Docket No. 080121-WS

Application to Increase Rates and Charges
For a "Class A" Utility
In
Florida

ATTACHMENT 17 TO AUF'S RESPONSE TO STAFF DEFICIENCY LETTER

Tab 17 AUF Wastewater Capacity Analysis Reports
Tab 28 Documentation to Support the Required Fire Flows
Tab 28 F-3 Water Treatment Data
Tab 35 Chemical Analysis required for Jungle Den
Tab 36 Sanitary Surveys or Wastewater Inspection Reports for jasmine Lakes and Wootens S
Tab 37 Permits for Tomoka View/Twin Rivers and Gibsonia Systems
Lake Osborne Monthly Operating Reports for 2006, Signed Copies

Aqua Utilities Florida, Inc.

Rule 25-30.431(3), F.A.C., requires, as part of an application filed pursuant to Rule 25-30.437, F.A.C., the Utility to submit its most recent wastewater capacity analysis report, if any, filed with DEP. Based on the capacities reflected on MFR Schedule F-6 for AUF's respective wastewater systems, it appears that the Utility would have been required to file either an initial or updated capacity analysis reports for some of its wastewater systems, pursuant to Rule 62-600.405, F.A.C.

17. AUF did not submit any wastewater capacity analysis reports.

Capacity Analysis Report

FOR

ARREDONDO FARMS
WASTEWATER TREATMENT FACILITY
Located in Alachua County

DOMESTIC WASTEWATER FACILITY PERMIT NO. FLA011315
ISSUE DATE: JANUARY 27, 2003
EXPIRATION DATE: JANUARY 26, 2008

PREPARED BY:

AQUA UTILITIES FLORIDA INCORPORATED
1100 Thomas Avenue
Leesburg, Florida 34748

January 2008

COM
ECR 1
GCL
OPC
RCP
SSC
SGA
ADM
CLK

CERTIFICATIONS

Permittee:

John M. Lihvarcik
President and COO
Aqua Utilities Florida Incorporated
1100 Thomas Avenue
Leesburg, Florida 34748
(352)435-4028

I certify that I have reviewed this report and am fully aware and intend to comply with recommendations and schedules included in this report.

2-7-08
Date

John M. Lihvarcik

Engineer:

Edward J. Pellenz, P.E.
Operations Manager
Aqua Utilities Florida Incorporated
1100 Thomas Avenue
Leesburg, Florida 32748
(352)435-4033

I certify that the information contained in this report is true and correct to the best of my knowledge, that the report was prepared in accordance with sound engineering principles, and that I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative and the Lead Operator and agree 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, and will discharge effluent that complies with the limitations specified in the permit.

2/11/2008
Date

Edward J. Pellenz, P.E.
Professional Engineer No. 27409
State of Florida

CERTIFICATIONS
(Continued)

Lead Operator

Paul D. Thompson
Aqua Utilities Florida Incorporated
930 South S.R. 19, Suite #3
Palatka, Florida 32177
(386)329-1122

I certify that I have reviewed this report and am fully aware of the recommendations and schedules included in this report.

2/7/08
Date

Paul D. Thompson
Certification No. A-4894

A. Introduction

Aqua Utilities Florida Incorporated (AQUA) owns and operates the Arredondo Farms Wastewater Treatment Facility (WWTF) located in Alachua County. This Capacity Analysis Report (CAR) is being submitted pursuant to Rule 62-600.405, Florida Administrative Code (F.A.C.) for renewal of the facility's Domestic Wastewater Facility Permit. This report was prepared in accordance with the Florida Department of Environmental Protection (FDEP) publication entitled: "Guidelines for Preparation of Capacity Analysis Reports", dated July 1992, and covers the period from July 2004 to present, the time frame since AQUA acquired Arredondo Farms from Florida Water Services Corporation.

The Arredondo Farms wastewater service area is located in Section 28, Township 10 South, Range 19 East, in Alachua County, Florida, as shown on Figure 1-1. The service area has remained the same since the submittal of the last renewal application and is approximately 65 acres in size. The service area is residential and is comprised of single family mobile homes. The service area consists of approximately 380 residential connections and is at built-out. However, the mobile home park is making an effort to remove old vacant trailers and replace them with new occupied trailers. There are no plans to expand the service area.

B. Plant Capacity and Description

The Arredondo Farms WWTF has a rated capacity of 0.060 mgd, annual average daily flow, and is operated as a conventional activated sludge facility. The operation of the plant is authorized under FDEP Domestic Wastewater Facility Permit No. FLA011315, which was issued on January 27, 2003 and expires on January 26, 2008.

The treatment process for the plant includes aeration, clarification, disinfection, and sludge thickening via digester. The effluent is discharged to two evaporation/percolation ponds located at the plant site.

C. Treatment Process

Wastewater generated within the Arredondo Farms service area is conveyed to the master lift station located at the plant site. The wastewater is pumped from the lift station to Aeration Tank No. 1 where it is discharged for treatment. There are six aeration tanks which are hydrostatically connected. The mixed liquor suspended solids (MLSS) in each aeration tank is aerated with course diffused air. The MLSS is then conveyed from Aeration Tank No. 6 to the clarifiers. The clarifiers are equipped with a stilling well to promote solids settleability and a skimmer and baffle to control the scum. The scum is air-lifted to the Aeration Tank No.5 and No. 6. The settled sludge is either air-lifted to Aeration Tank No. 1 or wasted and airlifted to the digester. During decanting, the supernatant is pumped to Aeration Tank No. 1. From the clarifiers, the clarified effluent flows by gravity to the chlorine contact tank. Sodium hypochlorite is used to disinfect the effluent and is applied at the influent pipe to the chlorine contact tank. The disinfected effluent flows by gravity from the chlorine contact tank to the onsite evaporation/percolation ponds for reuse.

D. Plant Capacities

The permitted Capacity of this treatment is 0.060 MGD Annual Average Daily Flow (AADF). Currently the AADF is 0.052 MGD, the three month average daily flow is 0.052 MGD and the monthly average daily flow is 0.052 MGD. Flow history is presented in Table CAR-1 and is shown graphically on Figure CAR-1.

Table CAR-1
Flow History

Date	Annual Average Daily Flow	Monthly Average Daily Flow	Three Month Average Daily Flow
December-07	0.046	0.052	0.052
November-07	0.046	0.053	0.050
October-07	0.045	0.050	0.048
September-07	0.045	0.048	0.047
August-07	0.045	0.045	0.045
July-07	0.045	0.047	0.045
June-07	0.044	0.043	0.043
May-07	0.045	0.044	0.043
April-07	0.045	0.041	0.043
March-07	0.044	0.043	0.044
February-07	0.044	0.044	0.044
January-07	0.044	0.044	0.044
December-06	0.043	0.044	0.045
November-06	0.044	0.043	0.047
October-06	0.043	0.049	0.047
September-06	0.043	0.050	0.045
August-06	0.041	0.042	0.044
July-06	0.044	0.044	0.045
June-06	0.039	0.046	0.043
May-06	0.038	0.045	0.041
April-06	0.036	0.037	0.039
March-06	0.035	0.041	0.040
February-06	0.034	0.038	0.041
January-06	0.033	0.042	0.042

CHAPTER VII - PROBLEMS, DEFICIENCIES AND CORRECTIVE ACTIONS

A. Problems

The physical condition of the treatment plant and effluent reuse system was presented in the OMPR. Overall, the plant is in satisfactory mechanical and operating condition, however capacity is an issue.

B. Deficiencies

There are currently no deficiencies regarding plant performance. As indicated in OMPR, the plant has been able to meet the required effluent limits.

C. Corrective Actions

An engineering evaluation should be preformed to determine what mechanical changes such as an aerated surge tank, additional aeration capacity, and/or coagulant aid for TSS control should be added for this system to continue to perform to standards.

The engineering evaluation can be submitted to DEP for approval within 6-months of permit issuance.

If DEP approves of the above engineering evaluation, within 6-months of approval a permit modification will be submitted to implement the changes recommended by the engineering evaluation.

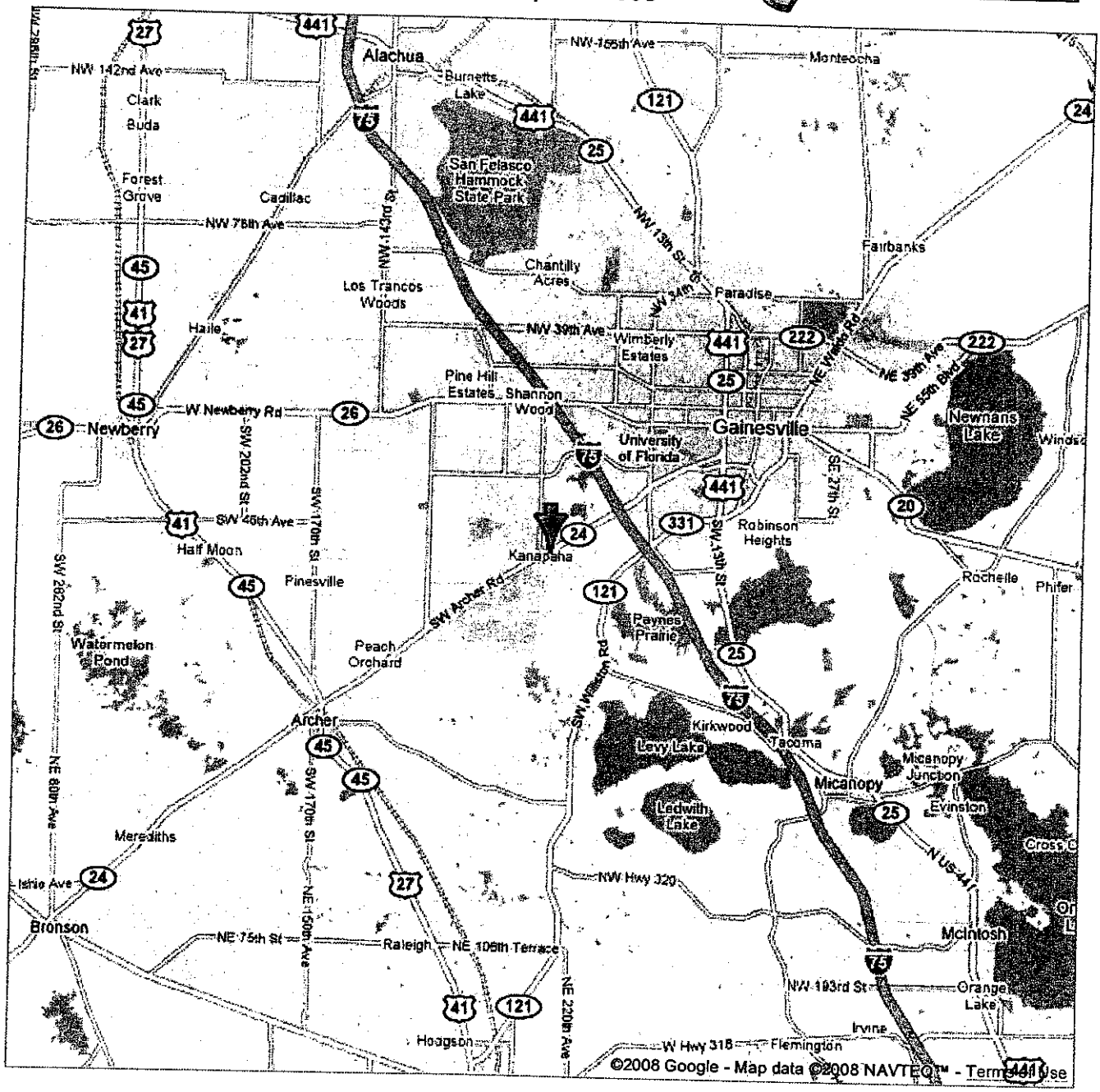
Arredondo Farms Vicinity Map Figure 1-2

Google Maps

Address

7117 SW Archer Rd
Gainesville, FL 32608

Get Google Maps on your phone
Text the word "GMAPS" to 466453



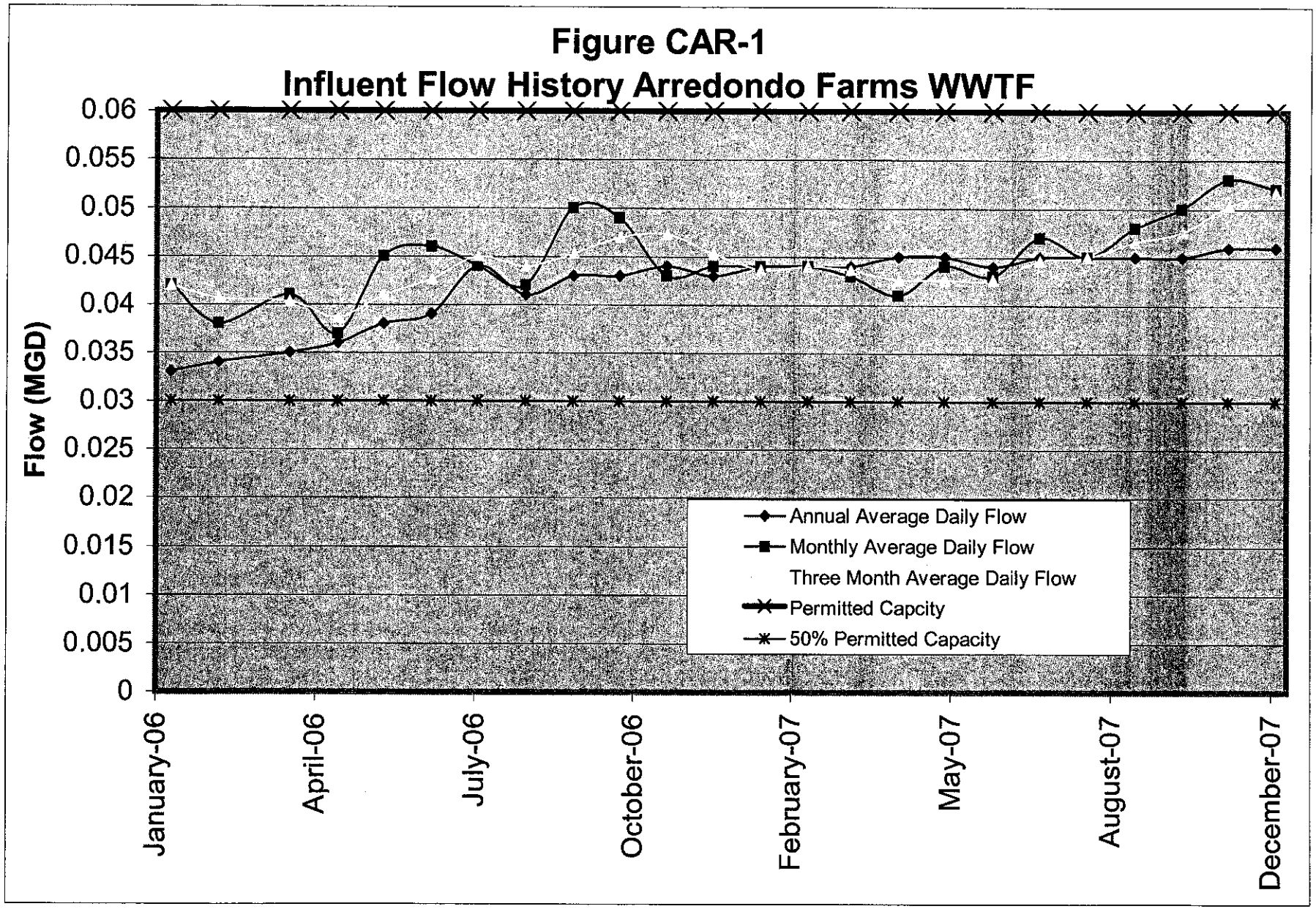


Figure CAR-1
Influent Flow History Arredondo Farms WWTF
Flow (MGD)
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
January-06
April-06
July-06
October-06
February-07
May-07
August-07
December-07
Annual Average Daily Flow
Monthly Average Daily Flow
Three Month Average Daily Flow
Permitted Capcity
50% Permitted Capacity

UPDATED CAPACITY
ANALYSIS REPORT

CHULUOTA
WASTEWATER TREATMENT FACILITY

PREPARED FOR:

AQUA UTILITIES FLORIDA, INC.
P.O. BOX 490310
LEESBURG, FL 34749
(352) 787-0980

PREPARED BY:

BOYD ENVIRONMENTAL ENGINEERING, INC.
1349 INTERNATIONAL PARKWAY SOUTH
SUITE 2401
LAKE MARY, FL 32746
(407) 936-1257
C.O.A. #6444

SEPTEMBER 2007

Certifications

Permittee

I am fully aware and intend to comply with the recommendations and schedules included in this report.

John M. Lihvarcik
Chief Operating Officer
Aqua Utilities Florida, Inc.
P.O. Box 490310
Leesburg, Florida 34749
352-787-0980

Professional Engineer

The information contained in this report is true and correct to the best of my knowledge. The report was prepared in accordance with sound engineering principles, and I discussed the recommendations and schedules with the permittee.

9-10-07

James C. Boyd, P.E. (P.E. No. 35480)
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1349 International Parkway South
Suite 2401
Lake Mary, FL 32746
407-936-1257
COA No. 6444

UPDATED CAPACITY ANALYSIS REPORT
FOR
CHULUOTA
WASTEWATER TREATMENT FACILITY

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UPDATED CAPACITY ANALYSIS REPORT
FOR
CHULUOTA
WASTEWATER TREATMENT FACILITY

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APPENDICES

CHAPTER I - INTRODUCTION

The Chuluota Wastewater Treatment Facility ("WWTF") is authorized to operate under the Florida Department of Environmental Protection ("FDEP") wastewater permit No. FLA011076. This permit was issued March 17, 2003 and expires on March 10, 2008. The purpose of this report is to satisfy the requirements of Rule 62-600.405(5)(a), which requires the submittal of an Updated Capacity Analysis Report at the time of permit renewal.

The WWTF is located in Seminole County, Florida, within the community of Chuluota. The WWTF permittee is Aqua Utilities Florida, Inc. (AQUA"). A map depicting the facility location and surrounding service area is included as Figure I-1. The service area is predominately residential in nature. As of December 31, 2006, there were 594 active wastewater connections within the service area.

Brief Description of Treatment and Disposal Facilities

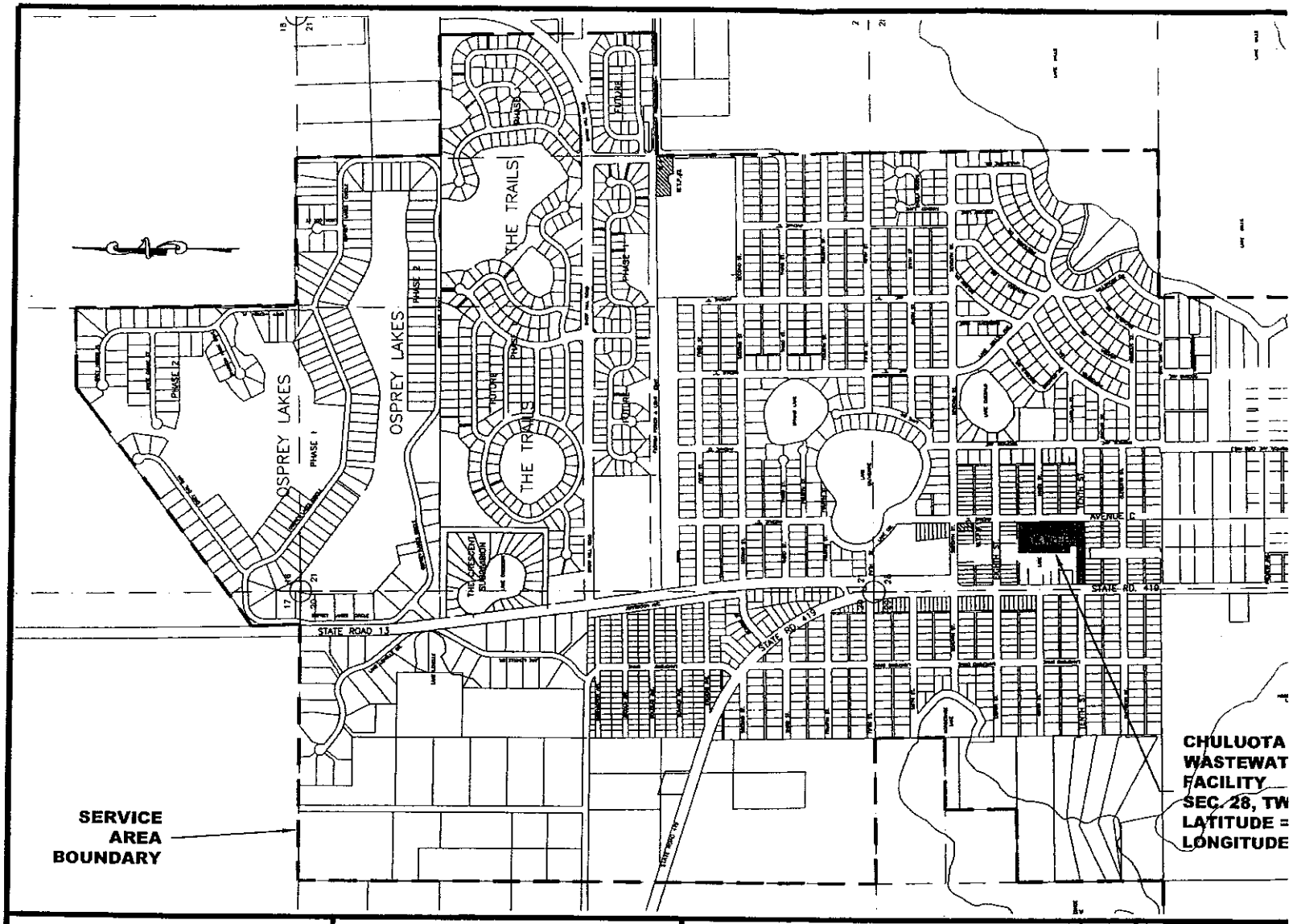
The Chuluota WWTF consists of an extended aeration treatment plant and a remote sprayfield for effluent disposal. The treatment plant portion of the Chuluota WWTF was recently expanded under a permit revision issued by FDEP on June 27, 2005. Construction of the plant expansion occurred during the period from September 2005 through April 2007. All new plant components were operational as of May 4, 2007.

The expanded treatment plant has a design treatment capacity of 0.4 million gallons per day ("mgd") on an annual average daily flow ("AADF") basis. However, the permitted capacity of the Chuluota WWTF is limited by the permitted capacity of the existing sprayfield, which is 0.1 mgd. It will not be possible to utilize the full treatment capacity of the Chuluota WWTF until additional effluent disposal capacity is permitted and constructed.

The following commentary provides a brief description of the existing treatment and disposal facilities employed at the WWTF. The reader is also encouraged to refer to the following figures for additional information:

1. Figure I-2 (Process Flow Diagram)
2. Figure I-3 (Plant Site Plan)
3. Figure I-4 (Existing Sprayfield Location Map)
4. Figure I-5 (Existing Sprayfield Site Plan)

Finally, Table I-1 provides a summary of the major facility components, including unit capacities.



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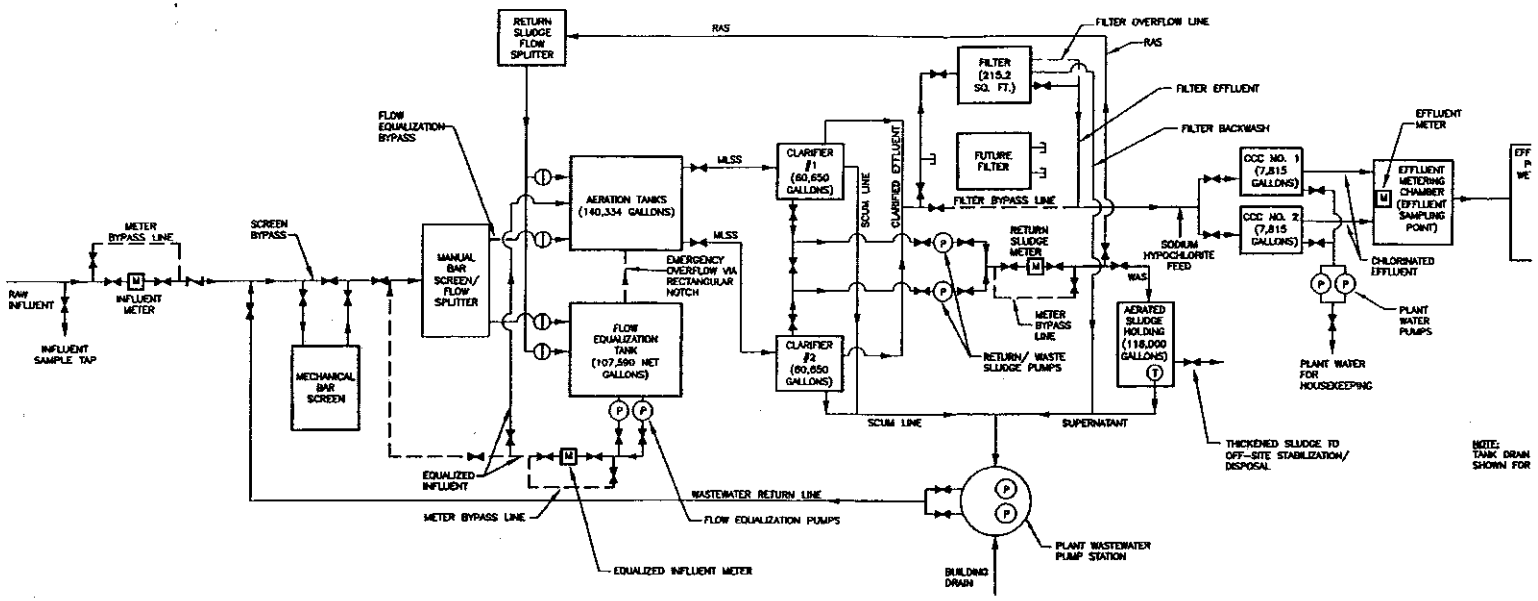
CHULUOTA
WASTEWATER TREATMENT FACILITY
SERVICE AREA & PLANT LOCATION

F



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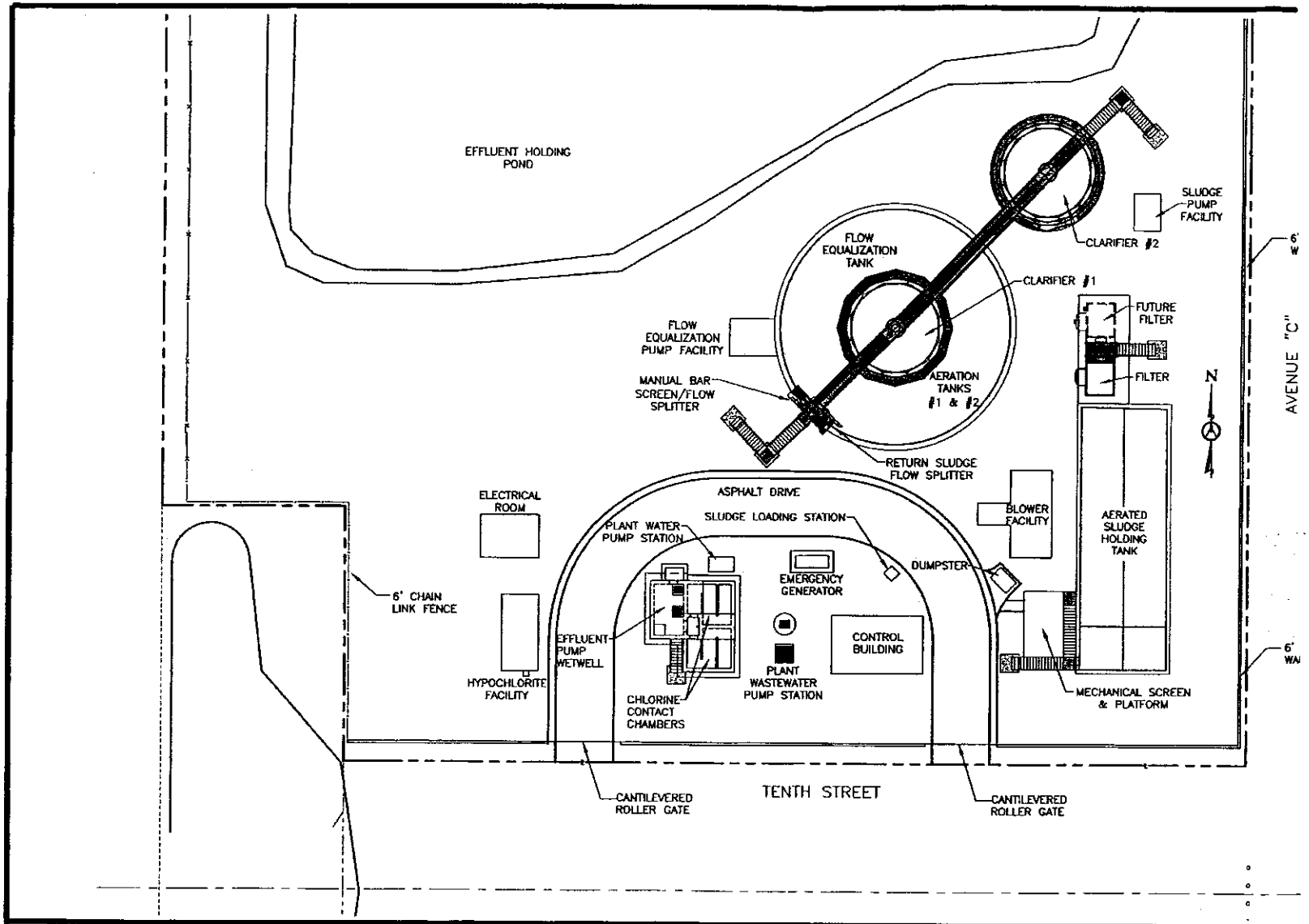
CHULUOTA
WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM



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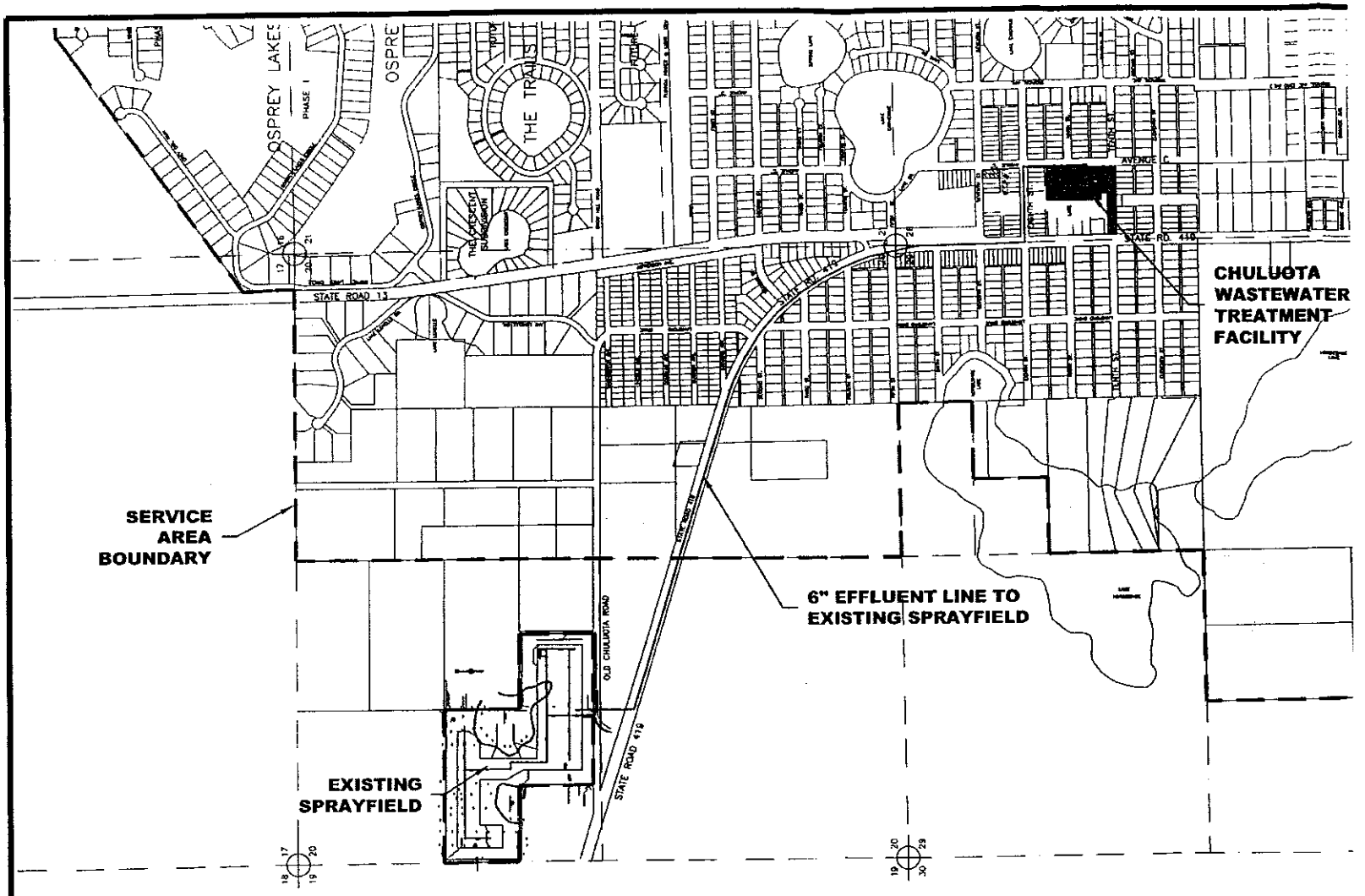
CHULUOTA WASTEWATER TREATMENT FACILITY PLANT SITE PLAN



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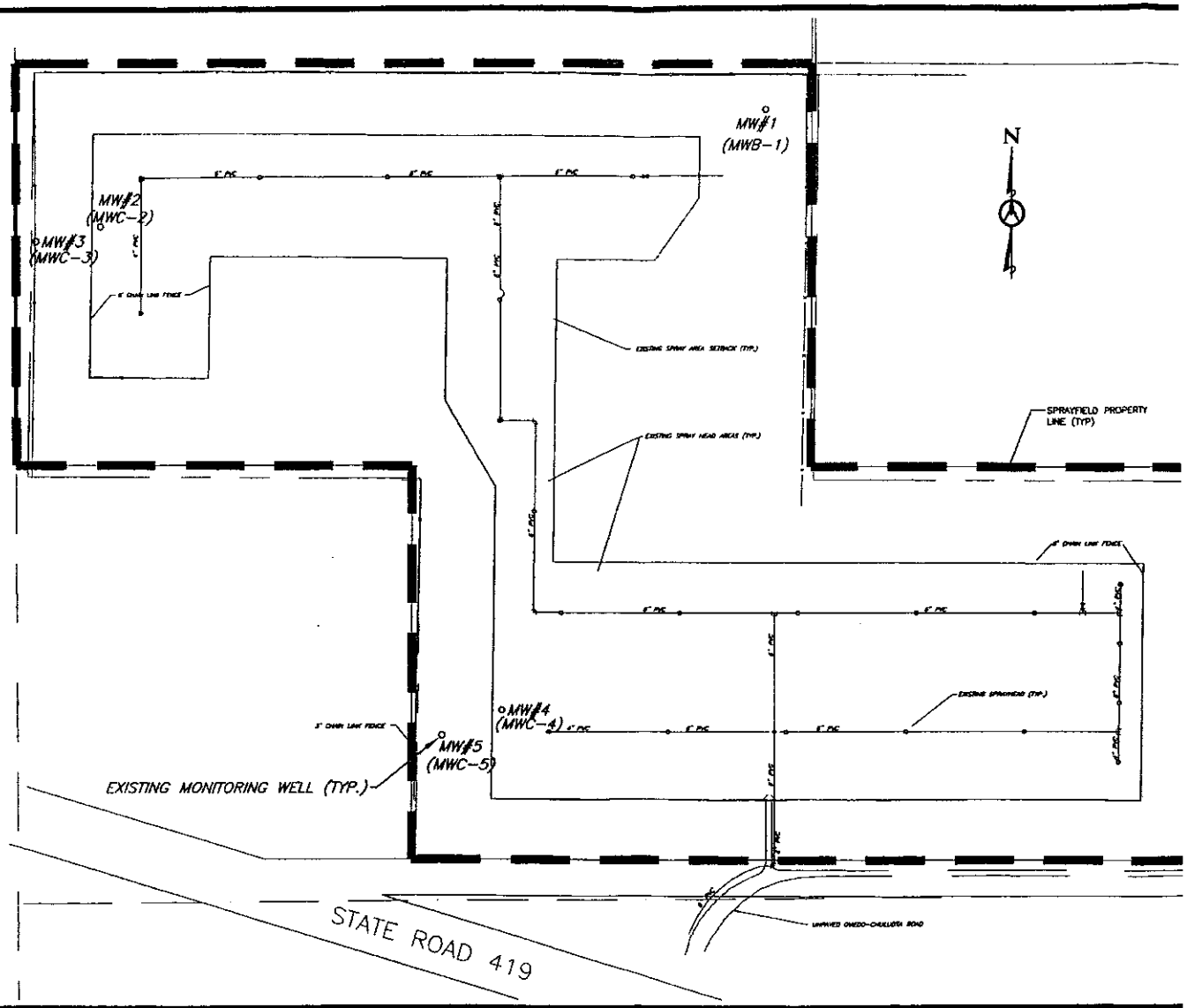
CHULUOTA
WASTEWATER TREATMENT FACILITY
EXISTING SPRAYFIELD LOCATION MAP

F



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CHULUOTA
WASTEWATER TREATMENT FACILITY
EXISTING SPRAYFIELD SITE PLAN

F1

Table I-1

Chuluota WWTF

Major Unit Processes and Capacities

Unit Process	No. Units	Unit Dimensions	Capacity Per Unit	Total Capacity
Flow Equalization	1	Annular Ring SWD = 15' 0"	107,590 gal (net)	107,590 gal (net)
Aeration	2	Annular Ring SWD = 15' 0"	46,778 gal (Tank #1) 93,556 gal (Tank #2)	140,334 gal
Secondary Clarification	2	Diam. = 28' 0" SWD = 13' 2"	615.75 sq. ft. 60,650 gal	1,231.5 sq. ft. 121,300 gal
Filtration	4 Disks	L = 9' 2-1/2" W = 7' 11-1/2" H = 11' 6" (Filter Chamber)	53.8 sq. ft. per disk	215.2 sq. ft.
Aerated Sludge Holding	1	L = 71' 10-1/2" W = 24' 0" SWD = 9' 0"	116,000 gal	116,000 gal
Chlorine Contact	2	L = 30' 0" W = 3' 8" SWD = 9' 6"	7,815 gal	15,630 gal

Wastewater Treatment. The Chuluota WWTF employs the conventional aeration process for wastewater treatment. As indicated in Figure I-2 (Process Flow Diagram), raw influent from the service area is routed through a mechanical bar screen, manual bar screen and thence to a flow equalization tank. Equalized influent is pumped to two aeration tanks arranged in series. The mixed liquor flow stream is then split between two parallel clarifiers. Clarified effluent flows to a disk filter and thence to two parallel chlorine contact chambers. Disinfection is provided via a sodium hypochlorite feed system. Disinfected effluent from the chlorine contact chambers flows to an effluent pump wetwell which houses two new effluent transfer pumps. These new pumps have the ability to pump effluent directly to the existing sprayfield. Alternatively, the operator can elect to allow the effluent to gravity flow from the wetwell to an existing onsite effluent holding pond. Effluent stored in the pond can then be pumped to the existing sprayfield via an existing effluent pump station that predates the recent plant expansion.

Restricted-Access Sprayfield. Reuse System R-001 consists of an existing 0.1 mgd restricted access slow-rate sprayfield located approximately 1-1/2-miles from the WWTF site (see Figure I-4). The wetted sprayfield area is 17.4-acres.

Residuals Management. Waste sludge is not stabilized at the WWTF. Rather, the plant is served by an aerated sludge holding tank. A contractor periodically transports stored residuals to several residuals management facilities ("RMFs") for stabilization and disposal.

Flow Measurement. The following flow meters are provided as depicted on the Process Flow Diagram (Figure I-2). All meters are equipped with totalizers:

1. Magnetic meter installed on the 10-inch influent force main. This meter measures influent flow to the WWTF.
2. Magnetic meter installed on the 4-inch equalized influent line. This meter measures equalized flow to the aeration tanks, and is used to flow-pace the equalization pumps.
3. Magnetic meter installed on the 6-inch return/waste sludge line. This meter measures return sludge flow to the aeration tanks, and waste sludge flow to the aerated sludge holding tank. It is also used to flow-pace the sludge pumps.
4. Ultrasonic meter installed in the effluent metering chamber. This meter measures effluent flow to the offsite sprayfield (Reuse System R001).

CHAPTER II – EXISTING CONDITIONS

An analysis of existing conditions includes consideration of historic flows and updated flow and loading information.

MADF, TMADF and AADF

Table A-1 in Appendix A presents a summary of monthly average daily flow ("MADF"), three-month average daily flow ("TMADF") and annual average daily flow ("AADF") for the past ten years (1997 – 2006). MADF data were obtained from the monthly discharge monitoring reports ("DMRs") for the facility. The TMADF and AADF were then calculated using the MADF data as a basis. Figures II-1 through II-3 present a plot of the MADF, TMADF and AADF for the past five years, respectively.

Seasonal Variations in Flow

Table II-1 presents a tabulation of AADF and maximum TMADF for the past five years (2002 - 2006). Also included in Table II-1 are the month of the year in which the maximum TMADF occurred, and the ratio of maximum TMADF to AADF. As indicated in the table, the ratio of maximum TMADF to AADF has ranged from 1.05 to 1.68 during the past five years. This provides a 5-year average of 1.31. There does not appear to be a consistent seasonal occurrence of maximum TMADF. The maximum TMADF has occurred in the winter (December), summer (August and September) and fall (October and November). It is important to note that the maximum TMADF does not consistently coincide with the rainy season (June through September). Hence, there does not appear to be excessive inflow/infiltration due to seasonal rainfall conditions.

Updated Flow and Loading Information

The prior Capacity Analysis Report Update for the Chuluota WWTF (prepared by Florida Water Services, January 2002) assumed $CBOD_5$ and TSS loadings of 170 mg/L and 130 mg/L, respectively. In order to determine whether these assumptions are still valid, it is necessary to review historic data concerning $CBOD_5$ and TSS loadings. A summary of annual average $CBOD_5$ and TSS influent concentrations for the past five calendar years (2002 – 2006) is presented in the following table:

Figure II-1
Chuluota WWTF
Plot of Monthly Average Daily Flow
2002-2006

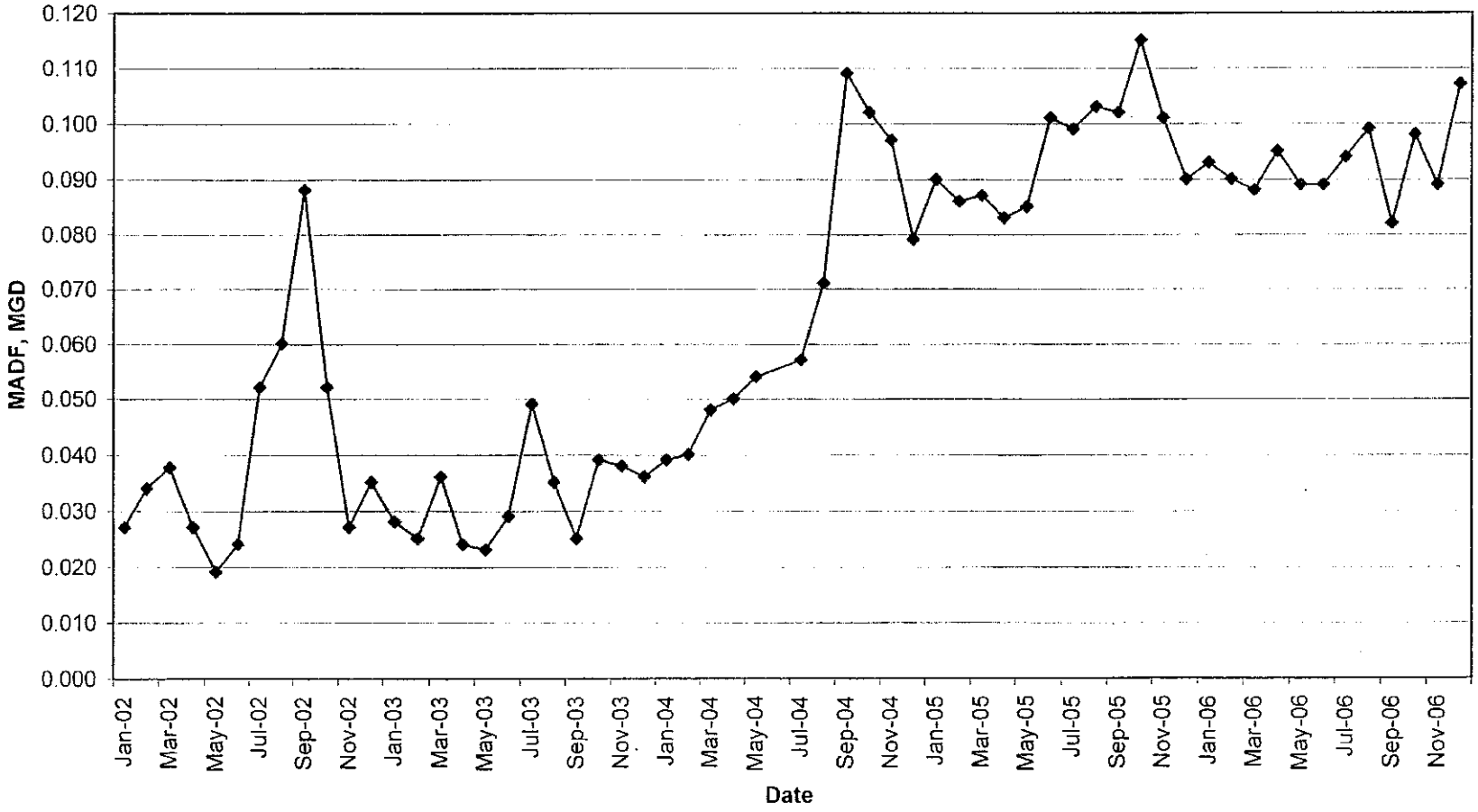

Figure II-2
Chuluota WWTF
Plot of Three-Month Average Daily Flow
2002-2006

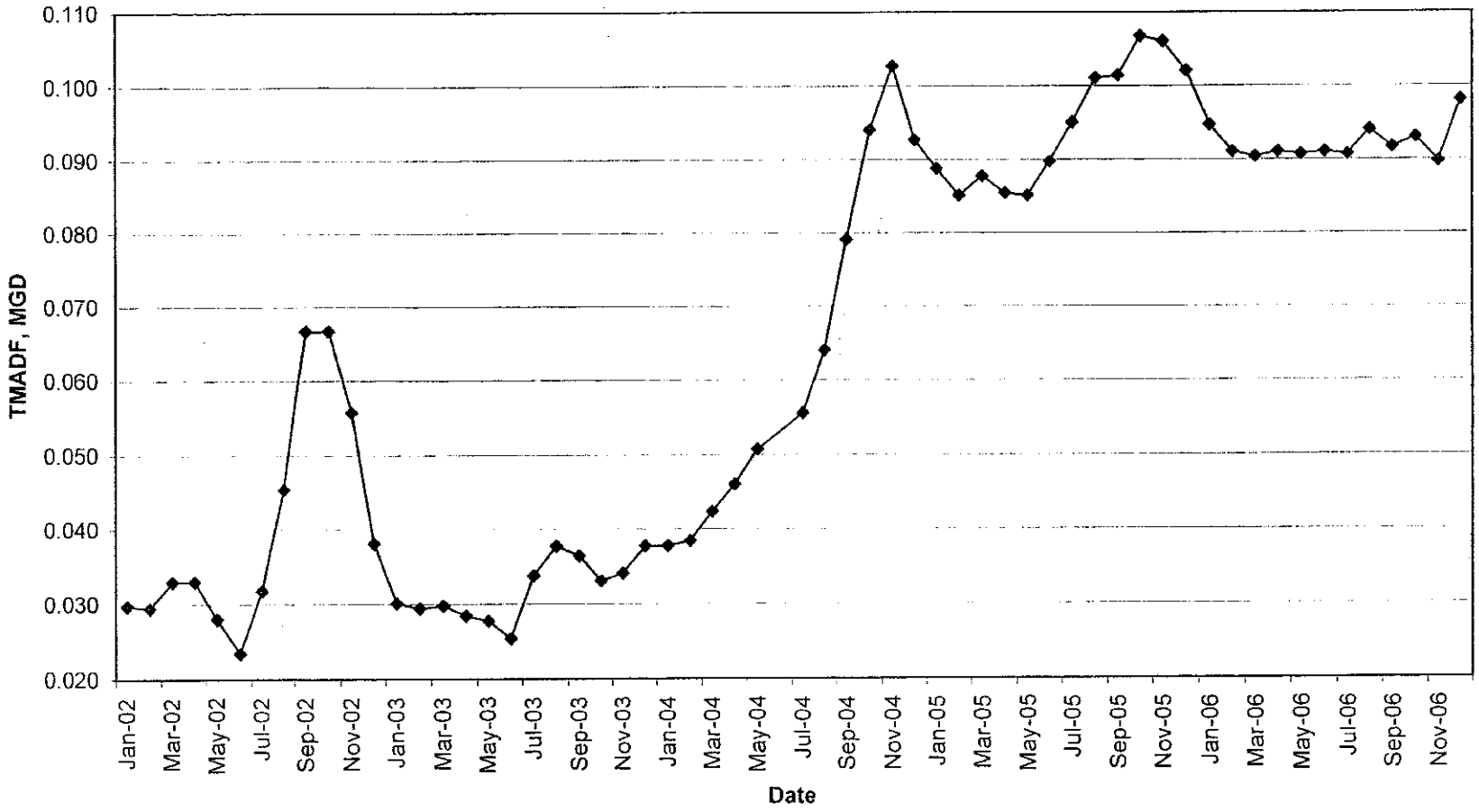

Figure II-3
Chuluota WWTF
Plot of Annual Average Daily Flow
2002-2006

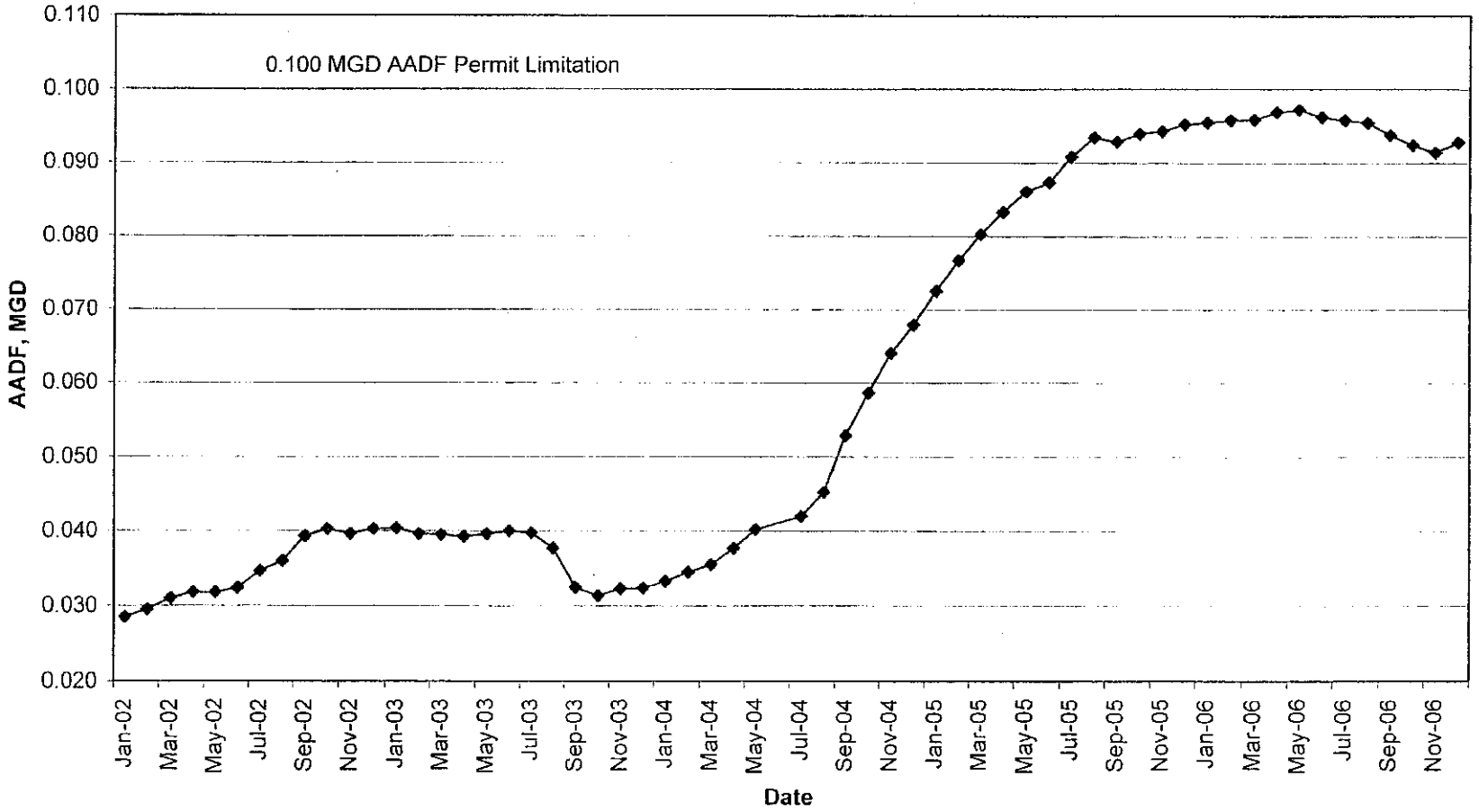

Table II-1

Chuluota
Wastewater Treatment Facility

Seasonal Flow Variations
(2002 - 2006)

Year	Maximum TMADF (mgd)	AADF (mgd)	Max TMADF/ AADF Ratio	Month
2002	0.067	0.040	1.68	Sep/Oct
2003	0.038	0.032	1.19	Aug/Dec
2004	0.103	0.068	1.51	Nov
2005	0.107	0.095	1.13	Oct
2006	0.098	0.093	1.05	Dec
		Average (2002 - 2006)	1.31	

Year	Annual Average Influent $CBOD_5$ (mg/L)	Annual Average Influent TSS, mg/L
2002	143	138
2003	140	104
2004	132	138
2005	113	92
2006	251	243
5-Year Average	156	139

As shown in the above table, the annual average influent $CBOD_5$ concentration has ranged from 113 mg/L to 251 mg/L during the past five years, for a five-year average of 156 mg/L. The annual average influent TSS concentration has ranged from 92 mg/L to 243 mg/L during the past five years, for a five-year average of 139 mg/L.

