IN RE: Application of POINT WATER & SEWER, INC. for water and wastewater service in Clay County

DOCKET NO. 96-1321-WS
ORDER NO. PSC 97-0346PCO-WS

PREHEARING TESTIMONY - JAMES LUCAS, P.E.

Q. Please state your name and address for the record.

A. James Lucas, P.E. 10475 Fortune Parkway, Building 200, Suite 202, Jacksonville, FL 32256. My business telephone number is (904) 464-0090.

Q. What is your profession?

A. I am a professional engineer and I have been licensed as an engineer in the State of Florida since 1978. I practice primarily in the field of sanitary and environmental engineering.

Q. Can you identify this document which has been marked as Exhibit "A"?

A. Yes, it is my resume. It accurately reflects my educational background and experience.

Q. Are you familiar with the design of Point Water & Sewer, Inc.'s (hereinafter referred to as "PWS") water treatment system?

A. Yes. I reviewed the plans which were filed with DEP's northeast regional office in Jacksonville.

Q. Do you know whether PWS has completed construction of its water treatment system?

A. Yes.

Q. Do you recognize these documents?

A. Yes. They are my operation and maintenance performance reports and capacity analysis report which were submitted to the DEP.

Q. Are they true and correct copies of your reports, which have been marked as

Exhibits "B" and "C"?

A. Yes.

Q. Is the current system designed in accordance with accepted engineering practices?

A. Yes.

Q. Is this system technically capable of serving the proposed service area, which includes Whitney's Marina and the Point Townhomes?

A. Yes.

Q. Does the conclude your testimony at this time?

A. Yes; however, I may elaborate further at a subsequent hearing.

JAMES M. LUCAS, P.E.

PRESIDENT

EXPERIENCE SUMMARY

- Extensive experience in water and wastewater planning and design since 1973
- Master planning of project water and sewer facilities
- Project coordination with permitting agencies. as well as municipal and private utility companies
- Water and wastewater engineering supervisory responsibility for the preparation of plans, specifications, cost estimates and permitting of water treatment plants, wastewater treatment plants, pump stations, sewage collection systems and water distribution systems, water and sewer rehabilitation systems
- Experienced in the area of construction administration and inspection of water and sewer projects including wastewater treatment plants with spray irrigation, water softening, water treatment plants, master wastewater pumping stations, sewer collection and water distribution systems
- Experienced in site development projects, including urban redevelopment projects, planned unit communities and major commercial sites
- Construction administration of site development projects, including neighborhood shopping plazas, communities, restaurants, etc

EDUCATION

BS/Engineering, University of Florida - 1973

REGISTRATIONS

Registered Professional Engineer - Florida (#18370, 1978)
Registered Professional Engineer - Georgia (#015801, 1986)

PROFESSIONAL MEMBERSHIPS

Member, American Society of Civil Engineers
Member, Florida Engineering Society
Member, National Society of Professional Engineers

CIVIC MEMBERSHIPS

Rotary Club of Jacksonville - Oceanside

PROJECT EXPERIENCE

Twin Lakes, Lowndes County, Georgia - We were responsible for the preparation of all documents, construction estimates, application forms and Engineering Feasibility reports for the securing of a 50% grant and low interest loan for the water and sewer improvements using

EXHIBIT

"A"

funding obtained through the Farmer's Home Administration Program. The program consisted of a complete water
treatment, storage and distribution system including elevated storage as well as wastewater treatment and collection.

Twin Lakes, Lowndes County, Georgia - Design of a water treatment plant for the unincorporated area south of Valdosta. The project consisted of pumping, chlorine and chemical feed. The project was designed to handle the new development areas along I-75 along with the Twin Lakes area. The project also included the construction of a 150,000 gallon elevated storage tank for fire protection.

Twin Lakes, Lowndes County, Georgia - Design of a 150,000 gallon wastewater treatment for the Twin Lakes area. The project included all permitting, construction administration and final closeout.

Advent Christian Village Water and Sewer Facilities, Live Oak, Florida, - Preparation of plans and specifications for the construction of a new lime softening water treatment plant, wastewater treatment plant and water distribution and wastewater collection system for a community of 20,000 people. The project also included installing above ground diesel storage tanks for standby generator equipment. The project also included instrumentation to allow for the automatic control of the lime softening plant to operate at low flows. The project also included the master planning of the gravity sewer system to cover over 300 acres. The master plan was prepared to determine the optimum location of the master pumping station to be constructed in the initial phases of construction.

Master Regional Pumping Station, Atlantic Beach, Florida - Design of a regional pumping station for the Mayport and Gavagan Road area and inspection and construction phase services. The project consisted of two suction lift pumps, with provisions for generation. This station was designed to handle future growth by providing three phases for expansion, which were set up for user fees to fund future expansions. The project was designed to handle new development areas as well as eliminate existing pumping stations. The project also included the initial study to determine the optimum location for the facilities and working with the Duval County School Board to secure the property for the construction.

Assisi Lane Water Treatment Plant, Atlantic Beach, Florida - Design of an emergency well replacement for Atlantic Beaches' Water Plant No. 3 consisting of well, metering and chlorine feed improvements. The project consisted of providing design and permitting on an emergency situation to replace a deteriorated well. The project required instant response.

Atlantic Beach Plant No. 2 Improvements, Atlantic Beach, Florida - Design for a new well and new instrumentation to tie the operation and monitoring of the water plant to the main plant control panel located at plant No. 1. This project consisted of first revising the City's St. Johns River Water Management District's Consumptive Use Plan to accommodate the proposed well. Secondly, we had to not only design the well and its appurtenances, but to enhance the instrumentation to allow for the control and monitoring of the new well and water plant from the

main water plant No 1.

City Street Improvements, Starke, Florida, City of Starke - For the City of Starke, we provided all the studies, applications and calculations to secure funding for the City's Community Development
Block Grant Program for the years 1978 through 1983. The program included program administration, planning, preliminary design, cost estimates. construction plans and specifications for over fifteen streets including a new water system, 6,000 feet of new pavement, pavement widening, drainage improvements and a bridge, as a part of the City's 1977-82 HUD Community Development Total Grant Amount $1,650,000.

Starke Sewer Rehabilitation Program, Starke, Florida, City of Starke - Designed a sewer rehabilitation program consisting of point repairs, sewer replacements and manhole rehabilitation. In some cases, the sewers were under brick streets which had to be restored.

Saltair Subdivision, Atlantic Beach, Florida - Utility improvements including updating water, sewer, paving and drainage serving an existing developed area in Atlantic Beach, FL. The project consisted of coordinating detail survey information, designing drainage improvements to correct flooding occurring in the area. The project also included updating the antiquated sewer system to include a pumping station and new gravity sewers and service connections. All work had to be designed such that service could be maintained to the existing customers. We were also responsible for the securing of the SJRWMD permit for the paving and drainage improvements and the Department of Environmental Protection permits for the water and sewer system improvements. The project also
included the coordination of efforts with the City staff to determine the extent of the existing system within the project area and to determine the preferred option in the final design for the improvements.

City Street Improvements, Atlantic Beach, Florida, For the City of Atlantic Beach, Mr. Lucas provided all the studies, applications and calculations to secure funding for the City's first Community Development Block Grant application for the year 1981. Their program included program administration, planning, preliminary design, cost estimates, construction plans and specifications for sewer, water, paving and drainage, housing rehabilitation and recreational rehabilitation in a target

Sewage Treatment Plant Modifications, Atlantic Beach, Florida, City of Atlantic Beach - Mr. Lucas served as project manger for the design of modifications to the Bucanneer Wastewater Treatment plant including the addition of a 2.0 MGD chlorine contact chamber with dechlorination, effluent storage and pumping modifications, adding a second digester, and installing a new chlorine handling facility. In conjunction with the treatment plant modifications, Mr. Lucas also provided inspection and construction phase services for the Atlantic Beach Master Regional Pumping Station.

Jacksonville Sewer System Evaluation Survey, Jacksonville, Florida, City of Jacksonville - measured and quantified extraneous flows and provided preliminary designs and estimates for

corrective action.

