Yet, recent water quality reports performed by SSU have indicated levels above the MCL for both of these parameters. It is recommended that SSU confirm or deny these levels in the raw water supply prior to pursuing a treatment system.

If the water quality rechecks confirm high levels of TDS and chlorides. It is recommended that SSU continue to supply water from the Hermits Cove system solely or blend with the St Johns Highlands water in order to meet the MCL's.

6.4.4 Beecher Point

It is recommended that SSU pursue the option of an interconnect with the City of Welaka's water system. The cost to design, permit and construct a treatment system to remove TDS and chlorides to below the MCL's would be cost prohibitive for this system. In addition, the cost to interconnect appears less than the cost to construct a treatment system anyway. In addition, the interconnect provides back-up supply and system reliability.

6.4.5 Pomona Park

It is recommended that SSU design, permit and construct a treatment system to remove the high levels of manganese. This system would consist of a potassium permanganate feed system, a "green-sand" filter, and backwashing system. The backwashing system will consist of a small storage or clear well and backwash pumps and piping. Provisions need to be made to dispose of the backwash water. The provisions may either be a small percolation pond or discharge into the central sewer system, if available.

6.4.6 Hermits Cove

It appears that SSU may be able to first perform rechecks of the water quality for this WTP before initiating a recommended treatment system. If the rechecks confirm the initial checks of high levels of manganese and TDS, then a program of treatment must be performed. It is recommended that SSU install a system to lower the levels of manganese in the raw water supply. FDER will allow systems to distribute water with levels of TDS in excess of the MCL only if no other water quality violation occurs. In addition, the treatment alternative to remove high levels of manganese is much more cost effective than a system to remove high levels of TDS.

It is recommended that SSU design, permit and construct a treatment system to remove the high levels of manganese. This system would consist of a potassium permanganate feed system, a "green-sand" filter, and backwashing system. The backwashing system will consist of a small storage or clear well and backwash pumps and piping. Provisions need to be made to dispose of the backwash water. The provisions may

either be a small percolation pond or discharge into the central sewer system, if available.

6.4.7 River Park

It is recommended that SSU design, permit and construct a treatment system to remove the high levels of iron from the raw water supply. This system would consist of a potassium permanganate feed system, a "green-sand" filter, and backwashing system. The backwashing system will consist of a small storage or clear well and backwash pumps and piping. Provisions need to be made to dispose of the backwash water. The provisions may either be a small percolation pond or discharge into the central sewer system, if available. In addition, design and construct new ground water storage facilities. The existing ground storage tank is in poor condition and does not provide adequate storage capacity.

APPENDIX A

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 28, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, Florida 32703

Dear Mr. Phillips:

Putnam County - PW
Wootens WTP
PWS ID # 2541280

On May 26, 1992, I did an inspection of the referenced community public water system. The following items remain out of compliance with Florida Administrative Code (FAC):

1. Failure to meet quality standards for turbidity, color and odor. FAC Rules 17-550.510 and .520. The following original and recheck chemical analysis results were submitted:

Date	Parameter	Reported Value	MCL (units)
7/30/91	Turbidity	2.8 NTU	1.0 NTU
1/08/92	Turbidity	40.0 NTU	5.0 NTU
1/09/92	Turbidity	19.1 NTU	5.0 NTU
3/16/92	Turbidity	18.0 NTU	5.0 NTU
3/17/92	Turbidity	4.2 NTU	5.0 NTU
Average	Turbidity	16.8 NTU	5.0 NTU
7/30/91	Color	20 CU	15 CU
1/08/92	Color	40 CU	15 CU
1/09/92	Color	30 CU	15 CU
1/10/92	Color	30 CU	15 CU
3/16/92	Color	40 CU	15 CU
3/17/92	Color	10 CU	15 CU
3/18/92	Color	10 CU	15 CU
Average	Color	26 CU	15 CU
7/30/91	Odor	4	3
1/08/92	Odor	2	3
1/09/92	Odor	1	3
1/10/92	Odor	16	3
Average	Odor	5.75	3

The average of the rechecks and the original results confirm that the Maximum Contaminant Level (MCL) has been exceeded for these parameters. Accordingly, you must install additional treatment or provide an alternative source. Either option must be properly permitted.

There was no chlorine in the water upon arrival for the inspection, but Paul Thompson, operator, was able to bring the residual above the minimum required by the end of the inspections. Enclosed is a copy of the inspection sheet. Please provide a written response as to your plans to correct these remaining deficiencies and within what time frame. If you have any questions I can be reached at (904) 448-4330 extension 305. Your past and continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher

James R. Maher
Engineer IV

JRM:lm
enclosure

cc: Mr. Paul Thompson
Mr. Robert Regalado
Putnam County Health Department

Florida Department of Environmental Regulatio

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-75

Lawton Chiles, Governor — Carol M. Browner, Secret

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/26/92
Name of System Woodells ID No. 2541280
System Owner JSU Services, Inc. Phone No. 649-8673
Address 1000 Color Place City Apopka Zip 32703
Operator Thompsons Cert. level & No. C 7251

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

___	Aeration	555.350	
___	Auxiliary Power	555.320(6)	
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
X	Chemical Monitoring	550.510 & 520	Color Odor Turb MCLs
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
___	Disinfection	555.350(1)	After Rehabilitation
	Plant 1.5 mg/l; Remote ____mg/l		
___	Flow Meter	555.320(8)	
___	Gas Chlorination	555.320(5)	
___	Maintenance of Facilities	555.350	
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow ____MGD; Max ____MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

It is required that a written response be provided to this office within ten (10) days regar
any unsatisfactory results listed above.

Inspector James R. Maher Date 6/1/92
James R. Maher 448-4330 ext. 305

cc: County Health Unit

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun 8 1992
PO Number: B92234
PO Number Wootens
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 3 1992 Lab Number : 19792

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19792
Turbidity	NTU	0.05	103	7.08	2.5
Calcium	mg/L	0.1			-
Chloride	mg/L	0.01			-
Carbonate CaCO3	mg/L	0.1			-
Hydroxide CaCO3	mg/L	0.1			-
Copper	mg/L	0.005			-
Bicarbonate CaCO3	mg/L	0.1			-
Bicarbonate HCO3	mg/L	0.1			-
Hydrogen Sulfide	mg/L	0.5			-
Iron	mg/L	0.01			-
Magnesium	mg/L	0.01			-
Manganese	mg/L	0.005			-
Sulfate	mg/L	0.2			-

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Serving Your Analytical and Environmental Needs Since 1957

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

Received From:
SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun 8 1992
PO Number: B92234
PO Number Wootens
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 2 1992 Lab Number : 19792

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19792
Zinc	mg/L	0.001			-
Carbon_Dioxide	mg/L	0.1			-
Color (color units)	mg/L	5	.000		10
Total_Hardness	mg/L	0.1			-
NCH_as_CaCO3	mg/L	0.1			-
Odor (total odor num	TON	1	.000		<1
Field pH (units)	pH	0.01			-
Lab pH (units)	pH	0.01			-
Field Conductivity	umhos/c	0.1			-
Total Alkalinity	mg/L	0.1			-
TDS	mg/L	2.5			-
Phenolphthalein Alk.	mg/L	0.1			-
Field Temp. (C)	oC	1			-

Data Release Authorization
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Technical Director

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FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun 9 1992
PO Number: B92234
PO Number Wootens
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 3 1992 Lab Number : 19805

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19805
Turbidity	NTU	0.05	103	8.23	11
Color (color units)	mg/L	5		.000	30
Odor (total odor num	TON	1		.000	1

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

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Technical Director

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FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun 9 1992
PO Number: B92234
PO Number Wootens
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DAY 3
Date Sampled:Jun 4 1992 Date Received:Jun 4 1992 Lab Number : 19818

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19818
Color (color units)	mg/L	5	.000		30
Odor (total odor num	TON	1	.000		<1

Data Release Authorization
ple integrity and reliability certified by Lab personnel prior to analysis.
thods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150 597
ALTAMONTE SPRINGS
FLORIDA 32715 0597
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FAX: (407) 260-6110

APPENDIX B

Florida Department of Environmental Regulation
Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577
Lawton Chiles, Governor
Carol M. Browner, Secretary

June 18, 1992

Mr. Bert Phillips
Southern States Utilities
1000 Color Place
Apopka, FL 32703

RECEIVED
JUN 2 1 1992
SSU ENGINEERING

Dear Mr. Phillips:

Putnam County - PW
Silver Lake Oaks WTP
PWS ID: 2544258

On May 27, 1992, a reinspection was done of the referenced community public water system. No deficiencies were noted. Recent chemical recheck analyses have cleared the Manganese and Iron MCLs. This system currently meets or exceeds State and Federal drinking water standards.

Because the rechecks were erratic, additional iron tests have been requested. We'll have to keep an eye on the iron levels. With the current chemical rechecks, we can at this time formally clear the project under separate correspondence.