For influent $CBOD_5$, the previous assumption of 170 mg/L appears too high, since the past 5-year average is 156 mg/L. The opposite observation can be made for influent TSS, since the previous assumption of 130 mg/L is lower than the past 5-year average of 139 mg/L. These historic influent $CBOD_5$ and TSS concentrations are indicative of a relatively weak domestic wastewater strength. Nevertheless, considering that there is a degree of variability in the influent $CBOD_5$ and TSS concentrations, it is deemed most prudent to base process parameters on a more typical domestic wastewater strength. Hence, the process parameters presented herein are based on an influent $CBOD_5$ concentration of 200 mg/L, and an influent TSS concentration of 200 mg/L.

Table II-2 provides a summary of key process parameters for the Chuluota WWTF. As noted in Table II-2, the following assumptions were used in calculating the key process parameters:

Annual Average Daily Flow ("AADF") = 0.4 mgd (design treatment capacity).

Peak Hour Flow = AADF * 2.25 = 0.9 mgd (peaking factor mitigated by flow equalization).

Influent $CBOD_5$ and TSS concentration = 200 mg/L.

Mixed liquor suspended solids concentration = 3,000 mg/L.

Return sludge recycle rate = 100%.

Table II-2

Chuluota WWTF

Summary of Key Process Parameters
0.4 MGD Annual Average Daily Flow
0.9 MGD Peak Hour Flow

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Flow Equalization	Percent Storage Capacity	10 - 40	26.9
Extended Aeration	MCRT, days	3 - 15	5.4
	Detention Time, hrs	4 - 10	8.4
	F:M Ratio, lb $CBOD_5$/lb MLVSS	0.20 - 0.40	0.272
	Volumetric Loading, lb $CBOD_5$/1000 ft^3/day	20 - 40	35.6
	MLSS, mg/L	1,500 – 3,500	3,000
Secondary Clarification	Surface Overflow Rate, gpd/ft^2	400 - 800	325
	Peak Surface Overflow Rate, gpd/ft^2	1,000 – 1,200	731
	Solids Loading, lb/ft^2/day	20 - 30	16.3
	Peak Solids Loading, lb/ft^2/day	40 - 50	26.4
	Peak Weir Overflow Rate, gpd/ft	20,000	2,761
	Detention Time, hours	4 - 8	7.3
Filtration	Peak Loading Rate, gpm/ft^2	5	2.9
Chlorine Contact	Detention Time @ Peak Hour Flow, minutes	25	25

Notes

1. All calculated criteria are based on annual average daily flow unless otherwise noted.
2. The assumed return sludge recycle rate is 100 percent.
3. Influent $CBOD_5$ is assumed to be 200 mg/L, and influent TSS is assumed to be 200 mg/L.

A review of Table II-2 indicates that the WWTF will operate within recommended process parameters at the 0.4 mgd design treatment capacity. However, as previously discussed, the permitted capacity of the Chuluota WWTF is limited by the permitted capacity of the existing sprayfield, which is 0.1 mgd. Thus, it will not be possible to utilize the full treatment capacity of the Chuluota WWTF until additional effluent disposal capacity is permitted and constructed.

CHAPTER III – FUTURE CONDITIONS

The assessment of future conditions includes population and flow projections, which are based on historic wastewater connections and flows.

Historic and Projected Wastewater Connections

Wastewater connection information was obtained from Annual Reports submitted to the Florida Public Service Commission by AQUA and by the previous WWTF owner. (AQUA acquired the Chuluota WWTF from Florida Water Services in July 2004.) An accounting of wastewater service connections is presented as follows for the past five calendar years:

Year	Year End Connections	Annual Average Connections	Annual Connection Growth
2001 (Base)	165	NA (Base)	NA (Base)
2002	193	179	28
2003	301	247	108
2004	521	411	220
2005	562	542	41
2006	594	578	32
		5-Year Average	86

Notes

1. Year-end connections were obtained from Annual Reports submitted to the Florida Public Service Commission by AQUA and by the previous WWTF owner (Florida Water Services).
2. Annual average connections represent the average of the end of year figures for the current and prior years. For example, annual average connections for calendar year 2002 = (165 + 193)/2 = 179.
3. Annual connection growth is the difference in the end of year connections for the current and prior years. For example, annual connection growth for 2002 = 193 - 165 = 28.

In reviewing the above table, it is evident that a rapid growth in connections occurred during calendar years 2003 and 2004. This rapid growth was due to the initiation of two large residential developments within the Chuluota WWTF service area (Osprey Lakes and The Trails). However, in calendar years 2005 and 2006, growth slowed to an average rate of 37 connections per year. Furthermore, according to the most recent connection data provided by AQUA, there were 607 wastewater connections as of July 2007. The corresponding connection growth of 13 units in seven months (607 – 594) equates to a projected growth rate of 23 connections for calendar year 2007. This slower growth rate is indicative of the depressed real estate market that is currently affecting the Central Florida housing market.

The following table provides a projection of the number of wastewater connections for the next 10 calendar years. The projected growth rate of 23 connections for calendar year 2007 is assumed to persist into calendar year 2008 (i.e., the currently depressed real estate market is assumed to persist through calendar year 2008). Beginning in calendar year 2009, an average growth rate of 86 connections per year is assumed, which is consistent with the 5-year average growth rate as derived in the above table:

Year	Year End Connections	Annual Average Connections	Annual Connection Growth
2006 (Base)	594	NA (Base)	NA (Base)
2007	617	606	23
2008	640	629	23
2009	726	683	86
2010	812	769	86
2011	898	855	86
2012	984	941	86
2013	1,070	1,027	86
2014	1,156	1,113	86
2015	1,242	1,199	86
2016	1,328	1,285	86

Historic and Projected Flows

Historic flow information was obtained from the monthly DMRs for the Chuluota WWTF. The average flow per connection for the past five years can be calculated as follows:

Year	Annual Average Connections	AADF (mgd)	AADF per Connection (gpd)
2002	179	0.040	224
2003	247	0.032	130
2004	411	0.068	166
2005	542	0.095	175
2006	578	0.093	161
		5-Year Avg.	171
		75th Percentile	175

In order to estimate yearly population and flow projections for the next ten years, the following assumptions are made:

1. Annual connection growth = 23 (years 2007 and 2008); 86 (years 2009 – 2016).
2. AADF per connection = 175 gpd (75th percentile of the average flow per connection values as derived in above table for the past five calendar years. The 75th percentile value is used instead of the 5-year average in order to provide a *safety factor for flow projections).*
3. Maximum TMADF/AADF Ratio = 1.31 (5-year average as derived in Table II-1).
4. Average population per connection = 2.56 persons per household for Seminole County (U.S. Census Bureau, 2005 American Community Survey).

Population and flow projections, based on the above assumptions, are presented in Table III-1. A graph of projected AADF and maximum TMADF for the next ten years is presented in Figure III-1.

Table III-1

Chuluota
Wastewater Treatment Facility

Population and Flow Projections
2007 - 2016

Year	Projected Average Connections	Population Per Connection	Projected Population	AADF Per Connection (gpd)	Projected AADF (mgd)	Maximum TMADF/ AADF Ratio	Projected Maximum TMADF (mgd)
2007	606	2.56	1,551	175	0.106	1.31	0.139
2008	629	2.56	1,610	175	0.110	1.31	0.144
2009	683	2.56	1,748	175	0.120	1.31	0.157
2010	769	2.56	1,969	175	0.135	1.31	0.176
2011	855	2.56	2,189	175	0.150	1.31	0.196
2012	941	2.56	2,409	175	0.165	1.31	0.216
2013	1,027	2.56	2,629	175	0.180	1.31	0.235
2014	1,113	2.56	2,849	175	0.195	1.31	0.255
2015	1,199	2.56	3,069	175	0.210	1.31	0.275
2016	1,285	2.56	3,290	175	0.225	1.31	0.295

Notes
1. AADF = annual average daily flow.
2. TMADF = three-month average daily flow.
3. Annual connection growth = 23 (years 2007 and 2008); 86 (years 2009 – 2016).
4. Average population per connection = 2.56 persons per household for Seminole County (U.S. Census Bureua, 2005 American Community Survey).
5. Maximum TMADF to AADF ratio of 1.31 was derived from calendar years 2002 - 2006 as shown in Table II-1.

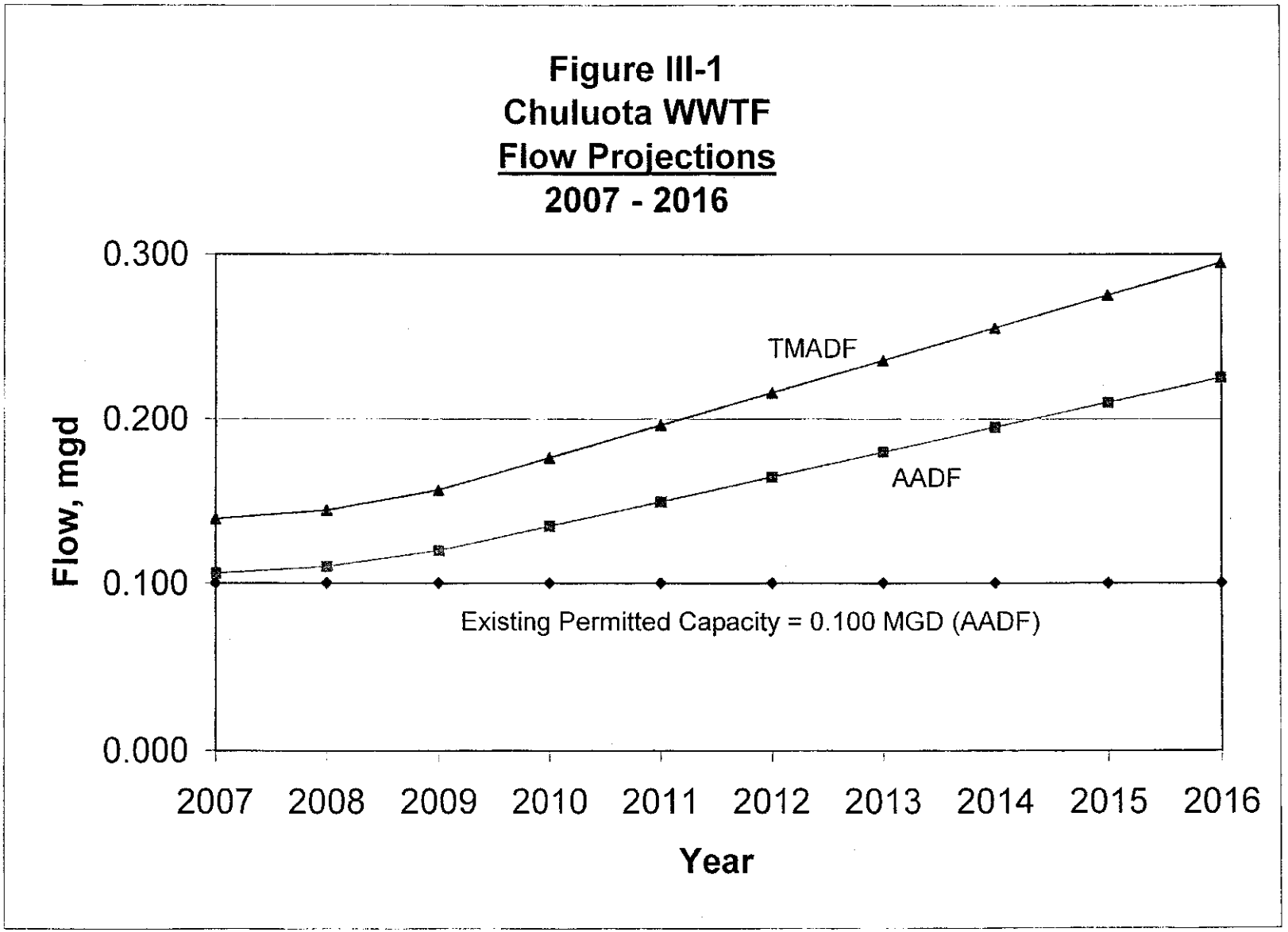
Figure III-1
Chuluota WWTF
Flow Projections
2007 - 2016
0.300
0.200
0.100
0.000
Flow, mgd
TMADF
AADF
Existing Permitted Capacity = 0.100 MGD (AADF)
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Year

CHAPTER IV – SUMMARY AND CONCLUSIONS

A review of Table III-1 indicates that the following projected flows in Year 10 of the 10-year projection period:

AADF = 0.225 mgd.

Maximum TMADF = 0.295 mgd

As previously discussed, the Chuluota WWTF underwent a recent plant expansion that provides a treatment capacity of 0.400 mgd (AADF basis). Consequently, based on the flow projections provided herein, the existing treatment capacity will not be exceeded within the next ten calendar years. However, the existing permitted capacity of the Chuluota WWTF is limited by the permitted capacity of the existing sprayfield, which is 0.100 mgd. Furthermore, based on a review of available DMRs for calendar year 2007 (through July 2007), the AADF exceeded the 0.100 mgd limitation in June 2007 (0.101 mgd) and July 2007 (0.102 mgd). Given these existing circumstances, it is incumbent upon AQUA to provide additional effluent disposal capacity.

AQUA intends to design, permit and construct a new effluent disposal facility located adjacent to the existing plant site. This new facility will function in conjunction with the existing sprayfield. Information concerning the new effluent disposal facility is forthcoming from AQUA.

Appendix A

Chuluota
Wastewater Treatment Facility

Flow Summary (Table A-1)
1997 – 2006

TABLE A-1 Chuluota WWTF Flow Summary 1997-2006			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month Average Daily Flow (MGD)	(AADF) Annual Average Daily Flow (MGD)
Jan-97	0.033	0.044	0.051
Feb-97	0.038	0.039	0.052
Mar-97	0.040	0.037	0.052
Apr-97	0.043	0.040	0.053
May-97	0.042	0.042	0.054
Jun-97	0.048	0.044	0.052
Jul-97	0.068	0.053	0.052
Aug-97	0.104	0.073	0.056
Sep-97	0.044	0.072	0.053
Oct-97	0.043	0.064	0.050
Nov-97	0.054	0.047	0.050
Dec-97	0.065	0.054	0.052
Jan-98	0.062	0.060	0.054
Feb-98	0.070	0.066	0.057
Mar-98	0.071	0.068	0.060
Apr-98	0.036	0.059	0.059
May-98	0.024	0.044	0.057
Jun-98	0.019	0.026	0.055
Jul-98	0.021	0.021	0.051
Aug-98	0.022	0.021	0.044
Sep-98	0.052	0.032	0.045
Oct-98	0.085	0.053	0.048
Nov-98	0.088	0.075	0.051
Dec-98	0.087	0.087	0.053
Jan-99	0.094	0.090	0.056
Feb-99	0.080	0.087	0.057
Mar-99	0.075	0.083	0.057
Apr-99	0.064	0.073	0.059
May-99	0.068	0.069	0.063
Jun-99	0.081	0.071	0.068
Jul-99	0.078	0.076	0.073

N/A = Not available

TABLE A-1 (Cont.) Chuluota WWTF Flow Summary 1997-2006			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month Average Daily Flow (MGD)	(AADF) Annual Average Daily Flow (MGD)
Aug-99	0.041	0.041	0.041
Sep-99	0.028	0.035	0.035
Oct-99	0.057	0.042	0.042
Nov-99	0.047	0.044	0.043
Dec-99	0.040	0.048	0.043
Jan-00	0.038	0.042	0.042
Feb-00	0.032	0.037	0.040
Mar-00	0.030	0.033	0.039
Apr-00	0.021	0.028	0.037
May-00	0.013	0.021	0.035
Jun-00	0.015	0.016	0.033
Jul-00	0.015	0.014	0.031
Aug-00	0.020	0.017	0.030
Sep-00	0.016	0.017	0.029
Oct-00	0.026	0.021	0.026
Nov-00	0.022	0.021	0.024
Dec-00	0.021	0.023	0.022
Jan-01	0.021	0.021	0.021
Feb-01	0.022	0.021	0.020
Mar-01	0.019	0.021	0.019
Apr-01	0.018	0.020	0.019
May-01	0.019	0.019	0.020
Jun-01	0.017	0.018	0.020
Jul-01	0.025	0.020	0.021
Aug-01	0.044	0.029	0.023
Sep-01	0.048	0.039	0.025
Oct-01	0.040	0.044	0.026
Nov-01	0.035	0.041	0.027
Dec-01	0.027	0.034	0.028
Jan-02	0.027	0.030	0.028
Feb-02	0.034	0.029	0.029
Mar-02	0.038	0.033	0.031
Apr-02	0.027	0.033	0.032

N/A = Not available

TABLE A-1 (Cont.) Chuluota WWTF Flow Summary 1997-2006			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month Average Daily Flow (MGD)	(AADF) Annual Average Daily Flow (MGD)
May-02	0.019	0.028	0.032
Jun-02	0.024	0.023	0.032
Jul-02	0.052	0.032	0.035
Aug-02	0.060	0.045	0.036
Sep-02	0.088	0.067	0.039
Oct-02	0.052	0.067	0.040
Nov-02	0.027	0.056	0.040
Dec-02	0.035	0.038	0.040
Jan-03	0.028	0.030	0.040
Feb-03	0.025	0.029	0.040
Mar-03	0.036	0.030	0.039
Apr-03	0.024	0.028	0.039
May-03	0.023	0.028	0.040
Jun-03	0.029	0.025	0.040
Jul-03	0.049	0.034	0.040
Aug-03	0.035	0.038	0.038
Sep-03	0.025	0.036	0.032
Oct-03	0.039	0.033	0.031
Nov-03	0.038	0.034	0.032
Dec-03	0.036	0.038	0.032
Jan-04	0.039	0.038	0.033
Feb-04	0.040	0.038	0.034
Mar-04	0.048	0.042	0.035
Apr-04	0.050	0.046	0.038
May-04	0.054	0.051	0.040
Jun-04	N/A	N/A	N/A
Jul-04	0.057	0.056	0.042
Aug-04	0.071	0.064	0.045
Sep-04	0.109	0.079	0.053
Oct-04	0.102	0.094	0.059
Nov-04	0.097	0.103	0.064
Dec-04	0.079	0.093	0.068

N/A = Not available

TABLE A-1 (Cont.) Chuluota WWTF Flow Summary 1997-2006			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month Average Daily Flow (MGD)	(AADF) Annual Average Daily Flow (MGD)
Jan-05	0.090	0.090	0.090
Feb-05	0.086	0.088	0.088
Mar-05	0.087	0.088	0.088
Apr-05	0.083	0.085	0.087
May-05	0.085	0.085	0.086
Jun-05	0.101	0.090	0.089
Jul-05	0.099	0.095	0.090
Aug-05	0.103	0.101	0.092
Sep-05	0.102	0.101	0.093
Oct-05	0.115	0.107	0.095
Nov-05	0.101	0.106	0.096
Dec-05	0.090	0.102	0.095
Jan-06	0.093	0.095	0.095
Feb-06	0.090	0.091	0.096
Mar-06	0.088	0.090	0.096
Apr-06	0.095	0.091	0.097
May-06	0.089	0.091	0.097
Jun-06	0.089	0.091	0.096
Jul-06	0.094	0.091	0.096
Aug-06	0.099	0.094	0.095
Sep-06	0.082	0.092	0.094
Oct-06	0.098	0.093	0.092
Nov-06	0.089	0.090	0.091
Dec-06	0.107	0.098	0.093

N/A = Not available

CAPACITY ANALYSIS REPORT UPDATE

FOR
FLORIDA CENTRAL COMMERCE PARK
WASTEWATER TREATMENT FACILITY

DOMESTIC WASTEWATER FACILITY PERMIT NO. FLA011078
ISSUE DATE: AUGUST 27, 1997
EXPIRATION DATE: AUGUST 25, 2002

PREPARED BY:

FLORIDA WATER SERVICES CORPORATION
ENVIRONMENTAL SERVICES
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

FEBRUARY 2002

CERTIFICATIONS

Permittee:

Craig J. Anderson
Vice President, Environmental Services
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4199

I certify that I have reviewed this report and am fully aware of the recommendations and schedules included in this report.

2-26-02
Date

Craig J. Anderson

Engineer:

Sandra J. Joiner, P.E.
Senior Project Engineer
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4126

I certify that the information contained in this report is true and correct to the best of my knowledge, that the report was prepared in accordance with sound engineering principles, and that I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative and the lead operator and agree 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, and will discharge effluent that complies with the limitations specified in the permit.

2/26/02

Sandra J. Joiner, P.E.
Registered Engineer No. 45265
State of Florida

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APPENDICES

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FIGURES **PAGE NO.**

TABLES

CHAPTER 1 - INTRODUCTION

This Capacity Analysis Report (CAR) for the Florida Central Commerce Park Wastewater Treatment Facility (WWTF) is being submitted as an updated report pursuant to Rule 62-600.405, Florida Administrative Code (F.A.C.), for renewal of the facility's Domestic Wastewater Facility Permit. This report was prepared in accordance with the Florida Department of Environmental Protection (FDEP) publication entitled: "Guidelines for Preparation of Capacity Analysis Reports", dated July 1992, and covers the years 1997 through 2001, the time frame since the submittal of the last CAR in March 1997.

A. Service Area

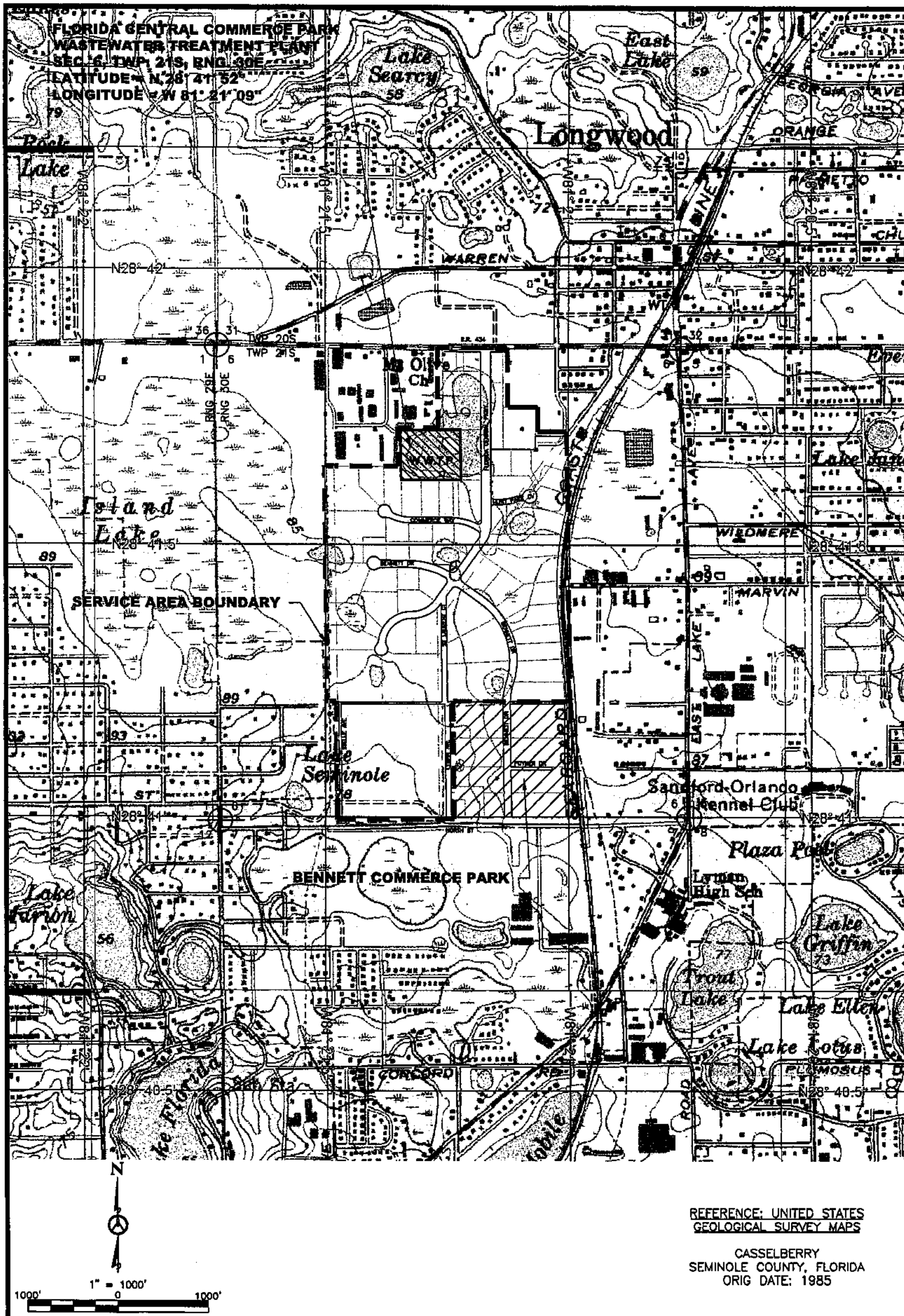
The service area for the Florida Central Commerce Park WWTF is located in Seminole County, Florida, as shown on Figure I-1. The service area is approximately 236 acres in size and is primarily an industrial park comprised of offices and warehouses. As of December 2001, the service area consisted of approximately 179 equivalent residential connections (ERCs) of which 178 ERCs are active.

The service area limits have remained the same since the submittal of the last renewal application. The southwestern portion of the service area remains unsewered at this time but is projected to connect during the next five years. Bennett Commerce Park, which is located outside the service area on the southeast side, is presently served by individual septic tanks. A pump station; however, is under construction and flows of approximately 15,000 gpd are expected to be pumped from this area to the Florida Central Commerce Park WWTF for treatment beginning this year.

B. Treatment Process

The Florida Central Commerce Park WWTF has a rated capacity of 0.095 mgd, annual average daily flow, and is operated as an extended aeration facility. The treatment process for the plant includes: flow equalization, aeration, clarification, filtration, disinfection, and sludge holding. The effluent disposal system consists of public access reuse irrigation in the rights-of-way along Florida Central Parkway, Commerce Way, Bennett Drive, and the properties abutting these roadways. Reclaimed water will also be available to the Bennett Commerce Park area later this year. A 10-day wet weather pond is located at the plant site for alternate disposal during wet weather conditions. A 3-day reject pond is also provided should effluent quality fail to meet public access reuse standards. A process flow diagram for the plant and effluent disposal system is provided as Figure I-2. The sludge is hauled to a permitted Residuals Management Facility (Shelley's Septic Tanks) by agreement for treatment and disposal.

Wastewater generated within the service area flows by gravity to the master lift station located on Florida Central Parkway and is then pumped to the surge tanks located at the plant site via an 8-inch force main. A flow splitter box with barscreen is provided to screen all flows prior to treatment and to maintain average daily flow through the plant. Following screening, flows are discharged to Aeration Tank No. 1. Excess flow



Florida Water SERVICES

FLORIDA CENTRAL COMMERCE PARK WASTEWATER SERVICE AREA & PLANT LOCATION

FIGURE I - 1

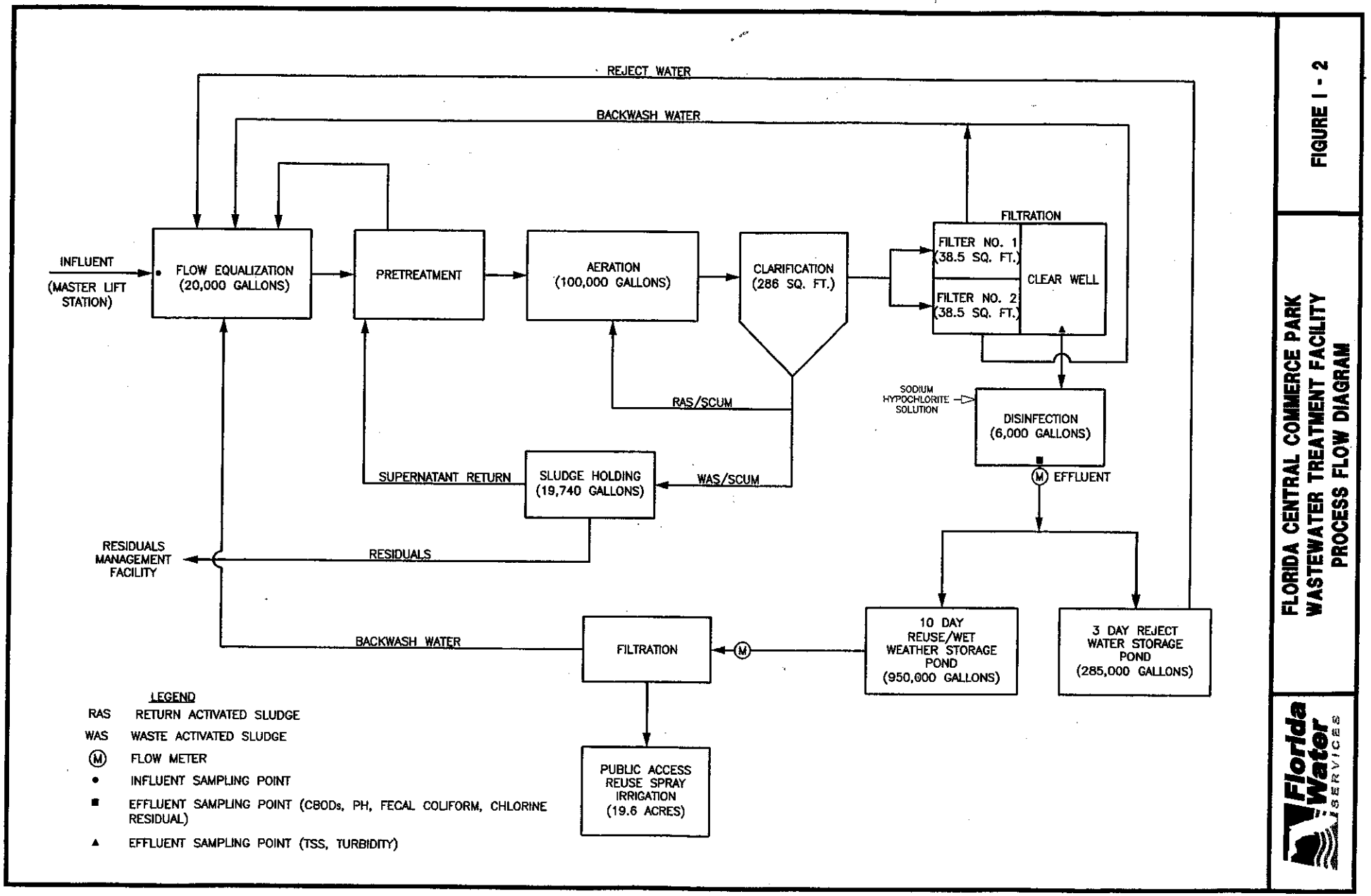


FIGURE I - 2

FLORIDA CENTRAL COMMERCE PARK
WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM

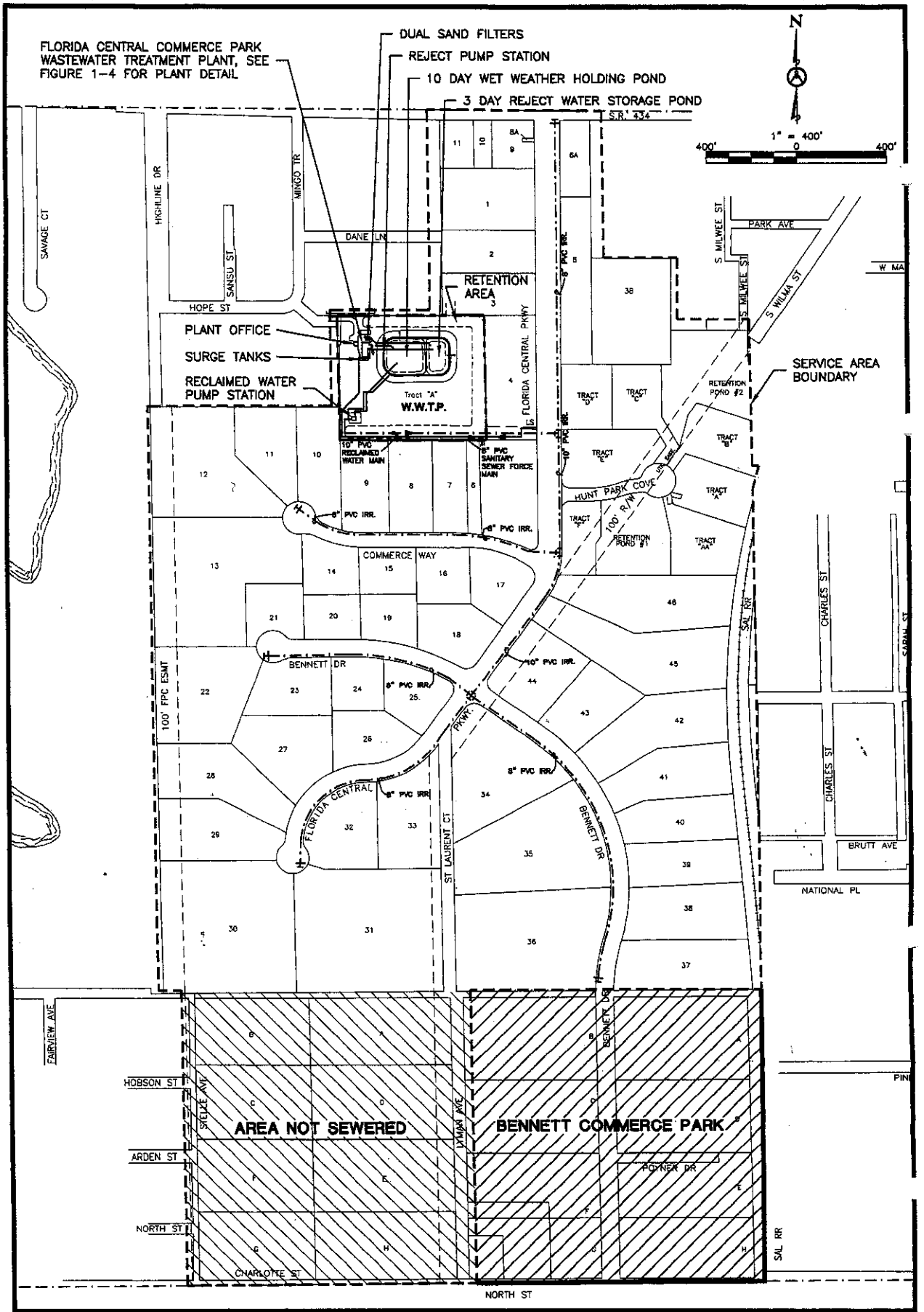
Florida Water SERVICES

O:\Depts\CADEXHIBITS\Florida Central Commerce Pk\Operating Permit Renewal\FCCP Figure I-2.dwg, 02/26/2002 09:55:20 AM, Donald

is conveyed back to the surge tanks. There are two aeration tanks, which are hydrostatically connected. Diffused air is used to aerate the mixed liquor suspended solids (MLSS) in each aeration tank. The MLSS is then conveyed from Aeration Tank No. 2 to the clarifier stilling well via a port.

The clarifier consists of four hoppers to concentrate the sludge. A skimmer is provided at each end of the clarifier to control the scum. The settled sludge and scum are combined and are either airlifted to Aeration Tank No. 1 or wasted and airlifted to the sludge holding tank for storage. During decanting, the supernatant is pumped to the pretreatment box for subsequent treatment. From the clarifier, the clarified effluent overflows the weirs into two effluent troughs and is then conveyed to the dual sand filters.

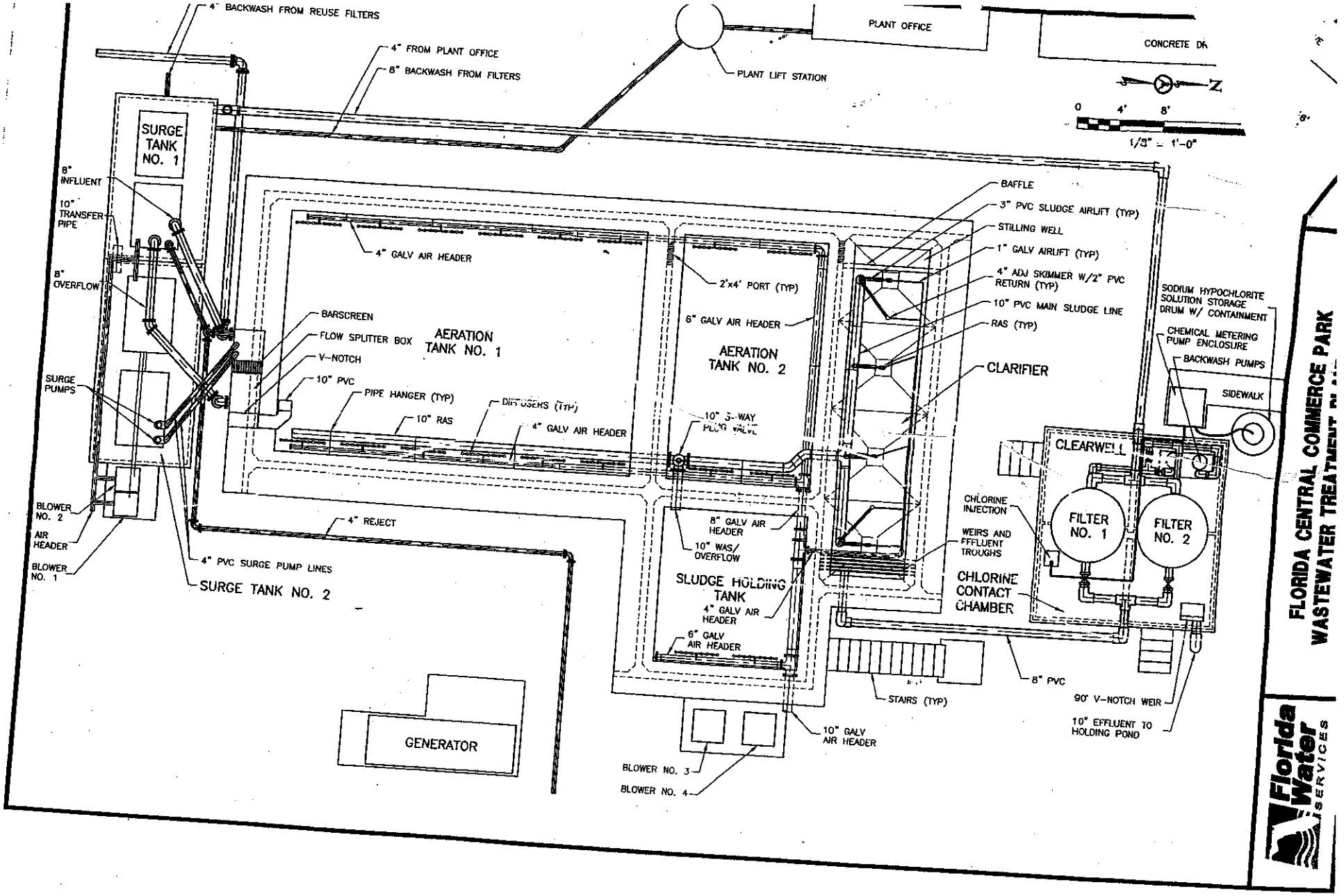
The filtered effluent is discharged to the clear well and then flows by gravity to the chlorine contact chamber via an 8-inch pipe. The filtered effluent is used to backwash the filters approximately four times per day. The backwash water flows by gravity to the surge tanks for subsequent treatment. Sodium hypochlorite solution is used for disinfection and is applied at the chlorine contact chamber at a rate of approximately 15 gpd. The contact chamber is equipped with one baffle wall to optimize contact time. Chlorine residual is continuously monitored at the chlorine contact chamber and turbidity is continuously monitored at the clear well. The set points for chlorine residual and turbidity are 1.5 mg/L and 2.0 NTUs, respectively. Under normal operation, the effluent (reclaimed water) flows by gravity to the on-site reuse/wet weather holding pond for storage. Each morning, the reclaimed water is filtered (particulate removal) prior to being pumped to the reuse irrigation system within the industrial park. In the event the set point for either chlorine residual or turbidity is exceeded, the reclaimed water is automatically diverted to the reject pond until such time that effluent quality is restored. A 90° V-notch weir is located in the chlorine contact chamber and measures all flow discharged from the treatment plant. The treatment plant and reuse irrigation system are shown on Figures I-3 and I-4.



Florida Water Services

FLORIDA CENTRAL COMMERCE PARK WASTEWATER TREATMENT PLANT AND PUBLIC ACCESS REUSE IRRIGATION SYSTEM

FIGURE 1 - 3



FLORIDA CENTRAL COMMERCE PARK
WASTEWATER TREATMENT

Florida Water SERVICES

CHAPTER 2 - EXISTING CONDITIONS

The information presented in this chapter for each unit process was obtained from the Monthly Operating Reports (MORs), the Discharge Monitoring Reports (DMRs), permit records, and record drawings prepared by Sheffield Engineering & Associates, dated July 1988. The existing conditions for the Florida Central Commerce Park WWTF, including information on permitted capacity of the plant and effluent disposal system, along with updated flow data, influent loading data, and effluent quality data, are presented in this chapter.

A. Permitted Capacity and Capacity Analysis

Operation of the Florida Central Commerce Park WWTF is authorized under FDEP Domestic Wastewater Facility Permit No. FLA011078, which was issued on August 27, 1997 and expires on August 25, 2002. A copy of this permit is included in Appendix A.

Each unit process was evaluated at 0.048 mgd and at 0.095 mgd and then compared to recommended design parameters from accepted resources. The flow rate of 0.048 mgd is the maximum twelve-month average daily flow (M12MADF) that occurred since the submittal of the last OMPR in March 1997. The flow rate of 0.095 mgd is the permitted design capacity of the plant. The clarification, filtration, and disinfection unit processes were evaluated at average daily flow and peak hourly flow to be conservative. The results of the evaluation are presented in Table 2-1 and are based on the following operational and design parameters.

Parameter	Result	
Influent $CBOD_5$	158 mg/L	Average result for year 2001.
MLSS	3,729 mg/L	Average result for year 2001.
MLVSS	2,983 mg/L	MLSS x 0.8
RAS:Q	1:1	Assumption
Peaking Factor	2.5	Review of permit records.

Based on the operating criteria presented in Table 2-1, the flow equalization unit process will operate within the recommended range at the design flow of 0.095 mgd. However, the 20,000 gallon surge tank serves as a backwash tank in addition to flow equalization facilities. Therefore, actual surge capacity for influent flows is probably less than the recommended range. Surge capacity is important for this facility since plant flows are primarily treated during the business hours of 7 A.M. to 8 P.M. Additional flows of 15,000 gpd are also expected from the Bennett Commerce Park area later this year. With this in mind, additional surge capacity may be necessary to handle the increased peak flows. The clarification, filtration and disinfection unit processes, on the other hand, are operating within the recommended ranges shown and will operate within the recommended ranges at the design flow of 0.095 mgd. The solids loading rate at peak hourly flow, however, is slightly higher than what is recommended at the design flow of 0.095 mgd. It may

Table 2-1
Florida Central Commerce Park WWTF
Unit Process Capacity Analysis Summary

Unit Process	Capacity	Unit Process Operating Criteria @		Recommended Design Parameters Extended Aeration
		Existing M12MADF 0.048 mgd	Permitted Capacity 0.095 mgd, AADF	
Flow equalization	20,000 gallons	21% of Design Flow (0.095 mgd)		20-40% of Design Flow
Aeration F/M Volumetric Loading Detention Time	100,000 gallons	 0.03 lb. $CBOD_5$/d/lb. MLVSS 4.7 lbs. $CBOD_5$/d/1000 cu. ft. 50 hours	 0.05 lb. $CBOD_5$/d/lb. MLVSS 9.4 lbs. $CBOD_5$/d/1000 cu. ft. 25 hours	 0.05 - 0.15 lb. $CBOD_5$/d/lb. MLVSS 10-25 lbs. $CBOD_5$/d/1000 cu. ft. 18-36 hours
Clarification Surface Loading Rate *(surface area =286 sq. ft.)* Weir Loading Rate *(4 weirs @ 8.8 feet, each)* Solids Loading Rate	N/A	 168 gpd/sq. ft. @ ADF 420 gpd/sq. ft. @ peak hour 1,371 gpd/ft. @ ADF 3,429 gpd/sq. ft. @ peak hour 10.4 lbs./d/sq. ft. @ ADF 18.3 gpd/sq. ft. @ peak hour	 332 gpd/sq. ft. @ ADF 830 gpd/sq. ft. @ peak hour 2,714 gpd/ft. @ ADF 6,786 gpd/sq. ft. @ peak hour 20.7 lbs./d/sq. ft. @ ADF 36.2 gpd/sq. ft. @ peak hour	 ≤1,000 gpd/sq. ft. @ peak hour ≤20,000 gpd/ft. @ peak hour ≤35 lbs./d/sq.ft. @ peak hour
Filtration Loading Rate *(2 filters @ 38.5 sq. ft., each)*	N/A	 0.43 gpm/sq. ft. @ ADF 1.1 gpm/sq. ft. @ peak hour	 0.86 gpm/sq. ft. @ ADF 2.1 gpm/sq. ft. @ peak hour	 <5 gpm/sq. ft. @ peak hour

Table 2-1
Florida Central Commerce Park WWTF
Unit Process Capacity Analysis Summary
(Continued)

Unit Process	Capacity	Unit Process Operating Criteria @		Recommended Design Parameters Extended Aeration
		Existing M12MADF 0.048 mgd	Permitted Capacity 0.095 mgd, AADF	
Disinfection Chlorine Contact Time	6,000 gallons	 180 minutes @ ADF 72 minutes @ peak hour	 91 minutes @ ADF 36 minutes @ peak hour	 >30 minutes @ ADF >15 minutes @ peak hour
Sludge Holding	19,740 gallons	This unit process was not evaluated because the residuals receive additional treatment at a residuals management facility prior to disposal.		
Effluent Disposal Reuse Irrigation Hydraulic Loading Rate	19.6 acres	 0.63 in/week	 1.25 in/week	 ≤2.0 in/week

Recommended design parameters listed above are from the following sources:
1. Recommended Standards for Wastewater Facilities, 1990 Edition
2. Chapters 62-600 and 62-610, F.A.C.
3. Operation of Municipal Wastewater Treatment Plants – WEF Manual of Practice No. 11

Notes
1. The capacities indicated above were obtained from FDEP permit records and As-built drawings prepared by Sheffield Engineering & Associates, Inc, dated July 1988. Total weir length of 35 feet is based on field measurements.

be necessary to modify the sludge wasting schedule to bring the solids loading rate to within range, should flows approach the design flow and additional surge capacity is not provided.

With regards to the aeration unit process, the F/M ratio is out of range at the existing M12MADF of 0.048 mgd. Modifying the sludge wasting schedule would bring the F/M into range, however, this change does not appear to be necessary as effluent limits have been met on a regular basis during the past five years. Also, the volumetric loading rates are out of range for both the existing M12MADF and the design flow of 0.095 mgd. Because Florida Central Commerce Park is an industrial park, influent flows tend to vary causing influent parameters $CBOD_5$ and TSS to vary. $CBOD_5$ results for the year 2001 ranged between 37 mg/L and 305 mg/L. Thus, volumetric loading rates tend to vary as well and are within the recommended range at times.

In addition, the public access reuse irrigation system is operating within the recommended range and will operate within the recommended range at the design flow of 0.095 mgd.

B. Monthly Average Daily Flows, 3 Month Average Daily Flows, and Annual Average Daily Flows

Effluent flow is measured by a 90° V-notch weir located at the discharge pipe in the chlorine contact chamber. A totalizer and chart recorder are provided to record daily flows. The flow measurement equipment is calibrated on an annual basis and was last calibrated by Instrumentation Services, Inc. (ISI) on December 18, 2001. A copy of the current flow meter calibration report is included in Appendix B.

Effluent flows including ADF, three-month average daily flow (3MADF), and twelve-month average daily flow (12MADF), for the past 10 years (1992 to 2001) are presented in Table 2-2 and shown graphically on Figure 2-1. As indicated in this figure, flows tended to increase from year 1992 through year 1997 and decrease thereafter. The decline in plant flows is believed to be the result of drought weather conditions coupled with repairs to the collection system. A cleanout was repaired in September 2000 and flows are estimated to have decreased about 10,000 gpd since then. Decreased plant flows may also be due to flow measuring inaccuracies resulting from the leak at the V-notch weir box in the chlorine contact chamber. Flows from Bennett Commerce Park are expected to be conveyed to the treatment plant later this year and plant flows are expected to increase in the magnitude of 15,000 gpd.

C. Seasonal Variations in Flow

For the purpose of this updated CAR, three-month average daily flows and annual average daily flows (AADFs) were evaluated for the years 1992 to 2001 to determine if there were any seasonal variations. The M3MADF, the AADF and the M3MADF/AADF factor for each year are indicated in Table 2-2. The M3MADF/AADF factors range from a low of 1.06 to a high of 1.25 during this time frame. Based on the factors, plant flows vary throughout the year. The M3MADFs

Table 2-2
Florida Central Commerce Park WWTF Flows (Years 1992-2001)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-92	0.034	0.0293	0.0267
Feb-92	0.047	0.0350	0.0291
Mar-92	0.040	0.0406	0.0309
Apr-92	0.042	0.0431	0.0318
May-92	0.058	0.0467	0.0339
Jun-92	0.036	0.0452	0.0348
Jul-92	0.045	0.0464	0.0351
Aug-92	0.051	0.0441	0.0372
Sep-92	0.040	0.0454	0.0391
Oct-92	0.036	0.0425	0.0403
Nov-92	0.032	0.0360	0.0404
Dec-92	0.035	0.0344	0.0414
M3MADF/AADF Factor for 1992 = 1.13			
Jan-93	0.040	0.0355	0.0419
Feb-93	0.040	0.0382	0.0412
Mar-93	0.039	0.0394	0.0411
Apr-93	0.046	0.0414	0.0414
May-93	0.046	0.0433	0.0404
Jun-93	0.046	0.0456	0.0412
Jul-93	0.046	0.0457	0.0413
Aug-93	0.049	0.0468	0.0411
Sep-93	0.054	0.0498	0.0423
Oct-93	0.046	0.0498	0.0431
Nov-93	0.035	0.0453	0.0434
Dec-93	0.033	0.0380	0.0432
M3MADF/AADF Factor for 1993 = 1.15			
Jan-94	0.034	0.0340	0.0427
Feb-94	0.035	0.0339	0.0423
Mar-94	0.039	0.0359	0.0423
Apr-94	0.031	0.0350	0.0411
May-94	0.031	0.0337	0.0399
Jun-94	0.037	0.0332	0.0392
Jul-94	0.031	0.0332	0.0380
Aug-94	0.040	0.0359	0.0372
Sep-94	0.046	0.0388	0.0365
Oct-94	0.049	0.0449	0.0368
Nov-94	0.051	0.0486	0.0380
Dec-94	0.048	0.0492	0.0393
M3MADF/AADF Factor for 1994 = 1.25			

Table 2-2
Florida Central Commerce Park WWTF Flows (Years 1992-2001)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-95	0.038	0.0454	0.0396
Feb-95	0.045	0.0436	0.0405
Mar-95	0.054	0.0456	0.0417
Apr-95	0.041	0.0465	0.0425
May-95	0.038	0.0441	0.0430
Jun-95	0.047	0.0418	0.0439
Jul-95	0.050	0.0449	0.0454
Aug-95	0.059	0.0521	0.0471
Sep-95	0.049	0.0528	0.0474
Oct-95	0.048	0.0521	0.0472
Nov-95	0.037	0.0445	0.0461
Dec-95	0.038	0.0408	0.0453
M3MADF/AADF Factor for 1995 = 1.17			
Jan-96	0.041	0.0385	0.0455
Feb-96	0.043	0.0405	0.0453
Mar-96	0.043	0.0421	0.0444
Apr-96	0.038	0.0412	0.0442
May-96	0.034	0.0383	0.0439
Jun-96	0.048	0.0401	0.0439
Jul-96	0.043	0.0417	0.0433
Aug-96	0.041	0.0441	0.0419
Sep-96	0.042	0.0419	0.0412
Oct-96	0.049	0.0440	0.0413
Nov-96	0.041	0.0437	0.0416
Dec-96	0.036	0.0420	0.0415
M3MADF/AADF Factor for 1996 = 1.06			
Jan-97	0.041	0.0392	0.0415
Feb-97	0.045	0.0408	0.0417
Mar-97	0.051	0.0457	0.0424
Apr-97	0.046	0.0476	0.0431
May-97	0.045	0.0475	0.0440
Jun-97	0.043	0.0449	0.0437
Jul-97	0.045	0.0444	0.0438
Aug-97	0.047	0.0449	0.0442
Sep-97	0.040	0.0438	0.0441
Oct-97	0.049	0.0451	0.0441
Nov-97	0.049	0.0461	0.0448
Dec-97	0.058	0.0521	0.0466
M3MADF/AADF Factor for 1997 = 1.12			

Table 2-2
Florida Central Commerce Park WWTF Flows (Years 1992-2001)
(Continued)

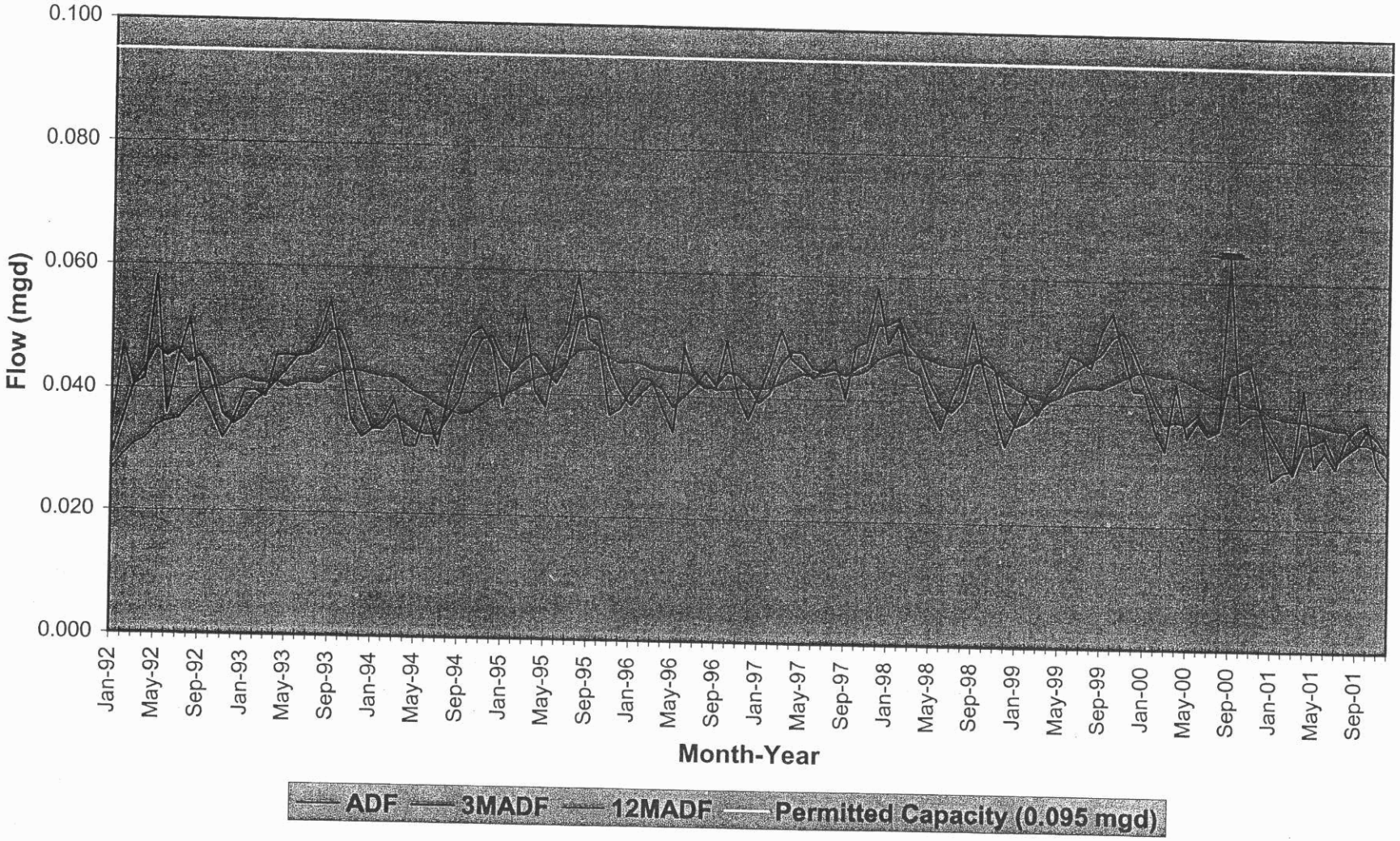
Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-98	0.049	0.0522	0.0473
Feb-98	0.052	0.0532	0.0479
Mar-98	0.045	0.0489	0.0474
Apr-98	0.044	0.0473	0.0473
May-98	0.039	0.0428	0.0468
Jun-98	0.035	0.0395	0.0461
Jul-98	0.041	0.0383	0.0457
Aug-98	0.045	0.0401	0.0456
Sep-98	0.053	0.0460	0.0466
Oct-98	0.045	0.0475	0.0463
Nov-98	0.039	0.0456	0.0454
Dec-98	0.033	0.0388	0.0433
M3MADF/AADF Factor for 1998 = 1.23			
Jan-99	0.037	0.0362	0.0423
Feb-99	0.041	0.0370	0.0414
Mar-99	0.038	0.0387	0.0408
Apr-99	0.042	0.0403	0.0406
May-99	0.043	0.0411	0.0409
Jun-99	0.048	0.0444	0.0420
Jul-99	0.047	0.0461	0.0425
Aug-99	0.046	0.0469	0.0426
Sep-99	0.052	0.0482	0.0425
Oct-99	0.055	0.0507	0.0433
Nov-99	0.049	0.0516	0.0441
Dec-99	0.042	0.0485	0.0449
M3MADF/AADF Factor for 1999 = 1.15			
Jan-00	0.042	0.0443	0.0454
Feb-00	0.036	0.0401	0.0449
Mar-00	0.033	0.0368	0.0445
Apr-00	0.044	0.0373	0.0446
May-00	0.035	0.0369	0.0439
Jun-00	0.038	0.0386	0.0430
Jul-00	0.035	0.0358	0.0420
Aug-00	0.036	0.0363	0.0412
Sep-00	0.064	0.0451	0.0423
Oct-00	0.037	0.0458	0.0408
Nov-00	0.039	0.0467	0.0400
Dec-00	0.039	0.0384	0.0397
M3MADF/AADF Factor for 2000 = 1.18			

Table 2-2
Florida Central Commerce Park WWTF Flows (Years 1992-2001)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-01	0.028	0.0352	0.0385
Feb-01	0.029	0.0321	0.0380
Mar-01	0.030	0.0290	0.0378
Apr-01	0.043	0.0340	0.0377
May-01	0.030	0.0342	0.0373
Jun-01	0.033	0.0353	0.0369
Jul-01	0.030	0.0311	0.0365
Aug-01	0.035	0.0326	0.0364
Sep-01	0.037	0.0340	0.0342
Oct-01	0.038	0.0365	0.0342
Nov-01	0.031	0.0351	0.0335
Dec-01	0.028	0.0322	0.0326
M3MADF/AADF Factor for 2001 = 1.12			

Denotes M3MADF and AADF for each year.