9th, 11th and Ahern Streets, Atlantic Beach, Florida - Sewer rehabilitation

Shangri La, Atlantic Beach, Florida - Sewer and water extensions

Atlantic Beach Plant No. 2 Improvements - Atlantic Beach, Florida - Design for a new well and new instrumentation to tie the operation and monitoring of the water plant to the main plant control panel located at plant No. 1.

Jacksonville International Airport Utility System Expansion, Jacksonville, Florida, Jacksonville Port Authority - Installation of water, sewer, pumping station and forcemain to serve the Pecan Park Road area right-of-way.

EMPLOYMENT HISTORY

Flood & Associates, Inc., 1973-1978, Sanitary Engineer - Major duties included utility studies, and the design and construction management of water and sewer systems and treatment plants.

Bessent, Hammack & Ruckman, Inc., 1978-1984, Director of Engineering (Enviironmental Section) - Responsible for the water and sewer design work efforts and coordination of all support efforts with the Land Development and Transportation Departments.

J. Lucas & Associates, Inc., 1984-Present, President - Project management and design engineering for numerous water, wastewater, civil site work, environmental permitting and stormwater management projects.

OPERATION AND MAINTENANCE PERFORMANCE REPORT

POINT TOWNHOMES WASTEWATER TREATMENT FACILITY

CLAY COUNTY

DER NO. 3110PO0304

DEP PERMIT NO. DO10-221312

EXPIRES JUNE 30, 1996

January 20, 1997

EXHIBIT

"B"

CERTIFICATIONS

Permittee:

Name: John Yonge

Company: Point Water and Sewer, Inc.

Address: 4753 Raggedy Point Road

City: Orange Park, Florida 32073

County: Clay

Phone No.: (904) 269-1825

We, the above signee, have reviewed and is fully aware of the recommendations and schedules included in the report.

Operator:

Name: Mr. Ed McCormick
Company: Coastal Utility Services
Address: 9615 Shellie Road
City: Jacksonville, Florida 32257
Phone: (904) 262-4035
Certification No. C-0187

We, the above signee, have reviewed and is fully aware of the recommendations and schedules included in the report.

Engineer:

Name: James M. Lucas, P.E.
Company: J. Lucas & Associates, Inc.
Address: 10475 Fortune Parkway, Suite 202
City: Jacksonville, Florida 32256
Phone: (904) 464-0090

This is to certify that the information contained in the report is true and correct to the best of our knowledge, the report was prepared in accordance with sound engineering principles, and that the recommendations and schedules were discussed with the permittee or their representative and the lead operator and agrees that if the recommended schedules for corrective action are met, the facilities, when properly operated and maintained, will comply with all applicable statutes of the State of Florida and rules of the Department.

Chapter 1 - Introduction

The existing plant is a 0.015 mgd extended aeration steel package plant with discharge to the St. Johns River. The plant serves a 19 unit townhomes complex and the adjacent marina. Wastewater from the complex flows into the plant lift station where it is pumped to the aeration unit. Flow from the treatment unit enters a clarifier where the solids are separated from the liquid. Effluent from the clarifier enters a 1463 gallon chlorine contact chamber for disinfection. The effluent then flows through a dechlorine unit before discharging by gravity to the St. Johns River for disposal.

Solids from the clarifier is returned to the treatment unit by the return sludge air lift. Excess sludge is sent to the aerobic digester/sludge holding tank or hauled off by independent contractor. Effluent from the plant discharges via a 6-inch gravity outfall to the river.

The plant is presently permitted for 15,000 gallons per day. The discharge parameters are as follows:

flow:	0.015 gpd	Daily 5/wk
BOD:	20 ppm	Monthly Grab
SS:	20 ppm	Monthly Grab
pH:	6-8.5	Daily 5/wk
Chlorine Residual (contact tank)	0.5-1.0	Daily 5/wk
Residual (Outfall)	0.01	Daily 5/wk
Fecal	200/800	Monthly

Parameter	Annual	Monthly	Weekly	One time
B O D	20 ppm	30 ppm	45 ppm	60 ppm
S S	20 ppm	30 ppm	45 ppm	60 ppm

Monthly Average Daily Flows, Three-month Ave. Daily Flows, Annual Ave. Daily Flows are all shown in Table No. 1 and the Plant Performance Analysis is shown in Table No. 2

The monthly operating reports were examined and the following tables were generated. The plant was constructed in the early 1980's with the construction of the townhomes. Flows have fluctuated but not changed substantially since units have been occupied. Flows are reflective of the occupancy rate of the townhomes, the use of the Marina and the amount of infiltration inflow entering the system. The past operator stated that the flows for the past few years have not changed. Table 1 shows the monthly, three month average and annual average flows for the facility for the data provided. Flows were measured by the elapsed timer on the influent pumps.

Chapter 2 - Physical Conditions

At the Point Townhomes Wastewater Facility, there are numerous unit processes required for the treatment of wastewater. These components and processes used at the plant are as follows:

A. Pumping

Raw water pumping is conducted by the lift station located adjacent to the treatment plant. The plant receives flow from the station via a 4-inch force main.

B. Biological Treatment - Activated Sludge

There is one package extended aeration plant at this facility with sizes and flow ratings shown on the flow diagram.

C. Sedimentation - Final

There is a secondary clarifier.

D. Disinfection

Flow from the treatment unit is directed to the chlorination chamber. The chlorination system at present consists of solid tablet chlorine feed.

E. Dechlorination

Since this plant discharges to surface waters, there is dechlorination using a dechlorination chamber. The dechlorine solution is fed in solid form.

F. Residuals Treatment - Aerobic digestion

Treatment of residuals consists of aerobic digestion in the digester / sludge holding tank. Excess residuals are disposed of by independent

carrier to an approved disposal site.

G. Instrumentation

There is no instrumentation at this plant except for the elapsed time meters on the influent pumps.

H. Laboratory

There is no laboratory located at the plant. Operator uses portable lab equipment for in field testing and contracted laboratory for other testing.

I. Discharge

The plant discharges through a 6" outfall directly to the St. Johns River.

The field visit did not reveal evidence of hydraulic overload at this facility. The visit did reveal a plant in good condition. This observation was also made by DEP in their last visit to the plant on October 23rd. At that date, they suggested relocating the chlorine tablet basket away from the effluent discharge point to allow adequate disinfection prior to discharge. Our visit revealed that two chlorine baskets were put at the effluent launder of the clarifier prior to discharge to the chlorine contact tank. The existing tanks are in good condition due mainly to good maintenance. In general, the plant is operating well and efficiently.

The District noticed gas bubbles rising from the chlorine contact tank which would be an indication of sludge accumulation. Our visit indicated that this problem has been corrected. This in fact was caused by a leaky scum air lift located in the chlorine contact tank. The plant is equipped with a bottom air lift to remove solid material that may settle in this tank. The operator routinely checks for solids accumulation.

Chapter 3 - Treatment Efficiency

In table 2, a summary was made on the performance analysis of the plant for the last 46 month period from January 1993 thru October 1996. The discharge conditions are being met through the proper operation of this plant. The overall treatment efficiency of the plant appears adequate for discharge to the St. Johns River during this interim period until County service is available.

Examining the individual units, each unit is operating within the normal parameters for extended aeration. Under extended aeration, there must be a 15 to 24 hour detention time allowed. There is 28.4 hours detention time designed in the plant aeration zone. The clarifier was designed for a surface loading rate of 400 gallons per day per sq. ft. Based on the latest 3 month average

daily flow of .009 mgd, the aeration detention time is 47.4 hours. The surface loading rate for the clarifier based on the same three month average is 233 gallons per day per sf. Both these parameters are well within the limits of extended aeration.

The chlorine contact chamber does not show signs of short circuiting. With the chlorine being added to the effluent of the clarifier, the effluent has adequate time to mix and disinfect prior to discharge.

Chapter 4 - Performance Trends

Reviewing the operating data in Table 2, we see no change in the characteristics of the wastewater entering the plant. We see no change in the makeup of the service area and do not anticipate any modifications in the type of waste from this area. The flow records do not indicate an excessive infiltration/ inflow problem. The loadings into the plant are within the capabilities of the unit processes within the plant. The treatment facility, with proper operation and maintenance, should be capable of producing an effluent within permit limits through the life of the operation permit or until County service is available. The plant is within their limits to date.