If you have any questions, I can be reached at (904) 448-4330, extension 305. Your past cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher
Engineer IV

JRM/lgf

cc: Paul Thompson
Joe Roberts
Robert Regalado
Putnam County Health Department

Administration 448-4300
Air 448-4310
Waste Management 448-4320
Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

Florida Department of Environmental Regulatio

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-75

Lawton Chiles, Governor — Carol M. Browner, Secret

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/27/92
Name of System Silver Lake Oaks ID No. 2544258
System Owner SSU Services, Inc. Phone No. 644-8673
Address 1000 Cobb Place City Apopka Zip 32703
Operator Paul Thompson Cert. level & No. C7251

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

___	Aeration	555.350	
___	Auxiliary Power	555.320(6)	
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
OK	Chemical Monitoring	550.510 & 520	Iron & Mn MCLs Cleared w/ 4h rechecks.
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
___	Disinfection	555.350(1)	
	Plant 4 mg/l; Remote ____ mg/l		
___	Flow Meter	555.320(8)	
___	Gas Chlorination	555.320(5)	
___	Maintenance of Facilities	555.350	
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow ____ MGD; Max ____ MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

Current chems state all parameters under MCLs w/ rechecks

OK to clear. Another round of chems entered to be sure.

It is required that a written response be provided to this office within ten (10) days rega any unsatisfactory results listed above.

Inspector James R Maher Date 6/17/92

James R. Maher 448-4330 ext. 305

cc: County Health Unit

FLOWERS CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number Silver Lk.Oak
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: LOT#52
Date Sampled:Jun 2 1992 Date Received:Jun 2 1992 Lab Number : 19788

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19788
Turbidity	NTU	0.05	103	7.08	0.38
Iron	mg/L	0.01	100	.036	0.419
TDS	mg/L	2.5	96.7	.823	640

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis. Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

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FLOWERS CHEMICAL LABORATORIES INCORPORATED

Received From:
SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number Silver Lk.Oak
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DAY#2
Date Sampled:Jun 3 1992 Date Received:Jun 3 1992 Lab Number : 19801

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19801
Turbidity	NTU	0.05	103	8.23	0.43
Iron	mg/L	0.001	112	.000	0.354
TDS	mg/L	2.5	96.7	.823	570

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis. Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

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FLORIDA 32715-0597
BUS: (407) 339-5964
FAX: (407) 260-6110

FLOWERS CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun18 1992
PO Number: B92234
PO Number Silver Lk.Oak
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

or: DAY 3
Date Sampled:Jun 4 1992 Date Received:Jun 4 1992 Lab Number : 19814

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19814
Iron	mg/L	0.001	112	.000	0.087
TDS	mg/L	2.5	100	3.07	596

Data Release Authorization
[illegible] integrity and reliability certified by Lab personnel prior to analysis.
[illegible] of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

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Jefferson S. Flowers, Ph.D.
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FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

APPENDIX C

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

June 18, 1992

Mr. Bert Phillips
Southern States Utilities
1000 Color Place
Apopka, FL 32703

Dear Mr. Phillips:

Putnam County - PW
St. Johns Highlands #5
PWS ID: 2540489

On May 27, 1992, a sanitary survey was done of the referenced community public water system. The system was idle and the distribution system was being fed by Hermit's Cove WTP. Recently permitted upgrades have yet to be cleared. The following deficiencies are noted:

1. The ground storage tank had bugs floating in it. The tank must be dumped, flushed, disinfected and plant clearance bacteriological analysis done.

2. The hatches were not sealed flush. A better gasket seal must be obtained.

An Engineer's Certification of Completion and Request to Place Into Operation was received for this project. When we receive word that the storage tank problem is corrected and 2 days plant clearance bacts are received, we can clear the project.

Please confirm that the well has a check valve on the well pump discharge, and that the hydrotank has a bypass. If not, these items should be installed.

A copy of the sanitary survey is enclosed. Please respond in writing to the items above within 15 days of receipt of this letter. If you have any questions, I can be reached at (904) 448-4330, extension 305. Your cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher
Engineer IV

RECEIVED
JUN 24 1992
SSU ENGINEERING

JRM/lgb
Enclosure
cc: Paul Thompson
Joe Roberts
Robert Regalado
Putnam County Health Department

Administration 448-4300
448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

3. Do existing chemical analyses of treated suggest that State or Federal maximum contaminent levels are exceeded? yes If so, specify the chemical parameter(s) and concentration(s) TDS Ave 660.
Chloride is close at 248 ave.

Do recent chemical analyses of raw and finished water, when compared to regulations, suggest the need for additional treatment? not yet.
If so, specify.

B. Bacteriological

1. During the past six (6) months, have bacteriological analyses of the finished water been conducted as required by State and Federal regulations? yes

2. Do existing bacteriological analyses of the past six (6) months suggest an inadequate disinfection program? no If so, specify.

VIII. SUMMARY AND RECOMMENDED ACTION

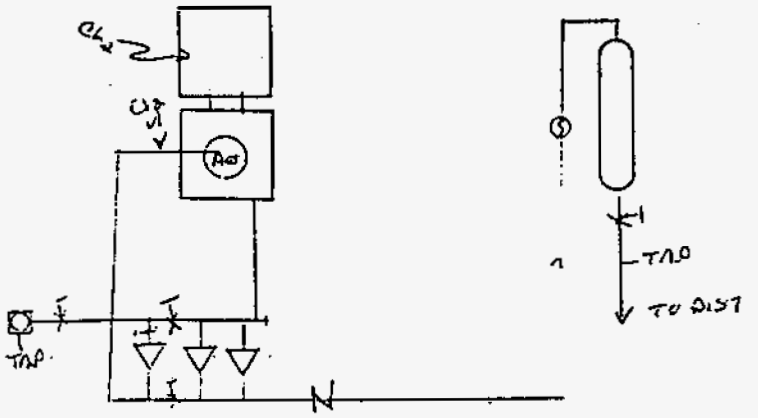
[ ] This facility meets or exceeds all State and Federal regulations.
[ ] Attached is supplemental information concerning this facility.
[X] The following deficiencies are noted with recommended corrective action.

Deficiency	Referenced Regulations	Recommended Action
1. 65-7 full of insects	17-555.350	Pump, flush, disinfect & test
2. Hatches not well sealed	"	& seal
3.		
4.		

Inspector's signature: James R Mahon Date: 6/17/92

Title: Engineer IV

Approved by: B. Rodriguez Date: 6/19/92
District Manager (signature)



III. Disinfection:

[ ] Odor of chlorine (leak) [X] Ample stock of chlorine
[ ] Lead washers kept [X] Ammonia fresh (odor)
[X] Note effluent residual [ ] Air pack pressure OK
[ ] Respirator in date [ ] Repair parts kept
[ ] Corrosion noticeable [ ] Note chlorine rate
[X] Machine function good [ ] Fan works OK
[X] Chlorine residual records current

Chlorine residual before entering distribution line 1.0 ppm.
Chlorine residual at extremity of distribution system _____ ppm.
Reserve supply of chlorine (specify units) _____
Other observation(s) Not currently on line - gas tank. Chlorine currently fed from Heimits Cove

IV. STORAGE FACILITIES: [X] Ground storage [ ] Elevated storage
[X] Hydropneumatic tank [ ] Clear well

Tank number	1	2	3	4
Capacity	DP 5500	3000		
Material	concrete	steel		
Gravity drain capacity	yes	yes		
by-pass capacity	yes	yes		
Covered/screened openings				
Date of last cleanout	1992	40-60		
On/off pressure, where appl.				
Ht. to bot. of El. tank				
Ht. to max. tank water level				
Comments	Heat insects inside. Pump flush.			

V. HIGH SERVICE:

Pump number	1	2	3	4
Manufacturer's name	GOULDS	GOULDS		
Date manufactured	191	191		
Model number	3656	3656		
Capacity	160	160		
Maintenance Schedule				
Last serviced (date)	new	new		
Comment				

VI. DISTRIBUTION SYSTEM:

Material of mains PVC Max. pipe diam. 4" Min. pipe diam. 3/4"
Operation pressure 50 No. of dead ends UNK How often flushed? ____
No. of fire hydrants 0
Are there cross connections with private or other supplies? Connected to Heimits Cove
Are there any blowoff lines below grade in the system? NO
Are there any sanitary hazard near sources of water supply? NO
Are there any underwater crossings which are suspected of leaking? NO
If a sewer line is within 100 feet, state material and jointing method. n/c
When was the last water supply shortage? ____
Has there been a problem of supply shortages? N/A
Blow off lines below grade [X] none [ ] few [ ] numerous
Observations: _____

VII. WATER QUALITY REVIEW:

A. Chemical
1. Lab capability

[ ] pH [ ] Radiological
[ ] Chemical [ ] Physical (color, odor, turbidity)
[ ] Jar Test [ ] Special
[ ] Bacteriological [X] Chlorine residual

2. Have chemical analyses of the finished water been conducted as required by State and Federal Regulations? yes If not, explain. _____

B. Surface Supplies: Provide sketch on separate sheet showing (a) extent of watershed; (b) location of intake; (c) sources of waste above intake, or near it; (d) farm houses, picnic grounds, etc. and their distance from lake or impoundment.