Figure 2-1
Florida Central Commerce Park WWTF Flows



trended to occur during the months of September through December. The average M3MADF/AADF factor for the years 1997 to 2001 is 1.16.

D. Updated Flow and Loading Information

Updated Influent loading and effluent quality data for the years 1997 to 2001 is included in this section. This data was obtained from the DMRs and covers the time frame since the last renewal application was submitted.

1. Influent Loading

A grab sample is collected at the influent force main every two weeks to monitor influent parameters $CBOD_5$ and TSS. The laboratory analysis results for these parameters for the years 1997 to 2001 are presented in Table 2-3. As indicated in this table, influent $CBOD_5$ results ranged between 37 mg/L and 410 mg/L during this time frame and were typically within the range expected for a weak to medium strength domestic wastewater. TSS results ranged between 26 mg/L to 457 mg/L and were typically within the range expected for a weak to medium strength domestic wastewater as well. During the year 2001, influent $CBOD_5$ and TSS results averaged 158 mg/L and 164 mg/L, respectively.

2. Effluent Quality

Effluent samples are collected at the 90° V-notch weir located in the chlorine contact chamber and analyzed for effluent parameters $CBOD_5$, pH, fecal coliform, and chlorine residual. Samples are also collected at the clear well (prior to disinfection) and analyzed for parameters TSS and turbidity. One grab sample is collected every two weeks for $CBOD_5$. Grab samples are collected 3 days/week for parameters TSS and fecal coliform and 5 days/week for pH. Chlorine residual and turbidity are continuously monitored. The results for $CBOD_5$, TSS, pH, chlorine residual, and fecal coliform are presented in Table 2-3.

As indicated in Table 2-3, the laboratory results for $CBOD_5$ and TSS were below 7.0 mg/L and 2.29 mg/L, respectively, on a regular basis. Removal efficiencies were greater than 90% for both $CBOD_5$ and TSS as well. Fecal coliform results were satisfactory and were <1 fecal coliform values per 100 mL sample for 75% of the samples on an monthly basis. pH results were within limits on a regular basis during this same time frame. Chlorine residual results, on the other hand, were greater than 1.0 mg/L on a regular basis, except during several months between February 1999 and June 2000. The minimum results reported during this time frame that were less than1.0mg/L are in error and should have been reported as 1.0 mg/L for disposal to the reuse/wet weather holding pond. Based on the results presented in Table 2-3, the plant has been able to meet public access reuse standards on a regular basis since the last CAR was submitted in March 1997.

Table 2-3
Florida Central Commerce Park WWTF
Historical Influent and Effluent Wastewater Characteristics (Years 1997 - 2001)

Month-Year	AVG $CBOD_5$ Inf (mg/L)	AVG $CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	AVG TSS Inf (mg/L)	AVG TSS Eff (mg/L)	TSS % Removal	Min Cl_2 Eff (mg/L)	Min pH Eff (std. Units)	Max pH Eff (std. Units)	Max Fecal Coliform Eff (#/100mL)
Jan-97	277.33	2.00	99.28	326.67	2.06	99.37	1.05	6.20	6.50	<1
Feb-97	56.00	2.00	96.43	131.00	2.19	98.33	1.05	6.10	6.60	<1
Mar-97	170.50	2.00	98.83	283.00	1.94	99.31	1.01	6.00	6.50	<1
Apr-97	216.50	2.80	98.71	241.00	2.00	99.17	1.01	6.20	6.50	<1
May-97	95.00	2.00	97.89	139.00	2.24	98.39	1.00	6.10	6.60	<1
Jun-97	99.00	2.00	97.98	219.00	2.29	98.95	1.01	6.30	6.70	<1
Jul-97	133.50	2.00	98.50	130.00	1.95	98.50	1.10	6.30	6.60	2
Aug-97	185.50	2.00	98.92	162.00	2.00	98.77	1.08	6.10	6.80	<1
Sep-97	183.00	2.00	98.91	373.00	2.11	99.43	1.00	6.10	6.60	<1
Oct-97	216.50	2.00	99.08	253.00	2.00	99.21	1.09	6.20	6.80	<1
Nov-97	212.00	2.00	99.06	457.00	2.00	99.56	1.11	6.30	6.90	<1
Dec-97	182.67	2.00	98.91	193.33	2.00	98.97	1.10	6.10	6.70	6
Jan-98	230.00	1.00	99.57	300.00	1.05	99.65	1.00	6.20	6.60	<1
Feb-98	265.00	2.10	99.21	385.00	1.33	99.65	1.00	6.20	6.60	<1
Mar-98	110.50	2.00	98.19	142.00	1.99	98.60	1.10	6.20	6.50	2
Apr-98	140.00	2.00	98.57	310.00	2.00	99.35	1.10	6.20	6.60	<1
May-98	104.00	2.00	98.08	90.00	2.00	97.78	1.10	6.17	7.28	<1
Jun-98	96.00	2.75	97.14	200.00	2.16	98.92	1.10	6.10	7.30	<1
Jul-98	79.50	2.07	97.40	75.00	2.00	97.33	1.05	6.27	6.73	<1
Aug-98	119.50	2.00	98.33	108.00	2.00	98.15	1.05	6.18	6.90	<1
Sep-98	130.50	2.00	98.47	205.00	2.11	98.97	1.10	6.10	6.83	<1
Oct-98	155.50	3.35	97.85	180.00	1.92	98.93	1.01	6.10	7.20	<1
Nov-98	125.00	2.00	98.40	325.00	2.03	99.37	1.03	6.13	6.87	<1
Dec-98	199.00	4.00	97.99	115.00	2.00	98.26	1.10	5.98	6.87	<1
Jan-99	200.00	2.50	98.75	305.00	2.00	99.34	1.10	6.00	6.90	<1

Table 2-3
Florida Central Commerce Park WWTF
Historical Influent and Effluent Wastewater Characteristics (Years 1997 - 2001)
(Continued)

Month-Year	AVG $CBOD_5$ Inf (mg/L)	AVG $CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	AVG TSS Inf (mg/L)	AVG TSS Eff (mg/L)	TSS % Removal	Min Cl_2 Eff (mg/L)	Min pH Eff (std. Units)	Max pH Eff (std. Units)	Max Fecal Coliform Eff (#/100mL)
Feb-99	155.50	4.00	97.43	91.00	2.07	97.73	0.95	5.99	7.24	<1
Mar-99	245.00	6.85	97.20	284.00	2.00	99.30	1.29	6.12	6.99	<1
Apr-99	126.00	3.60	97.14	225.00	2.00	99.11	1.00	6.10	6.99	<1
May-99	105.00	2.50	97.62	139.00	2.00	98.56	0.10	6.09	6.90	<1
Jun-99	156.00	4.10	97.37	188.00	2.00	98.94	1.00	6.10	7.00	<1
Jul-99	93.50	3.10	96.68	116.00	2.00	98.28	1.06	6.09	6.66	<1
Aug-99	85.00	3.90	95.41	183.00	2.03	98.89	0.75	6.20	6.80	3
Sep-99	156.67	4.03	97.43	180.00	1.41	99.21	0.39	6.25	6.90	<1
Oct-99	230.00	1.50	99.35	265.00	1.33	99.50	1.09	6.26	6.76	<1
Nov-99	146.00	2.00	98.63	165.00	1.32	99.20	0.71	6.30	7.13	4
Dec-99	200.00	2.20	98.90	106.00	1.62	98.47	1.07	6.30	6.99	<1
Jan-00	204.00	2.75	98.65	340.00	1.44	99.58	0.98	6.40	7.00	<1
Feb-00	215.00	3.50	98.37	220.00	1.34	99.39	0.95	6.40	7.00	<1
Mar-00	215.50	2.25	98.96	260.00	2.22	99.15	1.00	6.60	7.00	2
Apr-00	205.00	2.00	99.02	179.00	1.46	99.19	1.00	6.70	6.90	<1
May-00	410.00	2.00	99.51	190.00	1.23	99.35	0.68	6.70	6.90	<1
Jun-00	280.00	2.50	99.11	260.00	1.54	99.41	0.95	5.70	7.00	<1
Jul-00	141.67	2.00	98.59	182.67	1.08	99.41	1.05	6.69	7.20	<1
Aug-00	110.33	2.90	97.37	95.33	1.14	98.80	1.11	6.80	7.10	<1
Sep-00	129.00	2.25	98.26	132.00	1.43	98.91	1.04	6.90	7.00	2
Oct-00	235.00	4.55	98.06	368.50	1.28	99.65	1.32	6.80	7.00	6
Nov-00	131.00	2.20	98.32	61.50	1.29	97.91	1.50	6.70	6.90	<1
Dec-00	83.00	2.00	97.59	136.00	1.18	99.13	1.56	6.80	6.90	<1
Jan-01	160.67	2.00	98.76	154.00	1.66	98.92	1.20	6.80	7.50	<1
Feb-01	305.00	2.65	99.13	280.00	1.32	99.53	1.00	6.90	7.40	<1

Table 2-3
Florida Central Commerce Park WWTF
Historical Influent and Effluent Wastewater Characteristics (Years 1997 - 2001)
(Continued)

Month-Year	AVG $CBOD_5$ Inf (mg/L)	AVG $CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	AVG TSS Inf (mg/L)	AVG TSS Eff (mg/L)	TSS % Removal	Min Cl_2 Eff (mg/L)	Min pH Eff (std. Units)	Max pH Eff (std. Units)	Max Fecal Coliform Eff (#/100mL)
Mar-01	54.00	2.00	96.30	80.00	1.50	98.13	1.10	6.10	7.60	<1
Apr-01	100.67	2.00	98.01	26.00	1.10	95.77	1.00	7.00	7.70	<1
May-01	127.00	2.05	98.39	100.00	1.86	98.14	1.00	6.90	7.50	6
Jun-01	216.50	2.00	99.08	189.00	1.93	98.98	1.00	7.00	7.60	<1
Jul-01	116.00	2.00	98.28	171.00	1.87	98.91	1.00	6.90	7.60	<1
Aug-01	82.67	2.07	97.50	134.67	1.35	98.99	1.00	7.00	7.40	3
Sep-01	239.00	2.00	99.16	225.00	1.45	99.36	2.17	7.00	7.20	<1
Oct-01	37.00	2.00	94.59	53.00	2.25	95.75	1.00	7.00	7.30	<1
Nov-01	255.00	2.00	99.22	255.00	1.00	99.61	2.49	6.90	7.80	<1
Dec-01	199.50	2.30	98.85	295.00	1.10	99.63	1.00	7.00	7.40	<1

Notes:
1. Monthly maximum fecal coliform results shown. All fecal coliform results were <1 colonies per 100 mL of sample for 75% of the samples on a monthly basis.

CHAPTER 3 - FUTURE CONDITIONS

Updated population and flow projections for the Florida Central Commerce Park wastewater service area are presented in this chapter.

A. Population Projections

Florida Water's Florida Central Commerce Park wastewater service area is an industrial park comprised of offices and warehouses. As of December 2001, the plant served approximately 179 ERCs of which 178 ERCs are active. A portion of the service area remains unsewered as indicated on Figure I-3. A church and charter school are located within the unsewered area and are presently served by a septic tank. Wastewater flows from the church and charter school are expected to be conveyed to the treatment plant during the permit period. Wastewater flows from the Bennett Commerce Park area in the magnitude of 15,000 gpd are expected later this year. Bennett Commerce Park remains within the sewer service area limits for the City of Longwood. Florida Water has entered into an agreement with the City to treat wastewater flows and to also provide reclaimed water service to this area. Population projections were not determined for the Florida Central Commerce Park service area since it is an industrial park.

B. Flow Projections

Flow projections for the Florida Central Commerce Park wastewater service area are based on historical active ERCs and wastewater flows for the years 1997 to 2001. ERCs are based on water meter sizes and were obtained from Florida Water's billing records; the flow data was obtained from the DMRs. The existing average number of active ERCs, the AADFs, and the wastewater generation rates for the years 1997 to 2001 are presented in Table 3-1.

As indicated in Table 3-1, the average wastewater generation rate for the service area is 241 gpd/ERC. Flow projections are based on a growth rate of 5 ERCs per year for the existing sewered portion of the service area plus flow from the unsewered portion and Bennett Commerce Park areas. Flow from the church is expected beginning in the year 2003 with additional phases thereafter. Flows of 15,000 gpd are expected from the Bennett Commerce Park area later this year. M3MADFs were calculated by applying a M3MADF/AADF factor of 1.16 based on the 1997–2001 data (see Table 2-2).

The projected average number of ERCs, the AADFs, and the M3MADFs for the next 10 years (2002 through 2011) are presented in Table 3-2 and shown graphically on Figure 3-1. As indicated in Table 3-2, the projected AADF and M3MADF for the year 2006 are 71,400 gpd and 82,800 gpd, respectively. Since the permitted capacity of the plant is 95,000 gpd, on an annual average basis, the plant is expected to have sufficient capacity during the permit duration. Buildout of the service area is projected to be 255 ERCs plus 15,000 gpd from Bennett Commerce Park. The AADF and M3MADF at buildout are 76,500 gpd and 88,700 gpd, respectively. Therefore, the plant is expected to have sufficient capacity at buildout as well.

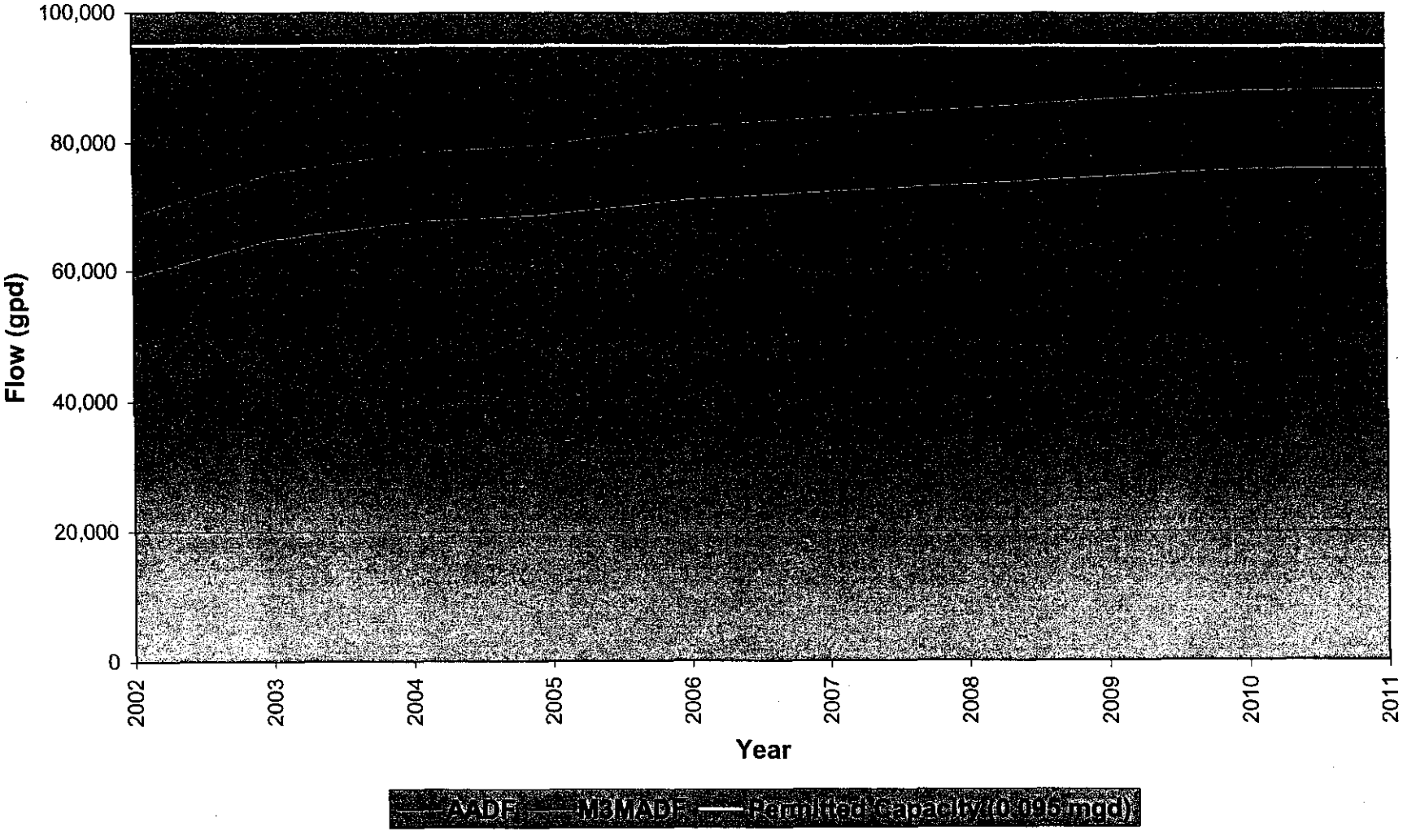
TABLE 3-1
Florida Central Commerce Park Wastewater Service Area
Existing Active ERCs and Wastewater Flows (Years 1997-2001)

Year	Existing Average ERCs	Existing AADF (gpd)	Existing Wastewater Generation Rate (gpd/ERC)
1997	162.25	0.0466	287
1998	169	0.0433	256
1999	176.5	0.0449	254
2000	176.5	0.0397	225
2001	177	0.0326	184
Average Wastewater Generation Rate = 241 gpd/ERC			

TABLE 3-2
Florida Central Commerce Park Wastewater Service Area
Projected Active ERCs and Wastewater Flows (Years 2002-2011)

Year	Projected Average Active ERCs	Projected AADF (gpd)	Projected M3MADF (gpd)
2002	184	59,300	68,800
2003	208	65,100	75,500
2004	219	67,800	78,600
2005	224	69,000	80,000
2006	234	71,400	82,800
2007	239	72,600	84,200
2008	244	73,800	85,600
2009	249	75,000	87,000
2010	254	76,200	88,400
2011 Buildout	255	76,500	88,700

Figure 3-1
Flow Projections (Years 2002-2011)



CHAPTER 4 - SUMMARY AND CONCLUSIONS

The time required for the M3MADF to reach the permitted capacity of the plant and the recommendations for the expansion of the plant are presented in this chapter.

A. Time Required for the M3MADF to Reach the Permitted Capacity

As indicated in Chapter 3, the M3MADF is not projected to reach the permitted capacity of the plant during the permit period. The M3MADF for the year 2006 (next five years) is 82,800 gpd.

B. Recommendations for Expansion

A plant expansion is not proposed as part of this renewal. Additional surge capacity, however, may be necessary during the permit period once additional flow from the Bennett Commerce area is received later this year. Should additional surge capacity be required, a separate application will be submitted to permit this new work.

UPDATED CAPACITY
ANALYSIS REPORT

HOLIDAY HAVEN
WASTEWATER TREATMENT FACILITY

PREPARED FOR:

AQUA UTILITIES FLORIDA, INC.
P.O. BOX 490310
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(352) 787-0980

PREPARED BY:

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(407) 936-1257
C.O.A. #6444

JUNE 2006

Certifications

Permittee

I am fully aware and intend to comply with the recommendations and schedules included in this report.

John M. Lihvarcik
Chief Operating Officer
Aqua Utilities Florida, Inc.
P.O. Box 490310
Leesburg, Florida 34749
352-787-0980

Professional Engineer

The information contained in this report is true and correct to the best of my knowledge. The report was prepared in accordance with sound engineering principles, and I discussed the recommendations and schedules with the permittee.

7-3-06

James C. Boyd, P.E. (P.E. No. 35480)
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1349 International Parkway South
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407-936-1257
COA No. 6444

UPDATED CAPACITY ANALYSIS REPORT
FOR
HOLIDAY HAVEN
WASTEWATER TREATMENT FACILITY

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UPDATED CAPACITY ANALYSIS REPORT
FOR
HOLIDAY HAVEN
WASTEWATER TREATMENT FACILITY

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APPENDICES

CHAPTER I - INTRODUCTION

The Holiday Haven Wastewater Treatment Facility ("WWTF") is authorized to operate under the Florida Department of Environmental Protection ("FDEP") wastewater permit No. FLA010655. This permit was issued on August 7, 2001 and expires on August 5, 2006. The purpose of this report is to satisfy the requirements of Rule 62-600.405(5)(a), which requires the submittal of an Updated Capacity Analysis Report at the time of permit renewal.

The WWTF is located in Lake County, Florida, within the community of Astor. The WWTF permittee is Aqua Utilities Florida, Inc. (AQUA"). A map depicting the facility location and surrounding service area is included as Figure I-1. The service area is predominately residential in nature. As of December 31, 2005, there were 112 active wastewater connections within the service area.

Brief Description of Treatment and Disposal Facilities

The Holiday Haven WWTF has a permitted treatment and disposal capacity of 0.025 million gallons per day ("mgd") on an annual average daily flow ("AADF") basis. The following commentary provides a brief description of the existing treatment and disposal facilities employed at the WWTF. The reader is also encouraged to refer to the following figures for additional information:

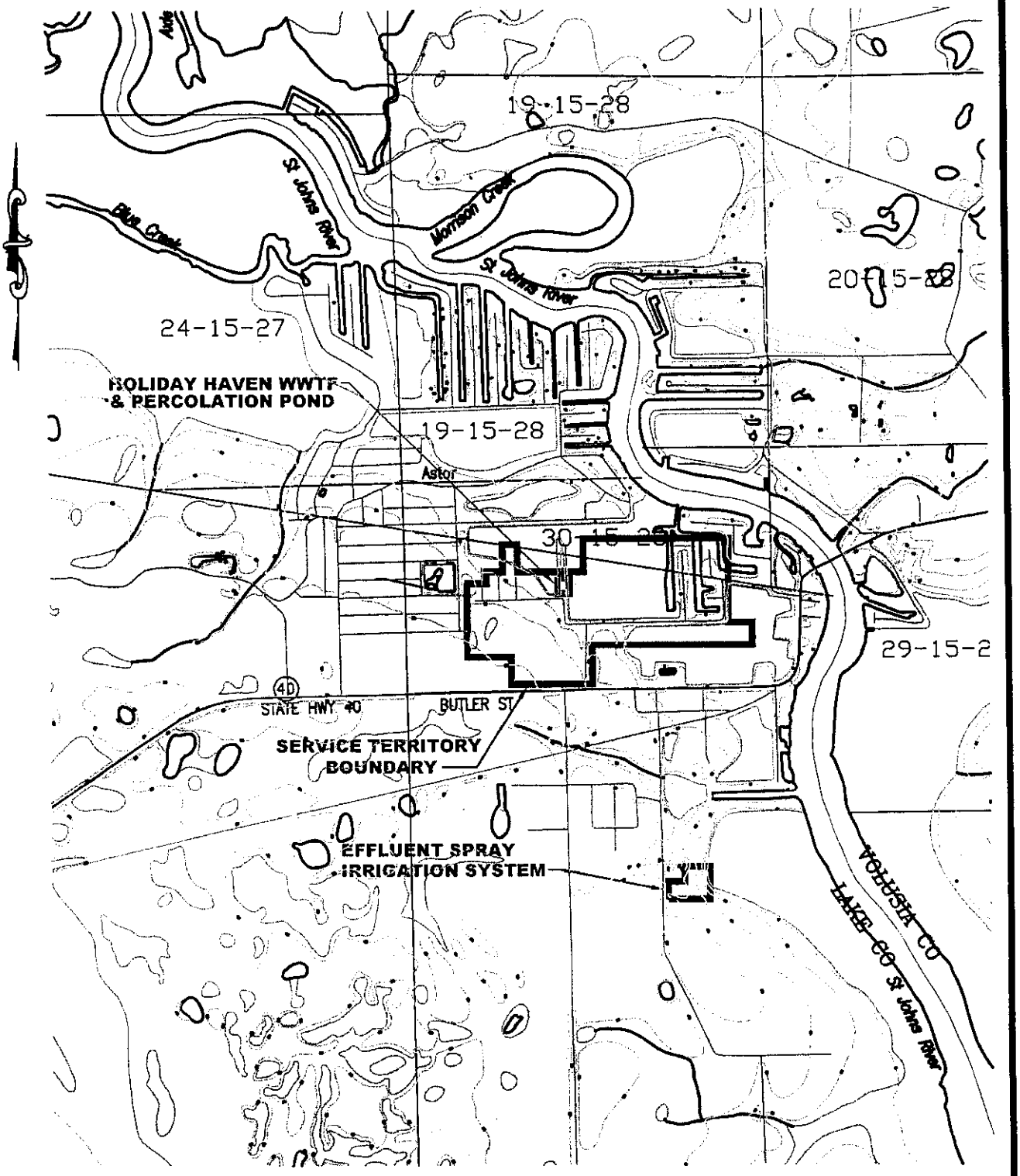
1. Figure I-2 (Process Flow Diagram)
2. Figure I-3 (Plant Site Plan)
3. Figure I-4 (Plant Detail)
4. Figure I-5 (Sprayfield Site Plan)

Finally, Table I-1 provides a summary of the major facility components, including unit capacities.

Wastewater Treatment. The WWTF employs the extended aeration process for wastewater treatment consisting of aeration, clarification and disinfection unit processes. As indicated in Figure I-2 (Process Flow Diagram), raw influent from the service area is pumped to the aeration tank via an offsite master lift station. Mixed liquor from the aeration tank flows to the clarifier, with return sludge returned to aeration, and clarified effluent flowing to the chlorine contact chamber. Disinfection is provided via a sodium hypochlorite feed system. The disinfected effluent is pumped to an offsite sprayfield (System R-001), or flows by gravity to an onsite percolation pond (System R-002).

Restricted-Access Sprayfield. Land Application System R-001 consists of an existing 0.0186 mgd slow-rate sprayfield located approximately one-mile from the WWTF site. The wetted sprayfield area is 2-acres.

Rapid Infiltration Basin. Land Application System R-002 consists of an existing 0.0064 mgd percolation pond located at the plant site. The 0.5-acre pond can also be used as a 15-day wet weather storage pond for the sprayfield.



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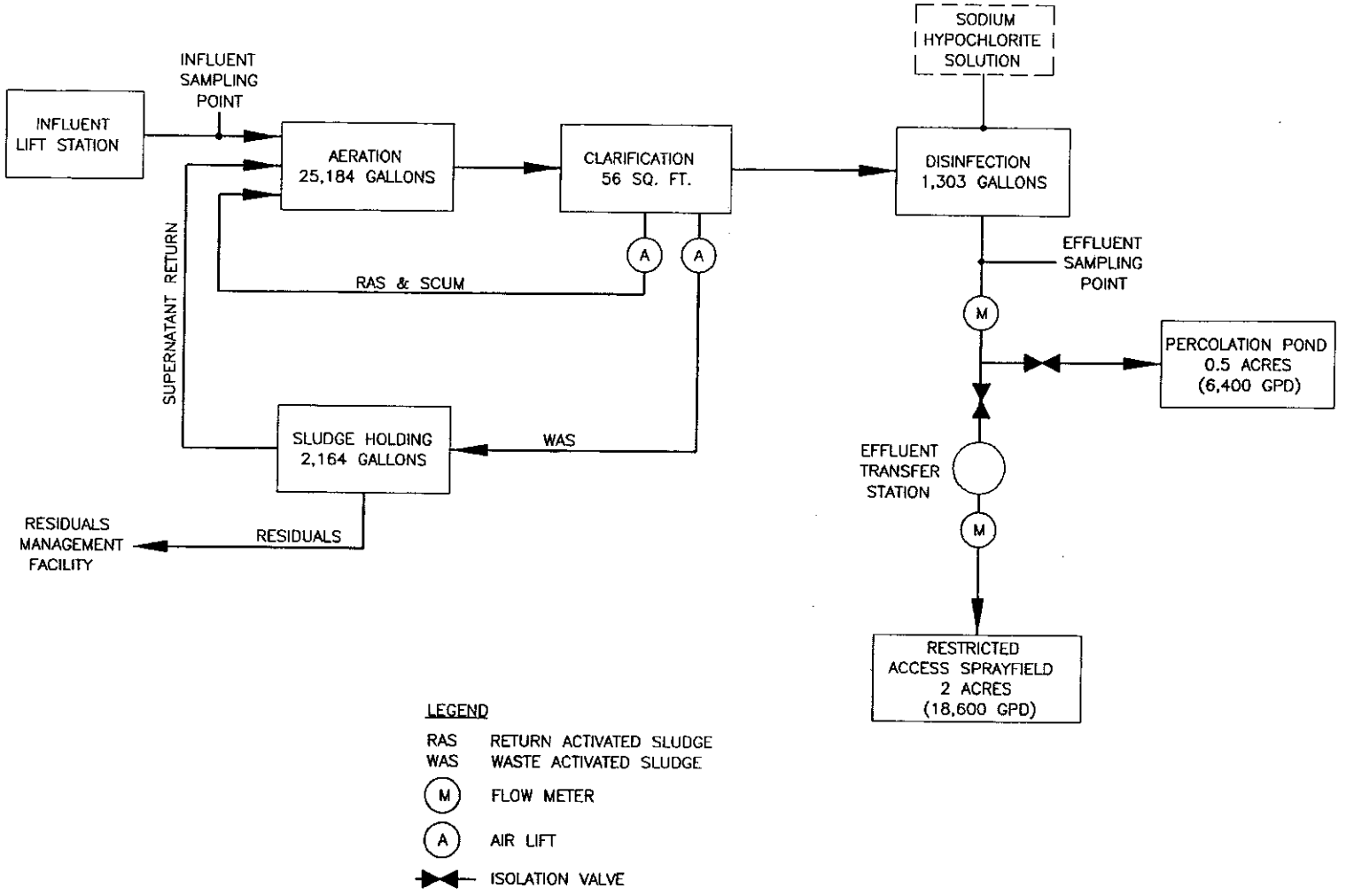
HOLIDAY HAVEN WWTF SERVICE AREA & PLANT LOCATION

FIGURE I-1

SCALE: 1"=2000'



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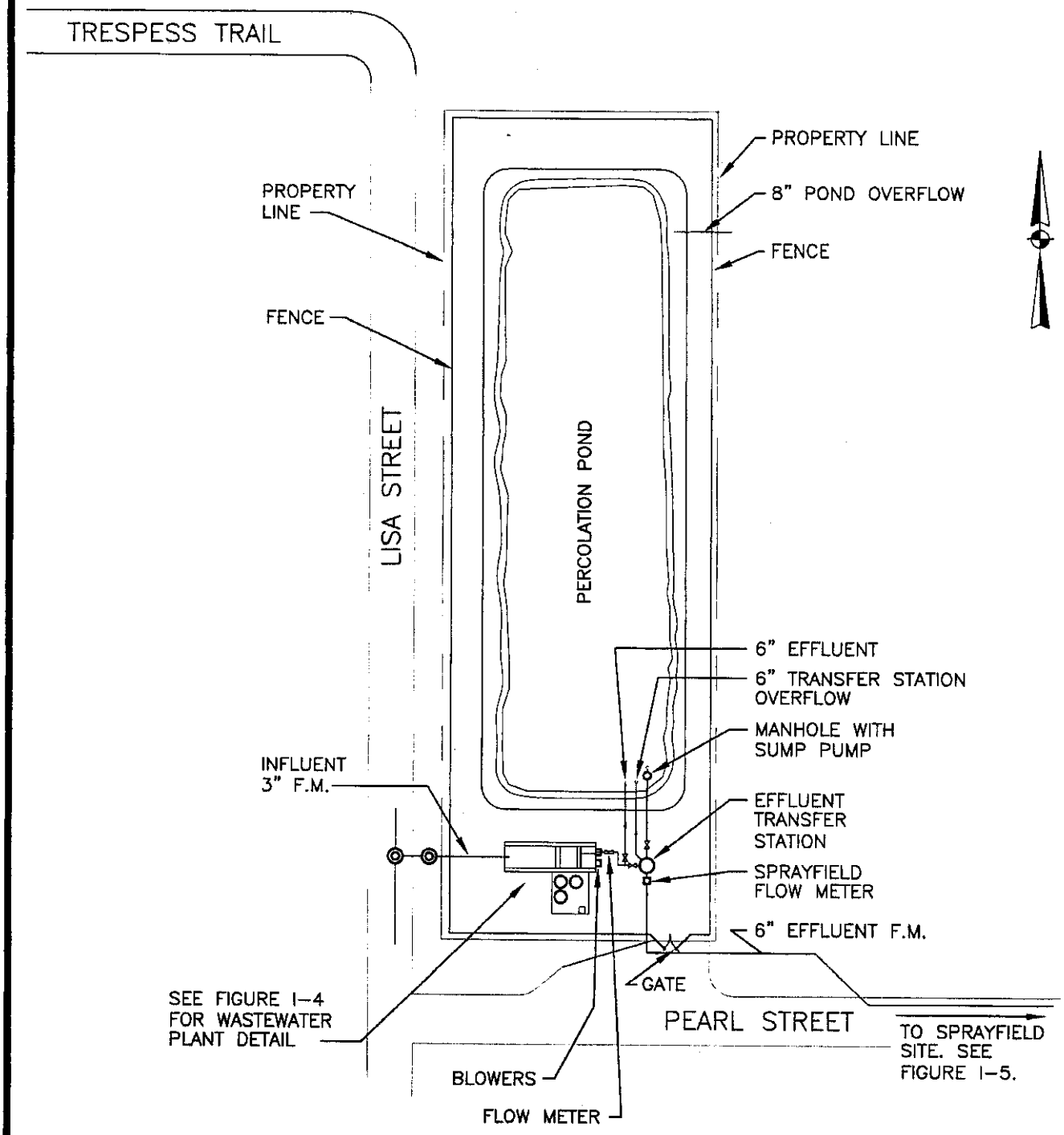
HOLIDAY HAVEN WASTEWATER TREATMENT FACILITY PROCESS FLOW DIAGRAM

FIGURE I-2



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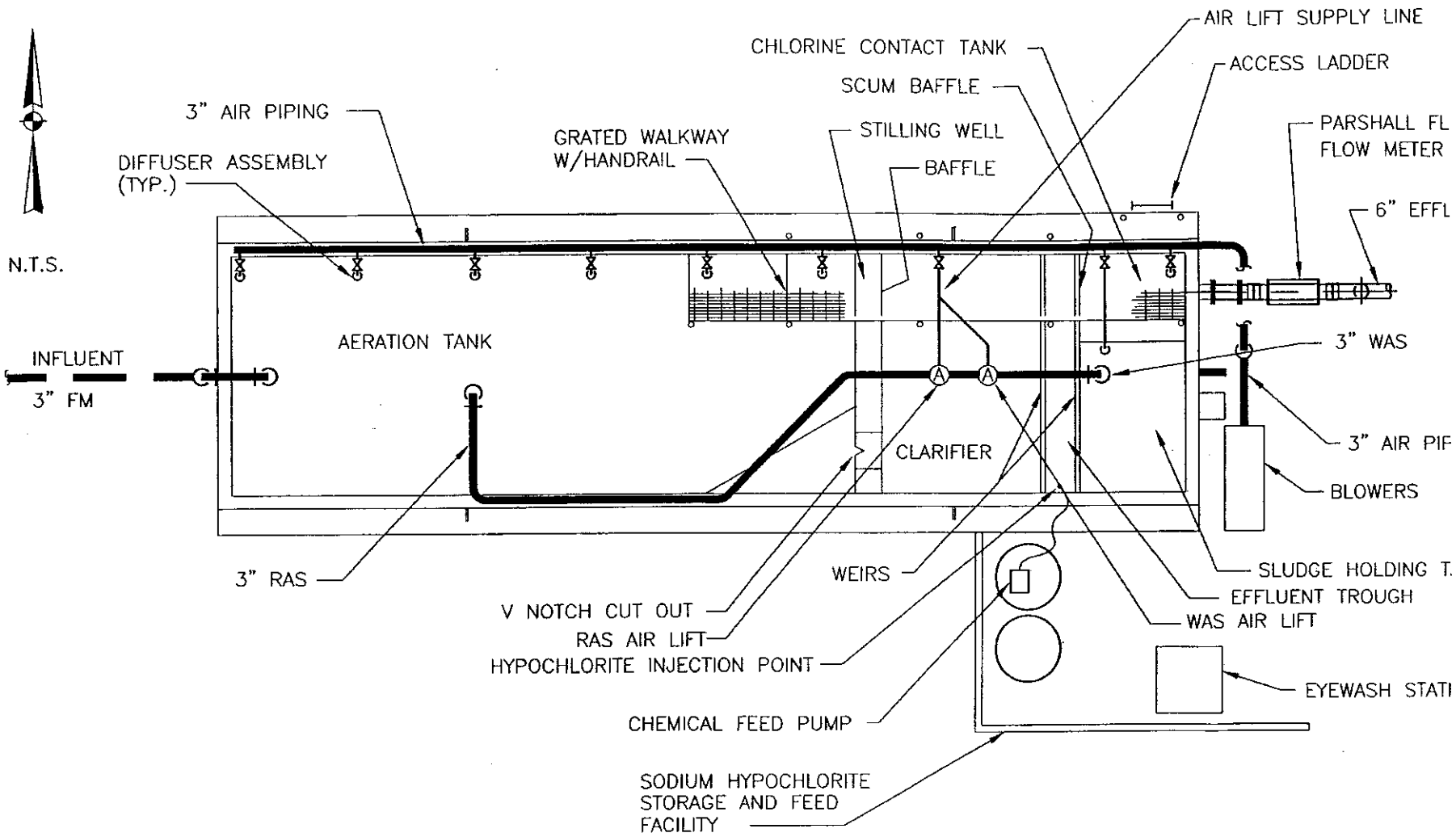
HOLIDAY HAVEN WWTF PLANT SITE PLAN

FIGURE I-3

SCALE: N.T.S.



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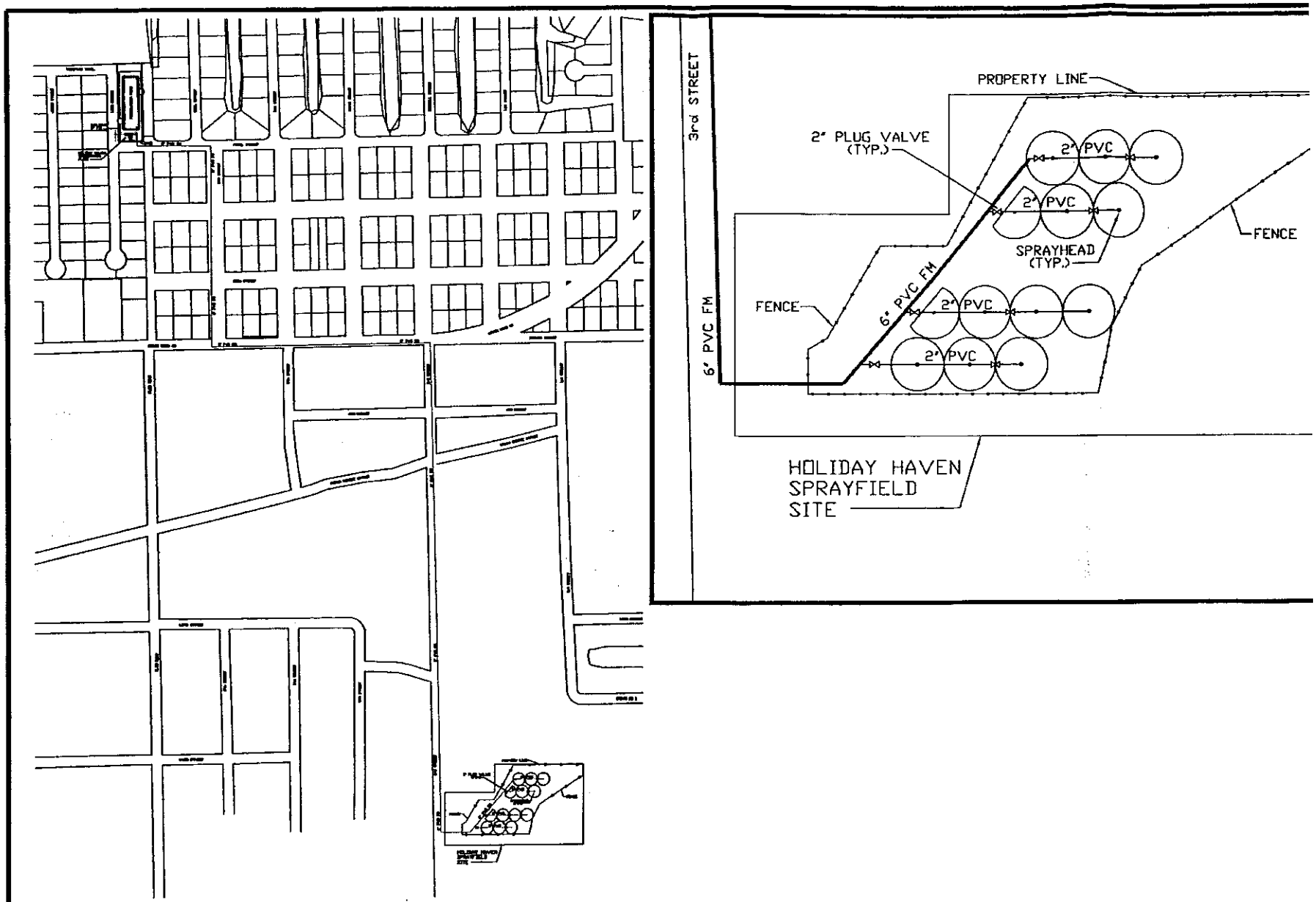
HOLIDAY HAVEN
WASTEWATER TREATMENT FACILITY
PLANT DETAIL

FIGURE I-4



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HOLIDAY HAVEN
WASTEWATER TREATMENT FACILITY
SPRAYFIELD SITE PLAN

FIGURE I-5

Table I-1

Holiday Haven
Wastewater Treatment Facility

Major Unit Processes and Capacities

MAJOR UNIT PROCESSES		
Unit Process	**No. Units**	**Capacity**
Aeration	1	25,184 gallons
Secondary Clarification	1	56 sq.ft.
Chlorine Contact	1	1,303 gallons
Aerated Sludge Holding	1	2,164 gallons
Sprayfield	NA	2 acres (wetted)
Percolation Pond	1	0.5 acres

MAJOR EQUIPMENT ITEMS		
Item	**No. Units**	**Capacity Per Unit**
Blowers	2	5 HP
Hypochlorite Pump	1	17 gpd
Effluent Transfer Pumps	2	5 HP

Notes

1. Unit process and equipment capacities obtained from "Holiday Haven Wastewater Treatment Facility, Operation and Maintenance Performance Report," Florida Water Services Corporation, February 2001.

Residuals Management. Waste sludge is not stabilized at the WWTF. Rather, the plant is served by an aerated sludge holding tank. A contractor periodically transports stored residuals to several residuals management facilities ("RMFs") for stabilization and disposal.

Flow Measurement. There are two effluent flow meters. An existing 6-inch Parshall flume flow meter measures total plant flow, while an existing 3-inch electromagnetic meter measures effluent flow to the sprayfield. The meter locations are depicted on Figure 1-2 (Process Flow Diagram). Effluent flow to the percolation pond is the calculated difference between total plant flow and sprayfield flow.

CHAPTER II – EXISTING CONDITIONS

An analysis of existing conditions includes consideration of historic flows and updated flow and loading information.

MADF, TMADF and AADF

Table A-1 in Appendix A presents a summary of monthly average daily flow ("MADF"), three-month average daily flow ("TMADF") and annual average daily flow ("AADF") for the past ten years (1996 – 2005). These flows represent total plant flow as measured by the existing 6-inch Parshall flume flow meter. Total plant MADF data were obtained from the monthly discharge monitoring reports ("DMRs") for the facility. The total plant TMADF and AADF were then calculated using the MADF data as a basis. However, please note that the following adjustments were made to the total plant flows reported in the DMRs:

1. Flow data for calendar years 2000 and 2001 were adjusted to account for flow meter malfunctions as documented in the "Holiday Haven Capacity Analysis Report Update" as prepared by Florida Water Services, June 2002. The effected months are September through December 2000 and all months in calendar year 2001. The corresponding excerpt from the Florida Water Services report is provided in Appendix B.
2. The above flow meter malfunctions noted by Florida Water Services persisted until April 17, 2002. On that date, a replacement total flow meter was installed. Consequently, total plant flow for January through March 2002 is presumed equal to the corresponding monthly average flow for the other nine years. For example, the average flow for January 2002 was adjusted to equal the average January flow for years 1996 through 2001 and 2003 through 2005. This adjustment is considered reasonable, since the number of service connections only increased from 104 in year 1996 to 112 in year 2005 (see Chapter III for a discussion of service connections).
3. Reported flow for October 2004 (0.053 mgd) is considered an anomaly due to the effect of Hurricane Jeanne. Therefore, for data evaluation purposes, the monthly average flow for October 2004 was adjusted to equal the average October flow for the other nine years (1996 through 2003 and 2005).
4. Reported flows for June 2005 (0.002 mgd), July 2005 (0.002 mgd) and August 2005 (0.002 mgd) were inaccurate by a factor of 10 due to a formula error in the DMR worksheets. Therefore, these flows have been adjusted to 0.020 mgd, 0.023 mgd and 0.021 mgd, respectively.

Figures II-1 through II-3 present a plot of the MADF, TMADF and AADF for the past five years, respectively. These plots incorporate the above flow adjustments.