The plant operation data does not show that there is an I/I problem at this facility. Therefore, the current I/I is within the limits of the plants ability to meet the discharge limits.

There are no plans to expand the service area beyond the development property. Therefore, there are no plans to expand the plant. This plant will be phased out when regional systems are available. There have been no bypasses of untreated wastewater from this treatment plant.

Chapter 5 - Operation and Maintenance Program

There are no record drawings of the plant. There is a generic general operation and maintenance manual at the office of the operator to be used by the operators in reference to the operation of the facilities. There is no suitable place to store written material at the site. The operation and maintenance manual is continually updated as equipment and processes are phased out and new systems are added. However, there have not been any additional systems added to this facility since startup. All equipment are basic common equipment for facilities of this size and are readily available. The operator is very familiar with the equipment at the plant and keeps the equipment bulletins at his main office.

The operators keep records on operation and maintenance in a log kept on the property. This facility has been inspected by the Florida Department of Environmental Protection in the past. All records were in order at that time. The plant is adequately staffed. All testing done is acceptable as stated in their last

State inspection.

Chapter 6 - Collection System Evaluation

Based on the flow evaluation shown in the capacity analysis report, the system does not experience an overabundance of inflow during rain events.

There are 19 lots and a marina tied into the plant. Estimated flow per capita is unable to determine due to the nature of the marina.

Based on interviews with the operation personnel, there are no septic sewer problems within the collection system. There are no industrial waste contributors in this system. The plant is not affected by any toxic materials discharged into the system.

Chapter 7 - Problems, Deficiencies and Corrective Actions

The treatment plant is operating well and should operate successfully throughout the permit period without any modifications.

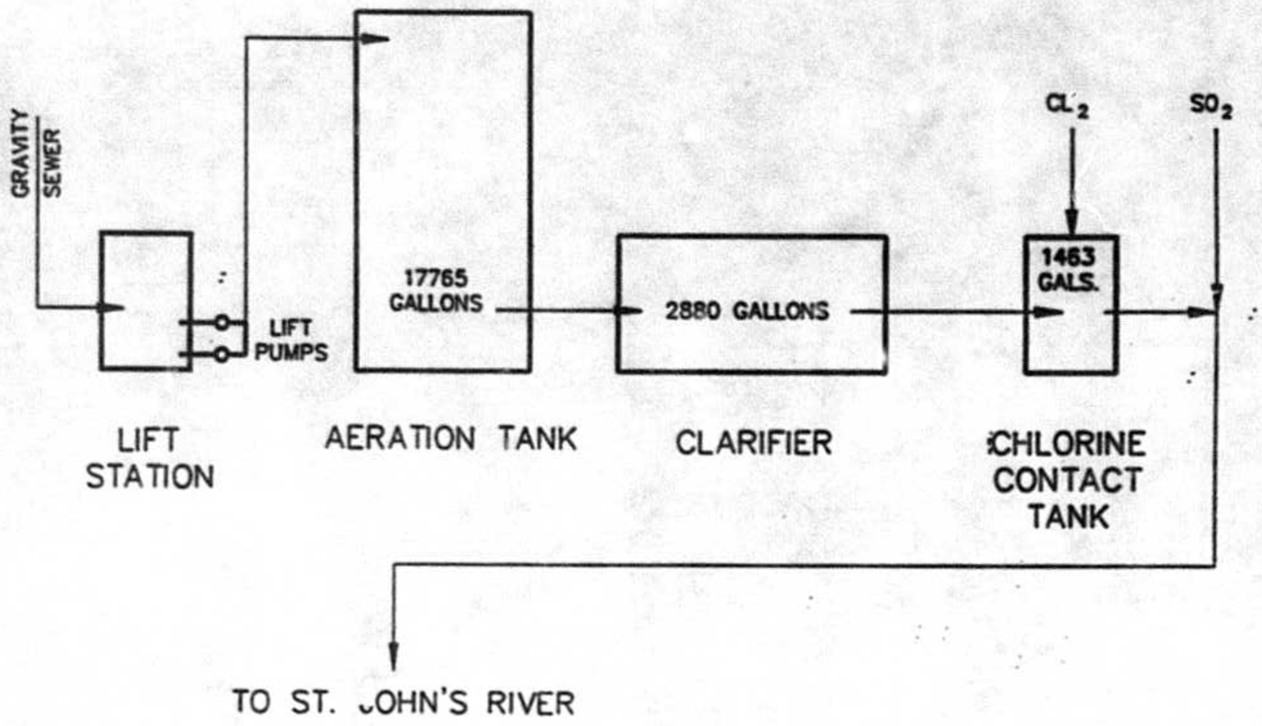

FIGURE 1
PROCESS SCHEMATIC
POINTE TOWNHOMES WWF

J. LUCAS & ASSOCIATES, INC.
CONSULTING AND DESIGN ENGINEERS
10475 FORTUNE PARKWAY, SUITE 202
JACKSONVILLE, FLORIDA 32256
(904) 464-0090

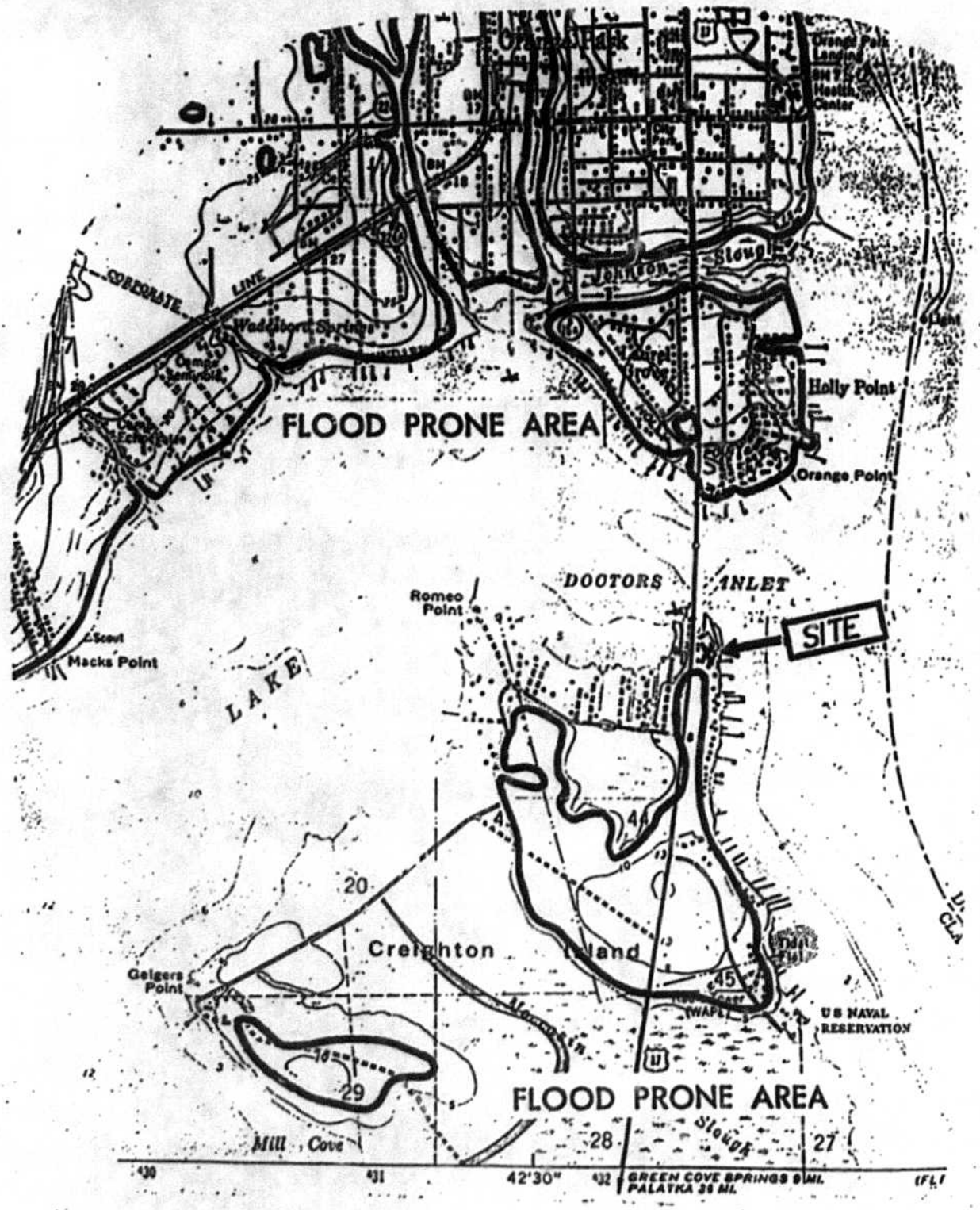

FIGURE 2
SITE PLAN/LOCATION PLAN
POINTE TOWNHOMES WWF

J. LUCAS & ASSOCIATES, INC.
CONSULTING AND DESIGN ENGINEERS
10475 FORTUNE PARKWAY, SUITE 202
JACKSONVILLE, FLORIDA 32256
(904) 464-0090