... is attached (check) N/A .
... e of River, Stream, Lake or Spring _____
... a stream, indicate estimated low flow in dry weather at intake. _____
Name any pollution sources above intake _____
If a spring, character of formation is needed: _____
What is yield in gpm, if spring? _____ How is spring protected? _____
Does the height of nearby surface water affect height of water in spring? _____
Turbidimeter at plant _____ Does effluent meet EPA Turb. Stds? _____
Other observations _____

III. TREATMENT PROCESSES UTILIZED AND PLANT OBSERVATIONS
(Check where applicable)

A. General:

- [X] Aeration
- [ ] Coagulation
- [ ] Iron removal
- [X] Taste-odor control
- [ ] High-rate filtration
- [X] Chlorination-pre
- [ ] Filtration
- [ ] Lime softening
- [ ] Recarbonation
- [ ] Reverse osmosis
- [ ] Chlorination-post
- [ ] Fluoridation
- [ ] Settling
- [ ] pH adjustment
- [ ] Zeolite softening

B. Aeration: [ ] Slimes or algae noted [X] Screens in good repair
[ ] Iron deposits [ ] Hydrogen sulfide odor
NEW

C. Chemical Used (Include Chlorine):

Chemical	Type feeder	24 hr. capacity	Point of appl.	Purpose (Coagulation, etc.)
Chlorine	Regal	50#	pre aeration	Disinfection
			Into CST	

D. Chemical Feeders:

N/A

- [ ] Oil on floor
- [ ] Spare parts kept
- [ ] Noisy operation
- [ ] Water on floor.
- [ ] Excessive vibration
- [ ] Chemical spilled
- [ ] Has repair manuals
- [ ] Chemicals well stocked
- [ ] Feeders all work
- [ ] Bags stored dry

E. Coagulation:

N/A

- [ ] Settling poor
- [ ] No blanket seen
- [ ] Pinpoint floc
- [ ] Chem. dose questionable
- [ ] Effluent taste & odor strong
- [ ] Color removal good

F. Softening:

N/A

- [ ] Floc unstable
- [ ] Feed intermittent
- [ ] Water leaves clear
- [ ] Sludge not excessive
- [ ] Cont. acid used
- [ ] Blanket visible
- [ ] Settling good
- [ ] Act. silica used
- [ ] Sludge return used
- [ ] No control of sludge level

G. Fluoridation:

N/A

- [ ] Analyses OK
- [ ] Separate storage
- [ ] Dusty enclosure
- [ ] Monthly samples OK
- [ ] Feeder good condition
- [ ] Acid spilled
- [ ] Frequent shutdowns
- [ ] Corrosion evident

H. Filtration:

N/A

- [ ] Mudballs present
- [ ] Carryover excessive
- [ ] Gallery kept clean
- [ ] Air binding present
- [ ] Short filter runs
- [ ] Algae in filter
- [ ] Clearwell turbidity seen
- [ ] Backwash cleans media
- [ ] Plant appears overloaded
- [ ] Little foreign material
- [ ] Sediment in clearwater

309B (Bristol Bluff)
First beyond Bayou Club
Make Left.

ID. No. 2540459

State of Florida
Department of Environmental Regulation
SANITARY SURVEY REPORT
for
Drinking Water Systems

Inspection date: 5/27/92

I. GENERAL

Plant name St Johns Highlands #5 County Putnam

Plant owner SSU Services Inc (Bert Phillips, President) Person contacted Paul Thompson 7257-C

Plant address 1000 Color Place Operator certification no. C 7257

City Apopka Zip 32703 Phone no. 644-3673 Basin code

Population Served 280 (est.) No. of service connections 80

Type of Service Community Type of meter at plant & capacity Turbine

Percent or no. of meters 100% Plant designed by Mark Masserre PE

Plant capacity (design) .115 MGD Plant output, average (MGD) .015

Storage capacity (design) 14,000 Maximum hour (1000's gals.) 3

Approval no. and date WC54 0894 Emergency water source Hermit's Cove

Daily maximum (MGD) .037 Standby equipment none

Emergency power source At Hermits Cove Capacity At Hermit's Cove

TYPE OF SERVICE [X] Community [ ] Non-community

[ ] Municipal	[X] Subdivision	[ ] Common carrier
[ ] Recreation area	[ ] Institution	[ ] Motel or hotel
[ ] Trailer park	[ ] College or school	[ ] Other
[ ] Restaurant	[ ] Industrial plant	

II. SOURCE(S) OF RAW WATER SUPPLY [X] Ground: Number of wells [7]
[ ] Surface; Purchased [ ]

A. Ground supplies: (Attach sketch of well(s) in relation to plant location on separate sheet.)

Well no. (if more than 5, attach extra sheets)	1	2	3	4	5
Year drilled	1971				
Depth drilled	250'				
Length, outside casing					
Diameter, outside casing	6"				
Material, outside casing	SCH 40				
Depth to static water level	40'				
Normal suction lift (working level)					
Normal yield in GPM					
Test yield in GPM	154				
Type of strainer used					
Depth to top of strainer					
Is well subject to inundation?					
Is well protected against surface water?	no				
Salt water infiltration problems in past?	no				
Latitude	yes				
Longitude					
Check valve					
Grouted					
Has well ever been contaminated?					
Pump manufacturer's name	Berkley				
Pump manufactured					
Model number	3MB1				
Capacity GPM	150				
Last serviced (date)					
Comment					
Maint. schedule (day, week, month, etc.)	1.0	2			

FLOWERS CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number St.Johns High
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 3 1992 Lab Number : 19806

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19806
Chloride	mg/L	0.01	69.0	1.08	996
TDS	mg/L	2.5	96.7	.823	530

Data Release Authorization
ample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715 0597
BUS: (407) 339-5984
FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk, FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number St.Johns High
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DAY#2
Date Sampled: Jun 2 1992 Date Received: Jun 3 1992 Lab Number : 19803

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19803
Chloride	mg/L	0.01	69.0	1.08	298
TDS	mg/L	2.5	96.7	.823	952

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis. Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
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ALTAMONTE SPRINGS
FLORIDA 32715 0597
BUS: (407) 339-5984
FAX: (407) 260 6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Report From:

P.O. Box 458
Pomona Pk, FL 32181

Date Reported: Jun18 1992
PO Number : B92234
PO Number St.Johns High
FDHRS Lab# : 83139
FDER Lab# : 883018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96012

For: WATER SAMPLE
Date Sampled:Jun 4 1992 Date Received:Jun 4 1992 Lab Number : 19816

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19816
Chloride	mg/L	0.01	97.9	.234	288
TDS	mg/L	2.5	100	3.07	838

Data Release Authorization
Data Integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150 567
ALTAMONTE SPRINGS
FLORIDA 32715 0567
BUS: (407) 339 5984
FAX: (407) 260-6110

APPENDIX D

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor — Carol M. Browner, Secretary

June 9, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, Florida 32703

Dear Mr. Phillips:

Putnam County - PW
Beecher's Point WTP
PWS ID # 2540070

On May 26, 1992, I did an inspection of the referenced community public water system. The following items remain out of compliance with Florida Administrative Code (FAC):

1. Failure to meet quality standards for sodium, chloride and TDS. FAC Rules 17-550.510 and .520. The following original and recheck chemical analysis results were submitted:

Date	Parameter	Reported Value	MCL (units)
9/25/91	Sodium	170 mg/l	160 mg/l
1/08/92	Sodium	150 mg/l	160 mg/l
1/30/92	Sodium (condos)	251 mg/l	160 mg/l
1/30/92	Sodium (sunset)	189 mg/l	160 mg/l
Average	**Sodium**	190 mg/l	160 mg/l
9/25/91	Chloride	307 mg/l	250 mg/l
1/08/92	Chloride	348 mg/l	250 mg/l
1/09/92	Chloride	351 mg/l	250 mg/l
1/10/92	Chloride	351 mg/l	250 mg/l
1/30/92	Chloride (condos)	384 mg/l	250 mg/l
1/30/92	Chloride (sunset)	373 mg/l	250 mg/l
Average	**Chloride**	352 mg/l	250 mg/l
9/25/91	TDS	918 mg/l	500 mg/l
1/08/92	TDS	856 mg/l	500 mg/l
1/09/92	TDS	840 mg/l	500 mg/l
1/10/92	TDS	844 mg/l	500 mg/l
1/30/92	TDS (condos)	908 mg/l	500 mg/l
1/30/92	TDS (sunset)	1060 mg/l	500 mg/l
Average	TDS	904 mg/l	500 mg/l

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-75

Lawton Chiles, Governor — Carol M. Browner, Secret

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/26/92
Name of System Beechers Point ID No. 2540070
System Owner SSO Services, Inc. Phone No. 649-8673
Address 1000 Color Place City Apopka Zip 32703
Operator Thompson Cert. level & No. C-7251

Community [ ] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

X	Aeration	555.350	Thobac growth.
X	Auxiliary Power	555.320(6)	
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
X	Chemical Monitoring	550.510 & 520	MCLs, see letter.
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
X	Disinfection	555.350(1)	
	Plant .8 mg/l; Remote .1 mg/l		
___	Flow Meter	555.320(8)	
___	Gas Chlorination	555.320(5)	
___	Maintenance of Facilities	555.350	GST shell rusty under aera
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow _____MGD; Max _____MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

It is required that a written response be provided to this office within ten (10) days rega
any unsatisfactory results listed above.