Figure II-1
Holiday Haven WWTF
Plot of Monthly Average Daily Flow
2001-2005

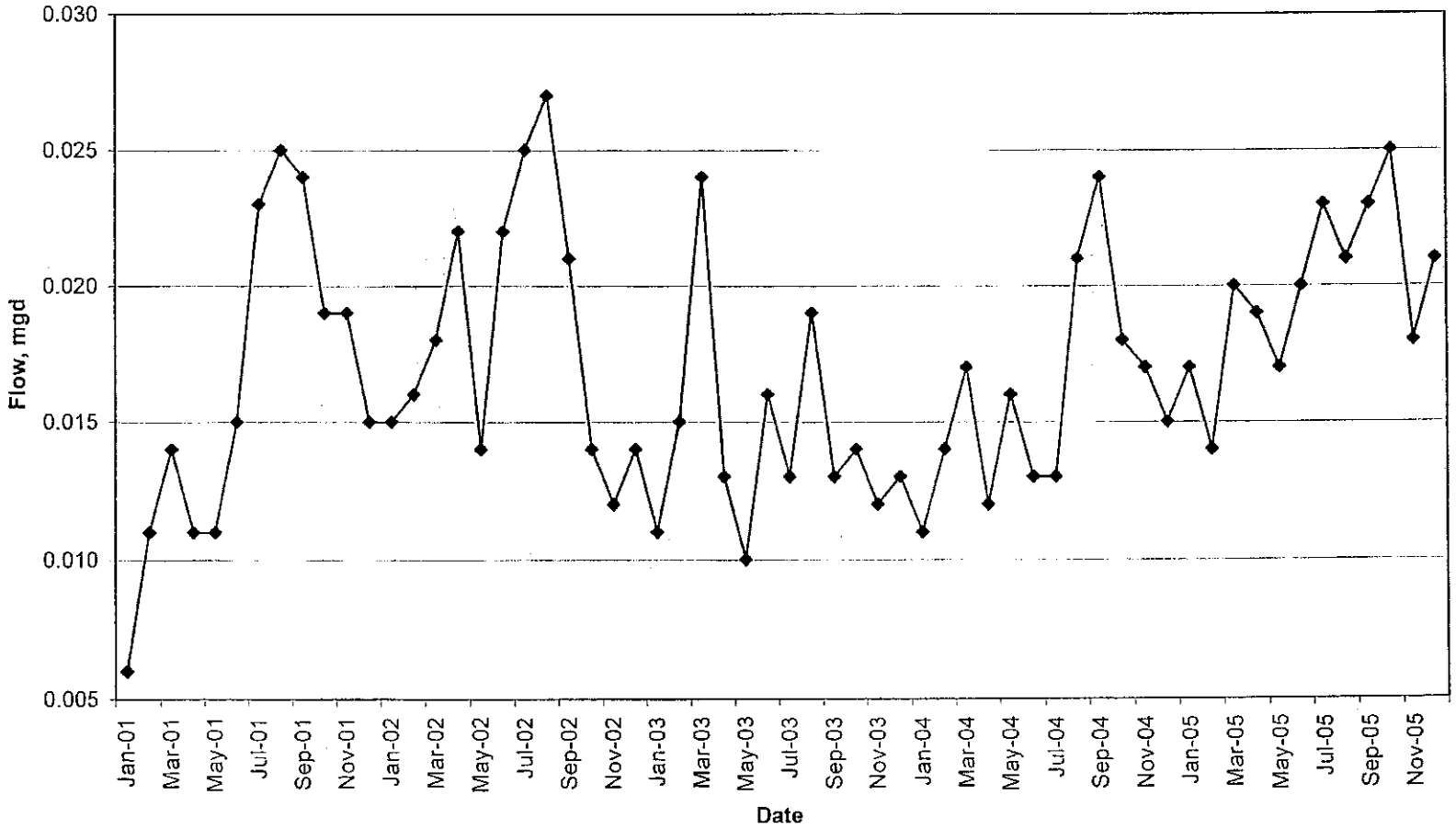


Figure II-2
Holiday Haven WWTF
Plot of Three-Month Average Daily Flow
2001-2005

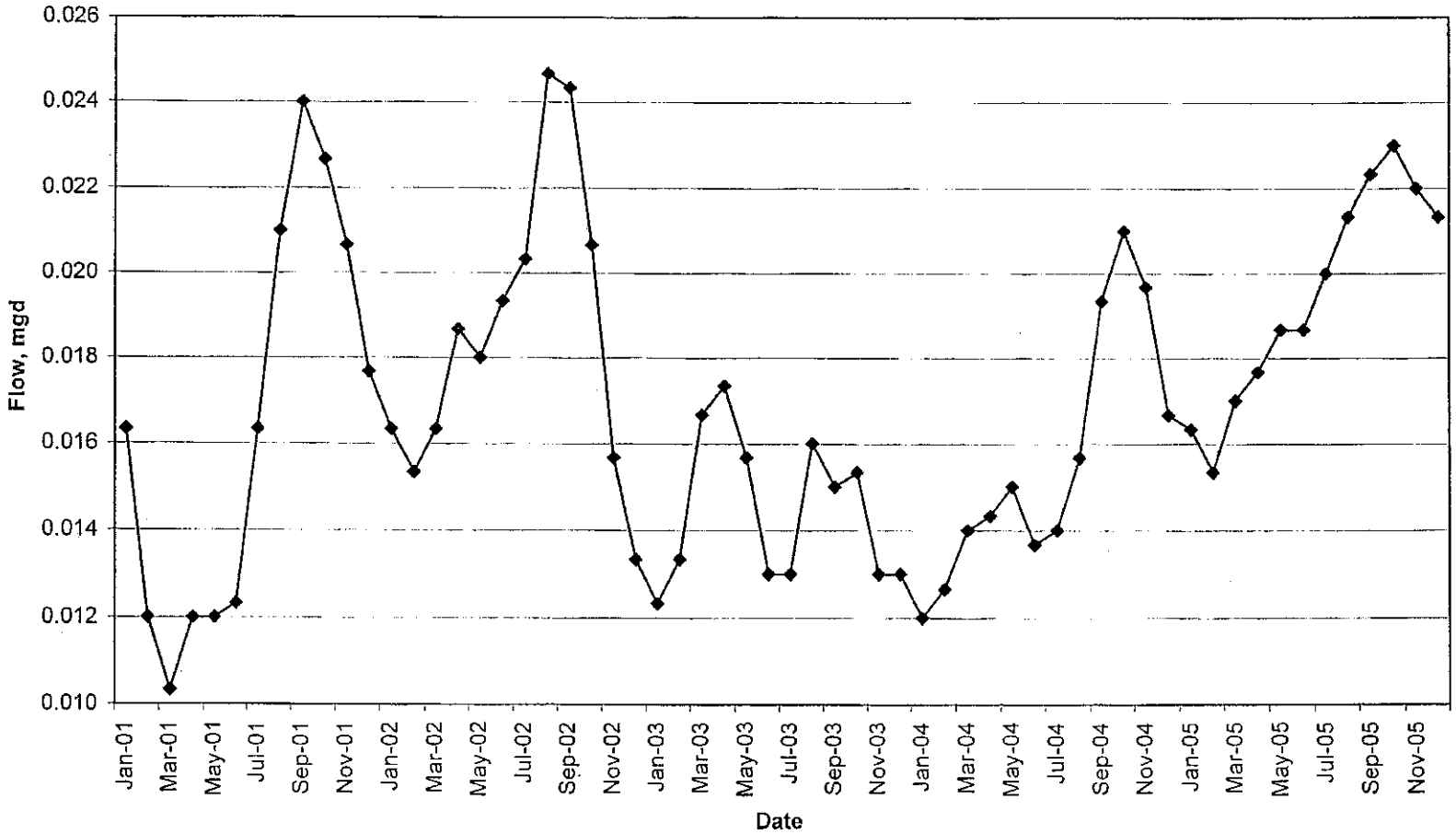
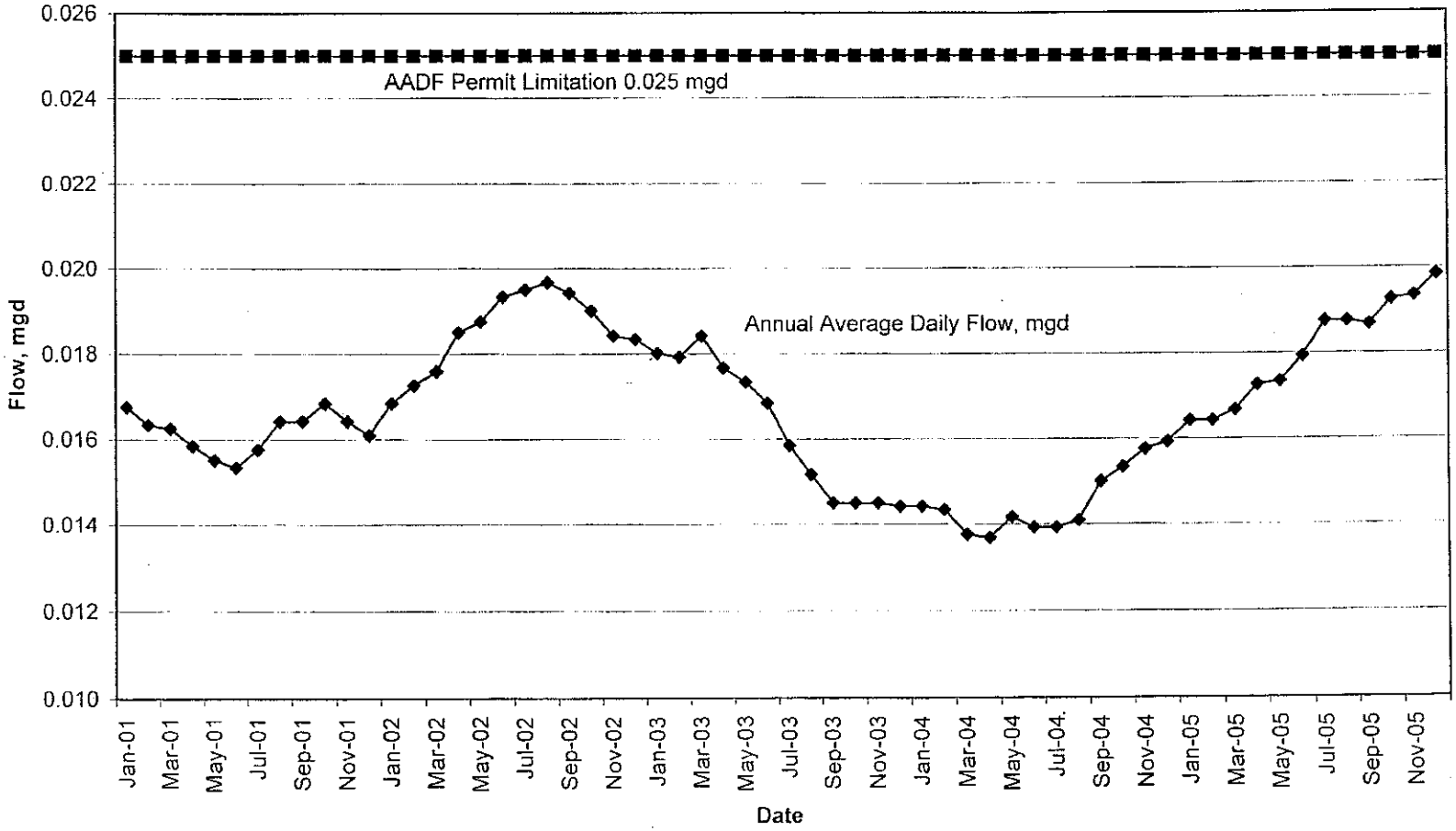


Figure II-3
Holiday Haven WWTF
Plot of Annual Average Daily Flow
2001-2005



Seasonal Variations in Flow

Table II-1 presents a tabulation of AADF and maximum TMADF for the past ten years (1996 - 2005). Also included in Table II-1 are the month of the year in which the maximum TMADF occurred, and the ratio of maximum TMADF to AADF. As indicated in the table, the ratio of maximum TMADF to AADF has ranged from 1.15 to 1.49 during the past ten years. This provides a 10-year average of 1.26. There does not appear to be a consistent seasonal occurrence of maximum TMADF. The maximum TMADF has occurred in the winter (February), spring (March), summer (August and September) and fall (October and November). It is important to note that the maximum TMADF does not consistently coincide with the rainy season (June through September). Hence, there does not appear to be excessive inflow/infiltration due to seasonal rainfall conditions.

Updated Flow and Loading Information

The prior *Capacity Analysis Report Update for the Holiday Haven WWTF* (prepared by Florida Water Services, June 2002) assumed $CBOD_5$ and TSS loadings of 150 mg/L and 147 mg/L, respectively. In order to determine whether these assumptions are still valid, it is necessary to review historic data concerning $CBOD_5$ and TSS loadings. A summary of annual average $CBOD_5$ and TSS influent concentrations for the past three calendar years (2003 – 2005) is presented in the following table:

Year	Annual Average Influent $CBOD_5$ (mg/L)	Annual Average Influent TSS, mg/L
2003	109	85
2004	380	580
2005	59	77
3- Year Average	183	247

As shown in the above table, the annual average influent $CBOD_5$ concentration has ranged from 59 mg/L to 380 mg/L during the past three years, for a three-year average of 183 mg/L. The annual average influent TSS concentration has ranged from 77 mg/L to 580 mg/L during the past three years, for a three-year average of 247 mg/L. It should be noted that this high degree of variability is likely due to the fact that influent $CBOD_5$ and TSS readings are only required to be taken once per year in compliance with condition I.B.1 of the FDEP wastewater permit.

Table II-1

Holiday Haven
Wastewater Treatment Facility

Seasonal Flow Variations
(1996 - 2005)

Year	Maximum TMADF (mgd)	AADF (mgd)	Max TMADF/ AADF Ratio	Month
1996	0.021	0.018	1.17	Mar
1997	0.024	0.019	1.26	Sep
1998	0.025	0.019	1.32	Feb
1999	0.021	0.018	1.17	Nov
2000	0.021	0.018	1.17	Nov
2001	0.024	0.016	1.49	Sep
2002	0.025	0.018	1.39	Aug
2003	0.017	0.014	1.21	Mar
2004	0.021	0.016	1.31	Oct
2005	0.023	0.020	1.15	Oct
		Average (1996 - 2005)	1.26	

Notes

1. Flow data for calendar years 2000 and 2001 were adjusted to account for flow meter malfunctions as documented in the "Holiday Haven Capacity Analysis Report Update" as prepared by Florida Water Services, June 2002. The effected months are September through December 2000 and all months in calendar year 2001.
2. The above flow meter malfunctions noted by Florida Water Services persisted until April 17, 2002. On that date, a replacement total flow meter was installed. Consequently, total plant flow for January through March 2002 is presumed equal to the corresponding monthly average flows for the other nine years. For example, the average flow for January 2002 was adjusted to equal the average January flow for years 1996 through 2001 and 2003 through 2005. These adjustments are considered reasonable, since the number of service connections only increased from 104 in year 1996 to 112 in year 2005.
3. Reported flow for October 2004 (0.053 mgd) is considered an anomaly due to the effect of Hurricane Jeanne. Therefore, for data evaluation purposes, the monthly average flow for October 2004 was adjusted to equal the average October flow for the other nine years (1996 through 2003 and 2005).
4. Reported flows for June 2005 (0.002 mgd), July 2005 (0.002 mgd) and August 2005 (0.002 mgd) were inaccurate by a factor of 10 due to a formula error in the DMR worksheets. Therefore, these flows have been adjusted to 0.020 mgd, 0.023 mgd and 0.021 mgd, respectively.

For influent $CBOD_5$, the previous assumption of 150 mg/L appears too low, since the past 3-year average is 183 mg/L. The same observation can be made for influent TSS, since the previous assumption of 147 mg/L is significantly lower than the past 3-year average of 247 mg/L. Hence, based on historic data for the past three years, it would be more prudent to assume an influent $CBOD_5$ concentration of 200 mg/L, and an influent TSS concentration of 250 mg/L.

Table II-2 provides a summary of key process parameters for the Holiday Haven WWTF. As noted in Table II-2, the following assumptions were used in calculating the key process parameters:

Annual average daily flow (AADF) = 0.025 mgd (existing permitted capacity).

Peak Hour Flow = AADF * 2.5.

Influent $CBOD_5$ and TSS concentration = 200 mg/L and 250 mg/L, respectively.

Mixed liquor suspended solids concentration = 2,500 mg/L, 65-percent volatile.

Return sludge recycle rate = 100%.

A review of Table II-2 indicates that the WWTF can generally operate within recommended process parameters at the permitted WWTF capacity. The only parameters that are outside of typical operating ranges are average and peak clarifier surface overflow rate ("SOR"):

Clarifier SOR @ AADF = 446 gpd/ft^2 (recommended criteria = 200 – 400 gpd/ft^2)

Clarifier SOR @ Peak = 1,116 gpd/ft^2 (recommended criteria = 1,000 gpd/ft^2)

Clarifier performance can be evaluated in terms of effluent $CBOD_5$ and TSS concentrations. A review of the DMR data indicates that the WWTF has been in compliance with $CBOD_5$ and TSS effluent standards for the past five years (see the Operation and Maintenance Performance Report submitted in conjunction with this report). This compliance period included several months wherein the monthly average flow equaled or exceeded the 0.025 mgd AADF rated plant capacity. Consequently, it does not appear that the higher than normal clarifier SOR parameter has caused effluent degradation.

Table II-2

Holiday Haven
Wastewater Treatment Facility

Key Process Parameters @0.025 mgd AADF

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Extended Aeration	Detention Time, hrs	18 - 36	24.2
	F:M Ratio, lb $CBOD_5$/lb MLVSS	0.05 – 0.15	0.122
	Volumetric Loading, lb $CBOD_5$/1000 ft^3/day	10 - 25	12.4
Secondary Clarification	Surface Overflow Rate, gpd/ft^2	200 - 400	446
	Peak Surface Overflow Rate, gpd/ft^2	1,000	1,116
	Solids Loading, lb/ft^2/day	10 - 24	18.6
	Peak Solids Loading, lb/ft^2/day	30 - 35	32.6
Chlorine Contact	Detention Time, minutes	30	75
	Peak Detention Time, minutes	15	30

Table II-2 (Continued)

Holiday Haven
Wastewater Treatment Facility

Key Process Parameters @0.025 mgd AADF

Notes:

1. The assumed plant AADF is 0.025 mgd. Parameters shown as "peak" are based on a peak hour flow of 0.0625 mgd (2.5 times AADF).
2. The assumed influent $CBOD_5$ concentration is 200 mg/L, and the assumed influent TSS concentration is 250 mg/L.
3. The assumed mixed liquor suspended solids concentration is 2,500 mg/L, and the assumed volatile percentage is 65 percent.
4. The assumed return sludge recycle rate is 100% @AADF.

CHAPTER III – FUTURE CONDITIONS

The assessment of future conditions includes population and flow projections, which are based on historic wastewater connections and flows.

AQUA acquired the Holiday Haven WWTF from Florida Water Services in June 2004. Thus, AQUA only has access to connection data since the acquisition date. Year end connections for years 2004 and 2005, as provided by AQUA, are as follows:

December 2004 – 112 connections

December 2005 – 112 connections

According to the Operation and Maintenance Performance Report Update prepared by Florida Water Services in February 2001, there were 104 average service connections in calendar year 1996, and 108 service connections in December 2000. Therefore, it is evident that there has been minimal customer growth during the past ten years. Assuming a linear increase in the number of connections from year 1996 to year 2005, annual average connections for the past ten calendar years can be estimated as follows:

Year	Year End Connections	Annual Average Connections
1996 (Base)	104	104.0
1997	105	104.5
1998	106	105.5
1999	107	106.5
2000	108	107.5
2001	109	108.5
2002	110	109.5
2003	111	110.5
2004	112	111.5
2005	112	112.0

Notes

1. Annual average connections represent the average of the end of year figures for the current and prior years. For example, annual average connections for calendar year 2001 = (108+109)/2 = 108.5

The average flow per connection for the past ten years can be calculated as follows. The annual average daily flow for each calendar year incorporates the flow adjustments as summarized in Table II-1.

Year	Annual Average Connections	AADF (mgd)	AADF per Connection (gpd)
1996	104.0	0.018	173
1997	104.5	0.019	182
1998	105.5	0.019	180
1999	106.5	0.018	169
2000	107.5	0.018	167
2001	108.5	0.016	148
2002	109.5	0.018	164
2003	110.5	0.014	127
2004	111.5	0.016	144
2005	112.0	0.020	179
		10-Year Avg.	163
		70th Percentile	175

In order to estimate yearly population and flow projections for the next ten years, the following assumptions are made:

1. Annual growth in connections = 1 (the average growth in connections for the past ten calendar years has been 0.8).
2. AADF per connection = 175 gpd (70th percentile of the average flow per connection values as derived in above table for the past ten calendar years. The 70th percentile value is used instead of the 10-year average in order to provide a safety factor for flow projections).
3. Maximum TMADF/AADF Ratio = 1.26 (10-year average as derived in Table II-1).
4. Average population per connection = 2.34 (based on Year 2000 Lake County census data for average persons per household).

Population and flow projections, based on the above assumptions, are presented in Table III-1. A graph of projected AADF and maximum TMADF for the next ten years is presented in Figure III-1.

Table III-1

Holiday Haven
Wastewater Treatment Facility

Population and Flow Projections
2006 - 2015

Year	Projected Average Connections	Population Per Connection	Projected Population	AADF Per Connection (gpd)	Projected AADF (mgd)	Maximum TMADF/ AADF Ratio	Projected Maximum TMADF (mgd)
2006	113	2.34	264	173	0.020	1.26	0.025
2007	114	2.34	267	173	0.020	1.26	0.025
2008	115	2.34	269	173	0.020	1.26	0.025
2009	116	2.34	271	173	0.020	1.26	0.025
2010	117	2.34	274	173	0.020	1.26	0.026
2011	118	2.34	276	173	0.020	1.26	0.026
2012	119	2.34	278	173	0.021	1.26	0.026
2013	120	2.34	281	173	0.021	1.26	0.026
2014	121	2.34	283	173	0.021	1.26	0.026
2015	122	2.34	285	173	0.021	1.26	0.027

Notes
1. AADF = annual average daily flow.
2. TMADF = three-month average daily flow.
3. Average connection growth per year = 1 (2005 Baseline = 112 connections)
4. Average population per connection = 2.34 (based on Year 2000 Lake County census data for average persons per household).
5. Maximum TMADF to AADF ratio of 1.26 was derived from calendar years 1996 - 2005 as shown in Table II-1.

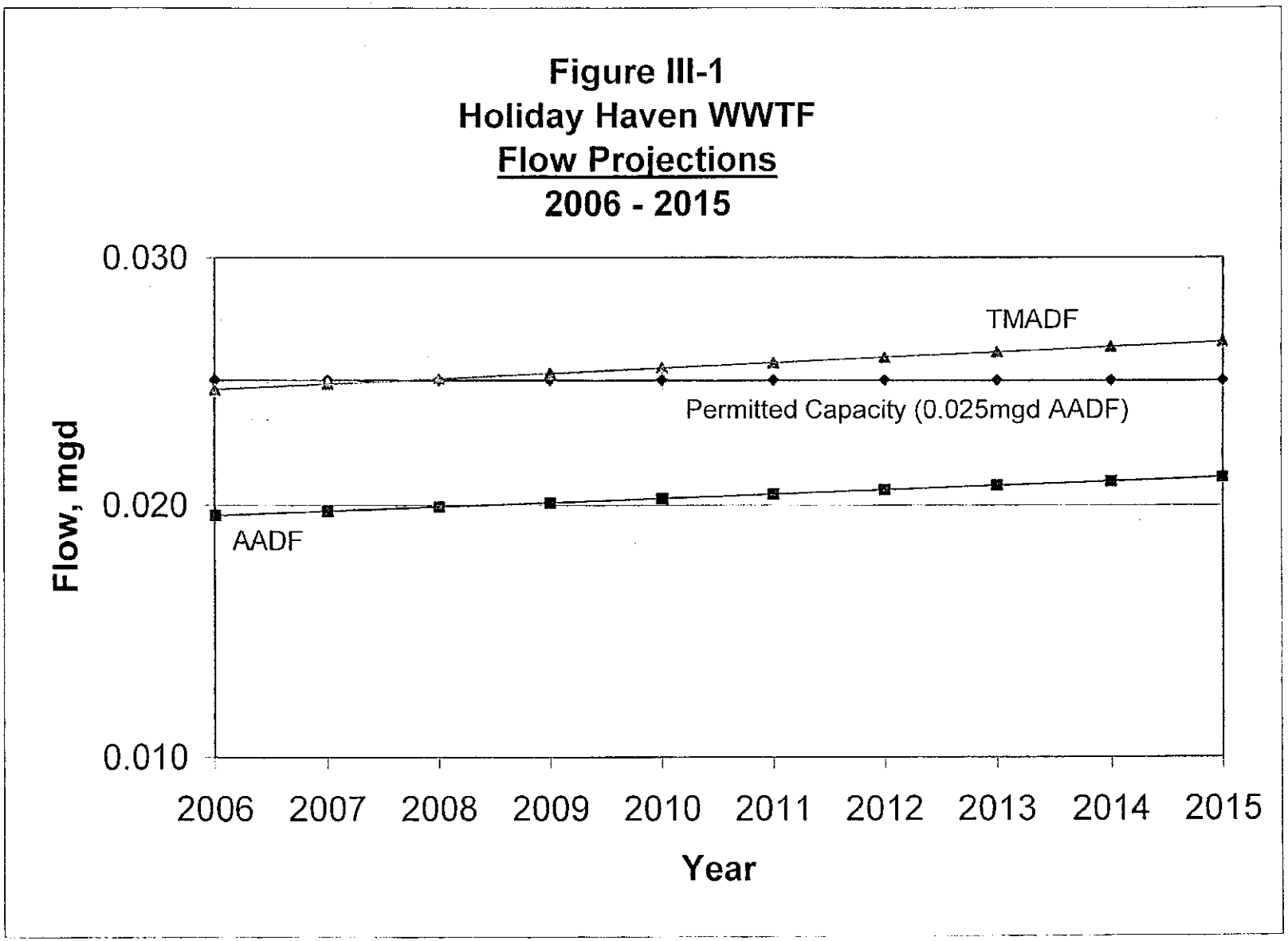


Figure III-1
Holiday Haven WWTF
Flow Projections
2006 - 2015
0.030
0.020
0.010
Flow, mgd
TMADF
Permitted Capacity (0.025mgd AADF)
AADF
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year

CHAPTER IV – SUMMARY AND CONCLUSIONS

A review of Table III-1 indicates that the following projected flows in Year 10 of the 10-year projection period:

AADF = 0.021 mgd.

Maximum TMADF = 0.027 mgd

The permitted capacity for the WWTF is 0.025 mgd on an AADF basis. Hence, based on the flow projections provided herein, the permitted WWTF capacity (on an AADF basis) will not be exceeded within the next ten calendar years. Consequently, in accordance with Rule 62-600.405(5)(a), it will not be necessary for the permittee to submit an updated Capacity Analysis Report until the next permit renewal application.

The projected maximum TMADF of 0.027 mgd will slightly exceed the 0.025 mgd AADF permitted capacity. In order to evaluate the ability of the WWTF to accommodate this projected TMADF, a review of corresponding process parameters is presented in Table IV-1.

A review of Table IV-1 indicates that the WWTF can generally operate within recommended process parameters at a maximum TMADF of 0.027 mgd. The only parameters that are outside of typical operating ranges are average and peak clarifier surface overflow rate ("SOR"). However, as discussed under Chapter II (Existing Conditions), it does not appear that the higher than normal clarifier SOR parameter has caused effluent degradation, even during months wherein the monthly average flow equaled or exceeded the 0.025 mgd AADF rated plant capacity. Consequently, it is anticipated that the WWTF will be able to adequately function under a maximum TMADF of 0.027 mgd.

Table IV-1

Holiday Haven
Wastewater Treatment Facility

Key Process Parameters @0.027 mgd TMADF

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Extended Aeration	Detention Time, hrs	18 - 36	22.4
	F:M Ratio, lb $CBOD_5$/lb MLVSS	0.05 – 0.15	0.132
	Volumetric Loading, lb $CBOD_5$/1000 ft^3/day	10 - 25	13.4
Secondary Clarification	Surface Overflow Rate, gpd/ft^2	200 - 400	482
	Peak Surface Overflow Rate, gpd/ft^2	1,000	1,205
	Solids Loading, lb/ft^2/day	10 - 24	20.1
	Peak Solids Loading, lb/ft^2/day	30 - 35	34.4
Chlorine Contact	Detention Time, minutes	30	69.5
	Peak Detention Time, minutes	15	27.8

Table IV-1 (Continued)

Holiday Haven
Wastewater Treatment Facility

Key Process Parameters @0.027 mgd TMADF

Notes:

1. The assumed plant TMADF is 0.027 mgd. Parameters shown as "peak" are based on a peak hour flow of 0.0675 mgd (2.5 times TMADF).
2. The assumed influent $CBOD_5$ concentration is 200 mg/L, and the assumed influent TSS concentration is 250 mg/L.
3. The assumed mixed liquor suspended solids concentration is 2,500 mg/L, and the assumed volatile percentage is 65 percent.
4. The assumed return sludge recycle rate is 100% @AADF.

Appendix A

Holiday Haven
Wastewater Treatment Facility

Flow Summary (Table A-1)
1996 – 2005

TABLE A-1 Holiday Haven WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month ADF (MGD)	(AADF) Annual Average Daily Flow (MGD)
Jan-96	0.023	0.020	0.021
Feb-96	0.019	0.020	0.021
Mar-96	0.021	0.021	0.021
Apr-96	0.016	0.019	0.021
May-96	0.014	0.017	0.021
Jun-96	0.015	0.015	0.021
Jul-96	0.018	0.016	0.021
Aug-96	0.020	0.018	0.020
Sep-96	0.021	0.020	0.020
Oct-96	0.019	0.020	0.019
Nov-96	0.015	0.018	0.018
Dec-96	0.015	0.016	0.018
Jan-97	0.014	0.015	0.017
Feb-97	0.014	0.014	0.017
Mar-97	0.015	0.014	0.016
Apr-97	0.014	0.014	0.016
May-97	0.013	0.014	0.016
Jun-97	0.022	0.016	0.017
Jul-97	0.025	0.020	0.017
Aug-97	0.021	0.023	0.017
Sep-97	0.025	0.024	0.018
Oct-97	0.015	0.020	0.017
Nov-97	0.021	0.020	0.018
Dec-97	0.028	0.021	0.019
Jan-98	0.022	0.024	0.020
Feb-98	0.025	0.025	0.021
Mar-98	0.022	0.023	0.021
Apr-98	0.015	0.021	0.021
May-98	0.012	0.016	0.021
Jun-98	0.013	0.013	0.020
Jul-98	0.016	0.014	0.020

TABLE A-1 (Cont.) Holiday Haven WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month ADF (MGD)	(AADF) Annual Average Daily Flow (MGD)
Aug-98	0.025	0.018	0.020
Sep-98	0.024	0.022	0.020
Oct-98	0.023	0.024	0.021
Nov-98	0.017	0.021	0.020
Dec-98	0.015	0.018	0.019
Jan-99	0.016	0.016	0.019
Feb-99	0.017	0.016	0.018
Mar-99	0.017	0.017	0.018
Apr-99	0.017	0.017	0.018
May-99	0.015	0.016	0.018
Jun-99	0.019	0.017	0.018
Jul-99	0.017	0.017	0.019
Aug-99	0.017	0.018	0.018
Sep-99	0.019	0.018	0.017
Oct-99	0.023	0.020	0.017
Nov-99	0.020	0.021	0.018
Dec-99	0.018	0.020	0.018
Jan-00	0.017	0.018	0.018
Feb-00	0.016	0.017	0.018
Mar-00	0.015	0.016	0.018
Apr-00	0.016	0.016	0.018
May-00	0.015	0.015	0.018
Jun-00	0.017	0.016	0.018
Jul-00	0.018	0.017	0.018
Aug-00	0.017	0.017	0.018
Sep-00	0.024	0.020	0.018
Oct-00	0.014	0.018	0.017
Nov-00	0.024	0.021	0.018
Dec-00	0.019	0.019	0.018
Jan-01	0.006	0.016	0.017
Feb-01	0.011	0.012	0.016
Mar-01	0.014	0.010	0.016
Apr-01	0.011	0.012	0.016

TABLE A-1 (Cont.) Holiday Haven WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month ADF (MGD)	(AADF) Annual Average Daily Flow (MGD)
May-01	0.011	0.012	0.016
Jun-01	0.015	0.012	0.015
Jul-01	0.023	0.016	0.016
Aug-01	0.025	0.021	0.016
Sep-01	0.024	0.024	0.016
Oct-01	0.019	0.023	0.017
Nov-01	0.019	0.021	0.016
Dec-01	0.015	0.018	0.016
Jan-02	0.015	0.016	0.017
Feb-02	0.016	0.015	0.017
Mar-02	0.018	0.016	0.018
Apr-02	0.022	0.019	0.019
May-02	0.014	0.018	0.019
Jun-02	0.022	0.019	0.019
Jul-02	0.025	0.020	0.020
Aug-02	0.027	0.025	0.020
Sep-02	0.021	0.024	0.019
Oct-02	0.014	0.021	0.019
Nov-02	0.012	0.016	0.018
Dec-02	0.014	0.013	0.018
Jan-03	0.011	0.012	0.018
Feb-03	0.015	0.013	0.018
Mar-03	0.024	0.017	0.018
Apr-03	0.013	0.017	0.018
May-03	0.010	0.016	0.017
Jun-03	0.016	0.013	0.017
Jul-03	0.013	0.013	0.016
Aug-03	0.019	0.016	0.015
Sep-03	0.013	0.015	0.015
Oct-03	0.014	0.015	0.015
Nov-03	0.012	0.013	0.015
Dec-03	0.013	0.013	0.014

TABLE A-1 (Cont.) Holiday Haven WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (MGD)	(TMADF) Three-Month ADF (MGD)	(AADF) Annual Average Daily Flow (MGD)
Jan-04	0.011	0.012	0.014
Feb-04	0.014	0.013	0.014
Mar-04	0.017	0.014	0.014
Apr-04	0.012	0.014	0.014
May-04	0.016	0.015	0.014
Jun-04	0.013	0.014	0.014
Jul-04	0.013	0.014	0.014
Aug-04	0.021	0.016	0.014
Sep-04	0.024	0.019	0.015
Oct-04	0.018	0.021	0.015
Nov-04	0.017	0.020	0.016
Dec-04	0.015	0.017	0.016
Jan-05	0.017	0.016	0.016
Feb-05	0.014	0.015	0.016
Mar-05	0.020	0.017	0.017
Apr-05	0.019	0.018	0.017
May-05	0.017	0.019	0.017
Jun-05	0.020	0.019	0.018
Jul-05	0.023	0.020	0.019
Aug-05	0.021	0.021	0.019
Sep-05	0.023	0.022	0.019
Oct-05	0.025	0.023	0.019
Nov-05	0.018	0.022	0.019
Dec-05	0.021	0.021	0.020

Appendix B

Holiday Haven
Wastewater Treatment Facility

Excerpt From Capacity Analysis Report Update
Florida Water Services
June 2002

CHAPTER 2 - EXISTING CONDITIONS

Sections B, C and D of this chapter have been up-dated to include flow data along with influent loading and effluent quality data for the year 2001.

A. Permitted Capacities

The Holiday Haven WWTF is presently operated under FDEP Domestic Wastewater Facility Permit FLA010655, which was issued on August 7, 2001 and expires on August 5, 2006. A copy of this permit is included in Appendix A. Plant capacity has not changed since the submittal of the last CAR update in February 2001 and remains at 0.025 mgd.

B. Monthly Average Daily Flows, Three-Month Average Daily Flows, and Annual Average Daily Flows

Plant flow is measured by a Parshall flume primary device, which is located on the discharge pipe from the chlorine contact tank. A totalizer and strip recorder are provided to record daily flows. A propeller meter is also provided on the effluent force main to measure all flow pumped to the sprayfield site. Flow discharged to the percolation pond is calculated and is the difference between the Parshall flume and sprayfield meters. Since the submittal of the last CAR Update, flow measuring problems continued to persist. During 2001, both the Parshall flume and propeller meters were recalibrated on several occasions. During the months of January through August when all flow was disposed of at the sprayfield, the meter readings should have been similar; however, were different when compared. In March 2002, an ultrasonic meter was strapped to the plant effluent pipe to measure plant flow. The ultrasonic flow measurements and sprayfield flow measurements were similar; thus, it was concluded that the totalizer for the Parshall flume had malfunctioned and was the problem. A new totalizer was installed in April and plant flows appear to be satisfactory at this time.

Table 2-1 has been updated to include average daily flow (ADF), three-month average daily flow (3MADF), and 12-month average daily flow (12MADF) values for the year 2001 and covers the recent 10 years of 1992 through 2001. Because of the flow measuring problems during year 2001, the average daily flows presented in this table were adjusted for the months of September through December. Prior to September, sprayfield flows were used for plant flows since all flow was disposed of at the sprayfield during this time frame and the sprayfield meter appeared to be more accurate. Plant flows are also shown graphically on Figure 2-1. Flows are expected to increase until the service area reaches buildout.

C. Seasonal Variations in Flow

The maximum three-month average daily flow (M3MADF), the AADF and the M3MADF/AADF factor for the past 10 years are denoted in Table 2-1. The M3MADF/AADF factors ranged from a low of 1.15 to a high of 1.49 during this time frame. Based on the factors, plant flows appear to be seasonal; however, peaks

Table 2-1
Holiday Haven WWTF Flows (Years 1992-2001)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-92	0.010	0.0094	0.0098
Feb-92	0.010	0.0101	0.0099
Mar-92	0.011	0.0105	0.0100
Apr-92	0.010	0.0105	0.0100
May-92	0.010	0.0104	0.0100
Jun-92	0.010	0.0101	0.0099
Jul-92	0.015	0.0116	0.0102
Aug-92	0.016	0.0139	0.0108
Sep-92	0.021	0.0175	0.0118
Oct-92	0.020	0.0193	0.0127
Nov-92	0.016	0.0192	0.0134
Dec-92	0.016	0.0174	0.0139
M3MADF/AADF Factor for 1992 = 1.39			
Jan-93	0.017	0.0162	0.0144
Feb-93	0.017	0.0166	0.0150
Mar-93	0.019	0.0178	0.0157
Apr-93	0.014	0.0168	0.0160
May-93	0.013	0.0155	0.0163
Jun-93	0.012	0.0132	0.0165
Jul-93	0.012	0.0126	0.0162
Aug-93	0.012	0.0122	0.0159
Sep-93	0.017	0.0136	0.0155
Oct-93	0.019	0.0158	0.0154
Nov-93	0.014	0.0164	0.0151
Dec-93	0.012	0.0149	0.0149
M3MADF/AADF Factor for 1993 = 1.19			
Jan-94	0.017	0.0144	0.0149
Feb-94	0.018	0.0158	0.0150
Mar-94	0.013	0.0161	0.0145
Apr-94	0.011	0.0138	0.0142
May-94	0.010	0.0112	0.0139
Jun-94	0.013	0.0110	0.0139
Jul-94	0.015	0.0124	0.0141
Aug-94	0.016	0.0145	0.0145
Sep-94	0.019	0.0166	0.0147
Oct-94	0.015	0.0167	0.0144
Nov-94	0.017	0.0174	0.0147
Dec-94	0.015	0.0158	0.0149
M3MADF/AADF Factor for 1994 = 1.15			

Table 2-1
Holiday Haven WWTF Flows (Years 1992-2001)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-95	0.012	0.0149	0.0145
Feb-95	0.018	0.0153	0.0145
Mar-95	0.018	0.0164	0.0149
Apr-95	0.020	0.0188	0.0157
May-95	0.015	0.0178	0.0162
Jun-95	0.017	0.0175	0.0166
Jul-95	0.018	0.0170	0.0169
Aug-95	0.025	0.0201	0.0176
Sep-95	0.029	0.0240	0.0184
Oct-95	0.029	0.0275	0.0195
Nov-95	0.021	0.0262	0.0198
Dec-95	0.017	0.0223	0.0200
M3MADF/AADF Factor for 1995 = 1.37			
Jan-96	0.023	0.0203	0.0209
Feb-96	0.019	0.0198	0.0210
Mar-96	0.021	0.0210	0.0212
Apr-96	0.019	0.0197	0.0211
May-96	0.014	0.0180	0.0210
Jun-96	0.015	0.0160	0.0208
Jul-96	0.018	0.0157	0.0208
Aug-96	0.020	0.0177	0.0204
Sep-96	0.021	0.0197	0.0197
Oct-96	0.019	0.0200	0.0189
Nov-96	0.015	0.0183	0.0184
Dec-96	0.015	0.0163	0.0183
M3MADF/AADF Factor for 1996 = 1.15			
Jan-97	0.015	0.0148	0.0175
Feb-97	0.014	0.0145	0.0171
Mar-97	0.015	0.0145	0.0166
Apr-97	0.014	0.0143	0.0162
May-97	0.014	0.0142	0.0162
Jun-97	0.021	0.0163	0.0167
Jul-97	0.025	0.0201	0.0173
Aug-97	0.022	0.0228	0.0175
Sep-97	0.025	0.0240	0.0178
Oct-97	0.015	0.0205	0.0174
Nov-97	0.022	0.0205	0.0180
Dec-97	0.027	0.0213	0.0190
M3MADF/AADF Factor for 1997 = 1.26			

Table 2-1
Holiday Haven WWTF Flows (Years 1992-2001)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-98	0.022	0.0235	0.0196
Feb-98	0.025	0.0247	0.0206
Mar-98	0.022	0.0230	0.0211
Apr-98	0.015	0.0207	0.0212
May-98	0.013	0.0165	0.0211
Jun-98	0.013	0.0135	0.0204
Jul-98	0.016	0.0137	0.0196
Aug-98	0.026	0.0180	0.0199
Sep-98	0.025	0.0219	0.0199
Oct-98	0.023	0.0243	0.0206
Nov-98	0.017	0.0214	0.0202
Dec-98	0.016	0.0184	0.0192
M3MADF/AADF Factor for 1998 = 1.29			
Jan-99	0.017	0.0164	0.0188
Feb-99	0.016	0.0160	0.0180
Mar-99	0.017	0.0164	0.0175
Apr-99	0.017	0.0165	0.0177
May-99	0.015	0.0164	0.0180
Jun-99	0.019	0.0171	0.0184
Jul-99	0.017	0.0172	0.0186
Aug-99	0.017	0.0178	0.0179
Sep-99	0.019	0.0178	0.0174
Oct-99	0.024	0.0200	0.0175
Nov-99	0.019	0.0207	0.0177
Dec-99	0.018	0.0203	0.0179
M3MADF/AADF Factor for 1999 = 1.16			
Jan-00	0.017	0.0180	0.0179
Feb-00	0.016	0.0170	0.0180
Mar-00	0.015	0.0161	0.0178
Apr-00	0.017	0.0158	0.0178
May-00	0.015	0.0154	0.0177
Jun-00	0.017	0.0161	0.0176
Jul-00	0.019	0.0167	0.0177
Aug-00	0.017	0.0176	0.0177
Sep-00	0.024	0.0200	0.0181
Oct-00	0.014	0.0185	0.0173
Nov-00	0.024	0.0207	0.0177
Dec-00	0.019	0.0190	0.0178
M3MADF/AADF Factor for 2000 = 1.16			

Table 2-1
Holiday Haven WWTF Flows (Years 1992-2001)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-01	0.006	0.0164	0.0169
Feb-01	0.011	0.0122	0.0165
Mar-01	0.014	0.0103	0.0163
Apr-01	0.011	0.0118	0.0158
May-01	0.011	0.0116	0.0155
Jun-01	0.015	0.0120	0.0153
Jul-01	0.023	0.0161	0.0157
Aug-01	0.025	0.0208	0.0163
Sep-01	0.024	0.0239	0.0163
Oct-01	0.019	0.0226	0.0167
Nov-01	0.019	0.0208	0.0163
Dec-01	0.015	0.0179	0.0160
M3MADF/AADF Factor for 2001 = 1.49			

[ ] *Denotes M3MADF and AADF for each year.*

Notes:

1. ADF flows represent metered plant flows (Parshall flume). ADF flows indicated in shade represent metered sprayfield flows. ADF flows for the months of September through December 2001 were adjusted due to flow measuring inaccuracies and differ from those reported on the DMRs. During these months, 400,000 gallons was subtracted from the total gallons for each month.

UPDATED CAPACITY ANALYSIS REPORT

For

JASMINE LAKES SUBDIVISION
WASTEWATER TREATMENT PLANT
PASCO COUNTY, FLORIDA

FDEP Permit No. FLA 012768
(Expires October 3, 2005)

April 2005

Prepared By:
Andreyev Engineering, Inc.
561 Fieldcrest Drive
Lady Lake, Florida 32162

Prepared For:
Aqua Utilities Florida, Inc.
6960 Professional Parkway East - Suite 400
Sarasota Florida, 34240

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CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	6960 Professional Parkway East, Suite 400 Sarasota, Florida, 34668
Contact Person:	Glenn Labrecque
Title:	Vice President
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report and Intent to Comply with Stated Recommendations.

The above named permitee is fully aware of the information contained in this report and intends to comply with the recommendations and schedules included in the report.

4/14/05

Glenn Labrecque — Date

Statement by Permitee Regarding the Collection System and Service Area

The collection system serving the plant described above in this report receives only domestic wastewater. Additionally, there are no plans at this time to expand the service area.

4/14/05

Glenn Labrecque — Date

Professional Engineer Preparing This Report:

Name:	Raymond W. Jones, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway Sanford, FL 32771
Title:	Vice President
Phone Number:	(407) 330-7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative.

4-12-05

Raymond W. Jones, P.E. — Date
P.E. Registration No. 58079

1. INTRODUCTION

This facility's current FDEP Operation Permit No. FLA012768 will expire October 3, 2005.

The service area for the Jasmine Lakes WWTF is located in Port Richey, Pasco County, Florida as shown on Figure I-1. The service area is residential consisting of 1,600 single family homes. The community is considered built-out with no current building being conducted or planned.

Jasmine Lakes Wastewater Treatment Facility (WWTF) is estimated to be approximately 40 years old. The existing treatment plant is a 0.370 MGD permitted capacity, extended aeration, Type III facility, designed and approved for secondary treatment, basic disinfection, and effluent discharge to a rapid rate restricted public access, land application system (four percolation/evaporation ponds) permitted to receive 0.308 MGD of treated effluent (AADF basis).

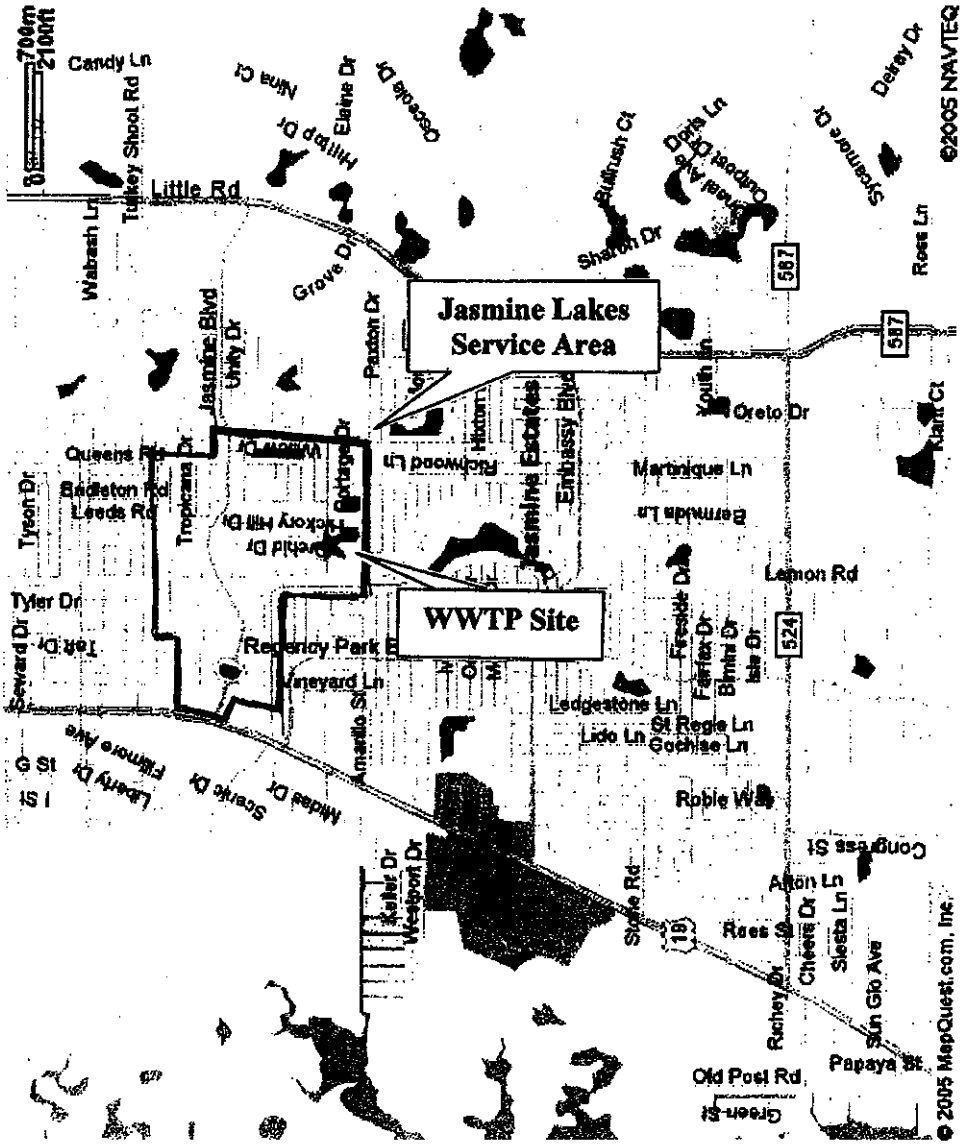
Design parameters include a concentration limit of 20 mg/L for CBOD's and TSS in final plant effluent at flows of 0.308 MGD (12MADF basis: the land application system design flow capacity). The facility consists of five (5) lift stations flowing to two (2) Master lift stations (equipped with audible and visual alarms and two pump run time totalizers), a magnetic flow meter linked to an automatic flow proportioned sampler, one (1) 160,000 flow attenuation surge tank, three (3) 100,000 gallon circular concrete aeration basins, two (2) 38,000 gallon secondary clarifiers with 507 square feet of treatment area each, one (1) 18,400 gallon serpentine chlorine contact chamber, a v-notch weir and effluent flow monitoring device with circular chart recorder, a flow proportional automatic sampler and four (4) rapid rate percolation ponds (total bottom area of 6.15 acres and a design hydraulic loading rate of 15.4 inches per week). The facility solids handling flow train includes two (2) aerobic digesters 40,000 & 43,000 respectively a rapid drain solids dewatering tank (permanently out of service) and an aerated 14,000 thickened sludge holding tank. Two (2) 50 horsepower Hoffman blowers are providing aeration to the flow surge tank, aeration and digestion areas of the facility.

Residuals are removed by a licensed sludge hauler (Arthur H. Price Jr. Septic Tank Service) for treatment and disposal at the permitted Shady Hills Residuals Management Facility operated by Pasco County.

The last Capacity Analysis Report submitted to FDEP was prepared by Edward G. Coppock P.E., of H2O Utility Services, Inc., in April 2000.

2. EVALUATION OF EXISTING CONDITIONS

The following analysis was derived using facility DMR Monthly ADF data, and from Andreyev Engineering, Inc. (AEI) calculations derived from DMR Influent Monthly ADF data (for those cases where the facility miscalculated/estimated Annual ADF on facility DMR's reported to FDEP). Influent Annual ADF reported on DMR's was incorrect for the months of January and March of 2003, and was incorrect for the calculated 3-Month ADF (3MADF) for January,



Andreyev Engineering, Inc.	**Jasmine Lakes Wastewater Service Area & Plant Location**	**FIGURE I-1**

September and October of 2003, and April and November of 2004. Table 1 presents Monthly ADF (as reported on DMR), corrected (calculated) AADF and 3MADF, and the 3MADF/AADF Ratio used in this capacity analysis. The evaluation took into consideration the facility flows over the entire evaluation period (January 2002 – December 2004) and hurricane flows in September 2004. Facility flows in September 2004 are considered to be extremely uncharacteristic to normal storm events. Therefore, three-month average and annual average flow data calculated using the September 2004 hurricane storm period are not considered representative for use in projecting future (normal) seasonal flow variations.

Consistent with DMR reporting, the attached Table 1 presents influent flow values obtained from the influent flow meter (magnetic flow meter) located upstream to the aerated attenuation surge tank. The influent flow meter is identified in the current facility permit as Monitoring Station Site Number FLW-01.

CURRENT PERMITTED CAPACITY:
The current permitted treatment capacity is 0.370 MGD (3MADF Basis)

MONTHLY AVERAGE DAILY INFLUENT FLOWS:

1) The Monthly ADF varied between 0.146 – 0.405 MGD (Hurricane Storm Event) over the period 1/1/02 through 12/31/04.
2) The average Monthly ADF was 0.237 MGD over the period 1/1/02 – 12/31/04.
3) The average Monthly ADF for 2004 (0.249 MGD) was lower than the average Monthly ADF for 2003 (0.278 MGD). The peak Monthly ADF of 0.050 MGD occurred in September 2004 (hurricane storm event period). Prior to the 2004 hurricane storm period, the peak monthly flows occurred in August 2004 (0.292 MGD).

THREE-MONTH AVERAGE DAILY INFLUENT FLOWS:

1) The 3-MADF varied between 0.151 – 0.346 MGD over the period 1/1/02 through 12/31/04.
2) 3-MADF was 0.239 MGD over period 6/1/04 – 08/30/04 (Pre Hurricane Storm Period).

ANNUAL AVERAGE DAILY INFLUENT FLOWS:

1) The AADF varied between 0.128 – 0.298 MGD over the period 1/1/02 through 12/31/04.
2) The average AADF over the period 1/1/02 – 12/31/04 was 0.217 MGD as calculated using DMR-reported Monthly ADF values.

SEASONAL VARIATION IN FLOW:
High seasonal maximum Monthly ADF for 2002 occurred over the period of October 2002 – December 2002, averaged between 0.216 MGD - 0.283 MGD.

High seasonal maximum Monthly ADF for 2003 occurred over the period of June 2003 – November 2003, averaging between 0.285 MGD – 0.4 MGD.

High seasonal maximum Monthly ADF for 2004 occurred in August 2004 (0.292 MGD) and September 2004 (0.405 MGD). However, September 2004 flows are thought to be attributed by an exceptional storm (hurricane) event.

Table 1:
Updated Capacity Analysis Report Flow Data for the Jasmine Lakes WWTP

Month	Influent Monthly ADF (MGD)	Influent 3-Month ADF (MGD)	Influent Annual ADF (MGD)	Influent 3-Month ADF to Annual ADF Ratio
Jan-02	0.148		0.128	
Feb-02	0.160		0.129	
Mar-02	0.182	0.163	0.133	1.228
Apr-02	0.163	0.168	0.13	1.295
May-02	0.143	0.163	0.138	1.179
Jun-02	0.148	0.151	0.14	1.081
Jul-02	0.166	0.152	0.141	1.080
Aug-02	0.171	0.162	0.144	1.123
Sep-02	0.186	0.174	0.149	1.170
Oct-02	0.216	0.191	0.159	1.201
Nov-02	0.242	0.215	0.17	1.263
Dec-02	0.283	0.247	0.184	**1.342**
Jan-03	0.226	**0.223**	0.202	1.104
Feb-03	0.227	0.245	0.196	1.252
Mar-03	0.230	0.228	**0.228**	0.999
Apr-03	0.220	0.226	**0.226**	0.999
May-03	0.230	0.227	0.212	1.069
Jun-03	0.333	0.261	0.228	1.145
Jul-03	**0.400**	0.321	0.247	1.300
Aug-03	0.285	0.339	0.257	**1.320**
Sep-03	0.352	**0.346**	0.270	1.280
Oct-03	0.298	**0.312**	0.277	1.126
Nov-03	0.332	0.327	0.285	1.149
Dec-03	0.204	0.278	0.278	1.000
Jan-04	0.195	0.244	0.276	0.883
Feb-04	0.233	0.211	0.276	0.763
Mar-04	0.229	0.219	0.276	0.793
Apr-04	0.235	**0.232**	0.277	0.839
May-04	0.200	0.221	0.298	0.743
Jun-04	0.205	0.213	0.287	0.743
Jul-04	0.221	0.209	0.249	0.838
Aug-04	0.292	0.239	0.250	**0.957**
Sep-04	**0.405**	0.306	0.254	1.205
Oct-04	0.267	0.321	0.252	1.275
Nov-04	0.229	**0.300**	0.229	**1.311**
Dec-04	0.280	0.259	0.249	1.039
AVERAGE	**0.237**	**0.238**	**0.217**	**1.091**
2002 Ave.	**0.184**	**0.179**	**0.145**	**1.196**
2003 Ave.	**0.278**	**0.278**	**0.242**	**1.145**
2004 Ave.	**0.249**	**0.248**	**0.264**	**0.949**

Notes:
(1) WWTP Flows are required to be reported from the influent Manetic meter located upstream to the aerated attenuation surge tank. identified in the permit as Monitoring Station Site Number **FLW-01**.
(2) The Influent Annual ADF as reported on DMR (reported above) is incorrect for months March and April of 2003. 3MADF is incorrect for January, September, and October 2003 and April and November of 2004.
(3) September 2004 data for Influent Monthly ADF is thought to be attributed to Hurricane storm event.
Source, Aqua Utilities, Inc. DMRs and Andreyev Engineering, Inc.

Low Seasonal Monthly ADF over the 2002-2004 period were observed during the month of May 2002 (0.143 MGD), the month of December 2003 (0.204 MGD), and during the month of January 2004 (0.195 MGD).

UPDATED FLOW AND LOADING:
The average monthly flow (ADF) was 0.237 MGD over the period 1/1/02 – 12/31/04.

The average influent and effluent CBOD5 and TSS concentrations over the period January 2002 through December 2004 are as follows:

Influent CBOD5: 224 mg/L
Effluent CBOD5: 2.7 mg/L
Influent TSS: 203.2 mg/L
Effluent TSS: 3.7 mg/L

The corresponding current facility removal rates are as follows:
CBOD5: [(224-2.7)/224] x 100 = 98.79%
TSS: [(203.2-3.7)/203.2] x 100 = 98.18%

The current (=build-out) CBOD and TSS loading per person are as follows:
Current Population = 1,600 units x 1.73 persons per unit = 2,768 persons
Current Per Capita Usage = 237,000 GPD/2,768 persons = 85.62 gallons/persons/day
CBOD Loading/person = [(224 mg/L x 8.34)/ 2,768] = 0.67 lbs/person
TSS Loading/person = [(203.2 mg/L x 8.34)/ 2,768] = 0.61 lbs/person

Current facility Design Criteria is 20 mg/L CBOD in effluent at flow 0.370 MGD
Current facility Design Criteria is 20 mg/L TSS in effluent at flow of 0.370 MGD

Since the average effluent CBOD (2.7 mg/L) and TSS (3.7 mg/L) @ 237,000 gpd ADF < CBOD (20 mg/L) and TSS (20 mg/L) @ 370,000 gpd 3MADF (Design Criteria), No Further Improvements Are Required At This Time.

Considering this facility is currently built-out, the projected Flow, CBOD5 loading and TSS loading for the next ten years will continue to be less than that designed for the facility, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application. Therefore, no further treatment process will be required in this 10-year planning period.

3. FUTURE CONDITIONS

10-YEAR POPULATION PROJECTIONS:

At the present time all of the 1,600 lots in this subdivision are occupied. This development is built-out, with no plans for expansion or addition connections. No increase in population is projected for this 10-year planning period. The average population is estimated at 1.73 persons per dwelling unit, per 2000 U.S. Census data for Port Richey, Florida. This

corresponds to retirement population. Given this assumption, the current population is as follows:

Current Population = Future Population = 1,600 units x 1.73 persons per unit = 2,768

Since the service area is build-out, the future population will remain unchanged at 2,768.