THE POINT TOWNHOMES WASTEWATER TREATMENT FACILITY

FLOW ANALYSIS

	MONTH	MGD	3 MONTH AVERAGE	PERCENT OF CAP.	ANNUAL AVERAGE	PERCENT OF CAP.	RATIO 3 MO/AN. AVE.
1993	January	0.005					
	February	0.005					
	March	0.004	0.0047	31.11			
	April	0.005	0.0047	31.11			
	May	0.007	0.0053	35.56			
	June	0.009	0.0070	46.67			
	July	0.005	0.0070	46.67			
	August	0.006	0.0067	44.44			
	Septembe	0.006	0.0057	37.78			
	October	0.005	0.0057	37.78			
	November	0.006	0.0057	37.78			
	December	0.006	0.0057	37.78	0.0058	38.33	0.9855
1994	January	0.006	0.0060	40.00	0.0058	38.89	1.0286
	February	0.006	0.0060	40.00	0.0059	39.44	1.0141
	March	0.006	0.0060	40.00	0.0061	40.56	0.9863
	April	0.006	0.0060	40.00	0.0062	41.11	0.9730
	May	0.006	0.0060	40.00	0.0061	40.56	0.9863
	June	0.005	0.0057	37.78	0.0058	38.33	0.9855
	July	0.006	0.0057	37.78	0.0058	38.89	0.9714
	August	0.006	0.0057	37.78	0.0058	38.89	0.9714
	Septembe	0.009	0.0070	46.67	0.0061	40.56	1.1507
	October	0.006	0.0070	46.67	0.0062	41.11	1.1351
	November	0.005	0.0067	44.44	0.0061	40.56	1.0959
	December	0.006	0.0057	37.78	0.0061	40.56	0.9315
1995	January	0.008	0.0063	42.22	0.0063	41.67	1.0133
	February	0.007	0.0070	46.67	0.0063	42.22	1.1053
	March	0.007	0.0073	48.89	0.0064	42.78	1.1429
	April	0.008	0.0073	48.89	0.0066	43.89	1.1139
	May	0.008	0.0077	51.11	0.0068	45.00	1.1358
	June	0.007	0.0077	51.11	0.0069	46.11	1.1084
	July	0.008	0.0077	51.11	0.0071	47.22	1.0824
	August	0.01	0.0083	55.56	0.0074	49.44	1.1236
	Septembe	0.01	0.0093	62.22	0.0075	50.00	1.2444
	October	0.01	0.0100	66.67	0.0078	52.22	1.2766
	November	0.011	0.0103	68.89	0.0083	55.56	1.2400
	December	0.009	0.0100	66.67	0.0086	57.22	1.1650
1996	January	0.008	0.0093	62.22	0.0086	57.22	1.0874
	February	0.009	0.0087	57.78	0.0088	58.33	0.9905
	March	0.011	0.0093	62.22	0.0091	60.56	1.0275
	April	0.014	0.0113	75.56	0.0096	63.89	1.1826
	May		0.0125	83.33	0.0097	64.85	1.2850
	June	0.007	0.0105	70.00	0.0097	64.85	1.0794
	July	0.015	0.0110	73.33	0.0104	69.09	1.0614
	August	0.009	0.0103	68.89	0.0103	68.48	1.0059
	Septembe	0.007	0.0103	68.89	0.0100	66.67	1.0333
	October	0.011	0.0090	60.00	0.0101	67.27	0.8919

THE POINT TOWNHOMES WASTEWATER TREATMENT FACILITY

PERFORMANCE ANALYSIS

		FLOW - MGD	INFLUENT		EFFLUENT			Chl Resid	Chl Resid	FECAL
		ADF	BOD	TSS	BOD	TSS	pH	CCC	Out.	
1993	January	0.005	405	359	6.4	15	7.4	0.5	0.01	100
	February	0.005			29.4	11	7.25	0.5	0.01	100
	March	0.004	232	60	18.5	1	7.2	0.5	0.01	10
	April	0.005	145	180	1	2	7.2	1	0.01	10
	May	0.007	630	207	11.3	6	6.9	0.5	0.01	
	June	0.009	300	77	3.2	2	7	0.5	0.01	10
	July	0.005	63	3	2	1	7.4	0.1	0.01	10
	August	0.006	120	47	4.5	7	7.45	0.1	0.01	10
	September	0.006	420	457	23.5	7	7.095	0.5		10
	October	0.005	60	5	16	4	7	0.2	0.01	10
	November	0.006	145	73	3.5	1	7.15	0.8	0.01	10
	December	0.006	233	290	5.9	4	7.2	0.6	0.01	10
	Average	0.006	319	325	6.2	9.5	7.3	0.55	0.01	55
1994	January	0.006	152	92	1	1	7.1	0.5	0.01	10
	February	0.006	141	100	9.7	5	7.1	0.5	0.01	10
	March	0.006	239	370	4.1	1	7.15	1	0.01	1
	April	0.006	158	70	1.7	1	7.2	0.8	0.01	10
	May	0.006	101	367	1.8	2	7.45	0.5	0.01	
	June	0.005	169	28	10.1	1	7.15	0.5	0.01	2
	July	0.006	103	44	10.4	1	7.15	0.5	0.01	88
	August	0.006	129	126	1.3	1	6.9	0.5	0.01	4
	September	0.009	101	98	5.6	8	6.95	0.5	0.01	2
	October	0.006	340	407	3.3	1	7.35	0.7	0.01	
	November	0.005	200	306	2.6	1	7.15	0.5	0.01	
	December	0.006	109	22	4	8	7.65	0.8	0.01	1552
	Average	0.006	162	169	4.6	2.6	7.19	0.61	0.01	187
1995	January	0.008	80	70	7.2	1	7.7	0.8		1
	February	0.007	135	76	4.4	2	7.75	0.8		2
	March	0.007	55	64	2	4	7.4	0	1.4	2
	April	0.008	206	216	5	3	7.25	0.5	1	2
	May	0.008	354	544	2	4	7.4	0.5	0.8	2
	June	0.007	232	342	2	4	7.35	0.5	0.8	2
	July	0.008	199	132	2	2	7.4	0.5	1	1600
	August	0.01	156	278	2	4	7.45	0.5	0.01	2
	September	0.01	262	360	2	10	7.45	0.5	0.8	2
	October	0.01	448	656	2	7	7.5	0.5	0.8	2
	November	0.011	261	750	2	17	7.45	0.6	0.01	2
	December	0.009	263	932	2	2	7.5	0.5	0.01	2
	Average	0.009	221	368	2.9	5	7.47	0.5	0.66	135
1996	January	0.008	110	71	2	6	7.45	0.5	0.01	6
	February	0.009	157	56	2	2	7.45	0		2
	March	0.011	318	120	2	1	7.45	0	0.01	2
	April	0.014	258	216	2	1	7.45	0	0.01	2
	May									
	June	0.007	177	92	2	1	7.45	0	0.01	2
	July	0.015	183	356	2	3	7.45	0	0.01	2
	August	0.009	218	16	2	1	7.45	1	0.01	2
	September	0.007	242	284	2	1	7.45	1	0.01	2
	October	0.011	166	220	5	1	7.45	1	0.01	2
	Average	0.010	203	159	2.3	1.9	7.45	0.4	0.01	2