Inspector James R. Maher Date 6/9/92
James R. Maher 448-4330 ext. 305

cc: County Health Unit

The average of the rechecks and the original results confirm that the Maximum Contaminant Level (MCL) has been exceeded for these parameters. Accordingly, you must install additional treatment or provide an alternative source. Either option must be properly permitted.

2. The ground storage tank remains rusty under the aerator, and there was sulfur bacteria growth ont he aerator deck.

3. After much flushing at Wolfe's Camp a chlorine residual of 0.1 mg/l was measured. It was requested that the chlorine level be increased slightly.

Enclosed is a copy of the inspection sheet. Please provide a written response as to your plans to correct these remaining deficiencies and within what time frame. If you have any questions I can be reached at (904) 448-4330 extension 305. Your past and continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher
Engineer IV

JRM:jm
enclosure

cc: Mr. Paul Thompson
Mr. Robert Regalado
Putnam County Health Department

LANDO LABORATORIES, INC.
Received: 01/09/92

REPORT OF ANALYSIS
Results by Sample

Work Order # 92-01-140

MP Beechers Point
SECTED 01/09/92 12:00:00
Secondary Chem. Analysis

SAMPLE# 01A
MATRIX WATER
TEST CODE PWS031

SECONDARY CHEMICAL ANALYSIS
17-550.320
(PWS031)

Parameter ID	Name	Sample Number	Location Code	Analysis Result(mg/l)	Analytical Method	Det. Lt. Used	Analysis Date
016	Calcium			NOT ANALYZED			
01	Chloride			351	SM 407	1.0	01/15/92
01[illegible]	Carbonate CaCO3			NOT ANALYZED			
021	Hydroxide CaCO3			NOT ANALYZED			
02[illegible]	Copper			NOT ANALYZED			
023	Bicarbonate CaCO3			NOT ANALYZED			
02[illegible]	Fluoride			NOT ANALYZED			
02[illegible]	[illegible]arbonate HCO3			NOT ANALYZED			
[illegible]	Hydrogen Sulfide			NOT ANALYZED			
0[illegible]	Iron			NOT ANALYZED			
031	Magnesium			NOT ANALYZED			
0[illegible]	Manganese			NOT ANALYZED			
05[illegible]	Sulfate			NOT ANALYZED			
09[illegible]	Zinc			NOT ANALYZED			
19[illegible]	Carbon Dioxide			NOT ANALYZED			
1905	Color (color units)			NOT ANALYZED			
19[illegible]	Total Hardness			NOT ANALYZED			
191[illegible]	NCH as CaCO3			NOT ANALYZED			
19[illegible]	Odor			NOT ANALYZED			
19[illegible]	Field pH (units)			NOT ANALYZED			
1[illegible]	[illegible]ab pH (units)			NOT ANALYZED			
19,[illegible]	Field Conductivity			NOT ANALYZED			

...LABORATORIES,INC.
...ceived: 01/10/92

REPORT OF ANALYSIS
Results by Sample

Work Order # 92-01-163

...ID Beechers Point
...LECTED 01/10/92 10:00:00
...E Secondary Chem. Analysis

SAMPLE# 01A
MATRIX WATER
TEST CODE PWS031

SECONDARY CHEMICAL ANALYSIS
17-550.320
(PWS031)

Parameter ID	Name	Sample Number	Location Code	Analysis Result(mg/l)	Analytical Method	Det. Lt. Used	Analysis Date
1016	Calcium			NOT ANALYZED			
10...7	Chloride			351	SM 407	1.0	01/15/92
1019	Carbonate CaCO3			NOT ANALYZED			
10...1	Hydroxide CaCO3			NOT ANALYZED			
1022	Copper			NOT ANALYZED			
1023	Bicarbonate CaCO3			NOT ANALYZED			
10...5	Fluoride			NOT ANALYZED			
1026	Bicarbonate HCO3			NOT ANALYZED			
	...ydrogen Sulfide			NOT ANALYZED			
1028	Iron			2.00	EPA 200.7	0.100	01/13/92
1031	Magnesium			NOT ANALYZED			
10...2	Manganese			NOT ANALYZED			
1055	Sulfate			NOT ANALYZED			
10...5	Zinc			NOT ANALYZED			
1901	Carbon Dioxide			NOT ANALYZED			
19...5	Color (color units)			NOT ANALYZED			
19...5	Total Hardness			NOT ANALYZED			
1917	NCH as CaCO3			NOT ANALYZED			
19...0	Odor			NOT ANALYZED			
1974	Field pH (units)			NOT ANALYZED			
19...	...ab pH (units)			NOT ANALYZED			
...0	...rield Conductivity			NOT ANALYZED			

ALLIED LABORATORIES, INC.
Received: 01/10/92

REPORT OF ANALYSIS
Results by Sample

Work Order # 92-01-163
Continued From Above

SAMPLE# 01A
MATRIX WATER
TEST CODE PWS031

Beechers Point
ECTED 01/10/92 10:00:00
Secondary Chem. Analysis

*** Contiued from above***
SECONDARY CHEMICAL ANALYSIS
17-550.320
(PWS031)

rameter) Name	Sample Number	Location Code	Analysis Result(mg/l)	Analytical Method	Det. Lt. Used	Analysis Date
327 Total Alkalinity			NOT ANALYZED			
331 TDS			844	EPA 160.1	10	01/14/92
331 Phenolphthalein Alk.			NOT ANALYZED			
391 Field Temp. (C)			NOT ANALYZED			
397 Langlier Index pHs			NOT ANALYZED			
398 Saturation Index			NOT ANALYZED			
39 Stability Index			NOT ANALYZED			
309 Foaming Agents			NOT ANALYZED			
old DO			NOT ANALYZED			
397 Field Chlorine			NOT ANALYZED			

omments:

HARTMAN & ASSOCIATES, INC.

engineers, hydrogeologists, surveyors & management consultants

DICTATED BUT NOT READ

MEMORANDUM

HAI #90-014.00
SSU W.O. #None

TO: Charles Sweat

FROM: Mark Rynning MARK

DATE: May 13, 1992

SUBJECT: Beechers Point Water System

Charles, last week I spoke with Mayor Dollar of Welaka, Florida. Welaka is the town just north of the Beechers Point Water Treatment Plant (WTP). The Mayor expressed a strong interest in purchasing the facility from Southern States Utilities, Inc. (SSU). The Mayor also mentioned that another entity in the area, by the name of River Park, has sent SSU some correspondence regarding possible purchase. He mentioned that no response has yet been received from SSU on that.

As you may know, Charles, the Welaka WTP has two (2) wells, one of which is over the MCL on chlorides. The number 2 well is very close to exceeding the MCL for chlorides. The Town of Welaka has just recently completed the installation of two (2) of their own wells two (2) miles east of the City. This was done because of the poor water quality along the river.

For your information, Mayor Dollar can be reached at (904) 467-9800.

End of memorandum.