10-YEAR (BUILD-OUT) FLOW PROJECTIONS:

Considering this facility is currently built-out, facility Flow is not expected to increase in this ten year planning period. Point repairs were performed on the service area collection system in 2004 to address point source inflow and infiltration problems, and additional point repairs are planned for 2005 (as needed). Recent collection system rehabilitation activities are thought to be responsible for a reduction in facility flows: average influent Monthly ADF for 2004 (0.249 MGD) was lower than the average Monthly ADF for 2003 (0.278 MGD). With the continued rehabilitation of the collection system and reduction of seasonal flows attributed to inflow and infiltration, the expected future average Monthly ADF will be closer to the average flows seen in 2002 (0.184 MGD), the time prior to significant collection system failure events and associated inflow and infiltration. However, to conservatively estimate future flows, it is projected that future facility flow are not expected to increase over current (2004) flows in this ten-year planning period. **Therefore, the anticipated average Annual ADF at Development Build-out = Current average Annual ADF (2004 average AADF) = 0.264 MGD**

The average influent 3MADF/AADF Ratio factor = **1.091** (based on the average of January 2002-Dec. 2004 data). The average 3MADF/AADF Ratio has steadily decreased over the three-year period of 2002-2004: this ratio was 1.196 in 2002, 1.145 in 2003, and 0.949 in 2004. This trend reflects a reduction in seasonal flow variations, corresponds to point repairs made to the collection system. Due to the development is build-out and the collection system point repairs performed in 2004 and planned for 2005, the 3MADF/AADF Ratio is not expected to increase over this 10-year planning period. **Therefore, the anticipated average 3MADF/AADF Ratio at Development Build-out = Current 3MADF/AADF Ratio = 0.949 (=2004 average 3MADF/AADF Ratio)**

The average 3-Month ADF = **0.238 MGD** (based on the average of January 2002-Dec. 2004 data). The average 3MADF increased from 0.179 MGD in 2002 to 0.278 MGD to 2003. However the average 3MADF decreased to 0.248 MGD in 2004. This trend reflects a reduction in seasonal flows, in 2004 corresponding to point repairs made to the collection system. Due to the development is build-out and the collection system point repairs performed in 2004 and planned for 2005, the 3MADF is not expected to increase over this 10-year planning period. **Therefore, the anticipated average 3MADF Development Build-out = Current 3MADF (2004 average 3MADF Ratio) = 0.248 MGD**

4. SUMMARY AND CONCLUSIONS

The permit capacity for the treatment facility is 0.370 MGD (3MADF basis), and 0.308 MGD (AADF basis). Peak monthly flows of 0.405 MGD in the last 12-month period occurred in September 2004 (hurricane storm event period). Prior to the 2004 hurricane storm period, the peak monthly flows occurred in August 2004 (0.292 MGD).

The peak three-month ADF of 0.321 MGD occurred in October 2004 (Hurricane and post-hurricane flow period). Prior to the 2004 hurricane storm period, the peak three-monthly ADF (M3MADF) occurred in August 2004 (0.239 MGD). Average facility flows for the period of January 2002 through December 2004 are shown on Table 1.

In summary, the current facility capacity was designed to treat 308,000 GPD (AADF basis). Since this development is currently build-out, facility flows are not expected to increase over current flows of **0.264 MGD (2004 average AADF) in** the next ten-year planning period. Since both current and anticipated flows are below permitted flows, no additional treatment facilities or facility improvements will be required for this 5- and 10-year planning period.

Alternately, considering the projected flow, CBOD5 loading, and TSS loading (calculated above) will be less than that designed for the facility (per the Facility Preliminary Design values reported in the 2000 Operations Permit Application), no further treatment process or facility improvements will be required in this 5 and 10 year planning period.

The service area is currently built-out at 1,600 connections, with a population of 2,768.

RECOMMENDATIONS FOR EXPANSION:

According to updated flow projection presented in this report, the 3MADF and the AADF are not projected to reach the permitted capacity of the plant during this permit duration. Therefore, no further treatment process or facility improvements will be required in this permit duration period. The development is build-out with no future service area expansion plans.

EXPANSION SCHEDULES:

According to updated flow projection presented in this report, average daily and annual average flows are not projected to exceed the permitted capacity of the plant or disposal system during this permit duration. Therefore, no expansion is required at this time.

JUNGLE DEN WWTP

CAPACITY ANALYSIS REPORT

UPDATED CAPACITY ANALYSIS REPORT

For

JUNGLE DEN SUBDIVISION
WASTEWATER TREATMENT PLANT
VOLUSIA COUNTY, FLORIDA

FDEP Permit No. FLA 011261
(Expires July 20, 2005)

Prepared By:
Andreyev Engineering, Inc.
561 Fieldcrest Drive
Lady Lake, Florida 32162

Prepared For:
Aqua Utilities Florida, Inc.
2315 Griffin Road, Suite 4
Leesburg, Florida, 34748

January 25, 2005

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CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	2315 Griffin Road, Suite 4 Leesburg, Florida, 34748
Contact Person:	Glenn Labrecque
Title:	Vice President
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report and Intent to Comply with Stated Recommendations.

The above named permitee is fully aware of the information contained in this report and intends to comply with the recommendations and schedules included in the report.

2/11/05

Glenn Labrecque — Date

Statement by Permitee Regarding the Collection System and Service Area

The collection system serving the plant described above in this report receives only domestic wastewater. Additionally, there are no plans at this time to expand the service area.

2/11/05

Glenn Labrecque — Date

Professional Engineer Preparing This Report:

Name:	Raymond W. Jones, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway Sanford, FL 32771
Title:	Vice President
Phone Number:	(407) 330-7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative.

1-27-05

Raymond W. Jones, P.E. — Date
P.E. Registration No. 58079

1. INTRODUCTION

This facility's current FDEP Operation Permit No. FLA011261 will expire July 20, 2005.

This facility serves one (1) residential subdivision (Jungle Den subdivision), totaling 161 units (at build-out). All but twenty (20) of the lots were developed/occupied as of December 2004. This service area is essentially near built-out, with no current plans for expansion.

The existing treatment plant is an extended aeration, Type III facility, designed and approved for secondary treatment, basic disinfection, and effluent discharge to a slow-rate restricted public access system land application system (sprayfield and storage pond). *Design parameters include a concentration limit of 20 mg/L for CBOD's and TSS in final* plant effluent at flows of 21,000 GPD basis (the land application system design flow capacity). The facility consists of raw influent Lift Station (No. 1), one Main Lift Station (No.4), one (1) 27,826 gallon metal cylindrical aeration basin, one (1) secondary clarifier with 56 square feet of treatment area, one (1) 1,000 gallon chlorine contact tank/chamber (CCC), one (1) 1,870 gallon digester, three (3) 55 gallon sodium hypochlorite tanks, two (2) in line effluent holding ponds, one effluent Parshall Flume flow meter (provided by Stevens) and one effluent propeller style meter (provided by Water Specialties of Porterville California, Serial #895764), one (1) spray field lift station and one (1) six 6 acre, slow rate restricted public access system with a 3.4 wetted acre area and a design hydraulic loading rate of 1.6 inches per week. This reuse system has an approved capacity of 0.021 MGD.

Residuals are removed by a licensed sludge hauler (Shelley's Septic Tanks, d.b.a., Shelley's Environmental Systems) to an approved sludge disposal area, on a disposal schedule of approximately every five (5) weeks.

The date of last capacity analysis report submitted to FDEP was June 2000. This report was prepared by Sandra Joiner, P.E., of Florida Water Services, Corporation.

It has been reported by the facility owner – operator Aqua Utilities Florida, the Jungle Den wastewater facility total influent flow will be re-routed to the municipal wastewater facility in the host town of Astor. As a result of this plan, it was reported the Jungle Den wastewater facility will remain in operation for approximately 2 more years.

With the absence of any legal documentation filed within the FDEP stating the intent and approval of the Town of Astor's plans, this report will assume Jungle Den will remain in full operation.

2. EVALUATION OF EXISTING CONDITIONS

The following analysis was derived using facility DMR data, and from Andreyev Engineering, Inc. (AEI) calculations derived from DMR data (for those cases where the facility miscalculated/estimated annual averages on the DMR reported to FDEP). Table 1

Table 1: Jungle Den Flow Data
Capacity Analysis Report

Month	Influent Monthly ADF (MGD)	Influent Average 3-Month ADF (MGD)	Influent Annual ADF (MGD)	Influent 3-Month ADF to Annual ADF Ratio	Effluent Monthly ADF to Sprayfield (MGD)	Sprayfield Average 3-Month ADF (MGD)	Effluent Annual ADF to Sprayfield (MGD)	Sprayfield 3-Month ADF to Annual ADF Ratio
Jan-02	0.016		0.014		0.017		0.017	
Feb-02	0.012		0.014		0.013		0.013	
Mar-02	0.014	0.014	0.014	1.000	0.01	0.013	0.015	0.889
Apr-02	0.011	0.012	0.014	0.881	0.01	0.011	0.015	0.733
May-02	0.01	0.012	0.014	0.833	0.009	0.010	0.015	0.644
Jun-02	0.017	0.013	0.014	0.905	0.019	0.013	0.015	0.844
Jul-02	0.02	0.016	0.015	1.044	0.018	0.015	0.016	0.958
Aug-02	0.025	0.021	0.015	1.378	0.021	0.019	0.016	1.208
Sep-02	0.015	0.020	0.015	1.333	0.012	0.017	0.015	1.133
Oct-02	0.011	0.017	0.015	1.133	0.01	0.014	0.014	1.024
Nov-02	0.012	0.013	0.014	0.905	0.011	0.011	0.014	0.786
Dec-02	0.018	0.014	0.015	0.911	0.014	0.012	0.014	0.833
Jan-03	0.013	0.014	0.015	0.956	0.010	0.012	0.013	0.897
Feb-03	0.015	0.015	0.015	1.022	0.015	0.013	0.013	1.000
Mar-03	0.031	0.020	0.017	1.157	0.031	0.019	0.015	1.244
Apr-03	0.014	0.020	0.017	1.176	0.011	0.019	0.015	1.267
May-03	0.013	0.019	0.017	1.137	0.009	0.017	0.015	1.133
Jun-03	0.018	0.015	0.017	0.882	0.014	0.011	0.015	0.756
Jul-03	0.016	0.016	0.017	0.922	0.012	0.012	0.014	0.833
Aug-03	0.019	0.018	0.016	1.104	0.016	0.014	0.014	1.000
Sep-03	0.016	0.017	0.016	1.063	0.011	0.013	0.014	0.929
Oct-03	0.016	0.017	0.017	1.015	0.011	0.013	0.014	0.905
Nov-03	0.012	0.015	0.017	0.876	0.012	0.011	0.014	0.810
Dec-03	0.013	0.014	0.016	0.837	0.023	0.015	0.015	1.051
Jan-04	0.012	0.012	0.016	0.759	0.018	0.018	0.015	1.158
Feb-04	0.014	0.013	0.016	0.804	0.004	0.015	0.014	1.047
Mar-04	0.009	0.012	0.014	0.814	0.004	0.009	0.012	0.717
Apr-04	0.017	0.013	0.015	0.914	0.017	0.008	0.013	0.662
May-04	0.02	0.015	0.015	1.011	0.020	0.014	0.014	1.012
Jun-04	0.019	0.019	0.015	1.224	0.019	0.019	0.014	1.341
Jul-04	0.014	0.018	0.015	1.171	0.017	0.019	0.014	1.302
Aug-04	0.022	0.018	0.015	1.196	0.034	0.023	0.016	1.474
Sep-04	0.024	0.020	0.016	1.250	0.047	0.033	0.019	1.735
Oct-04	0.023	0.023	0.017	1.387	0.043	0.041	0.022	1.922
Nov-04	0.050	0.032	0.020	1.637	0.023	0.038	0.022	1.680
Dec-04	0.029	0.034	0.021	1.613	0.019	0.028	0.022	1.283
AVERAGE (2000-2004)	**0.018**	**0.017**	**0.016**	**1.066**	**0.017**	**0.017**	**0.015**	**1.065**
Pre-Hurricane Period Average	**0.016**	**0.016**	**0.015**	**1.000**	**0.014**	**0.014**	**0.014**	**0.958**

Notes:

(1) The Influent Annual ADF as reported on DMR (reported above) is incorrect for months February-October 2004. The resulting average value calculated over this period using corrected data is 0.018 MGD (which differs from DMR reported value of 0.019 MGD).

(2) The Annual ADF to Sprayfields as reported on DMR (reported above) is incorrect for months Jan, Feb., May - Aug, Oct. and Dec. 2003 and for months January - March 2004. The correct value for Dec 2003 is 0.015MGD (which meets permit requirements). The resulting annual average value calculated over this period (corrected data) is 0.014 MGD, which differs from the 0.012 MGD value calculated using DMR-reported data.

(3) August - December 2004 data for Influent and Effluent Monthly ADF is thought to be attributed to Hurricane storm events.

(4) Pre-Hurricane Period Average calculation exclude data from the hurricane period August 2004 - December 2004. These values represent normal seasonal flow d

Source, Aqua Utilities, Inc. DMRs and Andreyev Engineering, Inc.

presents the monthly ADF (as reported on DMR), corrected (calculated) AADF data and the calculated 3-month ADF (for facility influent and reuse flows) used in this analysis. The evaluation took into consideration the facility flows over the entire evaluation period (January 2002 – December 2004) and pre-hurricane flows over the period January 2002 – July 2004. Facility flows over the hurricane period of August 2004 - October 2004 are considered to be extremely uncharacteristic to normal storm events. Therefore, flow data recorded over the three-month hurricane storm period are not considered representative for use in projecting future (normal) seasonal flow variations.

Consistent with DMR reporting, the attached Table 1 presents *influent* flow values, as well as *effluent* Sprayfield values. It is understood the influent values are measured and reported based on the data obtained from the Parshall Flume flow meter located at the effluent discharged from the Jungle Den WWTF. It is also understood the effluent values to the Sprayfield are measured by a propeller style water meter located on the discharge side of the Sprayfield lift station.

CURRENT PERMITTED CAPACITY:
The current permitted treatment capacity is 0.021 MGD

MONTHLY AVERAGE DAILY INFLUENT FLOWS:
1) Varied Between 0.009 – 0.050 MGD (Hurricane Storm Event) over the Period 1/1/02 through 12/31/04. The Pre-Hurricane Storm variance over this period was 0.009 – 0.031 MGD.

2) Average Monthly ADF was 0.018 MGD over the period 1/1/02 – 12/31/04

THREE-MONTH AVERAGE DAILY INFLUENT FLOWS:
1) Varied Between 0.012 – 0.034 MGD over the Period 1/1/02 through 12/31/04

2) 3-Month ADF was 0.018 MGD over period 5/1/04 – 07/30/04 (Pre Hurricane Storm Period)

ANNUAL AVERAGE DAILY INFLUENT FLOWS:
1) Varied Between 0.014 – 0.021 MGD (Hurricane Storm Event) over the Period 1/1/02 through 12/31/04. The Pre-Hurricane Storm AADF variance over this period was 0.014-0.017 MGD.

2) Annual ADF was 0.016 MGD over the period 1/1/02 – 12/31/04

SEASONAL VARIATION IN FLOW:
Flows in June – August 2002 averaged a seasonal high of 0.021 MGD, representing the time of maximum flows.

Flows in Feb – March 2003 average 0.023 MGD are also considered seasonal max flows.

The normal range of max flows for 2004 occurred over May and June 2004 (0.020 MGD), with the Hurricane event max flows of 0.047 MGD occurring over the period August - October 2004.

Low Seasonal flows were seen during the month of May for the 2002 and 2003 (0.009 MGD), and during the month of March of 2004 (0.009 MGD).

UPDATED FLOW AND LOADING:

The average monthly flow (ADF) was 0.018 MGD over the period 1/1/02 – 12/31/04. **The ADF (monthly basis) in January 2004 was 0.012 MGD.**

The average CBOD5 and TSS concentrations over the period January 2002 through December 2004 were 109.5 mg/L and 119.3 mg/L, respectively (as reported in the OMRP prepared by AEI in January 2005). **The corresponding influent and effluent CBOD5 and TSS in January 2004 were as follows:**

Influent CBOD5: 200 mg/L
Effluent CBOD5: 2.0 mg/L
Influent TSS: 220 mg/L
Effluent TSS: 4.4 mg/L

The corresponding current facility removal rates are as follows:
CBOD5: [(200-2)/200] x 100 = 99.00%
TSS: [(220-4.4)/220] x 100 = 98.00%

The current CBOD and TSS loading per person are as follows:
Current Population = 141 units x 2.27 persons per unit = 320 persons
Current Per Capita Usage = 18,000 GPD/320 persons = 56.25 gallons/persons/day
CBOD Loading/person = [(200 mg/L x 8.34)/ 320] = 5.2125 lbs/person
TSS Loading/person = [(220 mg/L x 8.34)/ 320] = 5.7334 lbs/person

The anticipated CBOD and TSS loading per person at development build-out are as follows:
Build-out Population = 161 units x 2.27 persons per unit = 365 persons
Flow at Development Build-out = (56.25 gallons/day) x 365 = 20,531 gallons/day

CBOD loading at build-out:
(5.2125 lbs/person x 365 persons) = 1,902.56 lbs
1,903/8.34 = 228.18 mg/L CBOD5. At 99.0 % removal, the effluent will be 2.28 mg/L
Anticipated effluent CBOD at development build-out = 2.28mg/L @ 20,531 ADF

TSS Loading at build-out:
(5.7334 lbs/person x 365 persons) = 2,092.7 lbs
2,092.7/8.34 = 250.9 mg/L TSS. At 98.00 % removal, the effluent will be 5.02 mg/L
Anticipated effluent TSS at development build-out = 5.02mg/L @ 20,531 ADF

Current facility Design Criteria is 20 mg/L CBOD in effluent at flow 0.021 MGD
Current facility Design Criteria is 20 mg/L TSS in effluent at flow of 0.021 MGD

Since both 2.28 and 5.02mg/L @ 20,531 ADF < 20 mg/L @ 21,000 ADF (Design Criteria), No Further Improvements Are Required At This Time.

Considering Projected Flow, CBOD5 loading and TSS loading will be less than that designed for the facility, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application, no further treatment process will be required in this 10-year planning period.

3. FUTURE CONDITIONS

10-YEAR POPULATION PROJECTIONS:

At the present time 141 of the 161 lots in this subdivision are occupied. The remaining 20 lots are anticipated to be occupied within the ten (10) years. Once all 161 lots are occupied, this development will be built-out, with no plans for expansion or addition connections. The population is mixed retirement/family. It is assumed that the average population is 2.27 persons per lot, per 2000 U.S. Census data for Astor, Florida. Given this assumption, the current population is as follows:

Current Population = 141 units x 2.27 persons per unit = 320

The anticipated population at development build-out is as follows:

Build-out Population = 161 units x 2.27 persons per unit = 365 persons

Population Projection

Year (end)	Projected Development Population
2004	**320***
2005	329
2006	338
2007	347
2008	356
2009	365
Development Build out Total	**365**

* Population Projected based on actual number of accounts and the number of persons per account, per U.S. Census data.

Build-Out Rate

The CAR prepared for this facility in January 2000 indicated that this facility served 122 active units. Given that there were 141 active accounts as of December 31, 2004, the calculated historic build-out rate over this period is approximately 3.8 (or 4) units/year. Therefore, this development will be build-out by 2009 (by the end of this permit period).

10-YEAR (BUILD-OUT) FLOW PROJECTIONS:

The average Monthly ADF is 18,000 GPD, based a facility DMR's.
Current Per Capita Usage = 18,000 GPD/320 persons = 56.25 Gallons/Person-Day.
Anticipated ADF at Development Build-Out = (56.25 gallons/day) x 365 = 20,531 GPD

Current Annual ADF = 16,000 GPD (based on the average of January 2004 – December 2004 data).
Anticipated Annual ADF at Development Build-out = (16,000 + 2,390) GPD = 18,390 GPD

Maximum 3-Month ADF/Annual ADF Factor = **1.066** (based on the average of January 2002-Dec. 2004 data). The resulting Projected Maximum 3-Month ADF (M3MADF) at Development Build-out = 20,531 x 1.066 = 21,886 GPD. However, since this includes data over the extreme hurricane storm event period (August 2004-December 2004), it is not representative of normal variance in seasonal flow. Therefore, the M3MADF evaluation will be based on pre-hurricane storm event data, over the period January 2000 – December 2004). The 3MADF over this (pre-hurricane) period is 1.000. **The resulting Anticipated M3MADF at Development Build-out = 20,531 x 1.000 = 20,531 GPD.**

In summary, the Anticipated M3MADF of 20,531 GPD calculated for this facility is within permitted capacity of 21,000 GPD at development build-out in 2009.

4. SUMMARY AND CONCLUSIONS

The permit capacity for the treatment facility is 0.021 MGD. Peak monthly flows of 0.050 MGD in the last 12-month period occurred in November 2004 (hurricane storm event period). Prior to the 2004 hurricane storm period, the peak monthly flows occurred in June 2004 (0.019 MGD).

The peak three-month ADF of 0.032 MGD occurred in December 2004 (Hurricane and post-hurricane flow period). Prior to the 2004 hurricane storm period, the peak three-monthly ADF (M3MADF) occurred in June 2004 (0.019 MGD). Average facility flows for the period of January 2002 through December 2004 are shown on **Table 1.**

In summary, the current facility capacity was designed to treat 21,000 GPD. **The anticipated wastewater flow at development build-out (161 connections/lots) will be approximately 20,531 GPD (monthly ADF basis), and 20,531 GPD (M3MADF basis) by year 2009.** Since the anticipated flows at development build-out below permitted flow of 21,000 GPD (Average Monthly basis), no additional treatment facilities or facility improvements will be required for this 10-year planning period. This conclusion was estimated using the flow data that excluded the 2004 hurricane storm events. Considering the extreme nature if this storm event, the resulting calculations presented here are considered to be more representative of normal, anticipated storm events and seasonal flow variations, and therefore, more representative for future flow projection.

Alternately, considering the projected flow, CBOD5 loading, and TSS loading (calculated above) will be less than that designed for the facility (per the Facility Preliminary Design values reported in the 2000 Operations Permit Application), no further treatment process or facility improvements will be required in this 5- and 10-year planning period.

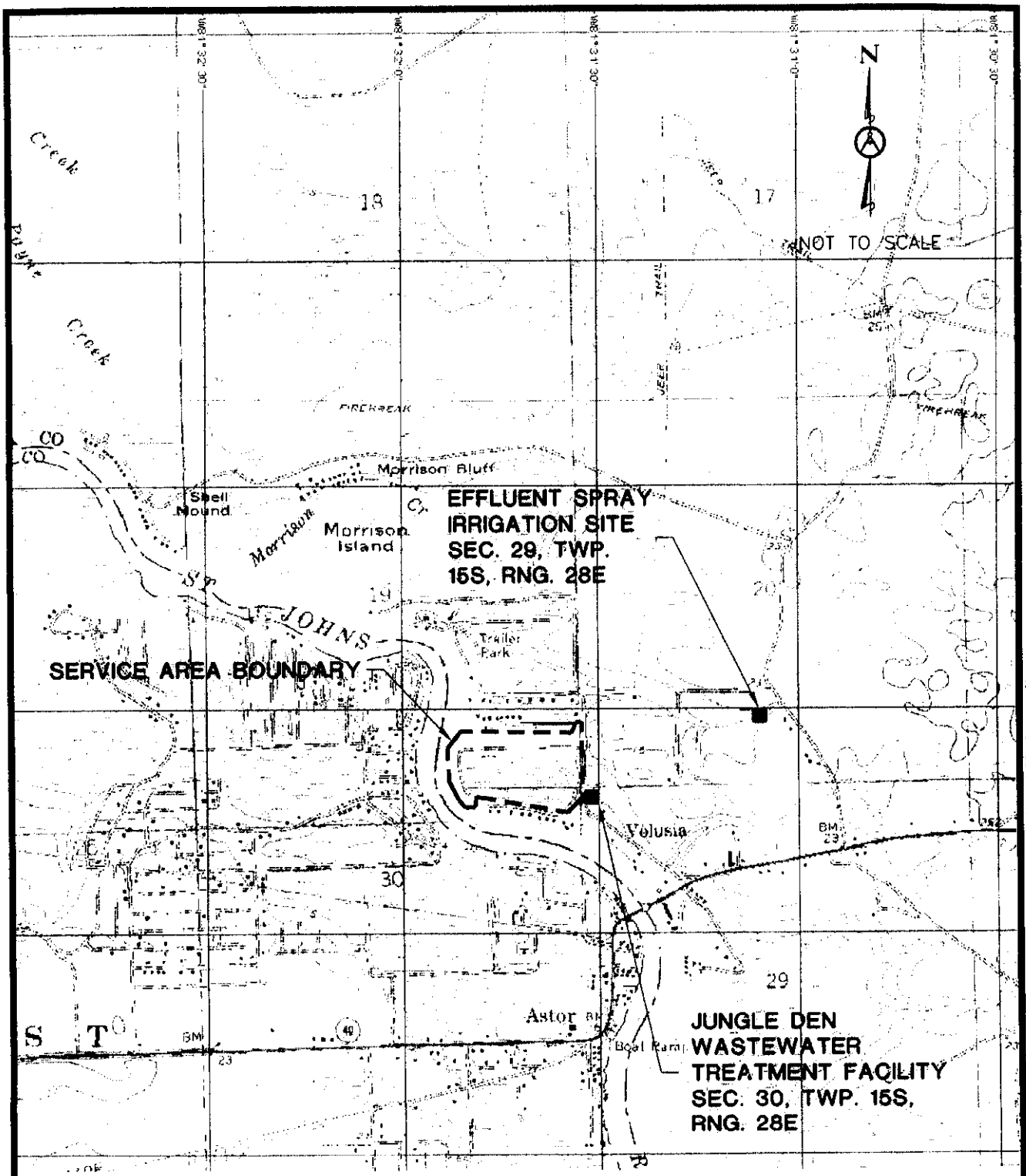
The service area currently serves 141 connections. The historic service area growth rate over the period 2000-2004 was approximately 4 units per year. The service area is projected to reach build-out (161 connections) by 2009 (in 5 years).

RECOMMENDATIONS FOR EXPANSION:

According to updated flow projection presented in this report, the M3MADF is not projected to reach the permitted capacity of the plant during this permit duration. Therefore, no further treatment process or facility improvements will be required in this permit duration period. The development is near build-out with no future service area expansion plans.

EXPANSION SCHEDULES:

According to updated flow projection presented in this report, average daily and annual average flows are not projected to exceed the permitted capacity of the plant or disposal system (0.021 MGD) during this permit duration. Therefore, no expansion is required at this time.



REFERENCE: UNITED STATES GEOLOGICAL SURVEY MAPS ASTOR, FLORIDA, ORIG. DATE: 1989

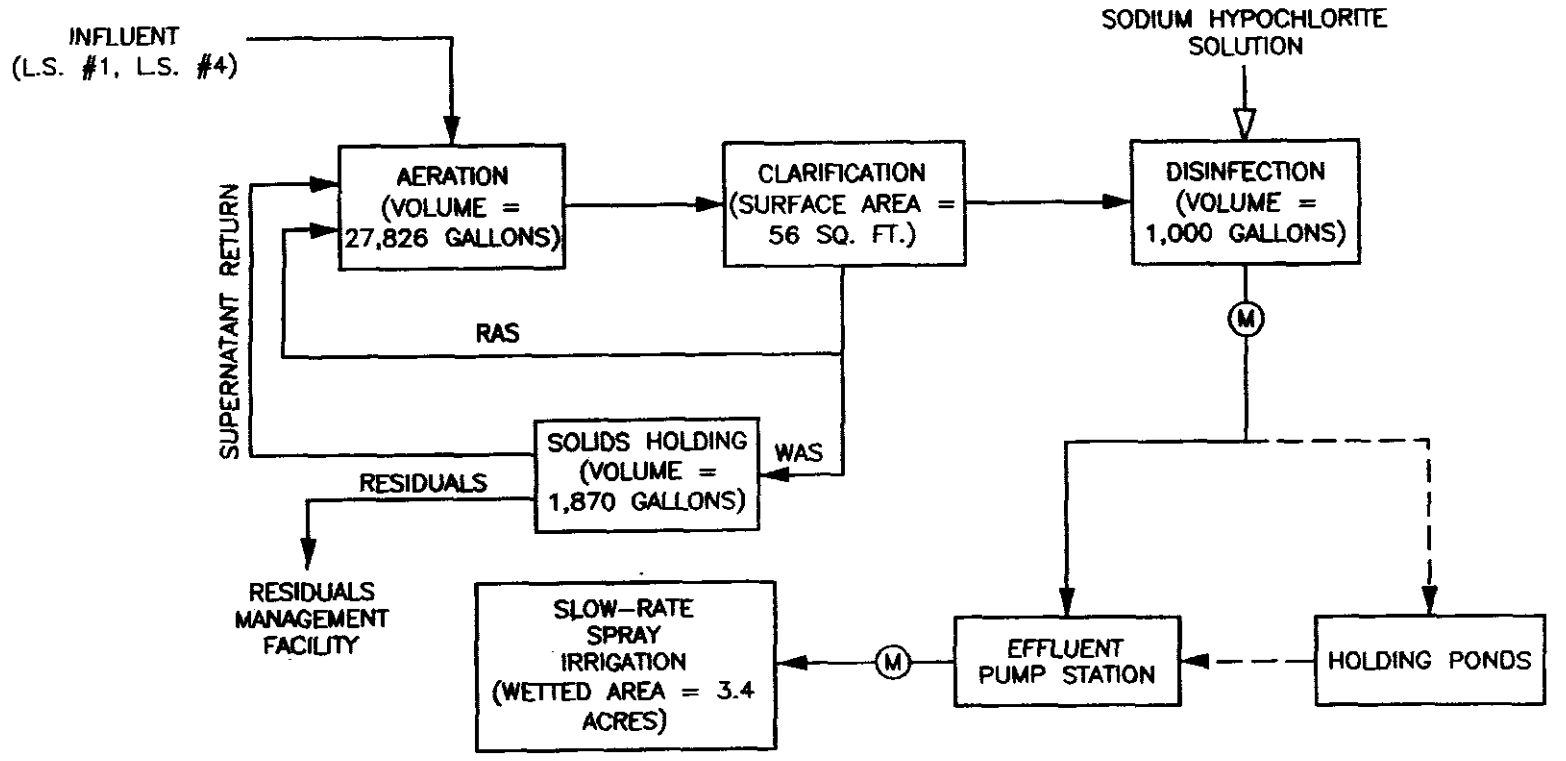
Andreyev Engineering, Inc.

DATE:

ENGINEER: SL

JUNGLE DEN WASTEWATER SERVICE AREA & PLANT LOCATION

FIGURE 1



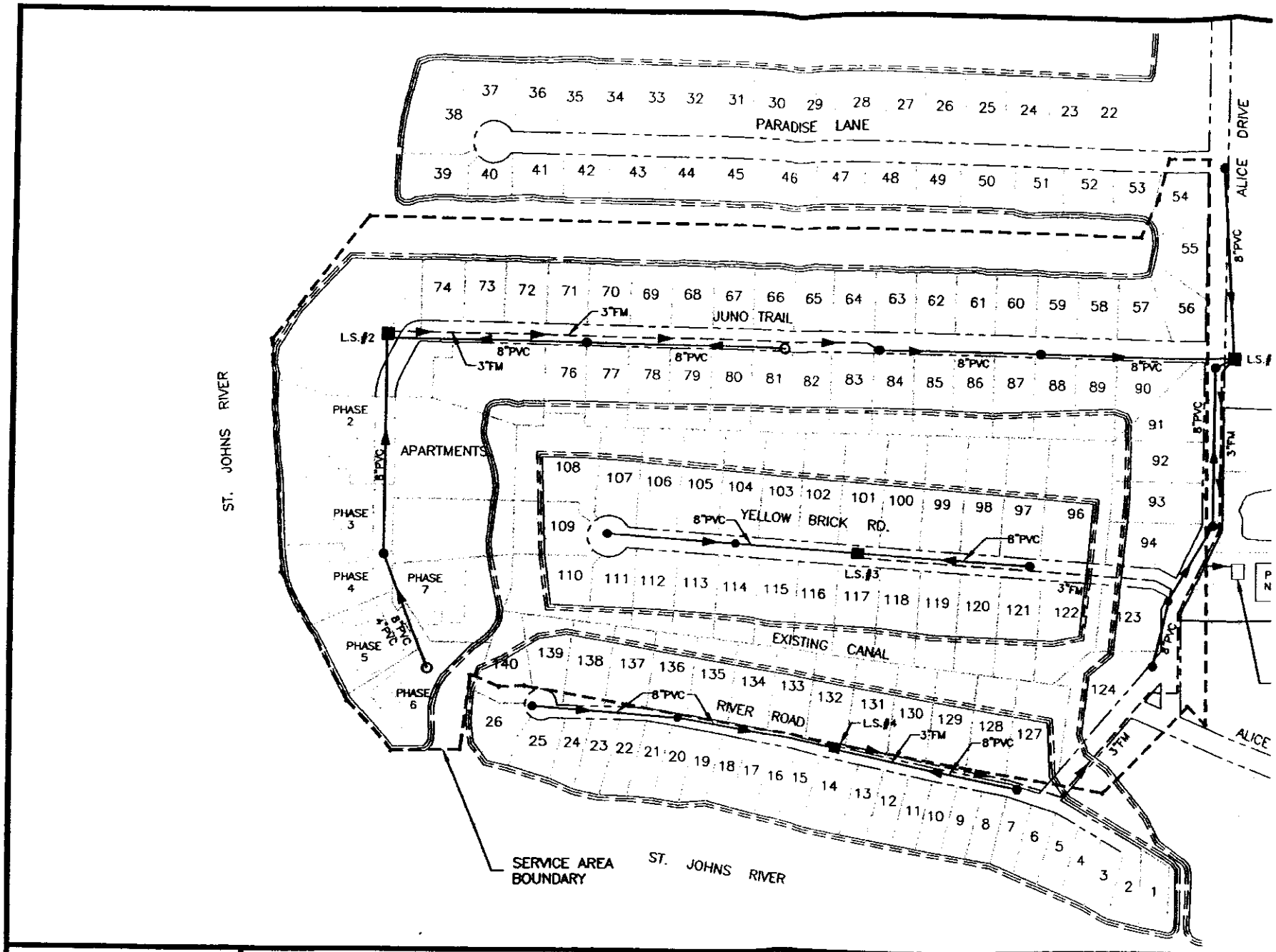
Andreyev Engineering, Inc.

DATE: | ENGINEER: SL

JUNGLE DEN
WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM

FIGURE 2

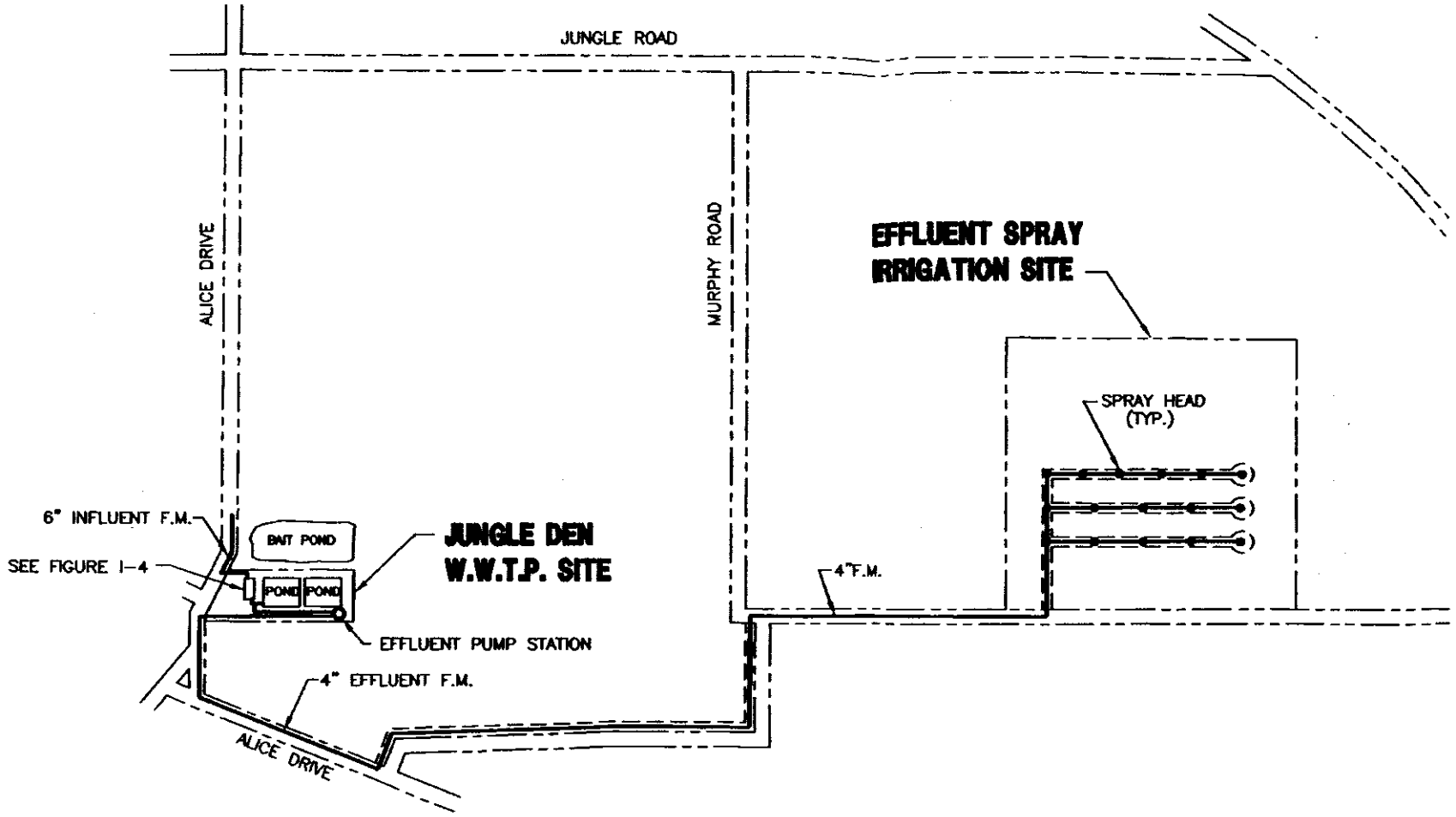
D:\Projects\CAD\EXHIBITS\JUNGLE DEN\WWTP OPERATING PERMIT\FIGURE 1-2.dwg



Andreyev Engineering, Inc.

DATE: | ENGINEER SIL

JUNGLE DEN WASTEWATER SERVICE AREA COLLECTION/TRANSMISSION SYSTEM



Andreyev Engineering, Inc.

DATE: 7/23/04 | ENGINEER: SL

JUNGLE DEN WASTEWATER TREATMENT PLANT AND EFFLUENT SPRAY IRRIGATION SITE

UPDATED CAPACITY ANALYSIS REPORT

KINGS COVE SUBDIVISION WASTEWATER TREATMENT PLANT

IN LAKE COUNTY, FLORIDA

FLA010590

PERMIT EXPIRATION DATE FEBRUARY 5, 2004

PREPARED FOR

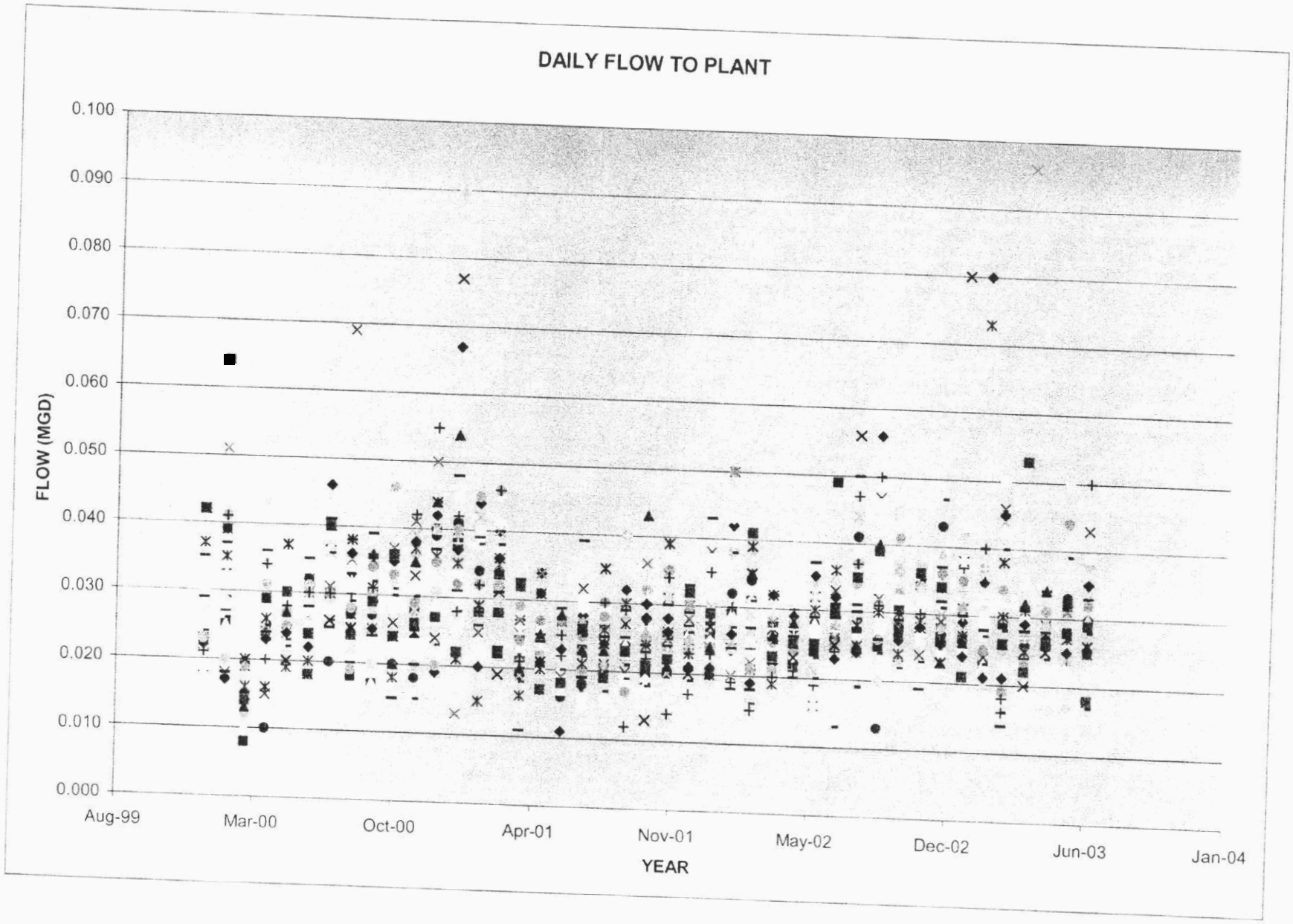
AquaSource
A DQE Company

PREPARED BY

RHPA / An Engineering and Land Planning Professional Association

Certificate of Authorization Number: 00005740
P.O. Box 701323, St. Cloud, Florida 34770-1323
407-957-3308

OCTOBER 2003


DAILY FLOW TO PLANT
FLOW (MGD)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Aug-99
Mar-00
Oct-00
Apr-01
Nov-01
May-02
Dec-02
Jun-03
Jan-04
YEAR

CERTIFICATIONS

Permittee:

AquaSource, Inc.
1343 NE 17th Road
Ocala, Florida 34770
352-732-6027
Glenn LaBrecque
Vice-President

9/29/03
Date

Engineer:

RHPA
P.O. Box 701323
St. Cloud, Florida 34770
407-957-3308
Ron Howse, P.E.
Senior Engineer – Registration No. 39516

OCT 0 6 2003
Date

The permittee is fully aware and intends to comply with the recommendations and schedules included in the report. The engineer certifies that the information contained in the report is true and correct to the best of his knowledge, the report was prepared in accordance with sound engineering principles, and he discussed the recommendations and schedules with the permittee or the permittee's delegated representative.

MONTHLY AVERAGE DAILY FLOWS, THREE-MONTH AVERAGE DAILY FLOWS, AND ANNUAL AVERAGE DAILY FLOWS

Please refer to the attached spreadsheet.

DAILY FLOW TO PLANT IN MGD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan-00	0.023	0.023	0.026	0.027	0.022	0.022	0.018	0.029	0.029	0.024	0.030	0.027	0.027	0.021	0.035	0.035	0.023	0.035	0.030	0.026	0.018	0.037	0.037	0.023	0.021	0.024	0.042	0.042	0.042	0.042	0.04
Feb-00	0.025	0.025	0.025	0.018	0.039	0.039	0.033	0.029	0.027	0.031	0.037	0.029	0.029	0.033	0.020	0.053	0.026	0.037	0.028	0.028	0.042	0.051	0.035	0.041	0.041	0.018	0.018	0.017	0.064		
Mar-00	0.015	0.008	0.010	0.019	0.019	0.012	0.020	0.014	0.015	0.023	0.014	0.014	0.017	0.016	0.012	0.016	0.019	0.017	0.017	0.016	0.017	0.014	0.016	0.019	0.014	0.014	0.014	0.015	0.014	0.013	0.02
Apr-00	0.024	0.024	0.019	0.015	0.018	0.010	0.020	0.036	0.036	0.026	0.035	0.032	0.025	0.026	0.034	0.034	0.023	0.020	0.043	0.026	0.032	0.026	0.026	0.031	0.034	0.025	0.024	0.023	0.029	0.029	
May-00	0.027	0.028	0.029	0.024	0.037	0.025	0.025	0.025	0.028	0.028	0.025	0.024	0.028	0.028	0.025	0.023	0.022	0.027	0.021	0.028	0.028	0.024	0.019	0.027	0.028	0.023	0.024	0.024	0.030	0.027	0.02
Jun-00	0.030	0.019	0.032	0.032	0.018	0.032	0.028	0.028	0.031	0.027	0.028	0.027	0.023	0.022	0.031	0.012	0.035	0.035	0.026	0.025	0.023	0.030	0.020	0.030	0.030	0.024	0.028	0.022	0.024	0.024	
Jul-00	0.030	0.030	0.024	0.031	0.030	0.020	0.037	0.030	0.030	0.029	0.024	0.034	0.036	0.030	0.030	0.030	0.036	0.025	0.029	0.024	0.037	0.030	0.030	0.030	0.030	0.026	0.041	0.046	0.040	0.040	0.02
Aug-00	0.033	0.018	0.030	0.069	0.027	0.027	0.030	0.028	0.038	0.020	0.034	0.022	0.022	0.037	0.028	0.032	0.029	0.020	0.031	0.031	0.025	0.035	0.038	0.019	0.039	0.024	0.024	0.036	0.024	0.025	0.02
Sep-00	0.030	0.017	0.017	0.031	0.030	0.027	0.036	0.029	0.034	0.033	0.024	0.036	0.024	0.024	0.030	0.024	0.024	0.039	0.020	0.025	0.028	0.025	0.035	0.034	0.031	0.032	0.024	0.025	0.029	0.036	
Oct-00	0.036	0.024	0.033	0.028	0.028	0.020	0.036	0.035	0.024	0.029	0.022	0.033	0.018	0.046	0.046	0.029	0.030	0.020	0.032	0.028	0.036	0.037	0.018	0.033	0.020	0.031	0.015	0.035	0.036	0.020	0.02
Nov-00	0.024	0.028	0.021	0.033	0.036	0.018	0.025	0.030	0.025	0.023	0.036	0.036	0.039	0.028	0.020	0.031	0.015	0.036	0.036	0.023	0.027	0.041	0.037	0.029	0.042	0.042	0.020	0.036	0.026	0.036	
Dec-00	0.019	0.040	0.040	0.024	0.040	0.039	0.035	0.044	0.029	0.029	0.036	0.031	0.030	0.040	0.020	0.035	0.035	0.037	0.031	0.028	0.040	0.050	0.036	0.035	0.055	0.023	0.037	0.042	0.027	0.044	0.04
Jan-01	0.067	0.038	0.045	0.040	0.021	0.041	0.042	0.033	0.048	0.026	0.033	0.031	0.036	0.036	0.040	0.038	0.031	0.031	0.036	0.090	0.090	0.013	0.035	0.032	0.028	0.028	0.037	0.037	0.022	0.054	0.07
Feb-01	0.044	0.028	0.039	0.039	0.029	0.034	0.028	0.032	0.026	0.038	0.038	0.022	0.042	0.025	0.045	0.024	0.039	0.039	0.040	0.040	0.018	0.025	0.015	0.032	0.032	0.038	0.028	0.020			
Mar-01	0.040	0.022	0.036	0.036	0.031	0.034	0.033	0.036	0.023	0.041	0.041	0.036	0.040	0.028	0.032	0.045	0.031	0.031	0.028	0.037	0.030	0.035	0.036	0.046	0.046	0.040	0.028	0.036	0.028	0.034	0.01
Apr-01	0.019	0.024	0.024	0.022	0.021	0.028	0.027	0.027	0.033	0.026	0.028	0.021	0.019	0.029	0.029	0.024	0.020	0.021	0.021	0.023	0.027	0.027	0.016	0.024	0.021	0.018	0.011	0.032	0.032	0.020	
May-01	0.034	0.020	0.023	0.017	0.031	0.031	0.020	0.021	0.025	0.021	0.020	0.026	0.026	0.025	0.022	0.024	0.021	0.024	0.026	0.026	0.021	0.034	0.020	0.027	0.017	0.024	0.024	0.021	0.017	0.025	0.02
Jun-01	0.011	0.023	0.023	0.017	0.017	0.018	0.022	0.018	0.020	0.020	0.019	0.017	0.018	0.020	0.018	0.023	0.023	0.029	0.018	0.023	0.018	0.019	0.027	0.027	0.025	0.020	0.018	0.023	0.018	0.028	
Jul-01	0.028	0.023	0.015	0.032	0.017	0.018	0.027	0.027	0.039	0.029	0.030	0.026	0.027	0.020	0.020	0.026	0.022	0.025	0.023	0.016	0.027	0.026	0.021	0.025	0.018	0.025	0.019	0.026	0.026	0.023	0.02
Aug-01	0.020	0.020	0.021	0.021	0.035	0.026	0.021	0.017	0.025	0.016	0.029	0.029	0.024	0.020	0.028	0.018	0.020	0.026	0.026	0.025	0.021	0.020	0.026	0.030	0.030	0.020	0.025	0.024	0.019	0.023	0.02
Sep-01	0.024	0.029	0.029	0.020	0.027	0.022	0.012	0.029	0.029	0.022	0.019	0.024	0.023	0.022	0.040	0.040	0.021	0.025	0.028	0.023	0.023	0.030	0.030	0.017	0.029	0.019	0.029	0.032	0.023	0.023	
Oct-01	0.028	0.020	0.026	0.027	0.019	0.032	0.032	0.021	0.024	0.019	0.025	0.018	0.030	0.030	0.032	0.031	0.025	0.023	0.025	0.026	0.026	0.036	0.024	0.021	0.022	0.018	0.030	0.030	0.021	0.043	0.01
Nov-01	0.026	0.020	0.031	0.031	0.039	0.024	0.014	0.025	0.023	0.037	0.037	0.025	0.020	0.023	0.023	0.023	0.030	0.030	0.031	0.026	0.025	0.025	0.026	0.035	0.034	0.025	0.026	0.026	0.022	0.021	
Dec-01	0.029	0.029	0.028	0.023	0.025	0.028	0.017	0.033	0.033	0.025	0.028	0.026	0.024	0.027	0.030	0.030	0.019	0.027	0.025	0.029	0.028	0.028	0.030	0.030	0.023	0.026	0.029	0.021	0.032	0.032	0.02
Jan-02	0.025	0.025	0.028	0.038	0.020	0.020	0.035	0.023	0.025	0.025	0.023	0.030	0.030	0.028	0.028	0.021	0.026	0.020	0.037	0.037	0.022	0.026	0.028	0.024	0.023	0.023	0.043	0.021	0.029	0.024	0.02
Feb-02	0.042	0.029	0.029	0.023	0.024	0.032	0.030	0.028	0.043	0.043	0.022	0.024	0.025	0.026	0.038	0.038	0.038	0.018	0.027	0.017	0.024	0.020	0.050	0.050	0.019	0.027	0.024	0.026			
Mar-02	0.021	0.031	0.031	0.021	0.039	0.034	0.024	0.025	0.031	0.031	0.023	0.026	0.029	0.025	0.025	0.031	0.031	0.027	0.026	0.025	0.017	0.022	0.021	0.021	0.015	0.016	0.018	0.019	0.041	0.035	0.03
Apr-02	0.022	0.025	0.023	0.032	0.027	0.028	0.028	0.028	0.028	0.026	0.024	0.025	0.030	0.030	0.021	0.027	0.026	0.023	0.023	0.029	0.029	0.028	0.019	0.025	0.020	0.025	0.032	0.032	0.023	0.028	
May-02	0.027	0.022	0.032	0.024	0.024	0.023	0.030	0.026	0.020	0.023	0.033	0.033	0.024	0.018	0.024	0.027	0.022	0.026	0.026	0.025	0.031	0.025	0.025	0.024	0.021	0.021	0.026	0.029	0.025	0.028	0.02
Jun-02	0.024	0.024	0.026	0.016	0.032	0.028	0.019	0.029	0.029	0.016	0.027	0.028	0.021	0.020	0.032	0.032	0.020	0.029	0.034	0.014	0.030	0.030	0.030	0.025	0.035	0.023	0.037	0.035	0.025	0.025	
Jul-02	0.023	0.049	0.027	0.033	0.025	0.026	0.050	0.013	0.031	0.036	0.017	0.029	0.035	0.035	0.027	0.027	0.031	0.026	0.028	0.035	0.035	0.026	0.036	0.025	0.024	0.029	0.029	0.032	0.030	0.030	0.02
Aug-02	0.026	0.027	0.032	0.035	0.028	0.041	0.047	0.019	0.050	0.039	0.039	0.023	0.044	0.051	0.034	0.032	0.031	0.031	0.025	0.026	0.024	0.024	0.025	0.037	0.037	0.029	0.030	0.024	0.035	0.028	0.05
Sep-02	0.056	0.025	0.038	0.026	0.047	0.013	0.050	0.050	0.030	0.048	0.046	0.030	0.031	0.031	0.031	0.029	0.031	0.026	0.020	0.027	0.032	0.032	0.030	0.026	0.031	0.024	0.026	0.038	0.039	0.040	
Oct-02	0.028	0.028	0.027	0.030	0.031	0.031	0.023	0.028	0.031	0.032	0.022	0.022	0.037	0.027	0.033	0.024	0.022	0.036	0.036	0.032	0.023	0.026	0.024	0.041	0.030	0.030	0.029	0.026	0.027	0.027	
Nov-02	0.027	0.034	0.034	0.027	0.029	0.028	0.026	0.035	0.027	0.027	0.028	0.028	0.037	0.026	0.034	0.023	0.023	0.019	0.026	0.026	0.034	0.024	0.028	0.028	0.030	0.030	0.026	0.028	0.036	0.036	
Dec-02	0.036	0.026	0.031	0.028	0.025	0.043	0.027	0.027	0.026	0.031	0.024	0.034	0.030	0.039	0.039	0.029	0.031	0.037	0.028	0.039	0.039	0.029	0.034	0.036	0.034	0.047	0.032	0.034	0.034	0.023	0.02
Jan-03	0.029	0.026	0.036	0.036	0.031	0.031	0.037	0.030	0.024	0.036	0.025	0.025	0.028	0.027	0.031	0.030	0.021	0.021	0.042	0.043	0.034	0.027	0.027	0.035	0.027	0.027	0.030	0.024	0.021	0.026	0.06
Feb-03	0.080	0.023	0.024	0.024	0.024	0.035	0.040	0.023	0.023	0.027	0.029	0.023	0.020	0.036	0.037	0.037	0.023	0.040	0.031	0.030	0.020	0.073	0.073	0.025	0.035	0.027	0.028	0.021			
Mar-03	0.021	0.029	0.046	0.046	0.036	0.034	0.016	0.016	0.030	0.045	0.050	0.043	0.044	0.045	0.034	0.023	0.040	0.030	0.025	0.026	0.030	0.030	0.030	0.019	0.018	0.028	0.014	0.045	0.026	0.026	0.02
Apr-03	0.026	0.053	0.036	0.020	0.063	0.053	0.028	0.020	0.024	0.023	0.030	0.030	0.096	0.031	0.027	0.027	0.031	0.028	0.026	0.030	0.025	0.031	0.025	0.023	0.031	0.031	0.028	0.029	0.022	0.032	
May-03	0.028	0.025	0.029	0.029	0.026	0.026	0.025	0.029	0.034	0.025	0.025	0.023	0.028	0.024	0.031	0.029	0.029	0.028	0.029	0.021	0.029	0.027	0.026	0.026	0.034	0.024	0.026	0.027	0.026	0.034	0.02
Jun-03	0.025	0.028	0.021	0.027	0.024	0.033	0.033	0.026	0.032	0.022	0.031	0.028	0.024	0.031	0.031	0.026	0.027	0.025	0.017	0.050	0.031	0.031	0.027	0.044	0.025	0.039	0.032	0.032	0.032	0.028	
Jul-03	0.030	0.018	0.022	0.043	0.025	0.025	0.032	0.017	0.033	0.026	0.032	0.032	0.032	0.034	0.038	0.023	0.026	0.038	0.038	0.039	0.030	0.026	0.018	0.032	0.050	0.035	0.035	0.035	0.029	0.026	0.02

Capacity Analysis Report

Lake Suzy Treatment Plant

Desoto County, Florida

FDEP permit No. FLA011964 (Expires June 25, 2005)

December 2004

AQUA Utilities Florida.