ATTACHMENT 2

FIELD EVALUATION OF COMPONENT OPERATIONS

POINT TOWNHOMES WASTEWATER FACILITY

PHYSICAL CONDITION

Hydraulic and Organic Overloading

1. Is there evidence of past spills at the plant or through nearby (upstream) manholes? (Discoloration of the ground or a strong smell may indicate past spills at the plant.) ( ) yes (✓) no

2. Are raw sewage pumping stations, influent lines, overflow weirs, or other structures surcharged? ( ) yes (✓) no

3. Is there flow through bypass channels? ( ) yes (✓) no

4. Are there old high water lines or are the weirs on the clarifier flooded? ( ) yes (✓) no

5. Are there overflows at alternative discharge points, channels, or other areas? ( ) yes (✓) no

6. Are there any open-ended pipes that appear to originate in a process or storage area and periodically contain flows to the ground or to surface water? (Although these pipes have been disconnected from a closed system or otherwise removed from service, they can still be connected to a discharge source.) ( ) yes (✓) no

7. Is the facility receiving excessive septage dumping from septic tanks? ( ) yes (✓) no

8. Are checks for overflows performed routinely? (✓) yes ( ) no

General Condition

1. Is there evidence of corrosion problems at the treatment plant and in the collection system? ( ) yes (✓) no

2. Do any of the units or associated equipment show signs of excessive wear? ( ) yes (✓) no

Rule Requirements

1. Does each component, system, or process meet the applicable reliability standards required by Rule 17-600.400(1)(b), F.A.C.? (✓) yes ( ) no

2. Does the facility have adequate alarm systems for power or equipment failures as recommended by standard design references? (✓) yes ( ) no High level alarm on L.S. only

   Are they working properly? (✓) yes ( ) no

4. Is there any unusual equipment intended to correct operational problems (e.g. special pumps, floating aerators in diffused air systems, chemical feeders, temporary construction or structures, or any improvised systems)? ( ) yes (✓) no

5. Are all components, systems, and processes expected to continue to operate properly for the permit period? (✓) yes ( ) no

If no, explain. _____

_____

_____

_____

Safety Features

1. Are proper safety precautions used for each component, system, and process? (✓) yes ( ) no

If no, explain. _____

_____

_____

_____

2. Is a written set of safety rules available to all employees? ( ) yes (✓) no

3. Is the plant generally clean and free from open trash areas? (✓) yes ( ) no

4. Is the plant site enclosed with a fence or otherwise designed with appropriate features that discourage the entry of animals or unauthorized persons? (✓) yes ( ) no

5. Are wastewater pipes clearly distinguished from product pipes? ( ) yes (✓) no

6. Are there any cross connections between a potable water supply and non-potable source? ( ) yes (✓) no has adequate backflow preventer

7. Does the plant have the following recommended safety equipment?

   a. Portable air blower (gas motor or electric motor operated) ( ) yes (✓) no

   b. Electric explosion-proof lantern ( ) yes (✓) no

   c. Safety harness ( ) yes (✓) no

23. Are chemicals stored properly? (✓) yes ( ) no

24. Are undiked oil/chemical storage tanks used at the facility?
( ) yes ( ) no (✓) not applicable

25. Are chemical storage tanks designed to handle the particular chemical? ( ) yes ( ) no (✓) not applicable

26. Are storage bins provided with dust collectors and vents?
( ) yes ( ) no (✓) not applicable

27. Are storage bins large enough to avoid continuous filling which requires the presence of an operator all the time?
( ) yes ( ) no (✓) not applicable

28. Are access points for sampling dry points which can be reached safely? (✓) yes ( ) no

3. Are analytical results consistent with the data reported in the following?

   a. Monthly operating report (✓ yes ( ) no

   b. Limited wet weather discharge report ( ) yes (✓ no

   c. Ground water monitoring report ( ) yes (✓ no

   d. Reclaimed water or effluent analysis report ( ) yes (✓ no

4. Do sampling and analyses data include the following?

   a. Dates, times, and location of the sampling (✓ yes ( ) no

   b. The name of the individual performing the sampling (✓ yes ( ) no

   c. The analytical methods and techniques used (✓ yes ( ) no

   d. The results of the analyses and calibration (✓ yes ( ) no

   e. The dates of the analyses (✓ yes ( ) no

   f. The name of the person performing the analyses (✓ yes ( ) no

   g. The instantaneous flow at the grab sample station ( ) yes (✓ no

5. Do monitoring records include records for all parameters that must be monitored in accordance with the permit? (✓ yes ( ) no

6. Are flow meter calibration records available? ( ) yes ( ) no N/A ETM meters

7. Are laboratory equipment calibration and maintenance records adequate? (✓ yes ( ) no

8. Are plant records adequate and do they include the following?

   a. A copy of the Department permit (✓ yes ( ) no

   b. An up-to-date operation and maintenance manual (✓ yes ( ) no generic O&M manual

   c. Record drawings ( ) yes (✓ no

   d. Schedules and dates of equipment maintenance repairs (✓ yes ( ) no in log book

   e. Equipment suppliers manual ( ) yes (✓ no

   f. Equipment data cards or equal ( ) yes (✓ no

16. If the pump station is constant speed, do sudden surges affect the operation of the treatment facility when each pump is activated?
( ) yes (✓) no ( ) not applicable

17. What is the general condition of the raw wastewater pump station?
(✓) good ( ) fair ( ) poor

18. What are the most common problems that the operator has had with the pump station? If there are problems with the screens, use the section on screens. An occasional clog which is easily removed from the above ground pump.

none in last 18 mo.s.

FLOW MEASUREMENT

1. What type of flow meter is used? ( ) propeller meter
( ) magnetic meter ( ) venturi tube ( ) flow tube
( ) positive displacement ( ) diaphragm meter ( ) weir
( ) Parshall flume ( ) rotameter (✓) other ETM on influent pumps

2. What is the design capacity of the flow measurement device?
— mgd

3. What is the present wastewater flow measured? — mgd

4. Where is the flow meter located? on influent pumps

5. Are the flow measurement device and associated instruments (totalizers, recorders, etc.) properly installed? (✓) yes ( ) no

6. Is there adequate straight length of pipe or channel before and after the flowmeter? ( ) yes ( ) no N/A

7. Is the flow entering the flume reasonably well-distributed across the channel and free of turbulence, boils, or other disturbances?
( ) yes ( ) no (✓) not applicable.

8. Is the flow measurement system capable of measuring the entire range of wastewater flow? (✓) yes ( ) no

9. Are flow measurements being properly made by plant personnel?
(✓) yes ( ) no

10. Are flow records properly kept? (✓) yes ( ) no

11. Are sharp drops or increases in flow records accounted for?
( ) yes ( ) no N/A

12. Does the flow chart exhibit uniform flow? ( ) yes ( ) no N/A

13. Do any plant return flows discharge upstream from the meter?
( ) yes (✓) no

14. Are float and bubble wells clean and free of grease and debris?
( ) yes ( ) no (✓) not applicable

15. Are weirs free of debris? ( ) yes ( ) no (✓) not applicable

16. Are weirs or flumes broken or cracked?
( ) yes ( ) no (✓) not applicable

17. Are weir plates corroded or damaged, not sharp edged (≤ 1/8"), or not level? ( ) yes ( ) no (✓) not applicable

18. Are stilling wells clogged or broken?
( ) yes ( ) no (✓) not applicable

BIOLOGICAL TREATMENT

Activated Sludge

1. How many aeration basins are there? 1
2. What is the design capacity of each basin? 0.015 mgd
3. What is the actual flow to each basin? 0,010 mgd average 0,014 mgd peak
4. What is the flow regime? (✓) conventional ( ) step aeration ( ) complete mix ( ) pure oxygen ( ) other _____
5. What type of aeration equipment is used? (✓) diffused air ( ) mechanical aerators ( ) other _____
6. What are the dimensions of each aeration basin? 12'Ø x 21' long.
7. What is the color of the activated sludge? ( ) black ( ) dark brown ( ) light brown (✓) other medium brown
8. What is the odor of the activated sludge? ( ) septic (✓) earthy ( ) none ( ) other _____
9. What characteristics most accurately describe the foam? (✓) light, crisp ( ) thick, dark ( ) heavy, white ( ) other _____
10. Are the tank contents mixed thoroughly? (✓) yes ( ) no
11. Are there excessive air leaks in the compressed air piping? ( ) yes (✓) no ( ) not applicable
12. Is the dissolved oxygen level in the aeration tank low (<1.0 mg/l)? ( ) yes (✓) no
13. Does mixing appear excessive? ( ) yes (✓) no
14. Does air rise in clumps? ( ) yes (✓) no
15. Do there appear to be dead spots in the aeration basin? ( ) yes (✓) no