MAR/ch
C12/Sweat.mar

cc: Gerry Hartman

201 EAST PINE STREET • SUITE 1000 • ORLANDO, FL 32801
TELEPHONE (407) 839-3955 • FAX (407) 839-3790

PRINCIPALS: JAMES E. CHRISTOPHER • CHARLES W. DRAKE • GERALD C. HARTMAN • MARK T. LUKE • MARK A. RYNNING • HAROLD D. SCHMIDT, II

HARTMAN & ASSOCIATES, INC.

engineers, hydrogeologists, surveyors & management consultants

May 11, 1992

HAI #90-014.00
SSU W.O. #183.022

Mr. Robert Regalado
Southern States Utilities, Inc.
1000 Color Place
Apopka, Florida 32703

Subject: Beechers Point Water Treatment Plant

Dear Mr. Regalado:

Pursuant to your request, we have evaluated the water supply situation at Beechers Point and recommend that Southern States Utilities, Inc. (SSU) connect to the Town of Welaka. Our analysis involved an evaluation of the following:

1. Construct advanced treatment system, i.e., membrane softening.

2. Drill new wells.

3. Connect to Town of Welaka.

Given the high chloride and total dissolved solids level of the water, membrane softening would be an appropriate application. However, for a system of this size (80 ERCs), both cost and permitability make the application of this technology unfeasible. If a membrane system were to be employed, the following would be required:

1. Chemical feed/conditioning system.

2. High pressure pumps/membranes.

3. Degasification.

4. Possible odor control.

5. Clearwell/storage.

6. Finished water chemical adjustment.

7. Concentrate disposal system.

201 EAST PINE STREET • SUITE 1000 • ORLANDO, FL 32801
TELEPHONE (407) 839-3955 • FAX (407) 839-3790

PRINCIPALS: JAMES F. CHRISTOPHER • CHARLES W. DRAKE • GERALD C. HARTMAN • MARK J. LUKE • MARK A. RYNNING • HAROLD F. SCHMIDT, JR.

This system assumes pretreatment is not required for iron or manganese. The cost alone for the high pressure pumps and membranes are estimated at $75,000, based on a 30,000 gpd system.

Even if cost were not a problem, concentrate disposal is. Concentrate is classified as industrial waste by the Florida Department of Environmental Regulation (FDER). Without an injection well or intracoastal waterway, it is virtually impossible to permit concentrate disposal through FDER. Therefore, this option should not be given further attention.

The second alternative is to drill new wells. Water quality along the St. Johns River is typically high in chlorides and sulfates. Recently, the Town of Welaka constructed new water treatment facilities two (2) miles east of town. Their engineers, along with the water management district, determined that was the only location where a reliable high quality water supply was available.

SSU would not have an option of going to the east with a wellfield. A large U.S. Government tract is located directly east of the Water Treatment Plant (WTP). Due to the documented poor water quality in the area and inability to even move the wells east, this option should not be considered. If new wells were installed in the same vicinity, there is a high probability that water quality would deteriorate even if acceptable water is initially found.

Finally, SSU should seriously consider connecting to the Welaka water system. Welaka has completed their WTP and will be constructing potable water mains throughout the Town this year. An eight-inch water main is proposed to be installed at the City limit and Front Street, which is approximately 2,800 feet north of the Beechers Point WTP.

Welaka charges $250 per connection and does not currently have impact fees. Thus, the cost of constructing an eight-inch water line and connecting would be approximately $53,600 (based on 80 ERCs). Welaka's proposed water rate is $11.00 for first 5,000 gallons.

I spoke with Mayor Dollar concerning the system and he would like SSU to connect to his system. In addition, he expressed his interest in purchasing the Beechers Point system.

I think this letter addresses your concerns. If I can be of further assistance or if you have any questions, please call.

Very truly yours,

Hartman & Associates, Inc.

Mark A. Rynning P.E.
Project Manager

MAR/ch
C12/Regalado.mar

cc: Chuck Drake, P.G., HAI

HARTMAN & ASSOCIATES, INC.

engineers, hydrogeologists, surveyors & management consultants

May 11, 1992

HAI #90-014.00
SSU W.O. #183.022

Mr. Robert Regalado
Southern States Utilities, Inc.
1000 Color Place
Apopka, Florida 32703

Subject: Beechers Point Water Treatment Plant

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3. Degasification.

4. Possible odor control.

5. Clearwell/storage.

6. Finished water chemical adjustment.

7. Concentrate disposal system.

201 EAST PINE STREET • SUITE 1000 • ORLANDO, FL 32801
TELEPHONE (407) 839-3955 • FAX (407) 839-3790

PRINCIPALS: JAMES E. CHRISTOPHER • CHARLES W. DRAKE • GERALD C. HARTMAN • MARK E. ECKE • MARK A. RYNNING • HAROLD E. SCHMIDT, JR.

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I spoke with Mayor Dollar concerning the system and he would like SSU to connect to his system. In addition, he expressed his interest in purchasing the Beechers Point system.

I think this letter addresses your concerns. If I can be of further assistance or if you have any questions, please call.

Very truly yours,

Hartman & Associates, Inc.

Mark A. Rynning P.E.
Project Manager

MAR/ch
C12/Regalado.mar

cc: Chuck Drake, P.G., HAI

APPENDIX E

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 28, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, Florida 32703

cc: Joe Roberts
Dick Cross
Paul Thomison
Robert Regnardo
Frank Shaverson
Ralph Terreno
Karen Olson Tersey

Dear Mr. Phillips:

Putnam County - PW
Pomona Park WTP
PWS ID # 2540905

On May 26, 1992, I did an inspection of the referenced community public water system. The operation and maintenance deficiencies listed on my last sanitary survey report have been corrected. However, the following items remain out of compliance with Florida Administrative Code (FAC):

1. Failure to meet quality standards for manganese. FAC Rule 17-550.520. The following original and recheck chemical analysis results were submitted:

Date	Parameter	Reported Value (mg/l)	MCL (mg/l)
1/22/92	Manganese	0.096	0.050
3/16/92	Manganese	<0.005	0.050
3/17/92	Manganese	0.0062	0.050
3/18/92	Manganese	0.136	0.050
Average	Manganese	0.060	0.050

The average of the rechecks and the original result confirm that the Maximum Contaminant Level (MCL) has been exceeded. Accordingly, you must install additional treatment or provide an alternative source. Either option must be properly permitted.

2. Failure to provide auxilliary power. Florida Administrative Code (FAC) Rule 17-555.320(6). This deficiency was included in my last survey report dated January 6, 1992. On January 22, 1992 Mel Fisher, SSU's Environmental Compliance Coordinator, wrote that an Emergency Capital Authorization Request for funds was being prepared. During my field inspection, I was told that a permit application for the generator had been applied for. This office has received no permit application for auxilliary power for Pomona Park. In order to avoid enforcement, steps must be taken to address this violations soon.

3. The loss of chlorination alarm is still pending approval of the permit. The permit cannot be approved until your engineers sign and seal the design. The application is being held in abeyance until such certification is received.

Enclosed is a copy of the inspection sheet. Please provide a written response as to your plans to correct these remaining deficiencies and within what time frame. If you have any questions I can be reached at (904) 448-4330 extension 305. Your past nad continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher

James R. Maher
Engineer IV

JRM:jm
enclosure

cc: Mr. Paul Thompson
Mr. Robert Regalado
Putnam County Health Department

Florida Department of Environmental Regulatic

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7

Lawton Chiles, Governor — Carol M. Browner, Secr

PUBLIC WATER PLANT INSPECTION

Type: Compliance [X] Follow-Up [ ] Complaint [ ] Insp Date 5/26/92
Name of System Pomona Park WTP ID No. 2540905
System Owner SSU Services Inc. Bret Phillips, Pres Phone No. 649-8673
Address 1000 Cook Place City Deland Zip 32203
Operator Karl Thompson Cert. level & No. C 7051

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

[ ]	Aeration	555.350	
[X]	Auxiliary Power	555.320(6)	no aux power, no permits
[ ]	Bacteriological Monitoring	550.510(6)	
[ ]	Bacteriological Well Clearance	555.315(3)c	
[ ]	Certified Operator	555.350(2)	
[ ]	Check Valve	555.330	
[X]	Chemical Monitoring	550.510 & 520	Mn MCL exceeded
[ ]	Chlorine Test Kit (DPD)	555.330(3)	
[ ]	Cross-connection	555.360	
[ ]	Disinfection	555.350(1)	
	Plant _____mg/l; Remote _____mg/l		
[ ]	Flow Meter	555.320(8)	
[X]	Gas Chlorination	555.320(5)	need loss Cl2 alarm
[ ]	Maintenance of Facilities	555.350	
[ ]	Monthly Operational Reports	550.730(1)d	
	Av. Flow _____MGD; Max _____MGD		
[ ]	Number of Wells	555.315(1)	
[ ]	On Site Logs	602.360(1)e	
[ ]	Plant Design	555.330	
[ ]	Raw Sample Tap	555.315(2)f	
[ ]	6' X 6' Concrete Well Pad	555.315(2)(b)5	
[ ]	Sanitary Hazard	555.312	
[ ]	System Pressure	555.320(7)	

It is required that a written response be provided to this office within ten (10) days regar any unsatisfactory results listed above.