DMK ASSOCIATES
ENGINEERS ■ SURVEYORS

David L. Farabee, PE
4263 Lancaster Drive
Sarasota, Florida 34241
(941) 356-6561

DMK Associates, Inc.
4315 S. Access Road
Englewood, Florida 34224-8647
(941) 475-6596

Certification by Permittee:

I certify that I am fully aware of and intend to comply with the recommendations and schedules included in this report.

Glenn LaBrecque
Vice President & Chief Operating Officer

12/22/04
Date

Aqua Utilities Florida, Inc.
6960 Professional Parkway East
Sarasota, Florida 34240
(941) 907-7420

Certification by Professional Engineer:

I certify that the information contained in this report is true and correct to the best of my knowledge; this report was prepared in accordance with sound engineering principles. I have discussed the recommendations and schedules with the permittee.

I further certify that planning and preliminary design of the necessary expansion have been initiated.

David L. Farabee, PE
Florida PE No. 22308

12/22/04
Date

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A. Introduction

1. Plant Description and Capacities

The Lake Suzy Wastewater Treatment Plant (WWTP) uses an extended aeration activated sludge process with three parallel process trains. Treatment facilities also include an influent flow equalization tank, four aerobic digesters, effluent filters, and chlorination facilities.

Treated effluent is pumped into two rapid infiltration basins on the WWTP site.

2. Previous Capacity Analysis Report

The previous Capacity Analysis Report was prepared by William J. Murchie, PE, of A M Engineering; it was dated December 1999.

3. Flow Diagram

Figure 1 is a schematic flow diagram showing the WWTP components.

B. Existing Conditions

1. Permitted Capacities

The existing WWTP capacity, as reflected in the existing FDEP permit, is 0.150 million gallons per day (mgd). This value is permitted as the 3-month average daily flow (ADF).

The existing permitted capacity of the rapid infiltration basins is 0.087 mgd. This disposal capacity is permitted as the annual ADF. An application for renewal of the facility permit (to be submitted concurrently with this report) will request an increase in this disposal capacity to equal the existing permitted treatment capacity.

2. Flow Records

a. Monthly Flows, 3-month ADF, and Annual ADF

Table 1 shows the monthly flows, the 3-month ADF, and the 12-month ADF since January 1998.

Figure 2 is a graphical representation of the data listed in Table 1.

Table 2 shows the ratio of annual flow to 3-month ADF for the past six years. The typical ratio is about 1.6, which is relatively high; this is indicative of the highly seasonal population served.

b. Seasonal Flow Variations

There are some seasonal variations in flow to the Lake Suzy WWTP. These are caused by both climatological and demographic patterns. During the winter, the presence of seasonal residents tends to increase wastewater flows. During the summer, rainy weather and high groundwater tables tend to increase wastewater flows because of infiltration, but this effect is not enough to compensate for the demographic flow pattern. Table 3 shows a summary of seasonal flows for almost 7 years of record. Figure 3 is a graphical representation of the data listed in Table 3.

As these data show, the minimum flows usually occur in the summer or early fall, and are typically about 35-40% less than the annual average flow. The maximum flows may occur in winter or spring, and are typically 80% more than the annual average flow.

3. Updated Flow and Loading Information

The current plant expansion was apparently designed for a typical influent loading of 250 mg/L $CBOD_5$ and TSS. These values compare favorably with the actual measured influent loading. Table 4 shows the influent concentrations measured for the last four years, and compares them with the basis of the design.

C. Future Conditions

1. Population Projections

By an agreement recently signed between Aqua Utilities and Desoto County, the Lake Suzy WWTP service area is expected to be enlarged soon. As a result, a master planning effort is now under way to determine how accommodate the wastewater needs of anticipated development in the area. That master planning effort will include population and flow projections for the area served by the Lake Suzy WWTP. Since those data are not yet available, more rudimentary population projections were developed for the purpose of this Capacity Analysis Report.

The existing service area includes an estimated 385 connections, which corresponds to an estimated population of about 1,040 now served by the Lake Suzy WWTP. The geographic area now served was estimated at about 443 acres, including roads, ponds, and golf courses. This area is essentially built out. Based on the existing population density in this area, the population was projected for the anticipated future service area, which was estimated at 1800 additional acres.

Assuming a 20-year build-out period for this additional service area, the resulting populations were projected. Those projections are shown in Table 5.

2. Flow Projections

Existing flows and correspond to a flow of about 57 gallons per day per person. To be conservative result, flows were projected at a rate of 60 gallons per day per person. The resulting flow projections, which correspond to the population projections, are shown in Table 5. These flow projections include an estimate of the 3-month ADF, which was based on a ratio to the Annual ADF of 1.5. That value was selected to reflect the highly seasonal nature of the existing demands, tempered somewhat to reflect expected attenuation by the larger customer base and by the likelihood that the future development will experience lesser degrees of seasonal population fluctuation.

These flow projections are also shown in Figure 4.

D. Summary and Conclusions

1. Time to Reach Capacity Limitations

Based on the flow projections described above, the capacity limitation of the current WWTP expansion (0.15 mgd) should be reached in about 5 years, or 2009. In accordance with FAC 62-600.405(8)(a), this requires the commencement of planning and preliminary design of an expansion. That effort has already begun with the Master Plan, which is currently being prepared.

2. Recommendations for Expansion

The plant should be expanded to accommodate future flows. The planning for that expansion should begin with a more detailed flow projection and a review of alternatives for treatment and disposal options. The pending Master Plan is intended to accomplish this recommendation.

3. Expansion Schedule

The schedule for expansion should be determined as part of the Master Plan. Based on the flow projections developed as part of that planning effort, a revised Capacity Analysis report should be prepared.

Table 1
Flow Records

Month	Measured Flow to Lake Suzy WWTP, mgd		
	Monthly	3-Mo ADF	12-Mo ADF
Jan-98	0.034		
Feb-98	0.036		
Mar-98	0.043	0.038	
Apr-98	0.043	0.041	
May-98	0.036	0.041	
Jun-98	0.028	0.036	
Jul-98	0.025	0.030	
Aug-98	0.025	0.026	
Sep-98	0.026	0.025	
Oct-98	0.027	0.026	
Nov-98	0.032	0.028	
Dec-98	0.036	0.032	0.033
Jan-99	0.045	0.038	0.034
Feb-99	0.055	0.045	0.035
Mar-99	0.065	0.055	0.037
Apr-99	0.066	0.062	0.039
May-99	0.056	0.062	0.041
Jun-99	0.043	0.055	0.042
Jul-99	0.031	0.043	0.042
Aug-99	0.030	0.035	0.043
Sep-99	0.029	0.030	0.043
Oct-99	0.044	0.034	0.044
Nov-99	0.050	0.041	0.046
Dec-99	0.052	0.049	0.047
Jan-00	0.071	0.058	0.049
Feb-00	0.088	0.070	0.052
Mar-00	0.071	0.077	0.053
Apr-00	0.060	0.073	0.052
May-00	0.032	0.054	0.050
Jun-00	0.029	0.040	0.049
Jul-00	0.027	0.029	0.049
Aug-00	0.031	0.029	0.049
Sep-00	0.032	0.030	0.049
Oct-00	0.042	0.035	0.049
Nov-00	0.046	0.040	0.048
Dec-00	0.047	0.045	0.048
Jan-01	0.067	0.053	0.048
Feb-01	0.061	0.058	0.045
Mar-01	0.058	0.062	0.044
Apr-01	0.063	0.061	0.045

Month	Measured Flow to Lake Suzy WWTP, mgd		
	Monthly	3-Mo. ADF	12-Mo. ADF
May-01	0.037	0.061	0.045
Jun-01	0.034	0.045	0.045
Jul-01	0.031	0.034	0.046
Aug-01	0.033	0.033	0.046
Sep-01	0.037	0.034	0.046
Oct-01	0.041	0.037	0.046
Nov-01	0.046	0.041	0.046
Dec-01	0.047	0.045	0.046
Jan-02	0.056	0.050	0.045
Feb-02	0.051	0.051	0.045
Mar-02	0.128	0.078	0.050
Apr-02	0.098	0.092	0.053
May-02	0.082	0.103	0.057
Jun-02	0.089	0.090	0.062
Jul-02	0.048	0.073	0.063
Aug-02	0.050	0.062	0.064
Sep-02	0.039	0.046	0.065
Oct-02	0.036	0.042	0.064
Nov-02	0.047	0.041	0.064
Dec-02	0.050	0.044	0.065
Jan-03	0.075	0.057	0.066
Feb-03	0.087	0.071	0.069
Mar-03	0.101	0.088	0.067
Apr-03	0.060	0.083	0.064
May-03	0.039	0.067	0.060
Jun-03	0.035	0.045	0.056
Jul-03	0.055	0.043	0.056
Aug-03	0.035	0.042	0.055
Sep-03	0.037	0.042	0.055
Oct-03	0.039	0.037	0.055
Nov-03	0.044	0.040	0.055
Dec-03	0.050	0.044	0.055
Jan-04	0.072	0.055	0.055
Feb-04	0.102	0.075	0.056
Mar-04	0.097	0.090	0.055
Apr-04	0.058	0.086	0.055
May-04	0.034	0.063	0.055
Jun-04	0.035	0.042	0.055
Jul-04	0.036	0.035	0.053
Aug-04	0.031	0.034	0.053
Sep-04	0.040	0.036	0.053

Table 2
Annual Flows

Year	Annual ADF	Max 3-Mo ADF	Ratio
1998	0.033	0.041	1.25
1999	0.047	0.066	1.40
2000	0.048	0.088	1.83
2001	0.046	0.062	1.34
2002	0.065	0.103	1.59
2003	0.055	0.088	1.60
2004	0.056	0.090	1.61
Averages	0.050	0.077	1.52

Table 3
Summary of Seasonal Flows

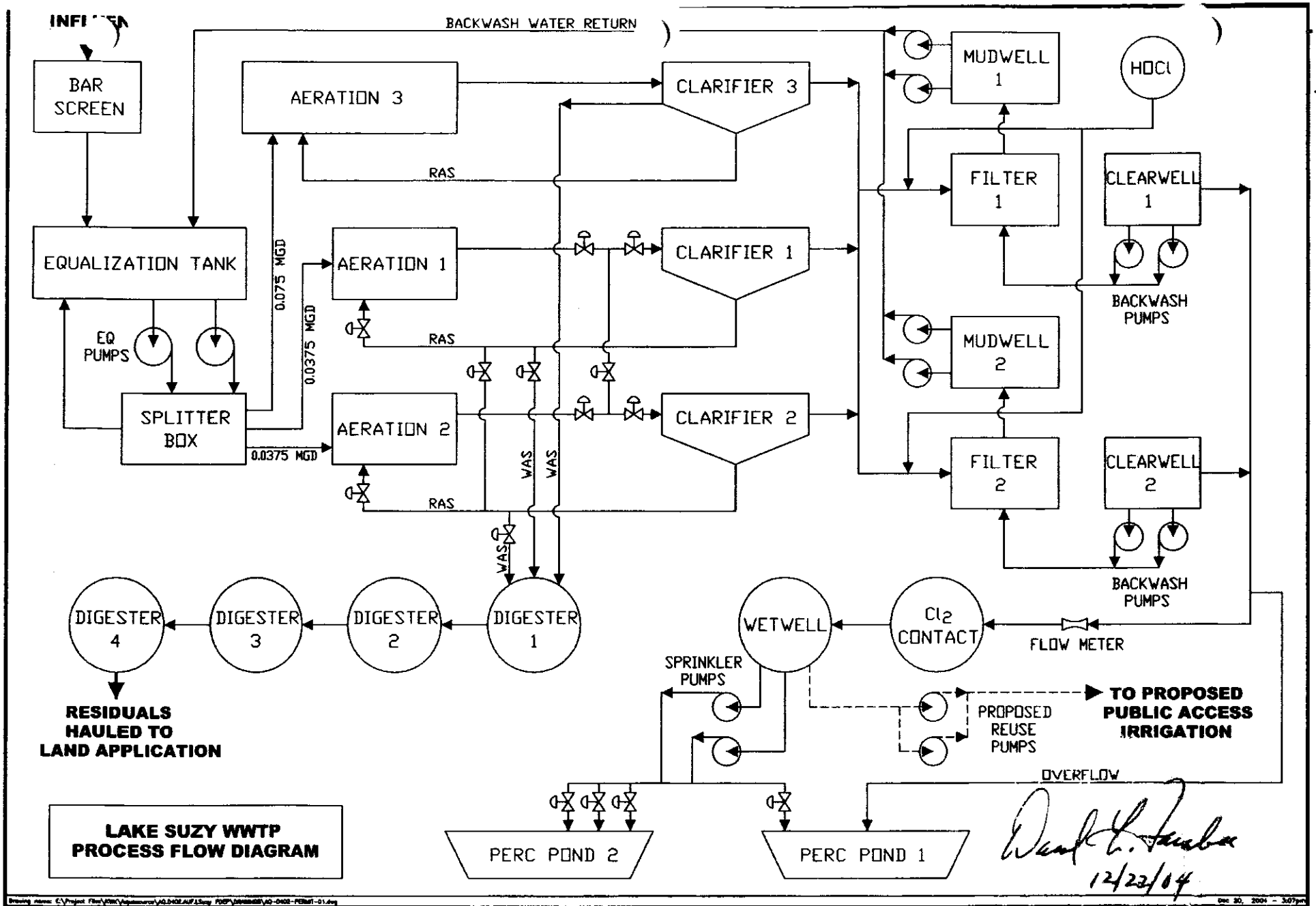
Month	1998		1999		2000		2001		2002		2003		2004	
	MGD	% of Ann'l Avg	MGD	% of Ann'l Avg		% of Ann'l Avg		% of Ann'l Avg		% of Ann'l Avg		% of Ann'l Avg		% of Ann'l Avg
Jan	0.034	104%	0.045	95%	0.071	148%	0.067	145%	0.056	87%	0.075	137%	0.072	128%
Feb	0.036	110%	0.055	117%	0.088	183%	0.061	132%	0.051	79%	0.087	159%	0.102	182%
Mar	0.043	132%	0.065	138%	0.071	148%	0.058	125%	0.128	198%	0.101	184%	0.097	173%
Apr	0.043	132%	0.066	140%	0.060	125%	0.063	136%	0.098	152%	0.060	110%	0.058	103%
May	0.036	110%	0.056	119%	0.032	67%	0.037	80%	0.082	127%	0.039	71%	0.034	61%
Jun	0.028	86%	0.043	91%	0.029	60%	0.034	74%	0.089	138%	0.035	64%	0.035	62%
Jul	0.025	77%	0.031	66%	0.027	56%	0.031	67%	0.048	74%	0.055	100%	0.036	64%
Aug	0.025	77%	0.030	64%	0.031	65%	0.033	71%	0.050	78%	0.035	64%	0.031	55%
Sep	0.026	80%	0.029	61%	0.032	66%	0.037	80%	0.039	60%	0.037	68%	0.040	71%
Oct	0.027	83%	0.044	93%	0.042	88%	0.041	89%	0.036	56%	0.039	71%		0%
Nov	0.032	98%	0.050	106%	0.046	96%	0.046	99%	0.047	73%	0.044	80%		0%
Dec	0.036	110%	0.052	110%	0.047	98%	0.047	102%	0.050	78%	0.050	91%		0%

Table 4
Influent Loading

	Flow	$CBOD_5$		TSS	
	mgd	mg/L	lb/day	mg/L	lb/day
Sep-00	0.032	205	54	213	56
Oct-00	0.042	146	51	100	35
Nov-00	0.046	286	110	355	136
Dec-00	0.047	205	80	219	86
Jan-01	0.067			366	205
Feb-01	0.061	213	108	318	162
Mar-01	0.058	177	86	172	83
Apr-01	0.063	218	115	120	63
May-01	0.037	366	113	387	119
Jun-01	0.034	230	65	132	37
Jul-01	0.031	89	23	160	41
Aug-01	0.033	196	54	104	29
Sep-01	0.037	146	45	175	54
Oct-01	0.041	156	53	111	38
Nov-01	0.046	234	90	322	124
Dec-01	0.047	181	71	186	73
Jan-02	0.056	188	88	228	106
Feb-02	0.051	288	122	292	124
Mar-02	0.128	169	180	101	108
Apr-02	0.098	357	291	208	170
May-02	0.082	197	134	280	191
Jun-02	0.089	172	127	330	245
Jul-02	0.048	174	70	380	152
Aug-02	0.050	276	115	453	189
Sep-02	0.039	186	60	244	79
Oct-02	0.036	222	67	251	75
Nov-02	0.047	208	82	282	111
Dec-02	0.050	283	118	337	141
Jan-03	0.075	303	190	330	206
Feb-03	0.087	250	181	254	184
Mar-03	0.101	385	324	619	521
Apr-03	0.060	351	176	426	213
May-03	0.039	242	79	289	94
Jun-03	0.035	235	69	502	147
Jul-03	0.055	235	108	502	230
Aug-03	0.035	190	55	158	46
Sep-03	0.037	164	51	115	35
Oct-03	0.039	176	57	287	93
Nov-03	0.044	201	74	388	142
Dec-03	0.050	234	98	119	50
Jan-04	0.072	328	197	612	367
Feb-04	0.102	315	268	342	291
Mar-04	0.097	293	237	176	142
Apr-04	0.058	219	106	163	79
May-04	0.034	377	107	240	68
Jun-04	0.035	265	77	378	110
Jul-04	0.036	163	49	87	26
Aug-04	0.031	228	59	145	37
Sep-04	0.040	120	40	44	15
Average	**0.05**	**230**	**108**	**265**	**125**
Design Basis	**0.15**	**250**	**313**	**250**	**313**

Table 5
Population and Flow Projections

Year	Projected Population	Projected ADF, mgd	Projected 3-month ADF, mgd
2005	1,040	0.060	0.090
2006	1,252	0.073	0.109
2007	1,464	0.085	0.128
2008	1,676	0.098	0.147
2009	1,887	0.111	0.166
2010	2,099	0.124	0.185
2011	2,311	0.136	0.204
2012	2,523	0.149	0.223
2013	2,735	0.162	0.243
2014	2,947	0.174	0.262
2015	3,159	0.187	0.281
2016	3,370	0.200	0.300
2017	3,582	0.213	0.319
2018	3,794	0.225	0.338
2019	4,006	0.238	0.357
2020	4,218	0.251	0.376
2021	4,430	0.263	0.395
2022	4,641	0.276	0.414
2023	4,853	0.289	0.433
2024	5,065	0.302	0.452
2025	5,277	0.314	0.471



LAKE SUZY WWTP
PROCESS FLOW DIAGRAM

FOR: AQUA UTILITIES FLORIDA, INC.
TITLE: LAKE SUZY WWTP
DESOTO COUNTY, FLORIDA
DESC: **FIGURE 1 FLOW DIAGRAM**

X
DAVID L. FARABEE P.E.
FLA. CERT. NO. 22308
E.B. NO. 3943
DATE:

In accordance with 61G-36.004 F.A.C., these preliminary engineering documents are not in final form, however, are being transmitted to receive public agency reviews, comments and interpretations. The documents may subsequently be revised by the Engineer to reflect resolution of issues prior to final action. Changes, revisions and modifications to the project may prompt additional document submittals for agency approvals.

NO.	REVISION	DATE	BY

DMK ASSOCIATES
ENGINEERS SURVEYORS
4315 S. Access Road
Englewood, FL 34224
TEL: (941) 474-6666
FAX: (941) 474-5060
E.B. No. 3943

Design By: JEJ | Drawn By: BBB | Checked By: DLF | Proj. No.: AQ-0402
CADD File: CADD | Plot Index: PDP0180 | Date: 12-17-04 | SCALE: NOTED

Figure 2: Flow Records

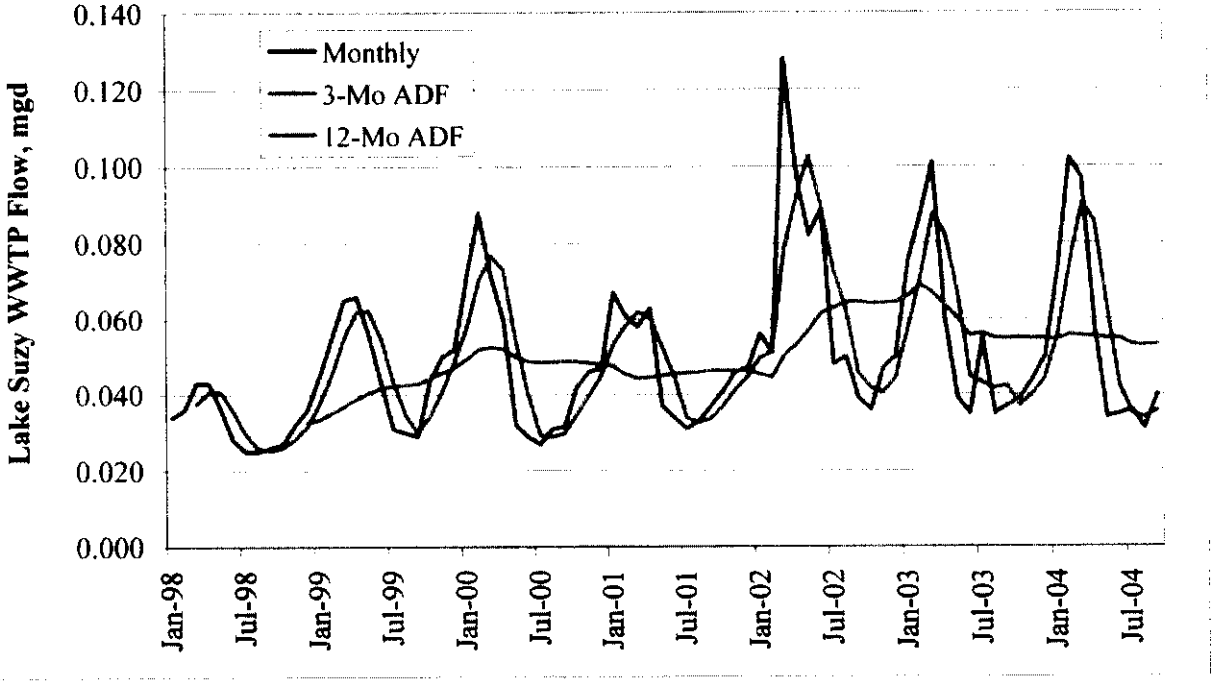


Figure 3: Summary of Seasonal Flows

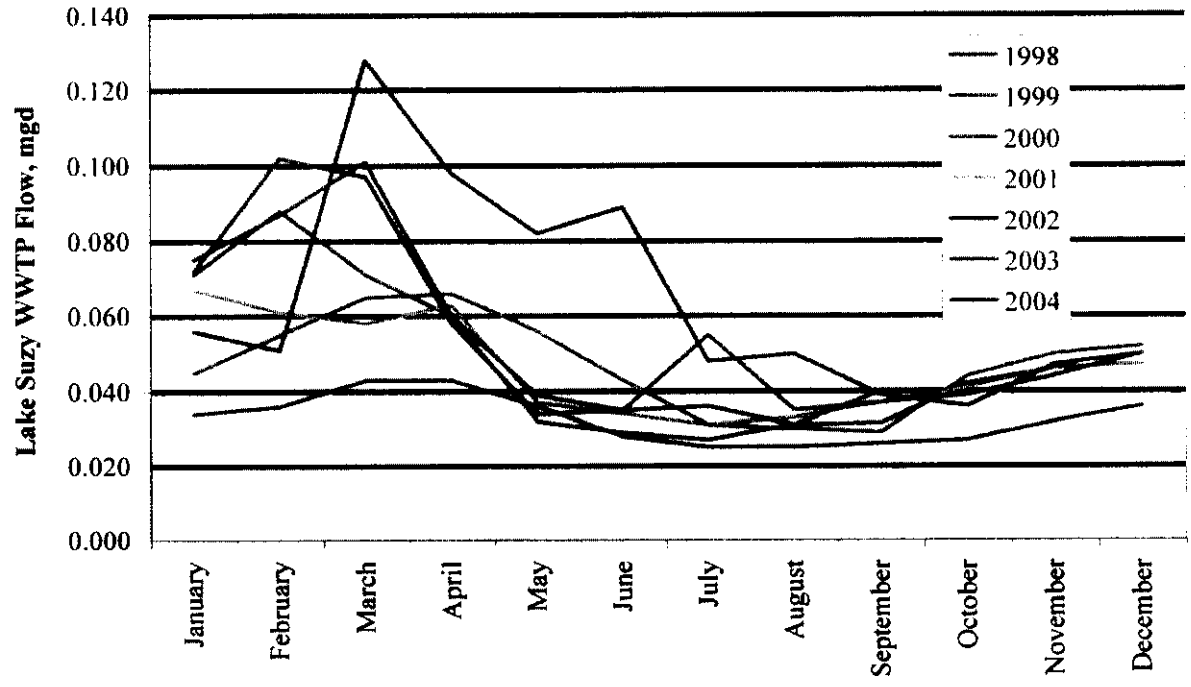
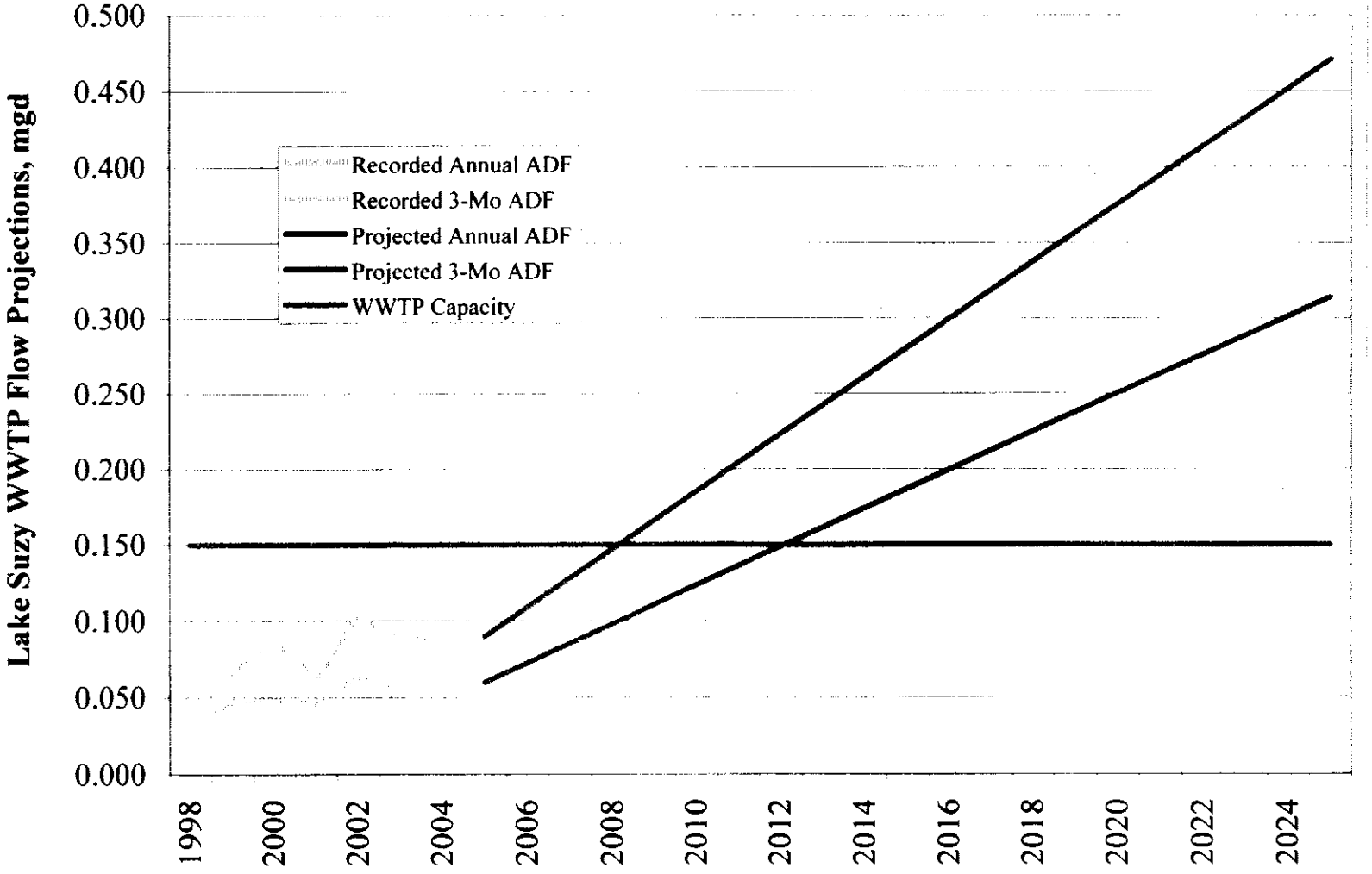


Figure 4: Flow Projections



LEISURE LAKES/COVERED BRIDGE WASTEWATER TREATMENT FACILITY

CAPACITY ANALYSIS REPORT UPDATE

PREPARED BY:

FLORIDA WATER SERVICES CORPORATION

ENVIRONMENTAL SERVICES DEPARTMENT
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

DECEMBER 2003

Florida Water SERVICES

CAPACITY ANALYSIS REPORT UPDATE
FOR
LEISURE LAKES/COVERED BRIDGE
WASTEWATER TREATMENT FACILITY

DOMESTIC WASTEWATER FACILITY PERMIT NO. FLA014388-001-DW3P
ISSUE DATE: MAY 7, 1999
EXPIRATION DATE: MAY 6, 2004

PREPARED BY:

FLORIDA WATER SERVICES CORPORATION
ENVIRONMENTAL SERVICES
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

DECEMBER 2003

CERTIFICATIONS

Permittee:

Craig J. Anderson
Vice President, Environmental Services
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4199

I certify that I have reviewed this report and am fully aware of and intend to comply with the recommendations and schedules included in this report.

1-7-04
Date

Craig J. Anderson

Engineer:

Sandra J. Joiner, P.E.
Senior Project Engineer
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4126

I certify that the information contained in this report is true and correct to the best of my knowledge, that the report was prepared in accordance with sound engineering principles, and that I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative.

1/7/04

Sandra J. Joiner, P.E.
Registered Engineer No. 45265
State of Florida

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APPENDICES

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(Continued)

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TABLES

CHAPTER 1 - INTRODUCTION

Florida Water Services Corporation (Florida Water) has owned and operated the Leisure Lakes/Covered Bridge Wastewater Treatment Facility (WWTF) since January 1989. This Capacity Analysis Report (CAR) is being submitted as an updated report pursuant to Rule 62-600.405, Florida Administrative Code (F.A.C.), for renewal of the facility's Domestic Wastewater Facility Permit. This permit, which was issued on May 7, 1999 and expires on May 6, 2004, authorizes the operation of the treatment plant. A copy of this permit is included in Appendix A. This CAR Update was prepared in accordance with the Florida Department of Environmental Protection (FDEP) publication entitled: "Guidelines for Preparation of Capacity Analysis Reports", dated July 1992, and covers the past five years from January 1998 to October 2003.

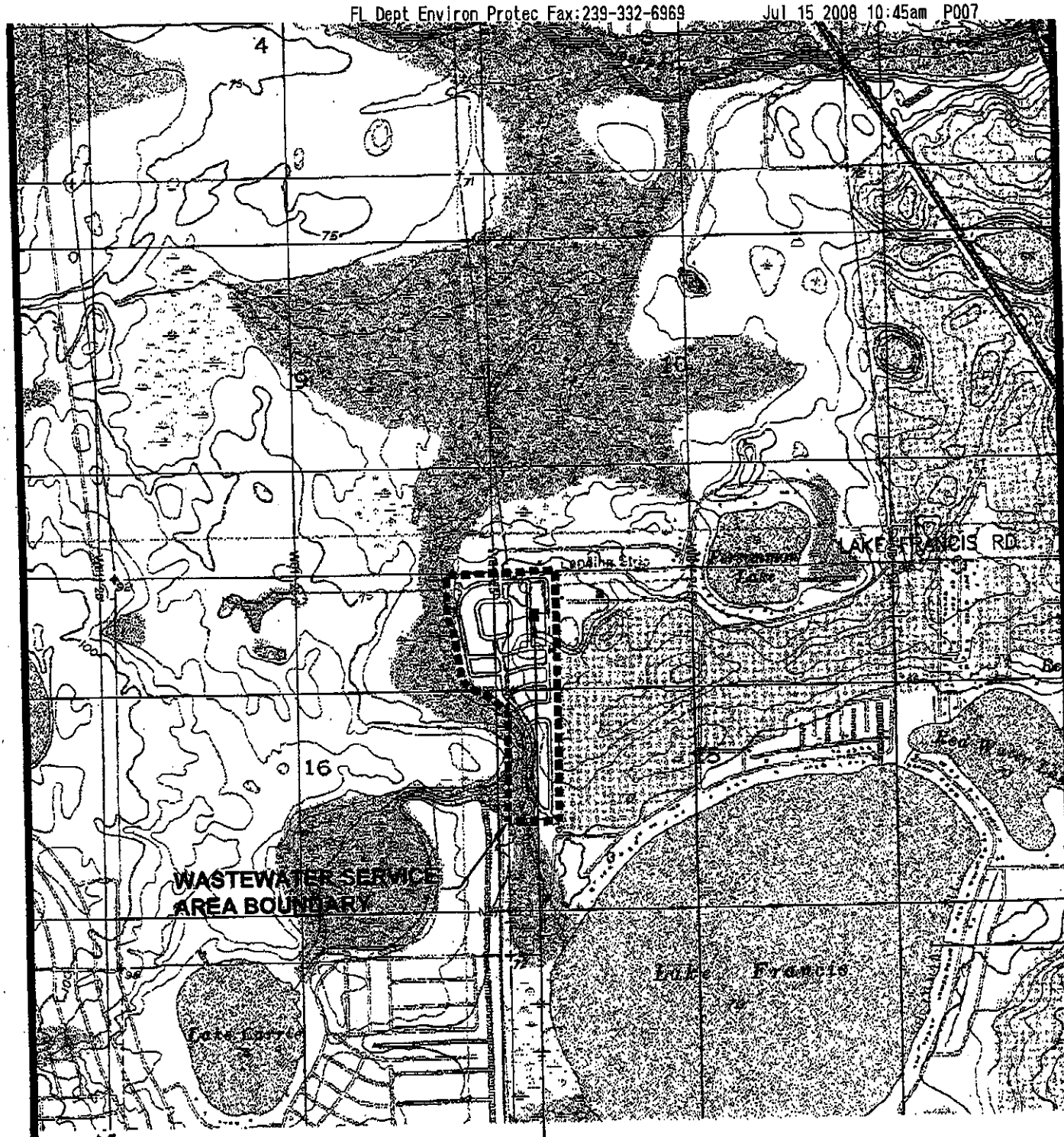
A. Service Area

The service area for the Leisure Lakes/Covered Bridge WWTF is located in Sections 9, 10, 15 and 16, Township 36 South, Range 29 East, in Highlands County, Florida, as shown on Figure I-1. The service area has not changed since the last renewal application was submitted and remains at approximately 83 acres in size. The service area is a seasonal retirement community consisting of 270 equivalent residential connections (ERCs) of which 266 ERCs are active. The service area will consist of 392 ERCs at buildout.

B. Treatment Process

The Leisure Lakes/Covered Bridge WWTF has a rated capacity of 0.050 mgd, on an annual average daily flow (AADF) basis, and is operated as an extended aeration facility. The treatment process for the plant includes aeration, clarification, disinfection, and sludge holding. The effluent is discharged to dual evaporation/percolation ponds located at the plant site. A process flow diagram for the plant and effluent disposal system is provided as Figure I-2. The sludge is lime stabilized by a contract hauler then transported to an approved land application site for disposal.

Influent flows are pumped to the treatment plant and discharged at Aeration Tank No. 1. The plant consists of ten aeration tanks, which are hydraulically connected in series. A diffused aeration system, consisting of one diffuser assembly in each aeration tank, is provided to maintain solids in suspension and acceptable dissolved oxygen levels. Following aeration, the MLSS is conveyed from Aeration Tank No. 10 to the clarifiers. There are two clarifiers, each of which is equipped with a stilling well to promote solids settleability and a skimmer with baffle to control the scum. Air-lifts are provided to return the settled sludge to Aeration Tank No. 1 and the scum to Aeration Tanks 9 and 10. During wasting, the settled sludge is air-lifted to the sludge holding tank for storage and the supernatant flows by gravity to Aeration Tank No. 5. The clarified effluent overflows the weirs into the effluent trough and then flows by gravity to the chlorine contact tank. Sodium hypochlorite solution is applied at the chlorine contact tank for disinfection. Effluent flows are measured by a flow meter prior to discharge to the on-site percolation ponds for disposal. The treatment plant and effluent disposal system are shown on Figures I-3 and I-4.



REFERENCE: UNITED STATES GEOLOGICAL SURVEY MAPS

LAKE JUNE IN WINTER
HIGHLANDS COUNTY, FLORIDA
ORIG DATE: 1972

SCALE 1"=2000'

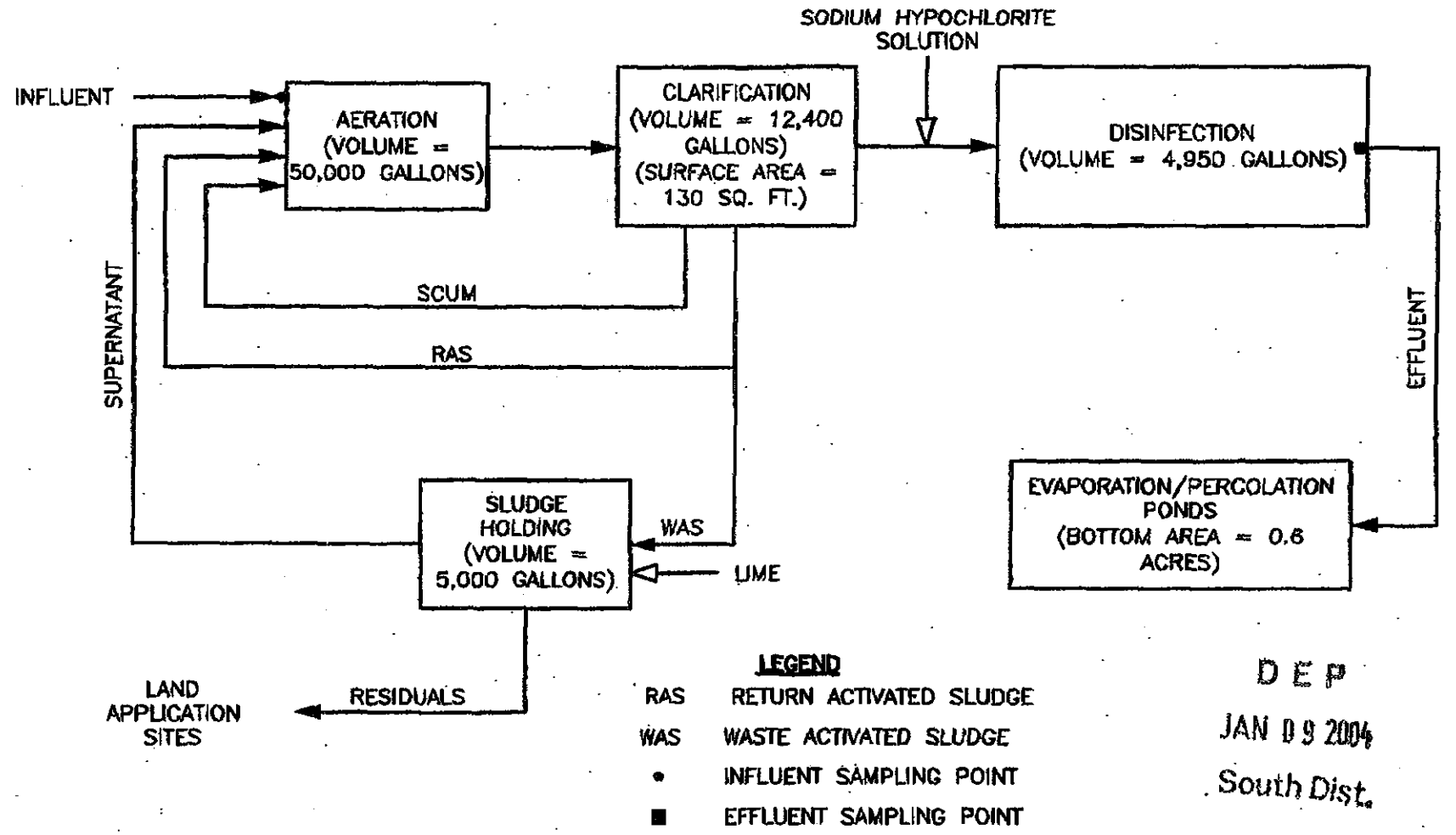
LEISURE LAKES/COVERED BRIDGE WASTEWATER TREATMENT FACILITY
SECTION 15, TWP. 36S, RNG. 29E
LATITUDE = N 27° 21' 10"
LONGITUDE = W 81° 25' 06"

DEP
JAN 09 2004
South Dist.

Florida Water SERVICES

LEISURE LAKES/COVERED BRIDGE WASTEWATER SERVICE AREA AND PLANT LOCATION

FIGURE I - 1



Florida Water Services

LEISURE LAKES/COVERED BRIDGE WASTEWATER TREATMENT FACILITY PROCESS FLOW DIAGRAM

FIGURE 1 - 2

CHAPTER 2 - EXISTING CONDITIONS

The existing conditions for the Leisure Lakes/Covered Bridge WWTF, including information on permitted capacity of the plant and effluent disposal system, along with updated flow, influent loading, and effluent quality data are presented in this chapter.

A. Permitted Capacity and Capacity Analysis

The Leisure Lakes/Covered Bridge WWTF was evaluated at the design flow of 0.050 mgd then compared to recommended design parameters from accepted resources. The results of the evaluation are presented in Table 2-1 and are based on the following operational and design parameters. The clarification and disinfection unit processes were evaluated at average daily flow and peak hourly flow since flow equalization facilities are not provided at this facility.

Parameter	Result	
Influent $CBOD_5$	238 mg/L	(average result from 11/02 to 10/03)
MLSS	2,800 mg/L	Assumption
MLVSS	2,240 mg/L	(MLSS x 0.8)
RAS:Q	1:1	(assumption)
Peaking Factor	2.5	(typical)

Based on the operating criteria presented in Table 2-1, the aeration, clarification, disinfection and effluent disposal unit processes will operate within the recommended ranges shown at the design flow of 0.050 mgd.

B. Monthly Average Daily Flows, Three Month Average Daily Flows, and Annual Average Daily Flows

Effluent flows are currently measured by a 90° V-notch weir primary device located at the discharge pipe in the chlorine contact tank. An EIT Recording Flow Meter is provided to record daily flows. The flow measuring equipment is calibrated on an annual basis and was last calibrated on November 3, 2003 by BOK NYU, Inc. A copy of the current flow meter calibration report is included as Appendix B.

Plant flows for the past 11 years from January 1993 to October 2003 are presented in Table 2-2 and shown graphically on Figure 2-1. As indicated in this figure, twelve month average daily flows tended to be fairly consistent from mid-year 1996 to mid-year 2001 then slightly increase thereafter. Prior to mid-year 1995, plant flows were calculated from elapsed time meter readings on influent pumps and pumping rates and tended to vary. Flows are expected to increase until the service area reaches buildout.

Table 2-1
Leisure Lakes/Covered Bridge WWTF
Unit Process Capacity Analysis Summary

Unit Process	Capacity	Unit Process Operating Criteria @ Permitted Capacity 0.0500 mgd, AADF	Recommended Design Parameters Extended Aeration
Aeration	50,000 gallons		
F/M		0.11 lb. $CBOD_5$/d/lb. MLVSS	0.05 - 0.15 lb. $CBOD_5$/d/lb. MLVSS
Volumetric Loading		14.9 lbs. $CBOD_5$/d/1000 cu. ft.	10-25 lbs. $CBOD_5$/d/1000 cu. ft.
Detention Time		24 hours	18-36 hours
Clarification	12,400 gallons		
Surface Loading Rate *(total surface area =130 sq. ft.)*		385 gpd/sq. ft. @ ADF 962 gpd/sq. ft. @ peak hour	<1,000 gpd/sq. ft. @ peak hour
Weir Loading Rate *(2 weirs @ 6.5 feet each)*		3,846 gpd/ft. @ ADF 9,615 gpd/ ft. @ peak hour	<20,000 gpd/ft. @ peak hour
Solids Loading Rate		18.0 lbs./d/sq. ft. @ ADF 31.4 lbs./d/sq. ft. @ peak hour	<35 lbs/d/sq.ft. @ peak hour
Disinfection	4,950 gallons		
Chlorine Contact Time		143 minutes @ ADF 57 minutes @ peak	>15 minutes @ peak hour
Sludge Holding	5,000 gallons	Lime stabilization process is utilized to meet pathogen reduction and vector attraction requirements for Class B sludge. Lime is added by Pugh Utilities Service in accordance with their procedures for on-site stabilization.	

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Table 2-1
Leisure Lakes/Covered Bridge WWTF
Unit Process Capacity Analysis Summary
(Continued)

Unit Process	Capacity	Unit Process Operating Criteria @ Permitted Capacity 0.0500 mgd, AADF	Recommended Design Parameters Extended Aeration
Effluent Disposal Evaporation/ Percolation Ponds Hydraulic Loading Rate	0.6 acres	1.9 gpd/sq. ft.	≤1.9 gpd/sq. ft.

Recommended design parameters listed above are from the following sources:
1. Recommended Standards for Wastewater Facilities, 1997 Edition
2. Chapters 62-600 and 62-610, F.A.C.
3. Operation of Municipal Wastewater Treatment Plants – WEF Manual of Practice No. 11

Notes:
The capacities indicated above, with the exception of the percolation ponds, were obtained from FDEP permit records and drawings prepared by C.A. Peterson, Inc. Professional Engineering Consultants. The capacity of the percolations ponds was based on field measurements by Florida Water.

C. Seasonal Variations in Flow

The maximum three-month average daily flow (M3MADF), the maximum twelve-month average daily flow (M12MADF) and the M3MADF/AADF factor for each year are presented in Table 2-2. The M3MADF/AADF factors ranged from a low of 1.08 to a high of 1.71 during this time frame and indicate that plant flows were seasonal. The average M3MADF/AADF factor for the past five years (1998-2003) was 1.2. As indicated in Figure 2-1, plant flows tended to peak during the months of February through April and again during the months of July through September each year. The M3MADF and the M12MADF since January 1998 are 0.0270 mgd and 0.0238 mgd, respectively, as indicated in Table 2-2.

D. Updated Influent Loadings and Effluent Quality

Influent (Inf) parameters $CBOD_5$ and TSS along with effluent (Eff) parameters $CBOD_5$, TSS, chlorine residual, pH, fecal coliform, and nitrate are monitored in accordance with permit conditions. Updated results for these parameters from January 1998 through October 2003 were obtained from the DMRs and are presented in Table 2-3. Results for influent $CBOD_5$ and TSS for the current 12 months of November 2002 through October 2003 averaged 238 mg/L and 446 mg/L, respectively and tended to be in the range for a medium to strong strength domestic wastewater. Results for all effluent parameters monitored during the past 12 months were within acceptable limits as well.