    If yes, at what location? _____
16. What is the depth of the sand and grit layer? ± 1" feet
17. What is the active capacity of the aeration basin? 2,375 cubic feet
18. Is the process operating in its design mode? (✓) yes ( ) no

    If no, explain. _____

19. Are the return activated sludge pumps operating? (✓) yes ( ) no

If no, what is the reason? _____

20. Are there flow measurement devices for the return activated sludge and waste activated sludge systems? ( ) yes (✓) no

21. Does the aeration basin have a foam control system? ( ) yes (✓) no

22. If multiple basins are operating, is the flow distributed equally? ( ) yes ( ) no (✓) not applicable

How is it distributed? _____

23. Are the characteristics of the basin contents different in the various units? ( ) yes ( ) no (✓) not applicable

24. How is the system operated? ( ) manually ( ) semi-automatically (✓) automatically ( ) computer-controlled ( ) other _____

25. What is the frequency of routine inspections for proper operation? 260 /day

26. What is the frequency of maintenance inspections by plant personnel? 260 /year

27. What is the general condition of the activated sludge facilities? (✓) good ( ) fair ( ) poor

28. What are the most common problems that the operator has had with the activated sludge system? none in last 18 mos.

SEDIMENTATION

Final

1. How many final sedimentation basins are there? 1

2. What is the design capacity of each basin? .015 mgd average .030 mgd peak

3. What is the actual flow to each basin? .010 mgd average .020 mgd peak

4. What are the dimensions of the basins? 7'ϕ x 12' Deep

5. Is chemical addition used to improve settling? ( ) yes (X) no

   If yes, what chemical(s) are added? _____

6. Is there an excessive accumulation of scum, grease foam, or floating residuals in the clarifier? ( ) yes (X) no

7. Are there excessive gas bubbles on the surface of the clarifier? ( ) yes (X) no

8. Is there scum overflow, lack of adequate scum disposal, or is the scum pit full? ( ) yes (X) no

9. Does the tank surface indicate improper residuals withdrawal (i.e., excessive floating solids, gas, etc.)? ( ) yes (X) no

10. What volume of residuals is pumped? 15,000 gpd total 15,000 gpd RAS 150 gpd WAS

11. What is the solids concentration of the residuals? ± 1.5%

12. Are there settleable solids in the effluent? ( ) yes (✓) no

13. How are residuals pumped? ( ) manually (✓) automatically

14. How often do residuals pumps run? — number of times each day

    How long do residuals pumps run? — number of minutes each time
    Air Lift pump. operator diverts RAS to waste.

15. Does the residuals collection system show any signs of mechanical failure? ( ) yes (✓) no

16. Is there excessive residuals on the bottom of the basin (i.e., inadequate residuals removal)? ( ) yes (✓) no

17. Is there excessive solids build-up in the center well of the clarifier? ( ) yes (✓) no

18. What is the depth of the sand and grit layer? ± 1' feet

DISINFECTION

Chlorination

1. How many chlorine contact basins are there? 1

2. What is the design capacity of each basin? .015 mgd average
   .030 mgd peak hourly flow

3. What is the actual flow to each basin? .010 mgd average
   .020 mgd peak hourly flow

4. What are the dimensions of the basins? 19.5 CF

5. What is the detention time of each contact basin at peak-hourly flow?
   56 minutes

6. What chlorine dosage is applied? 10 mg/l (solid tablets)

7. What is the normal level of chlorine residual in the basin effluent?
   .5 - 1 mg/l

8. Are disinfection standards being met? (✓) yes ( ) no

9. What type of chlorination system is being used? ( ) chlorine cylinders ( ) on-site sodium hypochlorite generation ( ) sodium hypochlorite solution ( ) calcium hypochlorite solution
   Solid Chlorine tablets.

10. What is the design capacity of the chlorination system?
    — lbs/day

    What is the maximum capacity of the chlorination system?
    — lbs/day

11. What is the configuration of the chlorine contact basin? ( ) round (✓) rectangular ( ) other _____

12. Is the contact basin adequately baffled to minimize short-circuiting?
    (✓) yes ( ) no

13. How is chlorine introduced into the wastewater entering the contact basin? ( ) perforated diffusers ( ) injector with single entry point (✓) other 2 Tablet basins at surface

14. Are mechanical mixing provisions incorporated in the chlorine contact basins design? ( ) yes (✓) no

15. Is there an adequate reserve supply of chlorine? (✓) yes ( ) no

    How many days of supply is maintained? 30 + 45 days

16. Are there high temperatures in the chlorination rooms?
    ( ) yes (✓) no

RESIDUALS TREATMENT

Aerobic Stabilization

1. How many aerobic digesters are there? 1
2. What is the design influent flow to each digester? 15 gallons/day average
3. What is the actual influent flow to each digester? As needed gallons/day average
4. What are the dimensions of each unit? 1463 gal.
5. How many units are presently operating? 1
6. What type of residuals are treated in the aerobic digester? (✓) waste activated ( ) primary ( ) primary and waste activated ( ) other _____
7. How often are residuals applied to the digester? As needed/day
8. What is the total duration of influent pumping? .5 hours/day
9. How are influent residuals pumped? (✓) manually ( ) automatically
10. What is the solids concentration in the influent residuals? ±1.5 %
11. What is the solids concentration in the aerobic digesters? ±2 %
12. What type of aeration equipment is used? (✓) diffused air ( ) mechanical mixers ( ) combination ( ) other _____
13. If diffused aeration is used, do air diffusers require frequent cleaning? ( ) yes (✓) no ( ) not applicable
14. What type of aerobic digesters are used? (✓) open ( ) closed
15. What type of aeration is provided? (✓) conventional ( ) pure oxygen
16. What is the residuals retention time? ±45 days
17. What is the volatile suspend solids (VSS) loading? _____ lb VSS/cu ft/day
18. What type of feed system is used? ( ) continuous (✓) batch
19. What is the solids concentration of the residuals following settling? 3 %
20. How much waste residuals are pumped? As needed gallons/day

42. Does the unit show signs of short circuiting and/or overloads?
( ) yes (✓) no

43. Does the method of stabilization comply with either the Process to Further Reduce Pathogens (PFRP) or the Process to Significantly Reduce Pathogens (PSRP) as described in Title 40 Code of Federal Regulation's Part 257? ( ) yes ( ) no

If yes, which one? ( ) PFRP ( ) PSRP

If no, explain. _____

_____

_____

44. What is the frequency of routine inspections for proper operation?
2ℓ° /day

45. What is the frequency of maintenance inspections by plant personnel?
2ℓ° /year

46. What is the general condition of the aerobic digesters?
(✓) good ( ) fair ( ) poor

47. What are the most common problems that the operator has had with the aerobic digesters? _____

_____

_____

DISPOSAL SYSTEMS

Outfalls

1. How many outfalls are there? 1

2. What type of receiving waters does the outfall(s) discharge to?
( ) ocean ( ) estuary ( ) lake (✓) river ( ) other _____