Inspector James R. Maher Date 5/28/92
James R. Maher 448-4330 ext. 305

cc: County Health Unit

FLOWERS CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
PO Box 458
PomonaPk, FL 32181

Date Reported: Jan31 1992
PO Number: HOLD REPORT
PO Number Pomona Pk.
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DIST.
Date Received: Jan22 1992 Lab Number : 18742

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	18742
Iron	mg/L	0.01	102	.283	0.241
Magnesium	mg/L	0.01	93.8	.203	2.85
Manganese	mg/L	0.005	106	.775	0.096
Sulfate	mg/L	0.2	99.9	1.11	4.39
Zinc	mg/L	0.001	104	.726	0.002
Carbon_Dioxide	mg/L	0.1			9.3
Color (color units)	mg/L	5	-	.000	9
Total_Hardness	mg/L	0.1			108.4
NCH_as_CaCO3	mg/L	0.1			11.8
Odor (total odor num	TON	1	-	.000	<1
Field pH (units)	pH	0.01			-
Lab pH (units)	pH	0.01	100	3.04	7.32
Field Conductivity	umhos/c	0.1			-
Total Alkalinity	mg/L	0.1	95.3	1.24	96.6
TDS	mg/L	2.5	92.4	.328	170
Phenolphthalein Alk.	mg/L	0.1			-
Field Temp. (C)	oC	1			25
Langelier Index pHs	pHs	0.01			7.73
Saturation Index	LX	0.01			-0.41
Stability_Index	pH	0.01			8.14
Foaming_Agents	mg/L	0.1	107	2.67	<0.1
Field DO	mg/L	0.1			-
Field Chlorine	mg/L	0.1			-

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson St. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson E. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5964
FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
PO Box 705
KeystoneHgt,FL 32656

Date Reported: Mar24 1992
PO Number: B92217
PO Number Pomona Pk.
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DIST.
Date Sampled:Mar16 1992 Date Received:Mar16 1992 Lab Number : 19185

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19185
Manganese	mg/L	0.005	98.4	.090	<0.005

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
hods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150 597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
PO Box 705
KeystoneHgt,FL 32656

Date Reported: Mar23 1992
PO Number: B92217
PO Number Pomona Pk.
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DIST.
Date Sampled:Mar17 1992 Date Received:Mar17 1992 Lab Number : 19199

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19199
Manganese	mg/L	0.005	98.4	.089	0.0062

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
hods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
461 NEWBURYPORT
P. O. BOX 150 597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339 5984
FAX: (407) 260-4110

FLOWERS
CHEMICAL LABORATORIES INCORPORATED

Received From:
SSU
PO Box 705
KeystoneHgt,FL 32656

Date Reported: Mar23 1992
PO Number: B92217
PO Number Pomona Pk.
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DIST.
Date Sampled:Mar18 1992 Date Received:Mar18 1992 Lab Number : 19235

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19235
Manganese	mg/L	0.005	98.4	.089	0.136

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
thods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson E. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

APPENDIX F

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor — Carol M. Browner, Secretary

June 17, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, FL 32703

Dear Mr. Phillips:

Putnam County - PW
Hermits Cove WTP
PWS ID: 2540482

On May 27, 1992, a reinspection was done of the referenced community public water system. Many of the deficiencies listed in the last sanitary survey have been corrected, however, the following items remain out of compliance.

1. There was no auxiliary power capability as the natural gas hookup for the generator was still pending.

2. The ground storage tank hatch needs to be sealed better, and the electrical connection for the float valve should be properly enclosed in the connection box.

3. The recent chemical analysis had MCL violation for Manganese and TDS. Three days rechecks within 30 days are required for these parameters.

Please provide a written response within 15 days to your plans to correct the remaining deficiencies and within what time frame. If you have any question, please contact me at (904) 448-4330, 305. Your continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R Maher

James R. Maher
Engineer IV

JRM/ugb
cc: Paul Thompson
Joe Roberts
Robert Regalado
Putnam County Health Department

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7

Lawton Chiles, Governor — Carol M. Browner, Secretary

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/22/92
Name of System HERMITS COVE ID No. 2570482
System Owner SSU SERVICES INC. Phone No. 649-5673
Address 1000 COLOR PLACE City APOPKA Zip 32703
Operator PAUL THOMPSON Cert. level & No. C 7251

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

___	Aeration	555.350	
X	Auxiliary Power	555.320(6)	Awaiting Gas Hookup.
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
X	Chemical Monitoring	550.510 & 520	Awaiting MN & TOS rec heck
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
___	Disinfection	555.350(1)	
	Plant 1.0 mg/l; Remote ____mg/l		
___	Flow Meter	555.320(8)	
___	Gas Chlorination	555.320(5)	
X	Maintenance of Facilities	555.350	GST could be sealed better.
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow ____MGD; Max ____MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

It is required that a written response be provided to this office within ten (10) days rega
any unsatisfactory results listed above.

Inspector James R Maher Date 6/1/92

James R. Maher 448-4330 ext. 305

cc: County Health Unit

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number Hermit's Cove
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 2 1992 Lab Number : 19789

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19789
Calcium	mg/L	0.1			-
Chloride	mg/L	0.01			-
Carbonate CaCO3	mg/L	0.1			-
Hydroxide CaCO3	mg/L	0.1			-
Copper	mg/L	0.005			-
Bicarbonate CaCO3	mg/L	0.1			-
Bicarbonate HCO3	mg/L	0.1			-
Hydrogen Sulfide	mg/L	0.5			-
Iron	mg/L	0.01			-
Magnesium	mg/L	0.01			-
Manganese	mg/L	0.005	112	4.99	0.689
Sulfate	mg/L	0.2			-
Zinc	mg/L	0.001			-

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

Serving Your Analytical and Environmental Needs Since 1957

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715 0597
BUS: (407) 339-5984
FAX: (407) 260-6110

FLOWERS
CHEMICAL LABORATORIES INCORPORATED

Received From:
SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number Hermit's Cove
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: WATER SAMPLE
Date Sampled:Jun 3 1992 Date Received:Jun 2 1992 Lab Number : 19789

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19789
Carbon_Dioxide	mg/L	0.1			-
Color (color units)	mg/L	5	.000		20
Total_Hardness	mg/L	0.1			-
NCH_as_CaCO3	mg/L	0.1			-
Odor (total odor num	TON	1			-
Field pH (units)	pH	0.01			-
Lab pH (units)	pH	0.01			-
Field Conductivity	umhos/c	0.1			-
Total Alkalinity	mg/L	0.1			-
TDS	mg/L	2.5	96.7, 823		688
Phenolphthalein Alk.	mg/L	0.1			-
Field Temp. (C)	oC	1			-
Langelier Index pHs	pHs	0.01			-

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis. Methods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Pomona Pk,FL 32181

Date Reported: Jun12 1992
PO Number: B92234
PO Number Hermit's Cove
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DAY#2
Date Sampled:Jun 3 1992 Date Received:Jun.3 1992 Lab Number : 19802

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19802
Manganese	mg/L	0.00004	112	4.99	0.389
Color (color units)	mg/L	5		.000	10
TDS	mg/L	2.5	96.7	.823	768

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
ethods of analysis in accordance with FCL QA and EPA approved methodology.

Andrew Harrison
Laboratory Manager

Serving Your Analytical and Environmental Needs Since 1957

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:

SSU
P.O. Box 458
Panama Pk,Fl 32181

Date Reported: Jun18 1992
PO Number: B92234
PO Number Hermits Cove
FDHRS Lab# : 83139
FDER Lab# : E83018
NCDEHNR Lab# : 296
SCDHEC Lab# : 96019

For: DAY 3
Date Sampled:Jun 4 1992 Date Received:Jun 4 1992 Lab Number : 19815

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	19815
Manganese	mg/L	0.00004	112	4.99	0.361
Color (color units)	mg/L	5		.000	10
TDS	mg/L	2.5	100	3.07	738

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Jefferson S. Flowers, Ph.D.
Technical Director

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715 0597
BUS: (407) 339-5984
FAX: (407) 260-6110

APPENDIX G

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 28, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, Florida 32703

Dear Mr. Phillips:

Putnam County - PW
River Park # 3
PWS ID # 2540964

On May 26, 1992, I did an inspection of the referenced community public water system. Many of the deficiencies listed on my last sanitary survey report have been corrected. However, the following items remain out of compliance with Florida Administrative Code (FAC):

1. Failure to meet quality standards for iron. FAC Rule 17-550.520. The following original and recheck chemical analysis results were submitted:

Date	Parameter	Reported Value (mg/l)	MCL (mg/l)
8/29/91	Iron	0.54	0.30
1/08/92	Iron	0.57	0.30
1/09/92	Iron	0.52	0.30
1/10/92	Iron	0.67	0.30
Average	Iron	0.575	0.30

The average of the rechecks and the original result confirm that the Maximum Contaminant Level (MCL) has been exceeded. Accordingly, you must install additional treatment or provide an alternative source. Either option must be properly permitted.

2. Failure to provide auxiliary power. Florida Administrative Code (FAC) Rule 17-555.320(6). The permit for this was issued 5/14/92.