Table 2-2
Leisure Lakes/Covered Bridge WWTF Flows (January 1993 – October 2003)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-93	0.025	--	--
Feb-93	0.025	--	--
Mar-93	0.028		--
Apr-93	0.023	0.025	--
May-93	0.015	0.022	--
Jun-93	0.012	0.017	--
Jul-93	0.012	0.013	--
Aug-93	0.013	0.013	--
Sep-93	0.014	0.013	--
Oct-93	0.011	0.013	--
Nov-93	0.012	0.012	--
Dec-93	0.015	0.013	
M3MADF/AADF Factor for 1993 = 1.50			
Jan-94	0.017	0.015	0.016
Feb-94	0.017	0.016	0.016
Mar-94	0.018		0.015
Apr-94	0.015	0.017	0.014
May-94	0.008	0.014	0.014
Jun-94	0.006	0.010	0.013
Jul-94	0.006	0.007	0.013
Aug-94	0.007	0.006	0.012
Sep-94	0.007	0.007	0.012
Oct-94	0.006	0.007	0.011
Nov-94	0.006	0.006	0.011
Dec-94	0.009	0.007	
M3MADF/AADF Factor for 1994 = 1.71			
Jan-95	0.012	0.009	0.010
Feb-95	0.011	0.010	0.009
Mar-95	0.012	0.012	0.009
Apr-95	0.010	0.011	0.008
May-95	0.008	0.010	0.008
Jun-95	0.014	0.011	0.009
Jul-95	0.015	0.013	0.010
Aug-95	0.021	0.017	0.011
Sep-95	0.016	0.017	0.012
Oct-95	0.024		0.013
Nov-95	0.018	0.020	0.014
Dec-95	0.018	0.020	
M3MADF/AADF Factor for 1995 = 1.37			

Table 2-2
Leisure Lakes/Covered Bridge WWTF Flows (January 1993 – October 2003) (Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-96	0.021	0.019	0.016
Feb-96	0.024	0.021	0.017
Mar-96	0.022	[illegible]	0.018
Apr-96	0.019	0.022	0.018
May-96	0.014	0.019	0.019
Jun-96	0.014	0.016	0.019
Jul-96	0.016	0.015	0.019
Aug-96	0.013	0.014	0.018
Sep-96	0.013	0.014	0.018
Oct-96	0.015	0.013	0.017
Nov-96	0.017	0.015	0.017
Dec-96	0.017	0.016	[illegible]
M3MADF/AADF Factor for 1996 = 1.30			
Jan-97	0.020	0.018	0.017
Feb-97	0.024	0.020	0.017
Mar-97	0.023	[illegible]	0.017
Apr-97	0.018	0.022	0.017
May-97	0.014	0.018	0.017
Jun-97	0.013	0.015	0.017
Jul-97	0.013	0.013	0.017
Aug-97	0.013	0.013	0.017
Sep-97	0.013	0.013	0.017
Oct-97	0.013	0.013	0.016
Nov-97	0.017	0.014	0.016
Dec-97	0.018	0.016	[illegible]
M3MADF/AADF Factor for 1997 = 1.35			
Jan-98	0.020	0.018	0.017
Feb-98	0.032	0.023	0.017
Mar-98	0.026	0.026	0.017
Apr-98	0.023	[illegible]	0.018
May-98	0.018	0.022	0.018
Jun-98	0.015	0.019	0.018
Jul-98	0.020	0.018	0.019
Aug-98	0.019	0.018	0.019
Sep-98	0.019	0.019	0.020
Oct-98	0.015	0.017	0.020
Nov-98	0.018	0.017	0.020
Dec-98	0.016	0.016	[illegible]
M3MADF/AADF Factor for 1998 = 1.34			

Table 2-2
Leisure Lakes/Covered Bridge WWTF Flows (January 1993 – October 2003) (Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-99	0.019	0.018	0.020
Feb-99	0.020	0.018	0.019
Mar-99	0.020	[illegible]	0.018
Apr-99	0.018	0.019	0.018
May-99	0.013	0.017	0.018
Jun-99	0.014	0.015	0.018
Jul-99	0.014	0.013	0.017
Aug-99	0.013	0.014	0.017
Sep-99	0.016	0.014	0.016
Oct-99	0.018	0.016	0.017
Nov-99	0.019	0.018	0.017
Dec-99	0.018	0.018	[illegible]
M3MADF/AADF Factor for 1999 = 1.18			
Jan-00	0.019	0.019	0.017
Feb-00	0.020	0.019	0.017
Mar-00	0.020	[illegible]	0.017
Apr-00	0.018	0.019	0.017
May-00	0.014	0.017	0.017
Jun-00	0.012	0.015	0.017
Jul-00	0.014	0.013	0.017
Aug-00	0.020	0.015	0.017
Sep-00	0.016	0.017	0.017
Oct-00	0.013	0.016	0.017
Nov-00	0.017	0.015	0.017
Dec-00	0.017	0.016	[illegible]
M3MADF/AADF Factor for 2000 = 1.19			
Jan-01	0.020	0.018	0.017
Feb-01	0.021	0.019	0.017
Mar-01	0.026	0.022	0.017
Apr-01	0.021	[illegible]	0.018
May-01	0.013	0.020	0.017
Jun-01	0.013	0.015	0.017
Jul-01	0.014	0.013	0.018
Aug-01	0.014	0.014	0.017
Sep-01	0.030	0.019	0.018
Oct-01	0.017	0.020	0.019
Nov-01	0.019	0.022	0.019
Dec-01	0.019	0.018	[illegible]
M3MADF/AADF Factor for 2001 = 1.20			

Table 2-2
Leisure Lakes/Covered Bridge WWTF Flows (January 1993 – October 2003) (Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-02	0.021	0.020	0.019
Feb-02	0.023	0.021	0.019
Mar-02	0.023	0.0225	0.019
Apr-02	0.020	0.022	0.019
May-02	0.015	0.019	0.019
Jun-02	0.020	0.018	0.020
Jul-02	0.024	0.020	0.020
Aug-02	0.021	0.022	0.021
Sep-02	0.024	[redacted]	0.020
Oct-02	0.017	0.020	0.020
Nov-02	0.021	0.020	0.021
Dec-02	0.025	0.021	[redacted]
M3MADF/AADF Factor for 2002 = 1.08			
Jan-03	0.024	0.023	0.021
Feb-03	0.024	0.024	0.021
Mar-03	0.026	0.024	0.022
Apr-03	0.022	0.024	0.022
May-03	0.025	0.024	0.023
Jun-03	0.029	0.025	0.023
Jul-03	0.025	0.026	0.023
Aug-03	0.026	[redacted]	[redacted]
Sep-03	0.018	0.023	0.023
Oct-03	0.018	0.021	0.023

[redacted] *Denotes M3MADF and AADF for each year.*
* *Denotes M3MADF and M12MADF since January 1998.*

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Figure 2-1
Leisure Lakes/Covered Bridge WWTF Flows

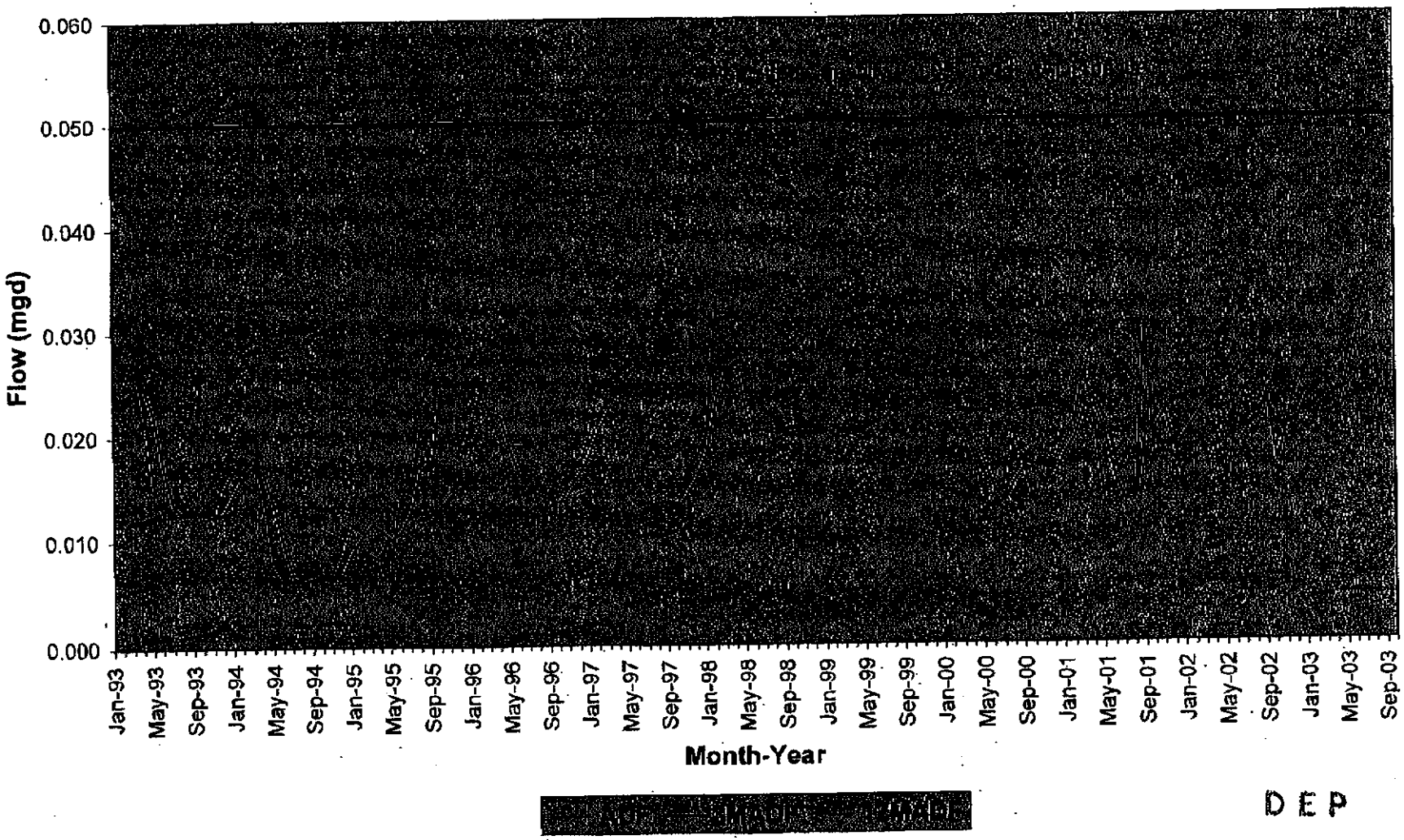

Table 2-3
Leisure Lakes/Covered Bridge WWTF
Influent Loadings and Effluent Quality (January 1998 – October 2003)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
Jan-98	305.00	2.00	99.34	178.00	1.60	99.10	0.90	7.40	7.60	<1	
Feb-98	338.00	9.80	97.10	296.00	5.60	98.11	0.70	7.40	7.80	<1	
Mar-98	196.00	14.00	92.86	150.00	27.00	82.00	0.60	7.40	7.80	<1	
Apr-98	205.00	8.00	96.10	286.00	2.50	99.13	0.70	7.40	7.60	<1	
May-98	108.00	2.00	98.15	138.00	2.80	97.97	0.60	7.40	7.50	<1	
Jun-98	35.00	2.20	93.71	52.00	1.40	97.31	0.70	7.40	7.60	<1	
Jul-98	209.00	7.30	96.51	135.00	31.00	77.04	0.70	7.40	7.60	<1	
Aug-98	10.00	9.60	4.00	242.00	22.50	90.70	0.60	7.40	7.60	1	
Sep-98	28.00	2.00	92.86	47.00	1.00	97.87	0.80	7.40	7.60	<1	
Oct-98	100.00	2.00	98.00	85.00	1.20	98.59	0.90	7.40	7.60	<1	
Nov-98	70.00	2.00	97.14	54.00	1.60	97.04	0.90	7.30	7.60	<1	1.07
Dec-98	48.00	3.90	91.88	40.00	1.80	95.50	0.70	7.40	7.60	<1	
Jan-99	240.00	2.20	99.08	136.00	1.00	99.26	0.70	7.30	7.50	<1	
Feb-99	340.00	2.00	99.41	565.00	1.00	99.82	0.70	7.40	7.60	<1	
Mar-99	260.00	2.00	99.23	180.00	1.00	99.44	0.50	7.40	7.50	<1	
Apr-99	133.00	6.90	94.81	79.00	1.00	98.73	0.60	7.40	7.50	<1	
May-99	100.00	2.00	98.00	102.00	1.00	99.02	0.80	7.30	7.50	<1	
Jun-99	200.00	2.50	98.75	200.00	1.00	99.50	0.80	7.30	7.60	<1	1.35
Jul-99	84.00	2.00	97.62	55.00	1.00	98.18	0.80	7.30	7.40	<1	0.77
Aug-99	96.00	2.00	97.92	72.00	1.00	98.61	0.80	7.40	7.60	1	0.84
Sep-99	31.00	2.00	93.55	72.00	2.00	97.22	0.90	7.40	7.60	3	0.39
Oct-99	28.00	2.00	92.86	39.00	1.20	96.92	1.00	7.30	7.50	<1	0.46
Nov-99	37.00	2.00	94.59	726.00	1.40	99.81	0.90	7.40	7.50	<1	0.04
Dec-99	65.00	3.00	95.38	1,384.00	2.20	99.84	1.20	7.40	7.50	<1	3.10
Jan-00	365.00	2.00	99.45	155.00	1.00	99.35	0.90	7.30	7.50	1	(a)
Feb-00	465.00	2.00	99.57	162.00	4.80	97.04	1.00	7.40	7.50	<1	0.43

Table 2-3
Leisure Lakes/Covered Bridge WWTF
Influent Loadings and Effluent Quality (January 1998 – October 2003)
(Continued)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
Mar-00	298.00	2.00	99.33	312.00	1.20	99.62	0.90	7.40	7.50	<1	1.60
Apr-00	70.00	2.00	97.14	224.00	1.00	99.55	0.90	7.40	7.50	30	0.25
May-00	128.00	2.00	98.44	132.00	1.00	99.24	1.00	7.30	7.60	<1	0.13
Jun-00	92.00	2.00	97.83	78.00	2.20	97.18	0.90	7.40	7.70	<1	0.05
Jul-00	92.00	4.20	95.43	142.00	2.40	98.31	1.00	7.40	7.60	<1	0.11
Aug-00	86.00	6.90	91.98	114.00	3.20	97.19	0.90	7.40	7.60	<1	0.02
Sep-00	109.00	2.00	98.17	106.00	1.40	98.68	1.30	7.40	7.50	<1	0.07
Oct-00	100.00	3.50	96.50	168.00	1.00	99.40	1.00	7.40	7.50	<1	1.39
Nov-00	130.00	2.00	98.46	178.00	1.00	99.44	0.80	7.40	7.50	<1	0.02
Dec-00	175.00	2.00	98.86	722.00	1.00	99.86	0.80	7.40	7.50	<1	0.02
Jan-01	369.00	4.10	98.89	332.00	3.00	99.10	0.90	7.40	7.50	1	0.05
Feb-01	415.00	2.20	99.47	432.00	1.60	99.63	0.90	7.40	7.80	<1	0.02
Mar-01	352.00	2.00	99.43	616.00	1.40	99.77	0.80	7.40	7.50	<1	0.02
Apr-01	139.00	2.00	98.56	174.00	22.00	87.36	0.90	7.50	7.70	<1	0.07
May-01	171.00	2.00	98.83	426.00	2.00	99.53	1.00	7.40	7.60	<1	19.70
Jun-01	122.00	2.04	98.33	194.00	1.00	99.48	0.80	7.40	7.60	<1	11.40
Jul-01	122.00	2.00	98.36	370.00	1.00	99.73	1.00	7.50	7.60	<1	2.30
Aug-01	139.00	13.00	90.65	988.00	5.80	99.41	0.80	7.50	7.70	<1	0.09
Sep-01	26.00	2.00	92.31	200.00	1.00	99.50	0.80	7.40	7.60	<1	2.88
Oct-01	22.00	2.00	90.91	37.00	1.00	97.30	0.90	7.50	7.60	<1	1.22
Nov-01	248.00	2.00	99.19	330.00	1.00	99.70	1.00	7.40	7.60	<1	0.07
Dec-01	184.00	2.80	98.48	314.00	2.40	99.24	1.00	7.50	7.60	<1	0.03
Jan-02	280.00	2.00	99.29	360.00	7.20	98.00	1.00	7.50	7.70	<1	0.80
Feb-02	346.00	2.60	99.25	1,570.00	4.20	99.73	1.00	7.40	7.70	3	0.02
Mar-02	580.00	3.70	99.36	712.00	8.00	98.88	0.60	7.40	7.70	<1	0.17
Apr-02	140.00	2.00	98.57	242.00	2.40	99.01	1.00	7.40	7.60	<1	0.02

FLORIDA PROPERTY SEARCH, INC

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Coral Springs , Fl 33067
Phone (954) 969-1040
Broward Fax (954) 969-9112 Toll Free Fax (800)811-9144

Tuesday, July 15, 2008

AQUA SOURCE UTILITIES
BILLING DEPARTMENT

BUS: (877) 987-2782
FAX: (352) 787-6333

Please advise us of any unpaid utility balances due your office for the property listed below. Please provide the account number, utility balance, date of last meter read / close date and security deposit on hand. This information is required for title transfer purpose.

PLEASE FAX BACK TO (800) 811-9144

Our File Number:	LESSERFIN/SORBELLO-RMBR
Tax Folio Number:	0009-07-0029
Owner's Name(s):	SORBELLO, SAMUEL F & ROSE (PRIOR: MOTT, ROSAMOND C & HENRY W)
operty Address:	600 WEDGE LN
Legal Description:	LOT 1 BLK D COUNTRY CLUB SHORES UNIT 5 SEC 2
Closing Date:	07/22/2008

Your Response : Account Number # _____

Account Balance $ _____

Date of Last Meter Read _____

Deposit amount on hand $ _____

Services Provided *(Please Circle)* Water Sewer Garbage

Thank you for your prompt response.

Very truly yours,

Monteal Reynolds
Examiner

Table 2-3
Leisure Lakes/Covered Bridge WWTF
Influent Loadings and Effluent Quality (January 1998 – October 2003)
(Continued)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
May-02	130.00	4.20	96.77	258.00	3.20	98.76	1.00	7.50	7.60	<1	2.40
Jun-02	112.00	2.00	98.21	124.00	2.40	98.06	0.90	6.90	7.60	<1	1.75
Jul-02	23.00	2.80	87.83	47.00	1.20	97.45	0.90	7.50	7.60	<1	6.18
Aug-02	33.00	2.00	93.94	54.00	1.00	98.15	0.90	7.05	7.60	<1	7.18
Sep-02	29.00	2.10	92.76	43.00	1.00	97.67	1.00	7.50	7.60	<1	5.59
Oct-02	151.00	2.00	98.68	94.00	1.00	98.94	1.00	7.50	7.60	<1	7.50
Nov-02	206.00	2.00	99.03	360.00	1.00	99.72	0.90	7.50	7.60	<1	1.75
Dec-02	442.00	2.00	99.55	1,150.00	1.00	99.91	1.00	7.50	7.60	<1	0.05
Jan-03	291.00	4.00	98.63	531.00	4.60	99.13	1.00	7.50	7.60	<1	0.08
Feb-03	440.00	2.90	99.34	491.00	11.00	97.76	1.00	7.50	7.60	<1	0.39
Mar-03	395.00	2.00	99.49	292.00	4.60	98.42	0.90	7.50	7.60	<1	3.39
Apr-03	165.00	2.00	98.79	197.00	3.00	98.48	1.00	7.50	7.60	1	1.04
May-03	238.00	2.00	99.16	676.00	1.20	99.82	0.80	7.50	7.60	<1	0.08
Jun-03	242.00	2.30	99.05	504.00	11.00	97.82	1.00	7.50	7.60	<1	0.26
Jul-03	84.00	2.00	97.62	755.00	1.00	99.87	0.50	7.50	7.60	<1	0.63
Aug-03	76.00	2.00	97.37	86.00	1.00	98.84	1.00	7.50	7.60	<1	0.76
Sep-03	202.00	2.40	98.81	204.00	2.40	98.82	1.00	7.50	7.60	<1	0.36
Oct-03	78.00	2.00	97.37	110.00	1.20	98.91	0.80	7.50	7.60	<1	0.10

(a) Data not available

Notes:

1. A grab sample is collected each month at the V-notch weir in the chlorine contact tank to monitor effluent parameters $CBOD_5$, TSS, fecal coliform and nitrate. Daily grab samples are collected (5 days/week) for chlorine residual and pH.
2. A grab sample is collected at the discharge from the influent force main to monitor influent parameters $CBOD_5$ and TSS.
3. Nitrate was reported on an annual basis prior to the issuance of the permit in May 1999 and monthly thereafter.

CHAPTER 3 - FUTURE CONDITIONS

Population and flow projections for the Leisure Lakes/Covered Bridge wastewater service area are presented in this chapter.

A. Population Projections

As of August 2003, the service area for the Florida Water's Leisure Lakes/Covered Bridge WWTF consisted of 270 total ERCs of which 266 ERCs were active. The corresponding population served by the plant is approximately 612 people, which is based on 2.30 people per household or ERC for Highlands County, in accordance with the Florida Population Studies by the Bureau of Economic and Business Research, dated June 2001. Buildout of the service area is estimated at 392 ERCs, which equates to approximately 902 people. Population projections for the next 10 years are presented in Table 3-1 and are based on a growth rate of 7 ERCs per year.

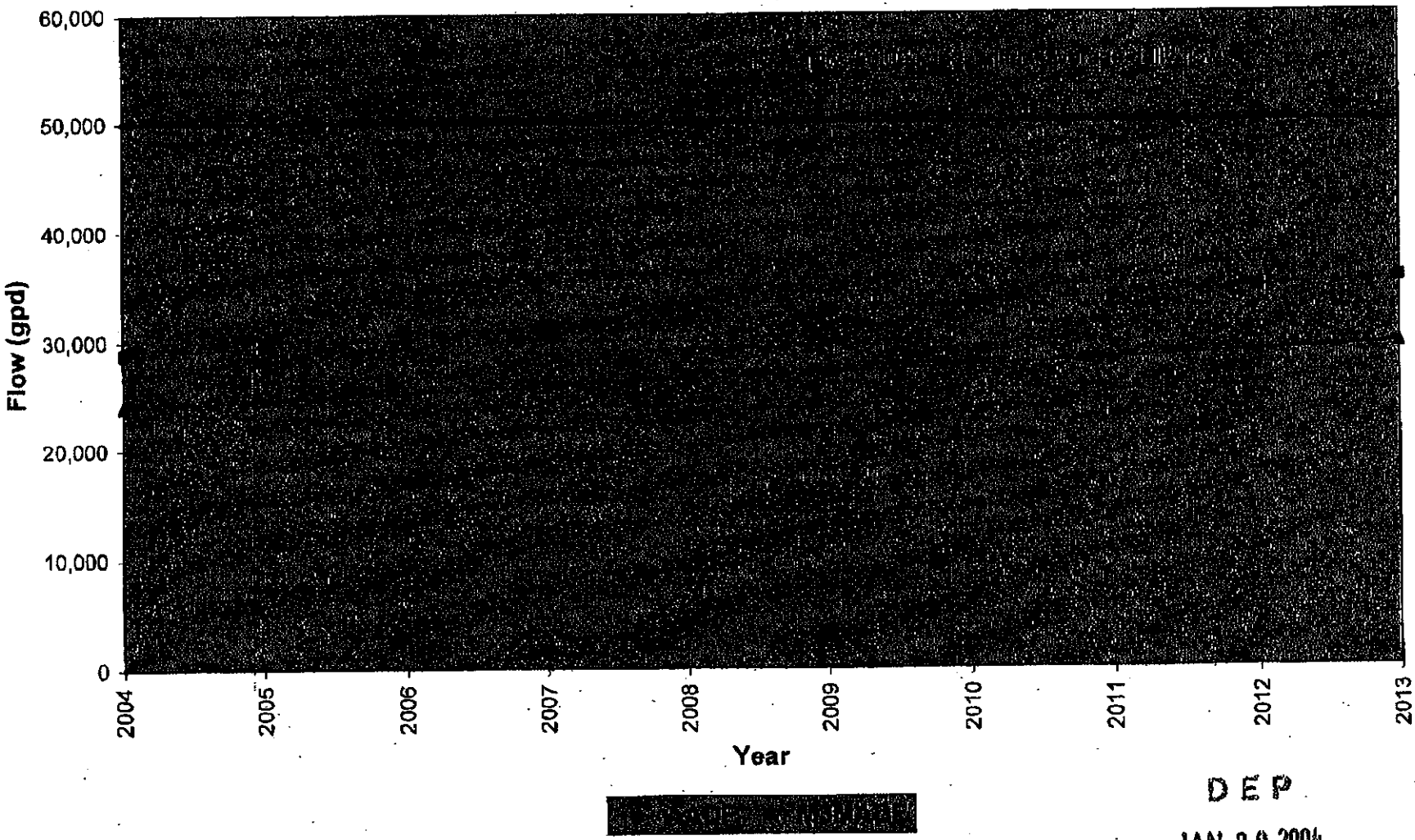
B. Flow Projections

Flow projections for the Leisure Lakes/Covered Bridge service area for the next 10 years (2004 through 2013) are presented in Table 3-1 and shown graphically on Figure 3-1. A growth rate of 7 ERCs per year and a wastewater flow rate of 88 gpd/ERC were used to project average daily flows. These rates are based on historical growth trends and flow records for the service area. Future M3MADF flows were calculated by applying a M3MADF/AADF factor of 1.2, which is also based on the historical flow data. As indicated in Table 3-1, the projected AADF and M3MADF for the year 2008 (next five years) are 26,488 gpd and 31,786 gpd, respectively, and are well below the permitted capacity of 0.050 mgd for the plant. The plant is expected to have sufficient capacity at buildout of the existing service area.

TABLE 3-1
Leisure Lakes/Covered Bridge Wastewater Service Area
Projected Active ERCs, Population and Wastewater Flows (Years 2004-2013)

Year	Projected Average Active ERCs	Population	Projected AADF (gpd)	Projected M3MADF (gpd)
2004	273	628	24,024	28,829
2005	280	644	24,640	29,568
2006	287	660	25,256	30,307
2007	294	676	25,872	31,046
2008	301	692	26,488	31,786
2009	308	708	27,104	32,525
2010	315	725	27,720	33,264
2011	322	741	28,336	34,003
2012	329	757	28,952	34,742
2013	336	773	29,568	35,482

Figure 3-1
Leisure Lakes/Covered Bridge Wastewater Flow Projections



CHAPTER 4 - SUMMARY AND CONCLUSIONS

The time required for the M3MADF to reach the permitted capacity of the plant and the recommendations for the expansion of the plant are presented in this chapter.

A. Time Required for the M3MADF to Reach the Permitted Capacity

The M3MADF is not projected to reach the permitted capacity of the plant during the next ten years, as indicated in Table 3-1.

B. Recommendations for Expansion

The M3MADF and AADF are not projected to reach the capacity of the plant during the next 10 years or at buildout, as indicated in Chapter 3. A plant expansion is therefore not proposed as part of this renewal application.

MORNINGVIEW WASTEWATER TREATMENT FACILITY

CAPACITY ANALYSIS REPORT UPDATE

PREPARED BY:
Aqua Services, Inc.
762 West Lancaster Avenue
Bryn Mawr, PA 19010

PREPARED FOR:

AQUA Utilities Florida

P.O. Box 490310
Leesburg, FL 34749

MARCH, 2006

** Aqua Services, Inc. and Aqua Utilities Florida, Inc. are wholly owned subsidiaries of Aqua America, Inc.*

Morningview WWTF

Lake County

Capacity Analysis Report Update

Facility ID No. FLA010610

FDEP Permit No. FLA 010610
Issued September 29, 2001
Expires: September 27, 2006

Prepared By:
Aqua Services, Inc.
762 West Lancaster Avenue
Bryn Mawr, PA 19010

Prepared For:

Aqua Utilities Florida, Inc.*
P.O. Box 490310
Leesburg, FL 34749

Field Evaluation Date: March 1, 2006

* *Aqua Services, Inc. and Aqua Utilities Florida, Inc. are wholly owned subsidiaries of Aqua America, Inc.*

CERTIFICATIONS – Capacity Analysis Report

PERMITTEE:
Aqua Utilities Florida, Inc.*

RESPOSIBLE AUTHORITY:
Mr. John M. Lihvarcik
President
Aqua Utilities Florida, Inc.*
P.O. Box 490310
Leesburg, FL 34749

Facility Name: Morningview Wastewater Treatment Facility
Contact Person: John M. Lihvarcik
Phone Number: (352) 787-0980

Statement By Permittee Regarding Awareness of the Information in this Report:

The above named Permittee is fully aware of the information contained in this report and intends to fully comply with the recommendations and schedules contained within this report.

John M. Lihvarcik, President — Date: 3-23-06

Statement By Permittee Regarding Collection System:

The collection system serving the treatment plant described in this report receives only domestic wastewater.

John M. Lihvarcik, President — Date: 3-23-06

Statement By Permittee Regarding Collection System:

There are no plans at this time to expand the service territory.

John M. Lihvarcik, President — Date: 3-26-06

Professional Engineer Preparing this Report:

Name: Mark J. Bubel, Sr., P.E.
Firm Name: Aqua Services, Inc.
Address: 762 West Lancaster Avenue
Bryn Mawr, PA 19010-3489

* *Aqua Services, Inc. and Aqua Utilities Florida, Inc. are wholly owned subsidiaries of Aqua America, Inc.*

Statement By Professional Engineer:

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles and I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative.

Mark John Bubel, Sr., P.E.
Registered Professional Engineer No. 56239
State of Florida 3-21-06
#56239

3-21-06
Date

TABLE OF CONTENTS

CHAPTER 1.0 INTRODUCTION

The Morningview Wastewater Treatment Plant is owned and operated by Aqua Utilities Florida, Inc. The treatment facility serves the Morningview Community in Lake County. The treatment facility has a permitted capacity of 0.020 mgd, annual average daily flow (AADF). Effluent disposal consists of a percolation pond with a permitted capacity of 0.020 mgd AADF.

The current operating permit (FLA010610) is due for renewal. This report is an update to the initial capacity analysis report prepared by Florida Water Services (FWS), formerly Southern States Utilities, Inc, in April 1996 and a subsequent update by FWS in March 2001. The March 2001 Update was prepared by or under the responsible charge of Christine Marie Russell, P.E., Registered Engineer No. 42058. Aqua Utilities Florida, Inc. acquired the treatment facility from FWS in July 2004. The report is prepared in accordance with the requirements contained in Rule Chapter 62-600.405, F.A.C. and in general accordance with the *Guidelines for Preparation of Capacity Analysis Reports*, Florida Department of Environmental Regulation, July 1992, hereinafter referred to as the "Guidelines".

1.1 Service Area

The service area for the Morningview WWTF is located in northwestern Lake County in Section 2, Township 20 South, Range 24 East. The service area includes approximately 26 acres and is comprised of upscale, single-family homes. Currently there are 39 active connections. Buildout is estimated at 42 connections. A map of the current service area is provided as **Figure 1-1**.

1.2 Wastewater Treatment Process

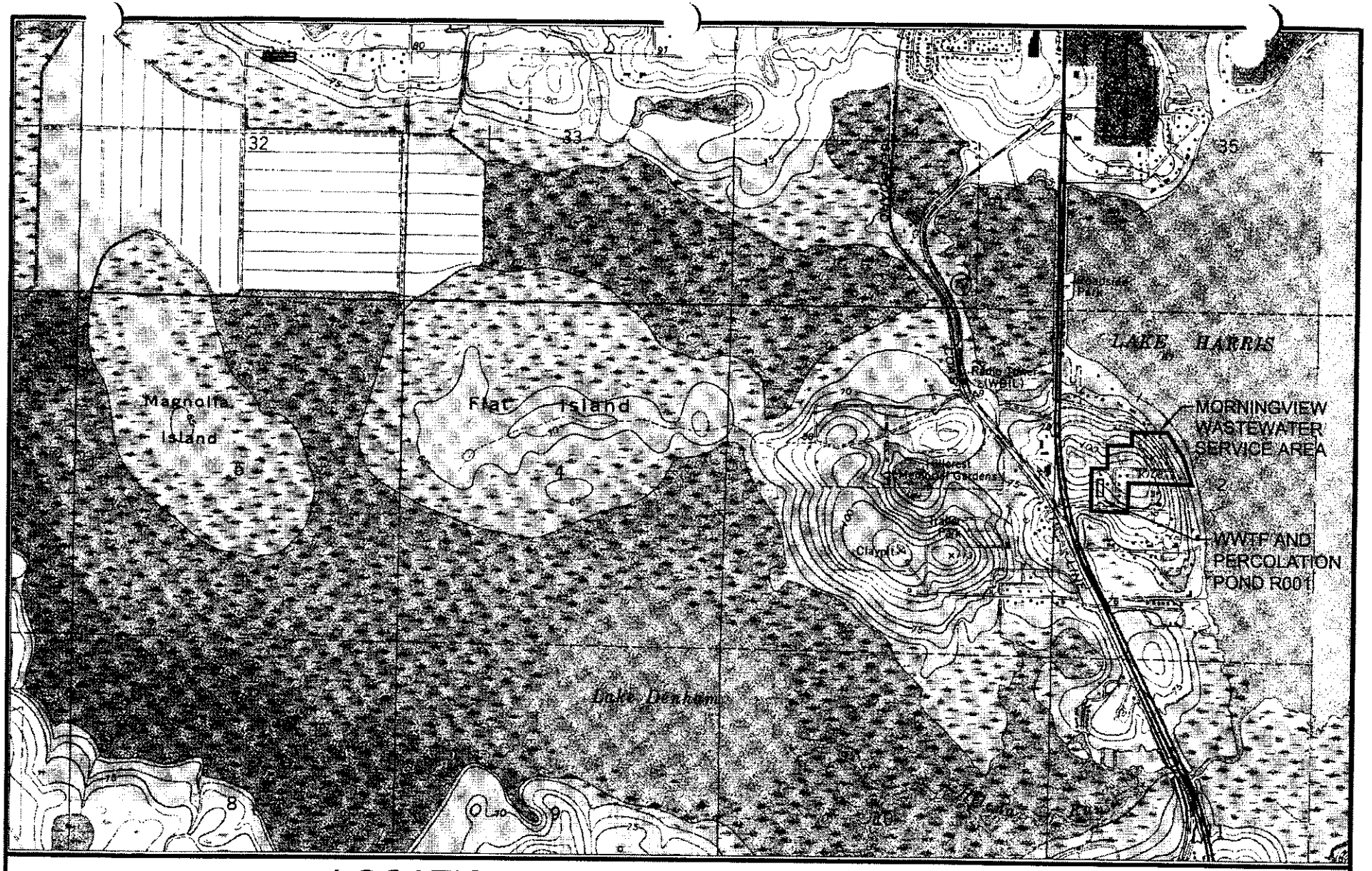
The package treatment plant consists of an extended aeration activated sludge treatment process. Raw wastewater is pumped from the Lift Station No. 1 located at the plant site to Aeration Tank No. 1 through a 3-inch main. There are two 10,315-gallon aeration tanks that are hydrostatically connected in series. Coarse bubble aeration is provided in both aeration tanks. The aeration system is alternately cycled on and off which achieves carbonaceous BOD_5 reduction but more particularly nitrification and endogenous denitrification. Mixed liquor flows from Aeration Tank No. 2 through a 6-inch port to the clarifier stilling well.

The clarifier is a dual hopper clarifier (series) with a total surface area of approximately 98 square feet. Return activated sludge is airlifted back to the Aeration Tank No. 1 through two 2-½ inch pipes, one from each clarifier hopper. Scum from the clarifier is airlifted back to Aeration Tank No.

l through a 2-inch scum line. Waste sludge is airlifted from the clarifier to a 1,945-gallon sludge holding tank.

Clarified effluent flows into the effluent trough where sodium hypochlorite solution is applied for disinfection. Flow then passes through a Parshall flume flow meter before entering the 456-gallon chlorine contact tank. The disinfected effluent flows by gravity to a 22,500 square foot percolation pond.

The percolation pond has a permitted capacity of 20,000 gallons per day. Residuals are hauled to RMF's operated by American Pipe and Tank, Inc. or Shelley's Lime Stabilization RMF for treatment and disposal. A treatment process flow diagram is presented in **Figure 1-2**. The wastewater treatment facility site plan is presented as **Figure 1-3**. The wastewater treatment plant detail is presented as **Figure 1-4**.



LOCATION MAP - MORNINGVIEW WWTF

ROUTE 27 & ENGLISH ROAD; LAKE COUNTY, FLORIDA

U. S. G. S. QUADRANGLE - LEESBURG WEST, FL

SCALE: 1" = 2,000'	DATE: MARCH 31, 2006	BY: AQUA UTILITIES FLORIDA, INC.	FIGURE: 1-1

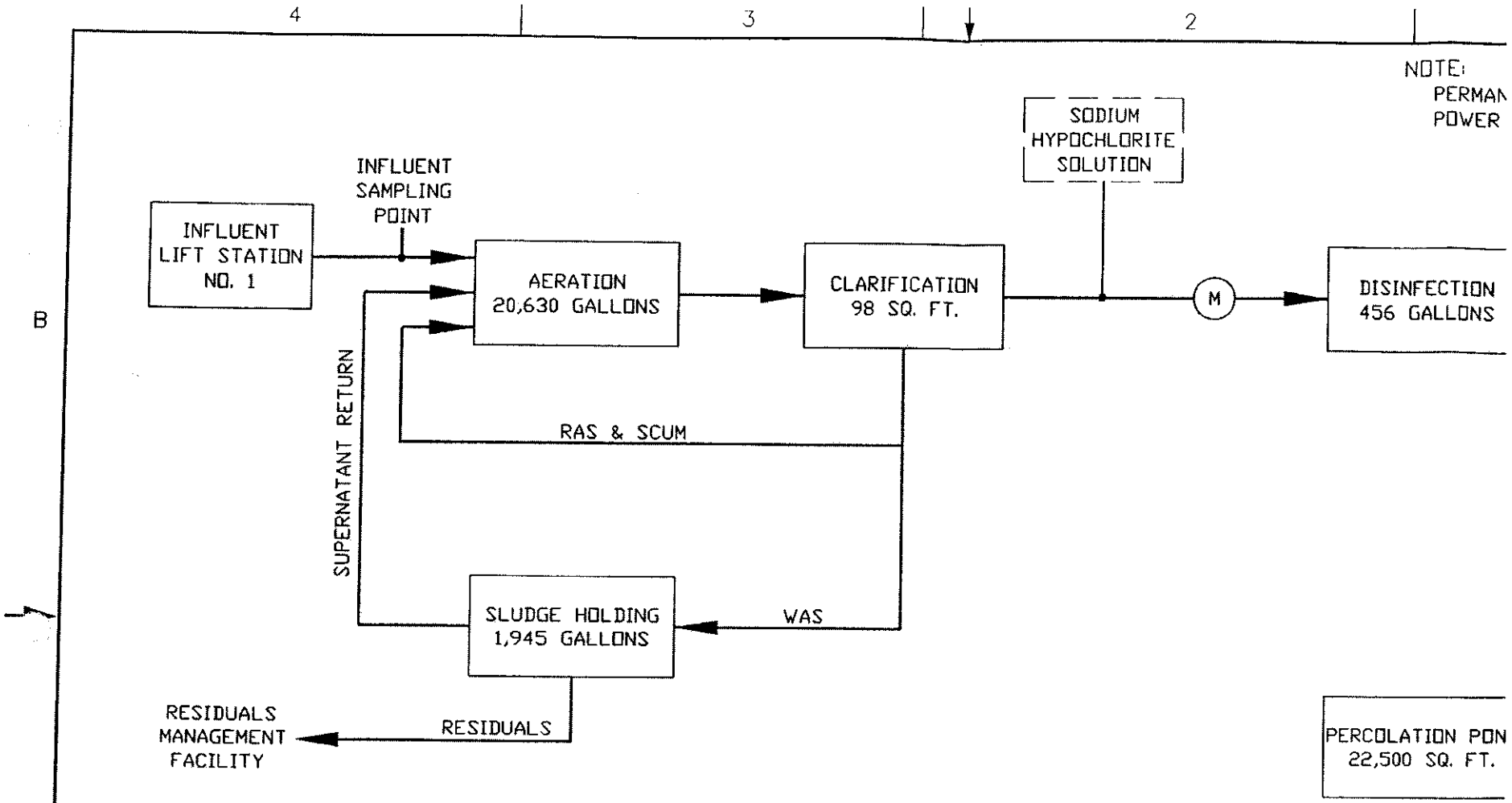


FIGURE 1-2
WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM - 0.020 MGD CAPACITY
N.T.S.

LEGEND

RAS RETURN ACTIVATED SLUDGE
WAS WASTE ACTIVATED SLUDGE
(M) FLOW METER

NO. DATE
Drawn By:
Date:
Project #
Approved

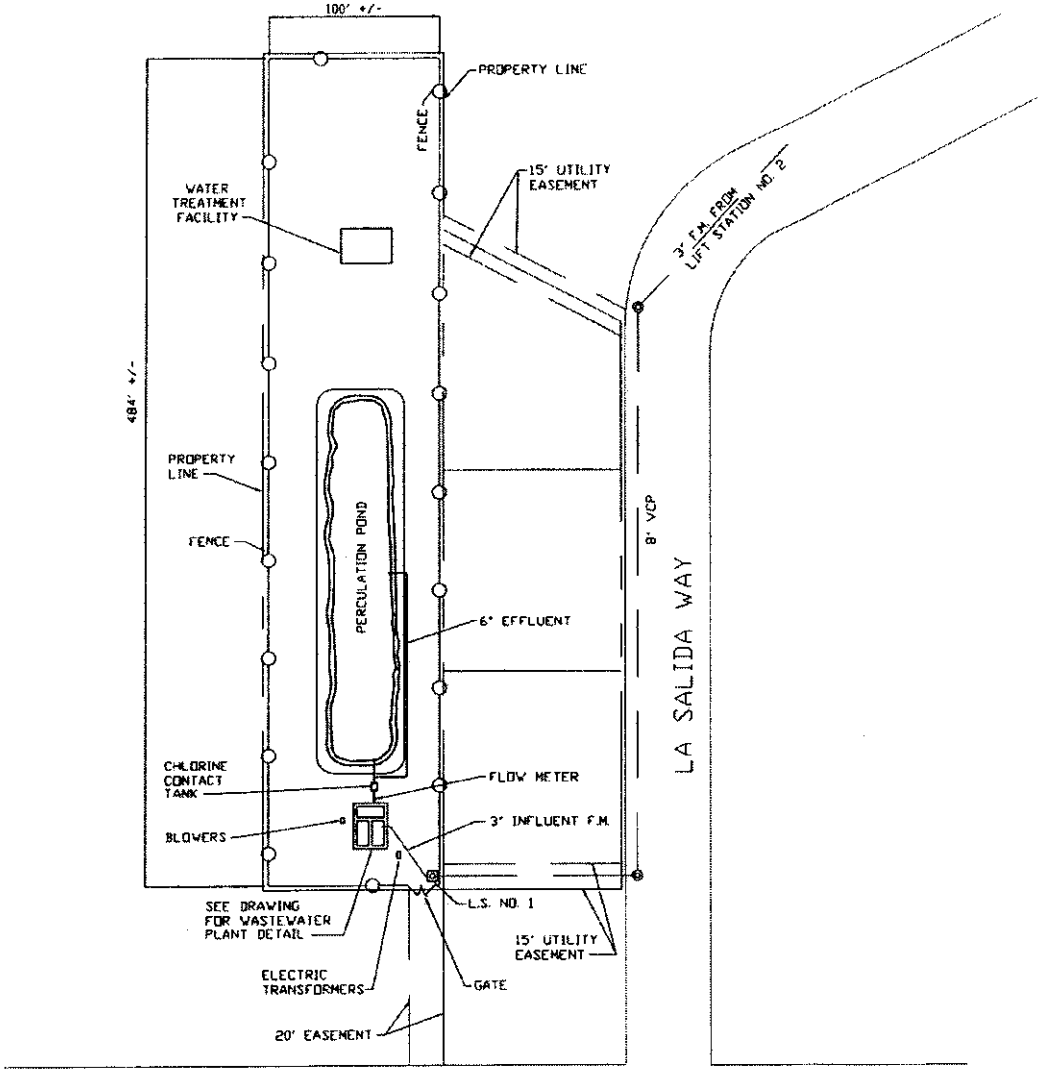


FIGURE 1-3

WASTEWATER TREATMENT FACILITY - SITE PLAN

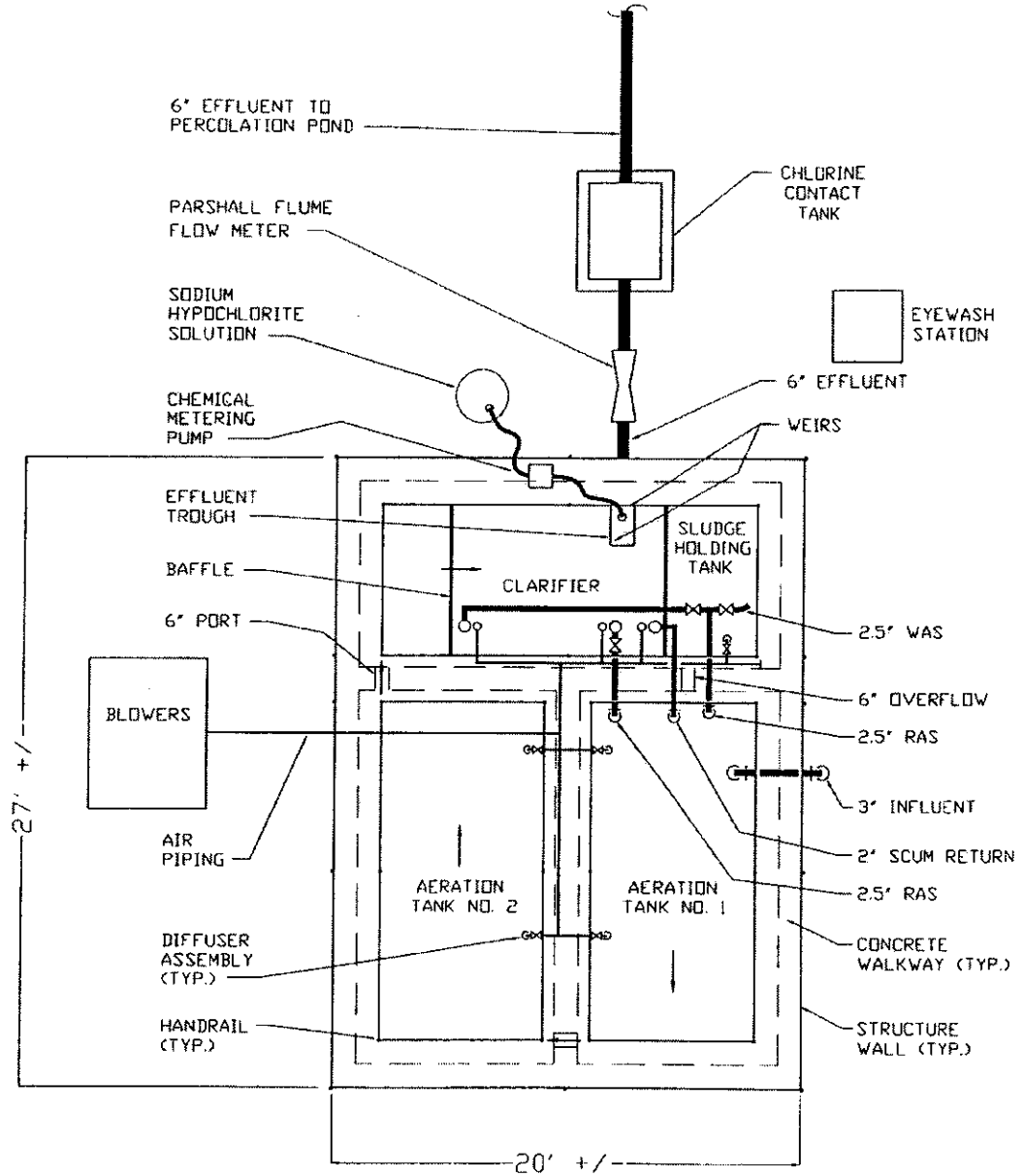


FIGURE 1-4

WASTEWATER TREATMENT FACILITY - PLANT DETAIL

CHAPTER 2 - EXISTING CONDITIONS

2.1 Permitted Capacities

The Morningview WWTF currently operates under FDEP Permit number FLA010610. A copy of the permit is included in **Appendix A.** The facility is authorized to treat 0.020 MGD, on an annual average daily flow basis.

2.2 Monthly Average Daily Flows, Three-month Average Daily Flows, and Annual Average Daily Flows

Monthly average daily flows for the past ten years were obtained from DEP Discharge Monitoring Reports. Three-month average daily flows and annual average daily flows were then calculated. These flows are tabulated in **Table 2-1**, and are shown graphically in **Figure 2-1**. Monthly average daily flows, 3-Month Maximum Average Daily Flow and Annual Average Daily Flows are summarized in **Table 2-2**. Effluent flows are continuously measured at the Parshall flume located between the clarifier and the chlorine contact tank. The signal is transmitted to a Leupold & Stevens Model 61R strip recorder. The flow meter was last calibrated on January 23, 2006 by Central Florida Controls, Inc. The effluent flow meter is calibrated a minimum of once per year as required. A copy of the latest meter calibration report is included in **Appendix B.**

2.3 Seasonal Variations in Flow

The three-monthly average daily flows for each year for the past ten years are provided in **Table 2-1** and **plotted in Figure 2-1**. The maximum three-month flows occurred to some degree in the winter and spring months with some concentration of the maximum in the months from August to October as well. The above could indicate some visitors coming to the community in the winter and spring which is typical for the Central Florida area as well as some minor infiltration and inflow in the rainy season. The maximum three-month to annual average daily flow factor for each year for the past ten years ranged from 1.00 to 1.50. The average maximum three-month to annual average daily flow factor was 1.19 from 1996 through 2005; 2003 flow data was not used in this calculation because there was a cracked force main in the development which resulted in lower than normal average monthly flows in January through May of that year. This occurred prior to Aqua Utilities Florida, Inc. owning the system. We understand the source of the leak was not discovered for months as the crack was caused by a stormwater conduit settling on the force main and the leak was entering the stormwater conduit below grade. We understand DEP was informed of this situation at the time it was discovered. This 1.19 flow factor will be used in the flow projections presented in **Chapter 3**. Since the maximum three-month flows are similar to the annual average flows, the

service area does not appear to be as seasonal as other developments in Florida. The large upscale homes appear to be occupied year round.

2.4 Updated Flow and Loading Information

Monthly Discharge Monitoring Reports were reviewed for the past year to evaluate removal efficiencies for $CBOD_5$ and TSS. Influent quality, flow data, and removal efficiencies are presented in **Table 2-3**. Influent $CBOD_5$ varied from 120 to 210 mg/L, for an average of approximately 169 mg/L. Influent TSS varied from 97 mg/L to 360 mg/L, for an average of 179 mg/L. Influent concentrations for domestic wastewater generally range from 110 to 400 mg/l for $CBOD_5$, with 220 mg/l being typical and from 100 to 350 mg/l for TSS, with 220 mg/l being typical. The average removal efficiencies of the facility for $CBOD_5$ and TSS for 2005 were 98.2 percent 98.5 percent respectively. An evaluation of all effluent parameters required in the permit is provided in the Operation and Maintenance Performance Report dated March 2006.

Each unit process was evaluated at the current flow of 0.008 mgd (highest annual average daily flow in last 5 years) and at the permitted design flow of 0.020 mgd and then compared to recommended design criteria from accepted resources for extended aeration wastewater treatment facilities. The volumes for each unit process were taken from the previous Capacity Analysis Report Update of March 2001 since no changes have been implemented. The square footage of the percolation pond was obtained from the current FDEP permit. The current mixed liquor suspended solids (MLSS) concentration of approximately 4,000 mg/l was used in the evaluation along with the year 2005 $CBOD_5$ annual average concentration of 169 mg/l. A mixed liquor volatile suspended solids (MLVSS) concentration of 75% of the MLSS was also assumed due to the higher sludge age obviously present in the system; a value of 80% had been used in the 2001 Update. A RAS/plant flow ratio of 1.5:1 was also used in the calculations based on input from the operations staff. Peak hour flow (PHF) was used in the evaluation for the clarifier and chlorine contact tank. A peak hour factor of 3 was applied to the annual average flow in order to obtain peak hour flow; this factor was used in the 2001 Update and is reasonable given the size of the community. The results of the updated evaluation are presented in **Table 2-4**.

The aeration tank system appears to have excess capacity based on the recommended design criteria. It should be noted that the extended aeration treatment process design parameters typically grossly exceed the detention time required to achieve $CBOD_5$ reduction and full nitrification insofar as the process was primarily developed to minimize waste sludge production. The current detention time is much higher than required under normal design criteria and the food to microorganism ratio is lower

than the typical design value however settling has been generally very good in spite of the lower F:M and higher sludge age. The volumetric loading which parallels F:M is also low at the current flow meaning the nutrient load to the process is lower than that typically desired for the extended aeration process. At the design flow, the detention time is just slightly out of range. The F:M and volumetric loading is within range at the design flow. Despite these variations from recommended ranges, the plant performance has been satisfactory and effluent limits have been met on a regular basis. Please reference the Operation and Maintenance Performance Report dated March 2006 for effluent performance and any recommended operational improvements.

The surface overflow rate, the solids loading rate, and the weir overflow rate for the clarification process are all well within recommended design ranges at both the current and the design flow.

The detention time for the disinfection process is well within recommended design ranges at the current peak hour flow. At the design peak hour flow, the detention time drops below the 15 minute criteria to 11 minutes; however, additional contact time is provided in the discharge pipe to the percolation pond. Furthermore, at build out of the service area, the estimated annual average flow is only 9,200 gallons per day (42 connections @ 219 gpd/connection- reference Chapter 3). Using a peaking factor of 3 at the estimated build out flow would result in a detention time in the chlorine contact tank of approximately 24 minutes at build out.

The hydraulic loading rate for the percolation pond is well within the acceptable criteria at both the current flow and the design flow.