3. What is the design capacity of each outfall?
.015 mgd average .030 mgd peak

4. What is the present discharge at each outfall?
.010 mgd average .020 mgd peak

5. What are the diameter and length of each outfall? 6" PVC, 800'±

6. Are the outfall diffusers functioning properly?
( ) yes ( ) no (✓) not applicable

7. Is the outfall(s) operating so that the discharge limitations specified in the permit are consistently met? (✓) yes ( ) no

8. How does the effluent flow in the outfall? (✓) gravity ( ) pressure

   If the flow is by gravity and if the outfall(s) extends into the receiving waters, is a manhole provided at the shore end of the outfall? ( ) yes (✓) no ( ) not applicable

9. Is adequate corrosion control provided (i.e., pipe coatings, cathodic protection, etc.)? (✓) yes ( ) no

10. For outfalls subject to tidal or high water backup, are flap valves or automatically closing gates functioning properly?
( ) yes ( ) no (✓) not applicable

11. Does the outfall(s) exhibit signs of scour or undercutting?
( ) yes (✓) no

12. Is the outfall(s) adequately protected from floodwaters, tides, and other hazards so as to reasonably ensure structural stability and prevent stoppage? (✓) yes ( ) no

13. Can effluent samples be obtained at a point after the final treatment process and before discharge to or mixing with the receiving waters?
(✓) yes ( ) no

14. Are outfall and diffuser pipes routinely inspected for breakage and corrosion? (✓) yes ( ) no

15. What is the frequency of maintenance inspections by plant personnel?
260 /year

16. What is the general condition of the outfall facilities?
(✓) good ( ) fair ( ) poor

17. What are the most common problems that the operator has had with the plant outfall(s)? none

CAPACITY ANALYSIS REPORT

THE POINT TOWNHOMES
HIGHWAY 17, FLEMING ISLAND

CLAY COUNTY

DER NO. 3110PO0304

PERMIT NO. DO10-221312

EXPIRES 6/30/96

January 20, 1997

EXHIBIT

"C"

CERTIFICATIONS

Permittee:

Name: John Yonge, President

Company: Point Water and Sewer, Inc.

Address: 4753 Raggedy Point Road

City: Orange Park, Florida 32073

County: Clay

Phone No.: (904) 269-1825

We, the above signee, are fully aware and intends to comply with the recommendations and schedules included in the report.

Engineer:

Name: James M. Lucas, P.E.

Company: J. Lucas & Associates, Inc.

Address: 10475 Fortune Parkway, Suite 202

City: Jacksonville, Florida 32256

Phone: (904) 464-0090

This is to certify that the information contained in the report is true and correct to the best of our knowledge, the report was prepared in accordance with sound engineering principles, and that the recommendations and schedules were discussed with the permittee or their representative.

Chapter 1 - Introduction

The existing plant is a 0.015 mgd extended aeration steel package plant with dechlorination and discharge to the St. Johns River. The plant serves a 19 unit townhomes complex and the adjacent marina. Wastewater from the complex flows into a pumping station located adjacent to the plant before being lifted into the treatment unit's aeration tank. Flow from the aeration tank enters a clarifier where the solids are separated from the liquid. Effluent from the clarifier enters a 1460 gallon chlorine contact chamber for disinfection. The effluent leaves the plant by gravity where it flows through a dechlorination unit prior to discharge to the river for disposal.

Solids from the clarifier is returned to the treatment unit by the return sludge air lift. Excess sludge is stored in the digester or hauled off by independent contractor.

Effluent from the plant discharges via a 6-inch gravity line to the river after dechlorination.

Chapter 2 - Existing Conditions

Permitted Capacities:

The plant is presently permitted for 15,000 gallons per day. The discharge parameters are as follows:

flow:	0.015 gpd	Daily 5/wk
BOD:	20 ppm	Monthly Grab
SS:	20 ppm	Monthly Grab
pH:	6-8.5	Daily 5/wk
Chlorine Residual (contact tank)	0.5-1.0	Daily 5/wk
Residual (Outfall)	0.01	Daily 5/wk
Fecal	200/800	Monthly

Parameter	Annual	Monthly	Weekly	One time
B O D	20 ppm	30 ppm	45 ppm	60 ppm
S S	20 ppm	30 ppm	45 ppm	60 ppm

Monthly Average Daily Flows, Three-month Ave. Daily Flows, Annual Ave. Daily Flows:

The monthly operating reports were examined and the following tables were generated. The plant was constructed in the early 1980's with the construction of the townhomes. Flows have gradually increased over the years due to increases in the marina activities from an annual average of 8,000 to 10,000 gpd. Flows are reflective of the occupancy rate of the townhomes, the use of the Marina and any infiltration inflow entering the system. The past operator stated that the flows for the past few years have not changed appreciably. Table 1 shows the monthly, three month average and annual average flows for the facility for the data provided. Flows were measured by the elapsed timer on the influent pumps.

Chapter 3 - Future Conditions

The treatment plant for this facility was designed for only this facility. There are no plans to expand the facility or add additional connections to the wastewater treatment plant at this time. The plant was designed to handle 34 townhome units but as of this date, there are no plans to add the remaining units. The collection system only receives domestic waste. In fact there are plans for phaseout of this facility within the next few years depending on availability. At present, the County has no facilities to connect to economically.

Chapter 4 - Summary and Conclusions

The treatment plant is properly sized for the use intended and does not require enlarging or updating. The average flows are well within the capacity of the plant and require no expansion. There are no projections that will exceed the capacity of the existing plant within the next five years. When regional facilities are extended to this location, the plant will be eliminated.

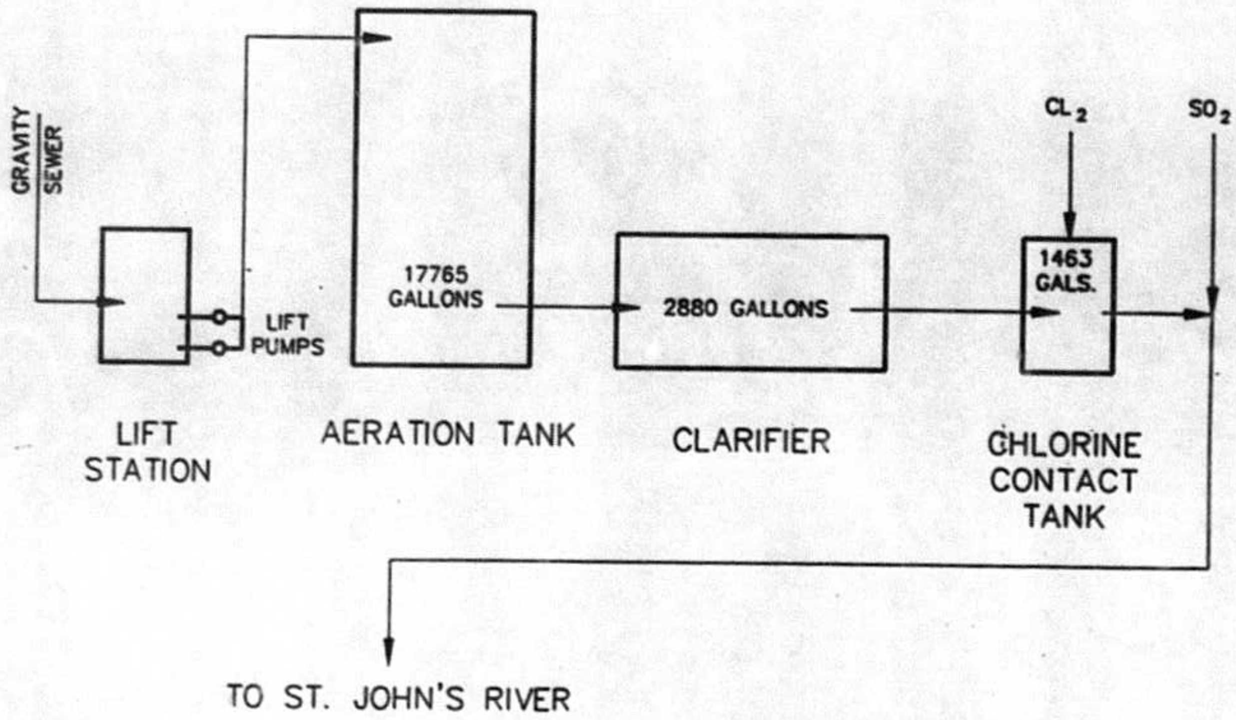

FIGURE 1
PROCESS SCHEMATIC
POINTE TOWNHOMES WWF

J. LUCAS & ASSOCIATES, INC.
CONSULTING AND DESIGN ENGINEERS
10475 FORTUNE PARKWAY, SUITE 202
JACKSONVILLE, FLORIDA 32256
(904) 464-0090