3. There were minor leaks at the piping manifold, particularly noticed where PVC and brass fittings met.

4. The aerator looked better but should be blown down for accumulated iron settlement on a regular basis.

5. The loss of chlorination alarm is still pending approval of the permit. The permit cannot be approved until your engineers sign and seal the design. The application is being held in abeyance until such certification is received.

Enclosed is a copy of the inspection sheet. Please provide a written response as to your plans to correct these remaining deficiencies and within what time frame. If you have any questions I can be reached at (904) 448-4330 extension 305. Your past and continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher

James R. Maher
Engineer IV

JRM:jm
enclosure

cc: Mr. Paul Thompson
Mr. Robert Regalado
Putnam County Health Department

Florida Department of Environmental Regulatio:

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-75

Lawton Chiles, Governor — Carol M. Browner, Secret

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/26/92
Name of System Little Pork # 3 ID No. 2540964
System Owner SSU Services, Inc Phone No. 649-8623
Address 1000 Color Place City Jacksonville Zip 32203
Operator Paul Thompson Cert. level & No. C 7251

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

OK	Aeration	555.350	need to bottom blow
X	Auxiliary Power	555.320(6)	has permit.
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
X	Chemical Monitoring	550.510 & 520	Fe + Odor MCLs
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
___	Disinfection	555.350(1)	
	Plant • 6 mg/l; Remote ____ mg/l		
___	Flow Meter	555.320(8)	
X	Gas Chlorination	555.320(5)	ajd. ring loss ctr alarm
X	Maintenance of Facilities	555.350	minor manifold leaks
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow ____MGD; Max ____MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

It is required that a written response be provided to this office within ten (10) days regarc any unsatisfactory results listed above.

Inspector _____ Date _____

James R. Maher 448-4330..ext. 305

cc: County Health Unit

Florida Department of Environmental Regulation
Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577
Lawton Chiles, Governor
Carol M. Browner, Secretary

May 28, 1992

Mr. Bert Phillips
SSU Services, Inc.
1000 Color Place
Apopka, Florida 32703

Dear Mr. Phillips:

Putnam County - PW
River Park # 1
PWS ID # 2540962

On May 26, 1992, I did an inspection of the referenced community public water system. The operation and maintenance deficiencies listed on my last sanitary survey report have been corrected. Chemical rechecks have cleared earlier MCL violations, the chlorine residual was satisfactorily stabilized by the end of the inspection, and no deficiencies were noted.

This system meets or exceeds all State and Federal requirements for community public water systems at this time.

Enclosed is a copy of the inspection sheet. Your past and continued cooperation with Florida's Safe Drinking Water Program is appreciated.

Sincerely,

James R. Maher
Engineer IV

JRM:jm
enclosure

cc: Mr. Paul Thompson
Mr. Robert Regalado
Putnam County Health Department

Florida Department of Environmental Regulatio

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-75

Lawton Chiles, Governor — Carol M. Browner, Secre

PUBLIC WATER PLANT INSPECTION

Type: Compliance [ ] Follow-Up [X] Complaint [ ] Insp Date 5/26/92
Name of System Rose Park S/D I ID No. 0540962
System Owner SSU Services Inc Phone No. 649-8673
Address 1009 Cover Place City Apopka Zip 32703
Operator Paul Thompson Cert. level & No. C 2251

Community [X] Non-Transient Non-Community [ ] Non-Community [ ]

INSPECTION RESULTS

Selections marked with an "X" are unsatisfactory
Referenced sections are from Florida Administrative Code, Chapter 17

___	Aeration	555.350	
___	Auxiliary Power	555.320(6)	
___	Bacteriological Monitoring	550.510(6)	
___	Bacteriological Well Clearance	555.315(3)c	
___	Certified Operator	555.350(2)	
___	Check Valve	555.330	
OK	Chemical Monitoring	550.510 & 520	Nchecks cleared all MCL
___	Chlorine Test Kit (DPD)	555.330(3)	
___	Cross-connection	555.360	
OK	Disinfection	555.350(1)	
	Plant 1.5 mg/l; Remote ____ mg/l		
___	Flow Meter	555.320(8)	
___	Gas Chlorination	555.320(5)	
___	Maintenance of Facilities	555.350	
___	Monthly Operational Reports	550.730(1)d	
	Av. Flow ____ MGD; Max ____ MGD		
___	Number of Wells	555.315(1)	
___	On Site Logs	602.360(1)e	
___	Plant Design	555.330	
___	Raw Sample Tap	555.315(2)f	
___	6' X 6' Concrete Well Pad	555.315(2)(b)5	
___	Sanitary Hazard	555.312	
___	System Pressure	555.320(7)	

NO DEFICIENCIES REMAINING.

It is required that a written response be provided to this office within ten (10) days regar any unsatisfactory results listed above.

Inspector James R Maher Date 5/28/92
James R. Maher 448-4330 ext. 305

cc: County Health Unit

APPENDIX H

PROPOSAL

ULLIGAN WATER CONDITIONING, INC.
BOX 1889
PALATKA, FL 32178-1889

NUMBER (904) 328-9433

DATE OCTOBER 26, 1992

SHEET NO. 1 OF 1

SUBMITTED TO

GARY REVOIR
HARTMAN & ASSOCIATES
201 E. PINE STREET, SUITE 1000
ORLANDO, FL 32801

ARCHITECT BETTY D. GORDON

DATE OF PLANS

TELEPHONE (407) 839-3955

WORK TO BE PERFORMED AT HWY 308-B, POMONA PARK FLORIDA
STREET/CITY/STATE

We propose to furnish all the materials and perform all the labor necessary for the completion of

INSTALLATION OF ONE CULLIGAN COMMERCIAL WATER SOFTENER TO REMOVE MANGANESE FROM WATER SUPPLY AND PROVIDE TREATED WATER AT A CONTINUAL FLOW RATE OF 60gallons PER MINUTE.

CUSTOMER TO PROVIDE, ELECTRIC, DRAIN & 3-VALVE BYPASS.

$4,000.00	SOFTENER	
$ 70.00	SALT	NOTE: PLUS ANY APPLICABLE
$ 250.00	SET UP	SALES TAX
$4,320.00		

All material is guaranteed to be as specified, and the above work to be performed in accordance with the drawings and specifications submitted for above work and completed in a substantial workmanlike manner for the sum of FOUR THOUSAND THREE HUNDRED TWENTY DOLLARS AND NO CENTS Dollars ($ 4,320.00).

With payments to be made as follows: HALF DOWN & HALF UPON INSTALLATION

Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance upon above work. Workmen's Compensation and Public Liability Insurance on above work taken out by

Respectfully Submitted CULLIGAN WATER CONDITIONING, INC

Per BETTY D. GORDON, MANAGER

NOTE: This proposal may be withdrawn by us if not accepted within _____ days.

ACCEPTANCE OF PROPOSAL

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will

Accepted _____ Signature _____

PROPOSAL

FROM
'ULLIGAN WATER CONDITIONING, INC.
'O BOX 1889
'ALATKA, FL 32178-1889

NUMBER
(904) 328-9433

DATE
OCTOBER 26, 1992

SHEET NO. 1 OF 1

SUBMITTED TO

GARY REVOIR
HARTMAN & ASSOCIATES
201 E. PINE STREET, SUITE 1000
ORLANDO, FL 32801

ARCHITECT
BETTY D. GORDON

DATE OF PLANS

TELEPHONE (407) 839-3955

WORK TO BE PERFORMED AT (STREET/CITY/STATE) HERMITS COVE, SATSUMA FLORIDA

We propose to furnish all the materials and perform all the labor necessary for the completion of

INSTALLATION OF ONE CULLIGAN COMMERCIAL HI-VELOCITY WATER SOFTENER FOR REMOVAL OF MANGANESE & HARDNESS AT A CONTINUAL FLOW RATE OF 75gallons PER MINUTE.

CUSTOMER TO PROVIDE ELECTRIC, DRAIN & 3-VALVE BYPASS.

$4,500.00	SOETENER	
$ 80.00	SALT	NOTE: PLUS ANY APPLICABLE
$ 250.00	SET UP	SALES TAX
$4,830.00		

l material is guaranteed to be as specified, and the above work to be performed in accordance with the drawings d specifications submitted for above work and completed in a substantial workmanlike manner for the sum of FOUR THOUSAND EIGHT HUNDRED THIRTY DOLLARS AND NO CENTS Dollars ($ 4,830.00).

th payments to be made as follows: HALF DOWN & HALF UPON INSTALLATION

y alteration or deviation from above specifications involving extra sts will be executed only upon written orders, and will become an xtra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance upon above work. orkmen's Compensation and Public Liability Insurance on above rk taken out by

Respectfully Submitted CULLIGAN WATER CONDITIONING, INC

Per BETTY D. GORDON, MANAGER

NOTE: This proposal may be withdrawn by us if not accepted within 30 days.