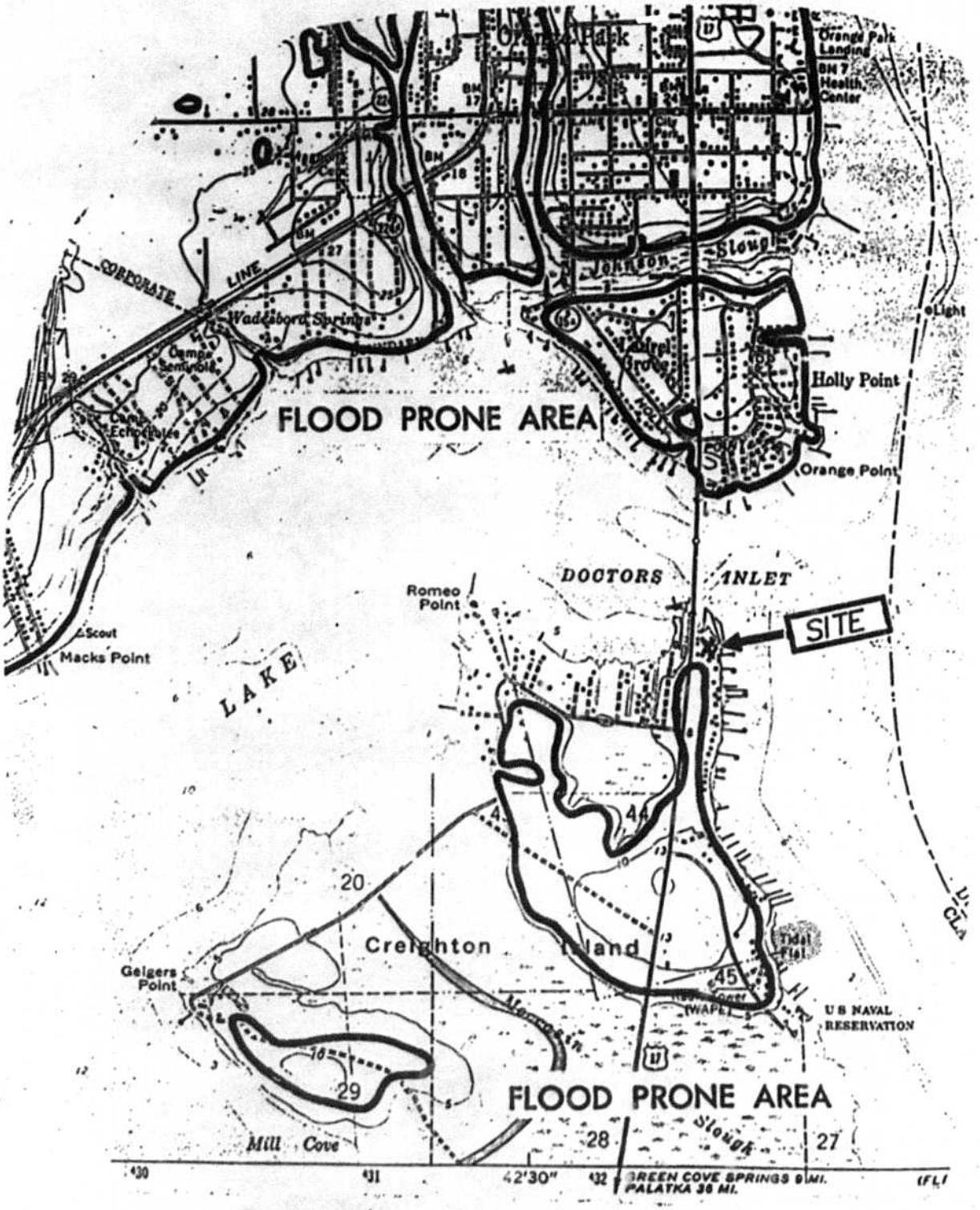

FIGURE 2
SITE PLAN/LOCATION PLAN
POINTE TOWNHOMES WWF

J. LUCAS & ASSOCIATES, INC.
CONSULTING AND DESIGN ENGINEERS
10475 FORTUNE PARKWAY, SUITE 202
JACKSONVILLE, FLORIDA 32256

THE POINT TOWNHOMES WASTEWATER TREATMENT FACILITY

FLOW ANALYSIS

	MONTH	MGD	3 MONTH AVERAGE	PERCENT OF CAP.	ANNUAL AVERAGE	PERCENT OF CAP.	RATIO 3 MO/AN. AVE.
1993	January	0.005					
	February	0.005					
	March	0.004	0.0047	31.11			
	April	0.005	0.0047	31.11			
	May	0.007	0.0053	35.56			
	June	0.009	0.0070	46.67			
	July	0.005	0.0070	46.67			
	August	0.006	0.0067	44.44			
	Septembe	0.006	0.0057	37.78			
	October	0.005	0.0057	37.78			
	November	0.006	0.0057	37.78			
	December	0.006	0.0057	37.78	0.0058	38.33	0.9855
1994	January	0.006	0.0060	40.00	0.0058	38.89	1.0286
	February	0.006	0.0060	40.00	0.0059	39.44	1.0141
	March	0.006	0.0060	40.00	0.0061	40.56	0.9863
	April	0.006	0.0060	40.00	0.0062	41.11	0.9730
	May	0.006	0.0060	40.00	0.0061	40.56	0.9863
	June	0.005	0.0057	37.78	0.0058	38.33	0.9855
	July	0.006	0.0057	37.78	0.0058	38.89	0.9714
	August	0.006	0.0057	37.78	0.0058	38.89	0.9714
	Septembe	0.009	0.0070	46.67	0.0061	40.56	1.1507
	October	0.006	0.0070	46.67	0.0062	41.11	1.1351
	November	0.005	0.0067	44.44	0.0061	40.56	1.0959
	December	0.006	0.0057	37.78	0.0061	40.56	0.9315
1995	January	0.008	0.0063	42.22	0.0063	41.67	1.0133
	February	0.007	0.0070	46.67	0.0063	42.22	1.1053
	March	0.007	0.0073	48.89	0.0064	42.78	1.1429
	April	0.008	0.0073	48.89	0.0066	43.89	1.1139
	May	0.008	0.0077	51.11	0.0068	45.00	1.1358
	June	0.007	0.0077	51.11	0.0069	46.11	1.1084
	July	0.008	0.0077	51.11	0.0071	47.22	1.0824
	August	0.01	0.0083	55.56	0.0074	49.44	1.1236
	Septembe	0.01	0.0093	62.22	0.0075	50.00	1.2444
	October	0.01	0.0100	66.67	0.0078	52.22	1.2766
	November	0.011	0.0103	68.89	0.0083	55.56	1.2400
	December	0.009	0.0100	66.67	0.0086	57.22	1.1650
1996	January	0.008	0.0093	62.22	0.0086	57.22	1.0874
	February	0.009	0.0087	57.78	0.0088	58.33	0.9905
	March	0.011	0.0093	62.22	0.0091	60.56	1.0275
	April	0.014	0.0113	75.56	0.0096	63.89	1.1826
	May		0.0125	83.33	0.0097	64.85	1.2850
	June	0.007	0.0105	70.00	0.0097	64.85	1.0794
	July	0.015	0.0110	73.33	0.0104	69.09	1.0614
	August	0.009	0.0103	68.89	0.0103	68.48	1.0059
	Septembe	0.007	0.0103	68.89	0.0100	66.67	1.0333
	October	0.011	0.0090	60.00	0.0101	67.27	0.8919