CEPTANCE F PROPOSAL

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Accepted _____ Signature _____

Date _____ Signature _____

PROPOSAL 44-850

M
'JLLIGAN WATER CONDITIONING, INC.
O BOX 1889
PALATKA, FL 32178-1889

PROPOSAL

NUMBER (904) 328-9433

DATE OCTOBER 26, 1992

SHEET NO. 1 OF 1

ARCHITECT BETTY D. GORDON

DATE OF PLANS

SUBMITTED TO

GARY REVOIR
HARTMAN & ASSOCIATES
201 E. PINE STREET, SUITE 1000
ORLANDO, FL 32801

TELEPHONE (407) 839-3955

WORK TO BE PERFORMED AT SILVER LAKE OAKS, PALATKA FLORIDA
STREET/CITY/STATE

We propose to furnish all the materials and perform all the labor necessary for the completion of

INSTALLATION OF ONE CULLIGAN COMMERCIAL WATER SOFTENER TO PROVIDE TREATED WATER AT A CONTINUAL FLOW RATE OF 60gallons PER MINUTE.

CUSTOMER TO PROVIDE ELECTRIC, DRAIN & 3-VALVE BYPASS.

$4,000.00	SOFTENER
$ 70.00	SALT
$ 250.00	SET UP
$4,320.00	

~~NOTE: PLUS ANY APPLICABLE SALES TAX~~

All material is guaranteed to be as specified, and the above work to be performed in accordance with the drawings and specifications submitted for above work and completed in a substantial workmanlike manner for the sum of FOUR THOUSAND THREE HUNDRED TWENTY DOLLARS AND NO CENTS Dollars ($ 4,320.00).

with payments to be made as follows: HALF DOWN & HALF UPON INSTALLATION

Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance upon above work. Workmen's Compensation and Public Liability Insurance on above work taken out by

Respectfully Submitted CULLIGAN WATER CONDITIONING, INC

Per BETTY D. GORDON, MANAGER

NOTE: This proposal may be withdrawn by us if not accepted within _____ days.

ACCEPTANCE OF PROPOSAL

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will

Accepted _____ Signature _____

PROPOSAL 44-850

Wilson Jones Carbonless Snap-A-Way Forms

CULLIGAN WATER CONDITIONING, INC.
PO BOX 1889
PALATKA, FL 32178-1889

PROPOSAL

NUMBER (904) 328-9433

DATE OCTOBER 26, 1992

SHEET NO. 1 OF 1

ARCHITECT BETTY D. GORDON

DATE OF PLANS

SUBMITTED TO

GARY REVOIR
HARTMAN & ASSOCIATES
201 E. PINE STREET, SUITE 1000
ORLANDO, FL 32801

TELEPHONE (407) 839-3955

WORK TO BE PERFORMED AT (STREET/CITY/STATE) RIVER PARK, GEORGETOWN FLORIDA

We propose to furnish all the materials and perform all the labor necessary for the completion of

INSTALLATION OF ONE CULLIGAN INDUSTRIAL WATER SOFTENER FOR REMOVAL OF HARDNESS AND SOME IRON AT A CONTINUAL FLOW RATE OF 140gallons PER MINUTE.

CUSTOMER TO PROVIDE ELECTRIC, DRAIN & 3-VALVE BYPASS.

$6,900.00	SOFTENER	
$ 100.00	SALT FILL	NOTE: PLUS ANY APPLIC-
$ 500.00	SET UP	ABLE SALES TAX
$7,500.00		

All material is guaranteed to be as specified, and the above work to be performed in accordance with the drawings and specifications submitted for above work and completed in a substantial workmanlike manner for the sum of SEVEN THOUSAND FIVE HUNDRED DOLLARS AND NO CENTS Dollars ($ 7,500.00).

with payments to be made as follows: HALF DOWN & HALF UPON INSTALLATION

Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance upon above work. Workmen's Compensation and Public Liability Insurance on above work taken out by

Respectfully Submitted CULLIGAN WATER CONDITIONING, INC

Per BETTY D. GORDON, MANAGER

NOTE: This proposal may be withdrawn by us if not accepted within 30 days.

ACCEPTANCE OF PROPOSAL

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will

Accepted _____ Signature _____

PROPOSAL 44-850

PROPOSAL

LLIGAN WATER CONDITIONING, INC.
BOX 1889
PALATKA, FL 32178-1889

NUMBER (904) 328-9433

DATE OCTOBER 26, 1992

SHEET NO. 1 OF 1

ARCHITECT BETTY D. GORDON

DATE OF PLANS

JBMITTED TO

GARY REVOIR
HARTMAN & ASSOCIATES
201 E. PINE STREET, SUITE 1000
ORLANDO, FL 32801

TELEPHONE (407) 839-3955

ORK TO BE PERFORMED AT WOOTEN'S WATER PLANT, GEORGETOWN FLORIDA
STREET/CITY/STATE

We propose to furnish all the materials and perform all the labor necessary for the completion of

REPLACEMENT OF ONE 480gallon GALVANIZED RETENTION TANK AND INSTALLATION OF A COMMERICAL CULLIGAN AUTOMATIC FITERZATION UNIT THAT WILL YIELD 25gallons PER MINUTE CONTINUAL FLOW RATE.

CUSTOMER TO PROVIDE ELECTRIC, DRAIN & 3-VALVE BYPASS.

$5,700.00 FILTER
$1,250.00 TANK
$6,950.00

NOTE: PLUS ANY APPLICABLE SALES TAX

All material is guaranteed to be as specified, and the above work to be performed in accordance with the drawings and specifications submitted for above work and completed in a substantial workmanlike manner for the sum of SIX THOUSAND NINE HUNDRED FIFTEY DOLLARS AND NO CENT Dollars ($ 6,950.00).

ith payments to be made as follows: HALF DOWN & HALF UPON INSTALLATION

ny alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent on strikes, accidents or delays beyond our control. Owner to carry e, tornado and other necessary insurance upon above work. Workmen's Compensation and Public Liability Insurance on above work taken out by

Respectfully Submitted CULLIGAN WATER CONDITIONING, INC

Per BETTY D. GORDON, MANAGER

NOTE: This proposal may be withdrawn by us if not accepted within 30 days.

ACCEPTANCE OF PROPOSAL

he above prices, specifications and onditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will

Accepted _____ Signature _____

HUNGERFORD & TERRY, INC.

Manufacturers of Water Conditioning Plants

P.O. BOX 650
CLAYTON, NEW JERSEY 08312-0650
609-881-3200
Fax 609-881-6859

October 8, 1992

Hartman & Associates
201 E. Pine St., Suite 1000
Orlando, Florida 32801

Attn: Mr. Gary Revoir

Ref: Iron & Manganese Removal Systems

Dear Mr. Revoir:

In keeping with your request, I am pleased to enclose our catalog to acquaint you with our capabilities. Hungerford & Terry, Inc. has specialized in the design, manufacture and service of custom-built water treatment systems since 1909.

Our recommendation for removal of iron (.6 ppm) and manganese (.1 ppm) from ground water at a rate of 75 GPM would be as follows:

One (1) 54" dia. Ferrosand Filtration System, rated at 100 psi. ASME Code construction, complete with all internal distributors, one (1) filter media bed consisting of 24 cu.ft. Ferrosand and 24 cu.ft. Ferrofilt, hydropneumatic valve nest and water system, interconnecting pipe and fittings, pressure gauges and sample cocks, chemical feed equipment, and control panel, skid mounted and shop assembled.

A budget price for the system described above would be approxi-mately:
THIRTY-EIGHT THOUSAND FIVE HUNDRED DOLLARS ($38,500.00)

A system of this kind would have the advantage of an extended (approximately 48 hrs.) run time between backwashes.

We recommend backwashing at a rate of 12 GPM/sq. ft. for 8 to 10 minutes. This system would subsequently require a backwash flow of 200 GPM of filtered water, for the recommended time period. If an adequate reserve of filtered water is not readily available for backwashing, we can supply a backwash storage tank equipped with the necessary pump and valves. A budget price for this addition would be approximately SEVEN THOUSAND DOLLARS ($7,000.00).

This budgetary information is given in good faith and is based upon information available at this time. The actual equipment design and pricing may vary when the actual design

criteria is established. Hungerford & Terry, Inc. would be happy to provide you with a firm price and complete equipment design at your request.

I appreciate this opportunity to assist you and hope the information provided meets with your requirements. Should you have any questions or need for additional information, please feel free to contact our local Representative at the address and telephone number listed below, or myself.

Very truly yours,

HUNGERFORD & TERRY, INC.

Frank J. Caligiuri
Sales Representative

FJC:bjc
Enclosure

REPRESENTATIVE
Mr. Robert L. Soles, Jr.
R. L. Soles Associates, Inc.
PO Box 4426
Winter Park, FL 32793
Telephone No.: 407 671-6449
Fax No.: 407 657-8002