Table 2-1
Morningview Wastewater Treatment Facility
Historical Wastewater Flows

Month/Year	Average Monthly Flow	3-Month Average Daily Flow, MGD	Max. 3-Month Average Daily Flow, MGD	Rolling 12-Month Average Annual Daily Flow, MGD	Average Annual Daily Flow, MGD	Max. Three Month Average Daily Flow / Annual Average Daily Flow Factor
Jan-96	0.008	0.008	0.008	0.008	0.008	1.00
Feb-96	0.008	0.008		0.008		
Mar-96	0.008	0.008		0.008		
Apr-96	0.008	0.008		0.008		
May-96	0.007	0.008		0.008		
Jun-96	0.007	0.007		0.008		
Jul-96	0.008	0.007		0.008		
Aug-96	0.008	0.008		0.008		
Sep-96	0.008	0.008		0.008		
Oct-96	0.008	0.008		0.008		
Nov-96	0.007	0.008		0.008		
Dec-96	0.008	0.008		0.008		
Jan-97	0.008	0.008	0.008	0.008	0.008	1.00
Feb-97	0.007	0.008		0.008		
Mar-97	0.007	0.007		0.008		
Apr-97	0.008	0.007		0.008		
May-97	0.008	0.008		0.008		
Jun-97	0.007	0.008		0.008		
Jul-97	0.007	0.007		0.008		
Aug-97	0.008	0.007		0.008		
Sep-97	0.007	0.007		0.008		
Oct-97	0.008	0.008		0.008		
Nov-97	0.008	0.008		0.008		
Dec-97	0.008	0.008		0.008		
Jan-98	0.008	0.008	0.009	0.008	0.006	1.50
Feb-98	0.010	0.009		0.008		
Mar-98	0.006	0.008		0.008		
Apr-98	0.005	0.007		0.008		
May-98	0.005	0.005		0.007		
Jun-98	0.005	0.005		0.007		
Jul-98	0.008	0.006		0.007		
Aug-98	0.006	0.006		0.007		
Sep-98	0.005	0.006		0.007		
Oct-98	0.005	0.005		0.007		
Nov-98	0.005	0.005		0.006		
Dec-98	0.005	0.005		0.006		
Jan-99	0.004	0.005	0.005	0.006	0.004	1.25
Feb-99	0.005	0.005		0.005		
Mar-99	0.004	0.004		0.005		
Apr-99	0.004	0.004		0.005		
May-99	0.004	0.004		0.005		
Jun-99	0.004	0.004		0.005		
Jul-99	0.004	0.004		0.005		
Aug-99	0.004	0.004		0.004		
Sep-99	0.004	0.004		0.004		
Oct-99	0.005	0.004		0.004		
Nov-99	0.005	0.005		0.004		
Dec-99	0.005	0.005		0.004		

Table 2-1
Morningview Wastewater Treatment Facility
Historical Wastewater Flows

Month/Year	Average Monthly Flow	3-Month Average Daily Flow, MGD	Max. 3-Month Average Daily Flow, MGD	Rolling 12-Month Average Annual Daily Flow, MGD	Average Annual Daily Flow, MGD	Max. Three Month Average Daily Flow / Annual Average Daily Flow Factor
Jan-00	0.005	0.005		0.004		
Feb-00	0.004	0.005		0.004		
Mar-00	0.005	0.005		0.004		
Apr-00	0.006	0.005		0.005		
May-00	0.004	0.005		0.005		
Jun-00	0.004	0.005	0.006	0.005	0.005	1.20
Jul-00	0.005	0.004		0.005		
Aug-00	0.005	0.005		0.005		
Sep-00	0.006	0.005		0.005		
Oct-00	0.006	0.006		0.005		
Nov-00	0.004	0.005		0.005		
Dec-00	0.006	0.005		0.005		
Jan-01	0.005	0.005		0.005		
Feb-01	0.004	0.005		0.005		
Mar-01	0.005	0.005		0.005		
Apr-01	0.006	0.005		0.005		
May-01	0.007	0.006		0.005		
Jun-01	0.007	0.007	0.008	0.006	0.007	1.14
Jul-01	0.006	0.007		0.006		
Aug-01	0.010	0.008		0.006		
Sep-01	0.007	0.008		0.006		
Oct-01	0.007	0.008		0.006		
Nov-01	0.007	0.007		0.006		
Dec-01	0.007	0.007		0.007		
Jan-02	0.007	0.007		0.007		
Feb-02	0.007	0.007		0.007		
Mar-02	0.006	0.007		0.007		
Apr-02	0.007	0.007		0.007		
May-02	0.007	0.007		0.007		
Jun-02	0.007	0.007	0.009	0.007	0.008	1.13
Jul-02	0.008	0.007		0.007		
Aug-02	0.008	0.008		0.007		
Sep-02	0.010	0.009		0.007		
Oct-02	0.009	0.009		0.008		
Nov-02	0.009	0.009		0.008		
Dec-02	0.010	0.009		0.008		
Jan-03	0.004	0.008		0.008		
Feb-03	0.002	0.005		0.007		
Mar-03	0.002	0.003		0.007		
Apr-03	0.002	0.002		0.007		
May-03	0.005	0.003		0.006		
Jun-03	0.009	0.005	0.009	0.007	0.006	1.50
Jul-03	0.009	0.008		0.007		
Aug-03	0.008	0.009		0.007		
Sep-03	0.007	0.008		0.006		
Oct-03	0.006	0.007		0.006		
Nov-03	0.006	0.006		0.006		
Dec-03	0.007	0.006		0.006		

Table 2-1
Morningview Wastewater Treatment Facility
Historical Wastewater Flows

Month/Year	Average Monthly Flow	3-Month Average Daily Flow, MGD	Max. 3-Month Average Daily Flow, MGD	Rolling 12-Month Average Annual Daily Flow, MGD	Average Annual Daily Flow, MGD	Max. Three Month Average Daily Flow / Annual Average Daily Flow Factor
Jan-04	0.006	0.006	0.009	0.006	0.007	1.29
Feb-04	0.006	0.006		0.006		
Mar-04	0.006	0.006		0.006		
Apr-04	0.006	0.006		0.007		
May-04	0.006	0.006		0.007		
Jun-04	0.007	0.006		0.007		
Jul-04	0.005	0.006		0.006		
Aug-04	0.014	0.009		0.007		
Sep-04	0.008	0.009		0.007		
Oct-04	0.006	0.009		0.007		
Nov-04	0.006	0.007		0.007		
Dec-04	0.006	0.006		0.007		
Jan-05	0.006	0.006	0.006	0.007	0.005	1.20
Feb-05	0.005	0.006		0.007		
Mar-05	0.005	0.005		0.007		
Apr-05	0.005	0.005		0.007		
May-05	0.005	0.005		0.007		
Jun-05	0.005	0.005		0.006		
Jul-05	0.005	0.005		0.006		
Aug-05	0.006	0.005		0.006		
Sep-05	0.005	0.005		0.005		
Oct-05	0.005	0.005		0.005		
Nov-05	0.005	0.005		0.005		
Dec-05	0.005	0.005		0.005		
				MTMADF / AADF Flow Factor[2]		**1.19**

Notes:

1. Permitted Plant Capacity = 0.020 MGD.
2. Average MTMADF / AADF for 1996 to 2005 excludes 2003 data - see report.

Table 2 - 2
Morningview Wastewater Treatment Facility
Summary of Historical Average Monthly Flows and Flow Projection Factors

Month	Monthly Average Daily Flows									
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
January	0.008	0.008	0.008	0.004	0.005	0.005	0.007	0.004	0.006	0.006
February	0.008	0.007	0.010	0.005	0.004	0.004	0.007	0.002	0.006	0.005
March	0.008	0.007	0.006	0.004	0.005	0.005	0.006	0.002	0.006	0.005
April	0.008	0.008	0.005	0.004	0.006	0.006	0.007	0.002	0.006	0.005
May	0.007	0.008	0.005	0.004	0.004	0.007	0.007	0.005	0.006	0.005
June	0.007	0.007	0.005	0.004	0.004	0.007	0.007	0.009	0.007	0.005
July	0.008	0.007	0.008	0.004	0.005	0.006	0.008	0.009	0.005	0.005
August	0.008	0.008	0.006	0.004	0.005	0.010	0.008	0.008	0.014	0.006
September	0.008	0.007	0.005	0.004	0.006	0.007	0.010	0.007	0.008	0.005
October	0.008	0.008	0.005	0.005	0.006	0.007	0.009	0.006	0.006	0.005
November	0.007	0.008	0.005	0.005	0.004	0.007	0.009	0.006	0.006	0.005
December	0.008	0.008	0.005	0.005	0.006	0.007	0.010	0.007	0.006	0.005
Minimum	0.007	0.007	0.005	0.004	0.004	0.004	0.006	0.002	0.005	0.005
Average Annual	0.008	0.008	0.006	0.004	0.005	0.007	0.008	0.006	0.007	0.005
Maximum	0.008	0.008	0.010	0.005	0.006	0.010	0.010	0.009	0.014	0.006
Max. 3-Month Avg. Flow	0.008	0.008	0.009	0.005	0.006	0.008	0.009	0.009	0.009	0.006
Flow Projection Factor	1.00	1.00	1.50	1.25	1.20	1.14	1.13	1.50	1.29	1.20

Figure 2 - 1
Morningview WWTF
Hydraulic Loading Summary
1996 through 2005

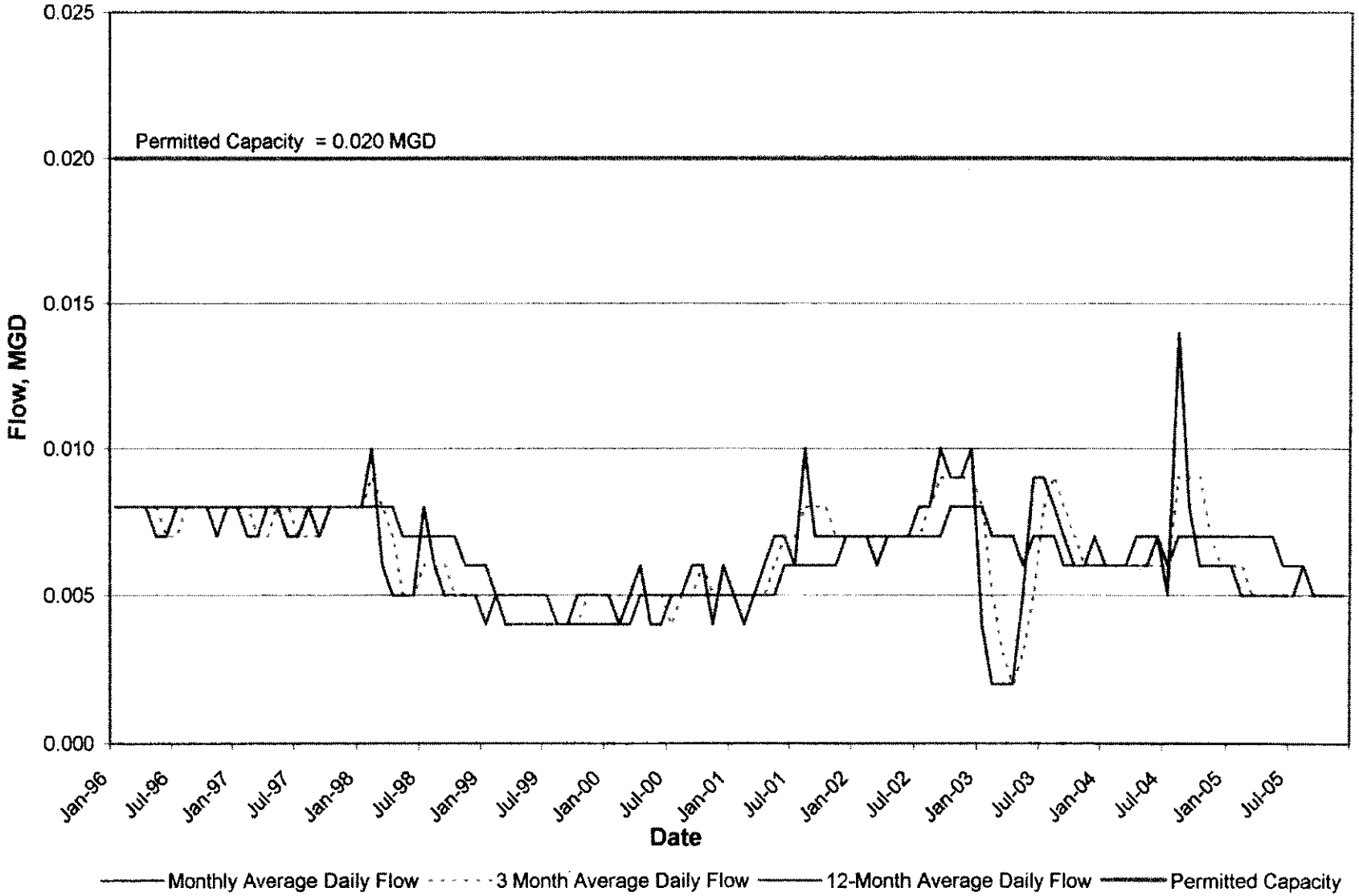


Figure 2 - 2
Morningview Wastewater Treatment Facility
Seasonal Flow Variation
1996 through 2005 Average Monthly Flow

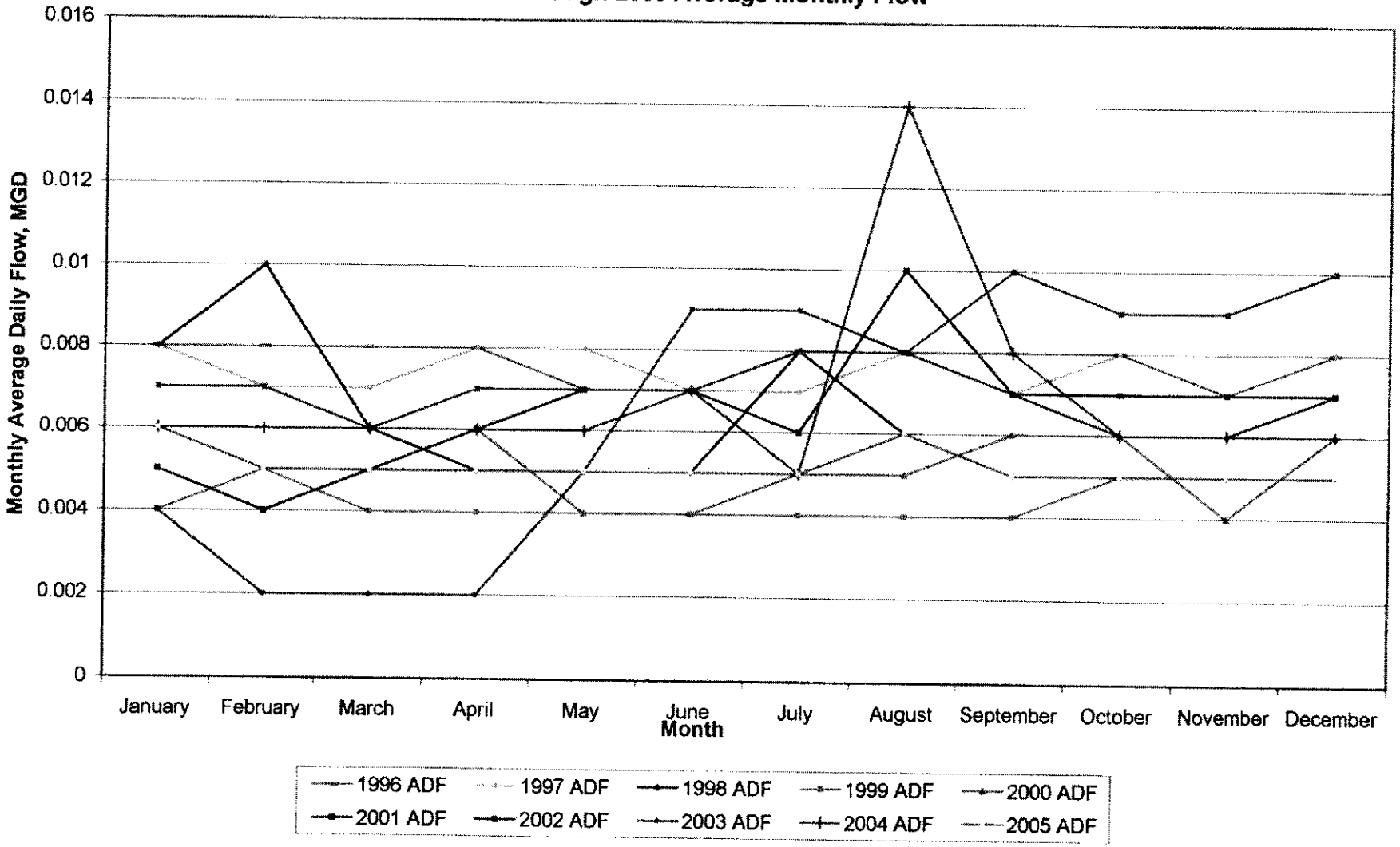


Table 2 - 3

Morningview Wastewater Treatment Facility

Facility Flow, Loading, and Treatment Efficiency Summary

2005 Data

Month	Average Monthly Flow (MGD)	$CBOD_5$					TSS				
		Influent Conc. (mg/l)	Influent Loading (Lbs/day)	Effluent Conc. (mg/l)	Effluent Loading, (Lbs/day)	Percent Removal	Influent Conc. (mg/l)	Influent Loading (Lbs/day)	Effluent Conc. (mg/l)	Effluent Loading, (Lbs/day)	Percent Removal
January	0.006	200	10.0	2	0.10	99.0	240	12.0	3.2	0.16	98.7
February	0.005	120	5.0	4.2	0.18	96.5	97	4.0	5.4	0.23	94.4
March	0.005	150	6.3	3.2	0.13	97.9	150	6.3	5.1	0.21	96.6
April	0.005	140	5.8	2	0.08	98.6	170	7.1	1.6	0.07	99.1
May	0.005	150	6.3	2	0.08	98.7	170	7.1	1.8	0.08	98.9
June	0.005	190	7.9	2	0.08	98.9	150	6.3	1	0.04	99.3
July	0.005	210	8.8	2	0.08	99.0	360	15.0	1	0.04	99.7
August	0.006	170	8.5	6.2	0.31	96.4	120	6.0	1	0.05	99.2
September	0.005	130	5.4	2	0.08	98.5	170	7.1	1	0.04	99.4
October	0.005	180	7.5	2.6	0.11	98.6	220	9.2	1	0.04	99.5
November	0.005	210	8.8	2	0.08	99.0	120	5.0	1.7	0.07	98.6
December	0.005	180	7.5	3.8	0.16	97.9	180	7.5	2.8	0.12	98.4
Minimum	0.005	120	5.0	2	0.08	96.4	97	4.0	1.0	0.04	94.4
Annual Average	0.005	169	7.3	2.8	0.12	98.2	179	7.7	2.2	0.10	98.5
Maximum	0.006	210	10.0	6.2	0.31	99.0	360	15.0	5.4	0.23	99.7

Table 2-4
Morningview Wastewater Treatment Facility
Unit Process Design Summary
Current Operating Condition

Treatment Process Component	Dimensions / Capacity[1]	Recommended Design Criteria[2]	Operating Criteria at Indicated Condition	
			Current MAADF = 0.008 MGD	Permitted Design AADF = 0.020 MGD
Aeration Tanks	Total Volume = 20,630 gal. estimated (2,758 Ft^3)	➢ Detention Time = 16-24 Hrs.	D.T. = 62 Hrs.	D.T. = 25 Hrs.
		➢ F:M = 0.05 – 0.1 Lb/day $CBOD_5$ / Lb MLVSS	F:M = 0.022 Lb/day $CBOD_5$ / Lb MLVSS	F:M = 0.055 Lb/day $CBOD_5$ / Lb MLVSS
		➢ Volumetric Loading = 10 – 25 Lb $CBOD_5$ / 1000 Ft^3/day	Vol. Loading = 4.1 Lb $CBOD_5$ / 1000 Ft^3/day	Vol. Loading = 10.2 Lb $CBOD_5$ / 1000 Ft^3/day
Clarifier	Surface Area = 98 Ft^2 Total Length of Weir = 4 Ft. MLSS = 4,000 mg/L typical	➢ Surface overflow rate ≤ 1000 gpd/ft^2 at Peak Hr. Flow	82 gpd/Ft^2 at ADF 245 gpd/Ft^2 at Peak Hour	204 gpd/Ft^2 at ADF 612 gpd/Ft^2 at Peak Hour
		➢ Solids Loading ≤ 35 lb/day/ft^2 at Peak Hr. Flow	6.8 Lbs/day/Ft^2 at ADF 12.3 Lbs/day/Ft^2 at Peak Hour	17.0 Lbs/day/Ft^2 at ADF 30.6 Lbs/day/Ft^2 at Peak Hour
		➢ Weir Overflow Rate < 20,000 gpd/ft. at Peak Hr. Flow	2,000 gpd/Ft at ADF 6,000 gpd/Ft at Peak Hour	5,000 gpd/Ft at ADF 15,000 gpd/Ft at Peak Hour
Disinfection / Chlorine Contact	Volume = 456 gallons estimated	D.T. = 15 min. minimum at Peak Hr. Flow	82 min. at AADF 27 min. at Peak Hr. Flow	33 min. at AADF 11 min. at Peak Hr. Flow
Sludge Holding Tank	Volume = 1,945 gallons estimated	Not applicable – waste sludge is taken off site to a residuals management facility for further treatment and ultimate disposal		
Treated Effluent Disposal – Percolation Pond	22,500 sq.ft.	Hydraulic Loading ≤ 1.9 gpd/sq.ft.	0.36 gpd/sq.ft.	0.89 gpd/sq.ft.

Notes:
1. Capacities indicated above with the exception of the percolation pond were taken from the Capacity Analysis Report Update prepared by Florida Water Services Corporation dated March 2001. The area for the percolation pond was obtained from the FDEP Facility permit.
2. Chapter 62-600 and 62-610 F.A.C.; WPCF Manual of Practice No. 8; Recommended Standards for Wastewater Facilities, 1990 Ed.; Operation of Municipal Wastewater Treatment Plants - WEF Manual of Practice No. 11.

CHAPTER 3 - FUTURE CONDITIONS

3.1 Population Projections

Population projections contained in this report are based upon sewer connections obtained from a field count of dwellings connected to the treatment and disposal facility. There are, however, several vacant lots within the service area. Build-out of the current service territory is 42 lots and sewer connections, i.e., just 3 more homes are to be constructed. It is assumed that one connection will be added every other year until build-out is reached. This appears valid given the homes in existence at the time of the 2001 Update and those currently existing.

Population projections are derived from the projected connections based on 2.49 people per home in Lake County in accordance with the 2004 US Census Bureau estimate for total population and occupied housing units. The population projections for the next ten years are presented in **Table 3-1**.

3.2 Flow Projections

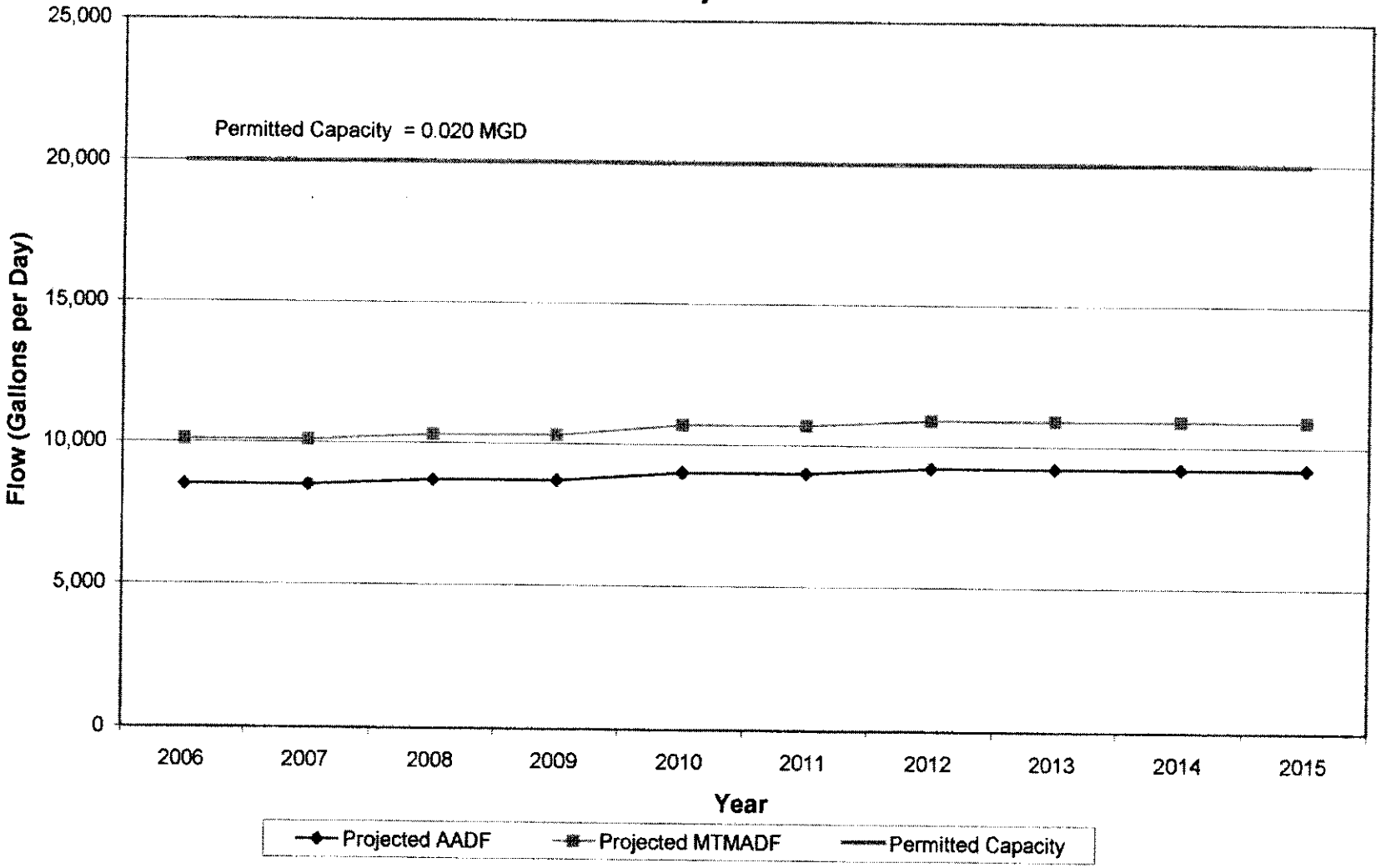
Projected annual average wastewater flows are estimated based on the projected growth in connections as discussed previously and using the historical average flow from 1990-2000 of approximately 218.5 gallons per day per connection. Current data suggests that the unit flow rate may be less than that used in the 2001 Update, however, for consistency and conservatism, the same unit flow rate will be used for flow projections in this update.

The projected maximum three month average daily flow was calculated using the calculated average maximum three-month average daily flow to annual average daily flow factor for the past ten years, from 1996 to 2005, of 1.19 as presented previously in **Chapter 2**. Data for 2003 was excluded in the computation of this average as discussed in **Section 2.3** of this Update. The wastewater flow projections are presented in **Table 3-1** along with the population projections. The projected wastewater flows for the next ten years in relation to the permitted capacity of the facility are presented graphically in **Figure 3-1**.

Table 3-1
Morningview WWTF
Population and Wastewater Flow Projections

Year	Projected Connections	Projected Population	Projected Annual Average Daily Flow (Gallons per Day)	Projected Three Month Average Daily Flow (Gallons per Day)
2006	39	97	8,500	10,100
2007	39	97	8,500	10,100
2008	40	100	8,700	10,300
2009	40	100	8,700	10,300
2010	41	102	9,000	10,700
2011	41	102	9,000	10,700
2012	42	105	9,200	10,900
2013	42	105	9,200	10,900
2014	42	105	9,200	10,900
2015	42	105	9,200	10,900

Figure 3-1
Morningview Wastewater Treatment Facility
Flow Projections



CHAPTER 4 - SUMMARY AND CONCLUSIONS

4.1 Time Required for the Three-month Average Daily Flow to Reach the Permitted Capacity

In accordance with the current wastewater flow projections, the maximum three-month average daily flow is not expected to reach the permitted capacity of the plant during the next permit period. In the year 2016, the annual average daily flow is projected to be approximately 9,200 gallons per day and the maximum three-month average daily flow is projected to be approximately 10,900 gallons per day. The maximum three-month average daily flow is not expected to reach the permitted capacity of the plant during the next ten years.

4.2 Recommendations for Expansion

The facility is not proposed to be expanded at this time.

4.3 Expansion Schedule

An expansion is not recommended at this time.

PALM PORT WASTEWATER TREATMENT FACILITY

INITIAL CAPACITY ANALYSIS REPORT

PREPARED BY:

FLORIDA WATER SERVICES CORPORATION

ENVIRONMENTAL SERVICES DEPARTMENT
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

AUGUST 2003

Florida Water SERVICES

INITIAL CAPACITY ANALYSIS REPORT
FOR
PALM PORT
WASTEWATER TREATMENT FACILITY

DOMESTIC WASTEWATER FACILITY PERMIT NO. FLA011742-001-DW3P
ISSUE DATE: FEBRUARY 18, 1999
EXPIRATION DATE: FEBRUARY 17, 2004

PREPARED BY:

FLORIDA WATER SERVICES CORPORATION
ENVIRONMENTAL SERVICES
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

AUGUST 2003

CERTIFICATIONS

Permittee:

Craig J. Anderson
Vice President, Environmental Services
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4199

I certify that I have reviewed this report and am fully aware of and intend to comply with the recommendations and schedules included in this report.

8-21-03
Date

Craig J. Anderson

Engineer:

Sandra J. Joiner, P.E.
Senior Project Engineer
Florida Water Services Corporation
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 598-4126

I certify that the information contained in this report is true and correct to the best of my knowledge, that the report was prepared in accordance with sound engineering principles, and that I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative.

8/21/03

Sandra J. Joiner, P.E.
Registered Engineer No. 45265
State of Florida

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APPENDICES

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(Continued)

FIGURES **PAGE NO.**

TABLES

CHAPTER 1 - INTRODUCTION

Florida Water Services Corporation (Florida Water) has owned and operated the Palm Port Wastewater Treatment Facility (WWTF) since January 1980. This initial Capacity Analysis Report (CAR) is being submitted with the renewal application for the facility's Domestic Wastewater Facility Permit as the three-month average daily flow has exceeded 50% of the capacity of the plant. This permit, which was issued on February 18, 1999 and expires on February 17, 2004, authorizes the operation of the treatment plant. A copy of the permit is included in Appendix A. This initial CAR was prepared in accordance with the Florida Department of Environmental Protection (FDEP) publication entitled: "Guidelines for Preparation of Capacity Analysis Reports", dated July 1992, and covers the recent ten year period from January 1993 to June 2003.

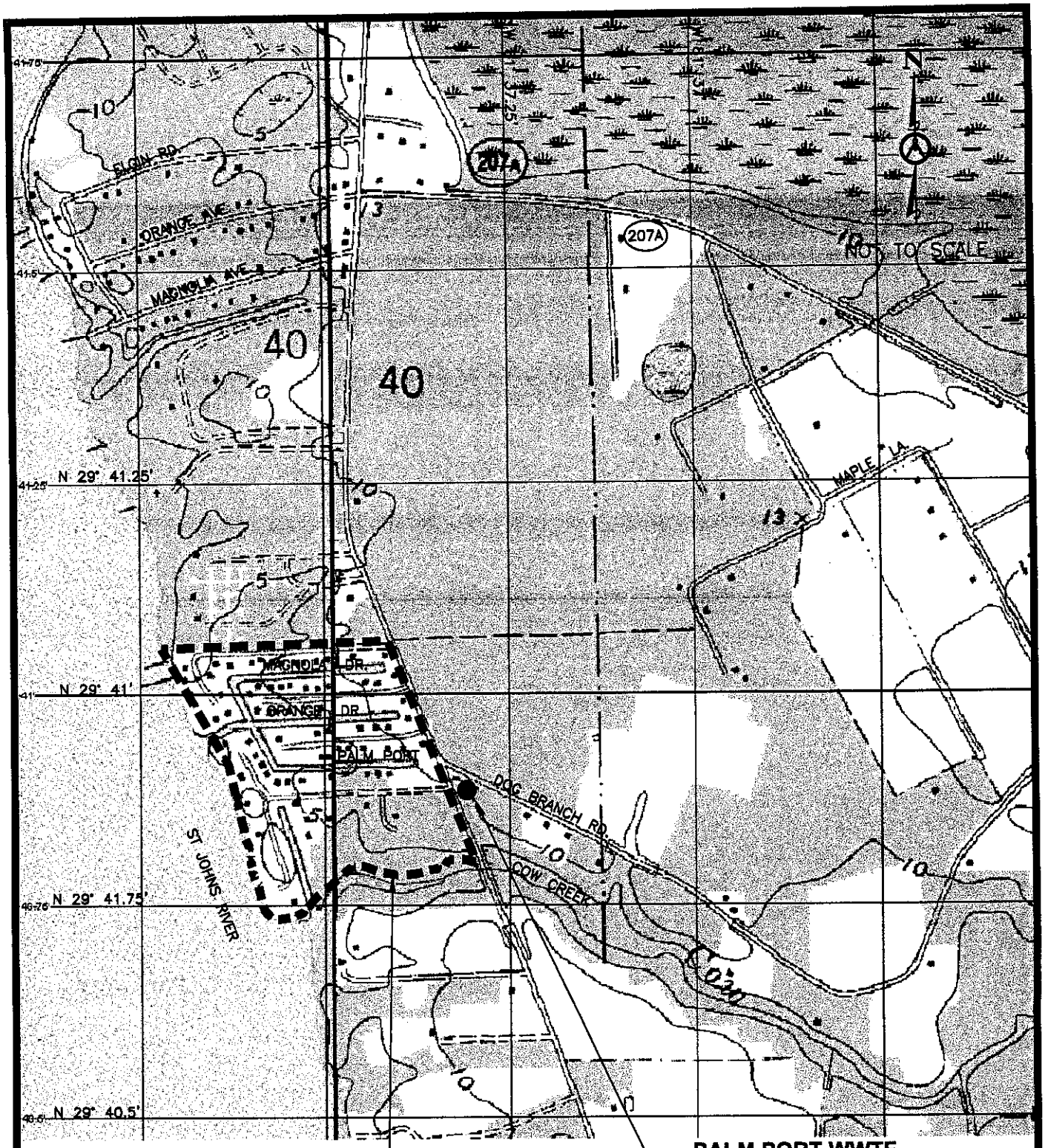
A. Service Area

The Palm Port wastewater service area is located in Section 40, Township 9 South, Range 27 East, in Putnam County, Florida, as shown on Figure I-1. The service area is approximately 66 acres in size and is entirely residential. As of June 2003, the service area consisted of 107 equivalent residential connections (ERCs) of which 104 ERCs were active. The plant will serve approximately 138 ERCs at buildout, which is projected to occur beyond 20 years.

B. Treatment Process

The Palm Port WWTF has a rated capacity of 0.030 mgd, on an annual average daily flow basis, and is operated as an extended aeration facility. The treatment process for the plant includes aeration, clarification, disinfection, and sludge holding. The effluent is discharged to a dual cell evaporation/percolation pond located at the plant site. A sprinkler system is also provided along the pond berms to accelerate evaporation. A process flow diagram for the plant and effluent disposal system is provided as Figure I-2. The sludge is hauled to a permitted Residuals Management Facility by agreement for treatment and disposal.

Raw wastewater generated within the service area is conveyed to two lift stations. The lift stations pump to a common force main which discharges at Aeration Tank No. 1 at the treatment plant. There are eight aeration tanks, which are hydrostatically connected in series. The mixed liquor suspended solids (MLSS) in each aeration tank is aerated with diffused air to maintain solids in suspension and acceptable dissolved oxygen levels. The MLSS is then conveyed from Aeration Tank No. 8 to the clarifier. The clarifier is equipped with a stilling well to promote solids settleability and a baffle to control the scum. The settled sludge is either airlifted to Aeration Tank No. 1 or wasted and airlifted to the sludge holding tank for storage. During decanting, the supernatant is pumped to Aeration Tank No. 1. From the clarifier, the clarified effluent flows by gravity to the chlorine contact tank. Calcium hypochlorite solution is used to disinfect the effluent and is applied at the clarifier effluent trough. The disinfected effluent flows by gravity from the chlorine contact tank to the dual evaporation/percolation ponds for disposal. The treatment plant and effluent disposal system are shown on Figures I-3 and I-4.



REFERENCE: UNITED STATES GEOLOGICAL SURVEY MAPS PALATKA, FLORIDA, PHOTO 1968, PHOTOREVISED 1890 AND HASTINGS, FLORIDA PHOTO 1968, PHOTOREVISED 1988

WASTEWATER SERVICE AREA BOUNDARY

PALM PORT WWTF
SEC. 40, TWP. 9S, RNG. 27E
LATITUDE = N 29° 41' 07"
LONGITUDE = W 81° 37' 18"

Florida Water SERVICES

PALM PORT WASTEWATER SERVICE AREA AND PLANT LOCATION

FIGURE I-1

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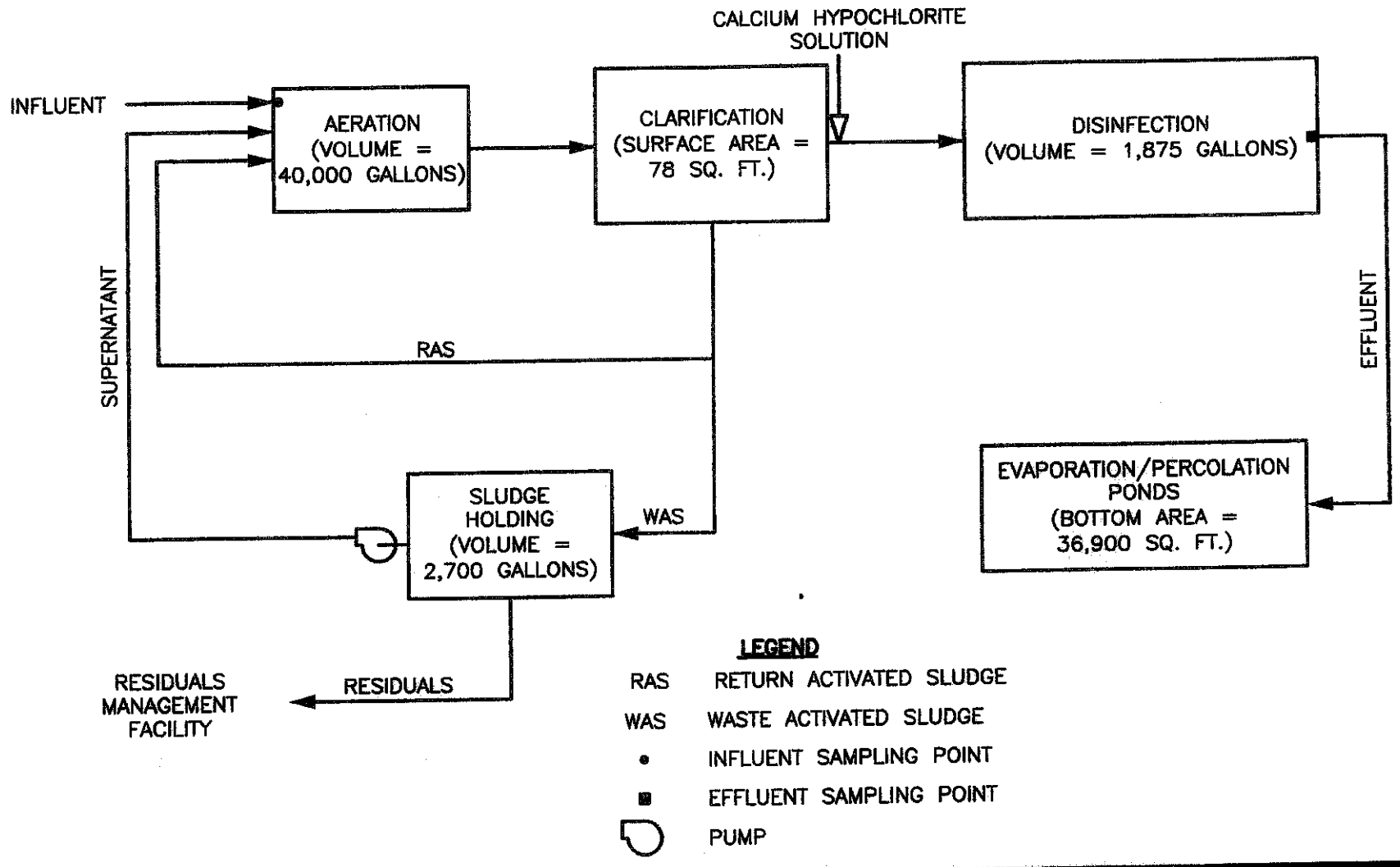
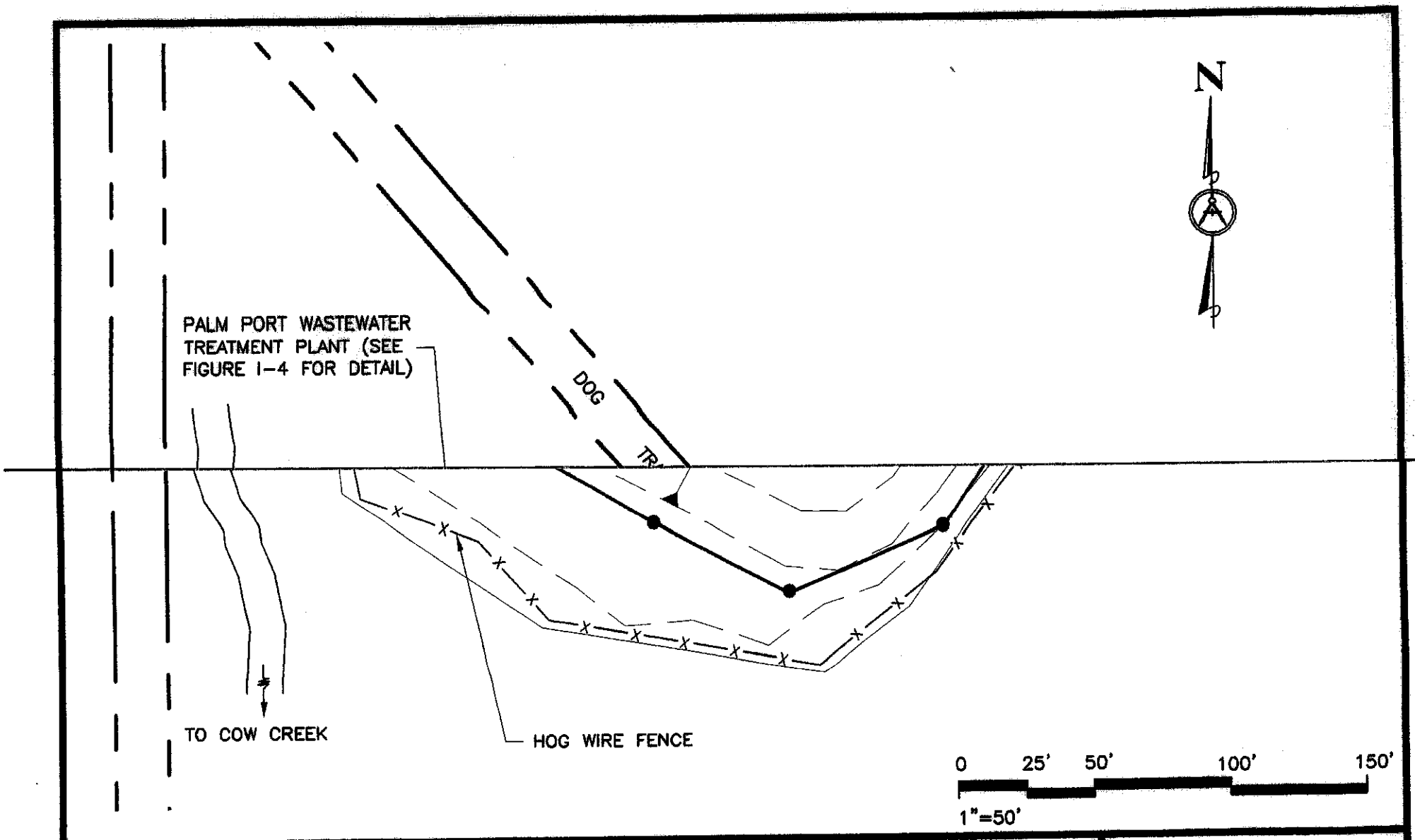


Florida Water Services

PALM PORT WASTEWATER TREATMENT FACILITY PROCESS FLOW DIAGRAM

FIGURE 1 - 2



Florida Water SERVICES

PALM PORT WASTEWATER TREATMENT FACILITY SITE PLAN

FIGURE I-3

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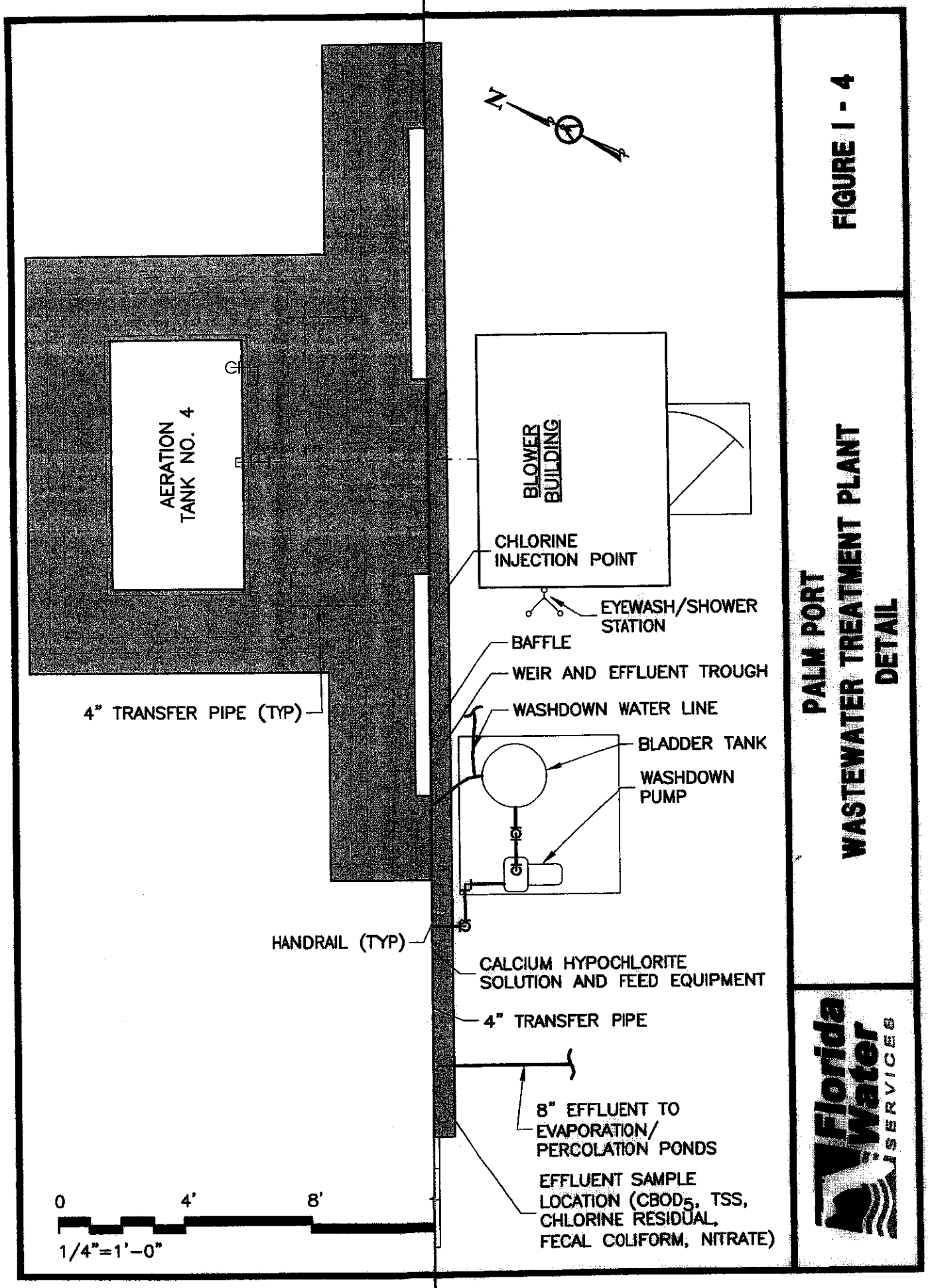


FIGURE I - 4
PALM PORT
WASTEWATER TREATMENT PLANT
DETAIL
N
AERATION TANK NO. 4
BLOWER BUILDING
CHLORINE INJECTION POINT
EYEWASH/SHOWER STATION
BAFFLE
WEIR AND EFFLUENT TROUGH
WASHDOWN WATER LINE
4" TRANSFER PIPE (TYP)
BLADDER TANK
WASHDOWN PUMP
HANDRAIL (TYP)
CALCIUM HYPOCHLORITE SOLUTION AND FEED EQUIPMENT
4" TRANSFER PIPE
8" EFFLUENT TO EVAPORATION/ PERCOLATION PONDS
EFFLUENT SAMPLE LOCATION ($CBOD_5$, TSS, CHLORINE RESIDUAL, FECAL COLIFORM, NITRATE)
0
4'
8'
1/4"=1'-0"
Florida Water SERVICES
C:\Depts\CAD\EXHIBITS\Palm Port\WWTP Operating Permit 2003\PalmPort-Fig-I-4.dwg, Fig I-3, 08/22/2003 10:36:04 AM, DeniseM

CHAPTER 2 - EXISTING CONDITIONS

The existing conditions for the Palm Port WWTF, including information on permitted capacity of the plant and effluent disposal system, along with flow data, influent loading data, and effluent quality data are presented in this chapter.

A. Permitted Capacities

Each unit process was evaluated at 0.025 mgd and 0.030 mgd and then compared to recommended design parameters for the extended aeration process. The flow rate of 0.025 mgd is the maximum twelve-month average daily flow (M12MADF) that occurred during the past five years and the flow rate of 0.030 mgd is the permitted capacity of the plant. The results of the evaluation are presented in Table 2-1 and are based on the following operational and design parameters. The clarification and disinfection unit processes were evaluated at average daily flow and peak hourly flow since flow equalization facilities are not provided at this plant.

Parameter	Result	
Influent $CBOD_5$	194 mg/L	(Average result for months 7/02-6/03)
MLSS	2,000 mg/L	Assumption
MLVSS	1,600 mg/L	MLSS x 0.8
RAS:Q	1.5:1	Assumption
Peaking Factor	2.5	Assumption

Based on the operating criteria presented in Table 2-1, the aeration, clarification and disinfection unit processes are operating within the recommended ranges shown and will operate within the recommended ranges at the design flow of 0.030 mgd. The volumetric loading rates, however, are slightly less than what is recommended. Present plant operation, however, does not appear to be affecting the overall performance, as effluent limits have been met on a regular basis during the past five years. The plant is expected to operate satisfactorily at the design flow.

With regards to the effluent disposal system, the percolation ponds are operating within the recommended range shown and will operate within the recommended range at the design flow of 0.030 mgd. The water levels in the ponds were high during the plant inspection due to heavy rainfall during the recent months of June, July and August (through 8/21) in the amounts of 11.7 inches, 6.6 inches and 10 inches, respectively. Although the pond levels were high, satisfactory freeboard greater than 1 foot was observed along the exterior pond berms.

Table 2-1
Palm Port WWTF
Unit Process Capacity Analysis Summary

Unit Process	Capacity	Unit Process Operating Criteria @		Recommended Design Parameters Extended Aeration
		Existing M12MADF 0.025 mgd	Permitted Capacity 0.030 mgd, AADF	
Aeration	40,000 gallons			
F/M		0.08 lb. $CBOD_5$/d/lb. MLVSS	0.09 lb. $CBOD_5$/d/lb. MLVSS	0.05 - 0.15 lb. $CBOD_5$/d/lb. MLVSS
Volumetric Loading		7.6 lbs. $CBOD_5$/d/1000 cu. ft.	9.1 lbs. $CBOD_5$/d/1000 cu. ft.	10-25 lbs. $CBOD_5$/d/1000 cu. ft.
Detention Time		38 hours	32 hours	18-36 hours
Clarification	6,200 gallons			
Surface Loading Rate		321 gpd/sq. ft. @ ADF	385 gpd/sq. ft. @ ADF	≤1,000 gpd/sq. ft. @ peak hour
(total surface area = 78 sq. ft.)		801 gpd/sq. ft. @ peak hour	962 gpd/sq. ft. @ peak hour	
Weir Loading Rate		3,571 gpd/ft. @ ADF	4,286 gpd/ft. @ ADF	≤20,000 gpd/ft. @ peak hour
(1 weir @ 7 feet)		8,929 gpd/ft. @ peak hour	10,714 gpd/ft. @ peak hour	
Solids Loading Rate		13.4 lbs./d/sq. ft. @ ADF	16.0 lbs./d/sq. ft. @ ADF	≤35 lbs./d/sq.ft. @ peak hour
		21.4 lbs./d/sq. ft. @ peak hour	25.7 lbs./d/sq. ft. @ peak hour	
Disinfection	1,875 gallons			
Chlorine Contact Time		108 minutes @ ADF	90 minutes @ ADF	>30 minutes @ ADF
		43 minutes @ peak hour	36 minutes @ peak hour	>15 minutes @ peak hour

Table 2-1
Palm Port WWTF
Unit Process Capacity Analysis Summary
(Continued)

Unit Process	Capacity	Unit Process Operating Criteria @		Recommended Design Parameters Extended Aeration
		Existing M12MADF 0.025 mgd	Permitted Capacity 0.030 mgd, AADF	
Sludge Holding	2,700 gallons	This unit process was not evaluated because the residuals receive additional treatment at a residuals management facility prior to disposal.		
Effluent Disposal Percolation Ponds Hydraulic Loading Rate	36,900 sq. ft.	0.7 gpd/sq. ft.	0.8 gpd/sq. ft.	≤1.9 gpd/sq. ft.

Recommended design parameters listed above are from the following sources:
1. Recommended Standards for Wastewater Facilities, 1990 Edition
2. Chapters 62-600 and 62-610, F.A.C.
3. Operation of Municipal Wastewater Treatment Plants – WEF Manual of Practice No. 11

Notes:
1. The capacities indicated above were obtained from previous permit records.

B. Monthly Average Daily Flows, Three-Month Average Daily Flows, and Annual Average Daily Flows

Influent flows are reported for this facility and were either calculated from elapsed time meter readings on influent pumps or measured by a magnetic flow meter during the past five years. The flow meter was installed on April 25, 2002; therefore, metered flows were reported from April 26, 2002 thereafter. The new flow meter is calibrated on an annual basis in accordance with permit conditions and was last calibrated on April 9, 2003 by A.W.K. Industries. A copy of the Certificate of Calibration is included in Appendix B.

Influent flows including ADF, three-month average daily flow (3MADF), and 12-month average daily flow (12MADF) from January 1993 to June 2003 are presented in Table 2-2 and shown graphically on Figure 2-1. As indicated in this figure, plant flows tended to increase from year 1993 to 1995 then remained fairly consistent until 1998. During years 1998 to 2000, plant flows tended to be higher and then decreased thereafter. According to Florida Water's records, the plant served approximately 95 ERCs in 1993 and 104 ERCs in 2002, which is an increase of 7 ERCs in 10 years. The average daily flows during this time frame significantly varied between 0.008 mgd and 0.030 mgd. It is believed that the collapsed gravity sewer across the canal may have been prone to inflow for sometime. Repair of this gravity sewer in early 2000, coupled with a change in flow measurement technique from elapsed time meter readings on influent pumps to an influent flow meter in April 2002, are believed to have caused plant flows to decrease. The maximum 3MADF and maximum 12MADF since January 1998 are 0.0279 mgd and 0.0254 mgd, respectively, as indicated in Table 2-1.

C. Seasonal Variations in Flow

Three-month average daily flows and annual average daily flows (AADFs) were evaluated for the years 1993 to 2002 to determine if there were any seasonal variations. The M3MADF, the AADF and the M3MADF/AADF factor for each year are indicated in Table 2-2. The M3MADF/AADF factors ranged from a low of 1.12 to a high of 1.37 during this time frame. Based on the factors, plant flows varied throughout the years and tended to be higher during the fall to winter months of September through December.

D. Flow and Loading Information

Influent (Inf) parameters $CBOD_5$ and TSS along with effluent (Eff) parameters $CBOD_5$, TSS, chlorine residual, pH, fecal coliform, and nitrate are monitored in accordance with permit conditions. Results for these parameters from January 1998 through June 2003 were obtained from the DMRs and are presented in Table 2-3.

Table 2-2
Palm Port WWTF Flows (January 1993 – June 2003)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-93	0.008	--	--
Feb-93	0.008	--	--
Mar-93	0.008	0.008	--
Apr-93	0.008	0.008	--
May-93	0.007	0.008	--
Jun-93	0.010	0.008	--
Jul-93	0.010	0.009	--
Aug-93	0.011	0.010	--
Sep-93	0.012	0.011	--
Oct-93	0.014	0.012	--
Nov-93	0.016	0.014	--
Dec-93	0.009	0.013	0.010
M3MADF/AADF Factor for 1993 = 1.37			
Jan-94	0.012	0.012	0.010
Feb-94	0.011	0.011	0.011
Mar-94	0.013	0.012	0.011
Apr-94	0.023	0.016	0.012
May-94	0.021	0.019	0.013
Jun-94	0.025	0.023	0.015
Jul-94	0.021	0.022	0.016
Aug-94	0.020	0.022	0.016
Sep-94	0.023	0.021	0.017
Oct-94	0.018	0.020	0.018
Nov-94	0.020	0.020	0.018
Dec-94	0.019	0.019	0.019
M3MADF/AADF Factor for 1994 = 1.21			
Jan-95	0.020	0.020	0.020
Feb-95	0.021	0.020	0.020
Mar-95	0.017	0.019	0.021
Apr-95	0.017	0.018	0.020
May-95	0.016	0.017	0.020
Jun-95	0.018	0.017	0.019
Jul-95	0.020	0.018	0.019
Aug-95	0.025	0.021	0.020
Sep-95	0.019	0.021	0.019
Oct-95	0.019	0.021	0.019
Nov-95	0.018	0.019	0.019
Dec-95	0.017	0.018	0.019
M3MADF/AADF Factor for 1995 = 1.13			

Table 2-2
Palm Port WWTF Flows (January 1993 – June 2003)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-96	0.016	0.017	0.019
Feb-96	0.017	0.017	0.018
Mar-96	0.022	0.018	0.019
Apr-96	0.021	0.020	0.019
May-96	0.017	0.020	0.019
Jun-96	0.022	0.020	0.019
Jul-96	0.023	0.020	0.020
Aug-96	0.023	0.022	0.019
Sep-96	0.023	0.023	0.020
Oct-96	0.024	0.023	0.020
Nov-96	0.014	0.020	0.020
Dec-96	0.021	0.020	0.020
M3MADF/AADF Factor for 1996 = 1.15			
Jan-97	0.017	0.017	0.020
Feb-97	0.019	0.019	0.020
Mar-97	0.019	0.018	0.020
Apr-97	0.022	0.020	0.020
May-97	0.020	0.020	0.020
Jun-97	0.021	0.021	0.020
Jul-97	0.026	0.022	0.021
Aug-97	0.024	0.024	0.021
Sep-97	0.025	0.025	0.021
Oct-97	0.023	0.024	0.021
Nov-97	0.023	0.024	0.022
Dec-97	0.024	0.024	0.022
M3MADF/AADF Factor for 1997 = 1.13			
Jan-98	0.025	0.024	0.023
Feb-98	0.029	0.026	0.023
Mar-98	0.026	0.027	0.024
Apr-98	0.018	0.024	0.024
May-98	0.023	0.023	0.024
Jun-98	0.027	0.023	0.025
Jul-98	0.025	0.025	0.024
Aug-98	0.030	0.027	0.025
Sep-98	0.029	0.0279*	0.025
Oct-98	0.025	0.0279*	0.0254*
Nov-98	0.021	0.025	0.025
Dec-98	0.021	0.022	0.025
M3MADF/AADF Factor for 1998 = 1.12			

Table 2-2
Palm Port WWTF Flows (January 1993 – June 2003)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-99	0.022	0.021	0.025
Feb-99	0.018	0.021	0.024
Mar-99	0.020	0.020	0.023
Apr-99	0.021	0.020	0.024
May-99	0.022	0.021	0.023
Jun-99	0.024	0.022	0.023
Jul-99	0.019	0.021	0.023
Aug-99	0.030	0.024	0.023
Sep-99	0.030	0.026	0.023
Oct-99	0.014	0.025	0.022
Nov-99	0.020	0.021	0.022
Dec-99	0.031	0.022	0.022
M3MADF/AADF Factor for 1999 = 1.16			
Jan-00	0.020	0.024	0.022
Feb-00	0.017	0.023	0.022
Mar-00	0.018	0.018	0.022
Apr-00	0.019	0.018	0.022
May-00	0.018	0.018	0.022
Jun-00	0.024	0.020	0.022
Jul-00	0.021	0.021	0.022
Aug-00	0.018	0.021	0.021
Sep-00	0.019	0.019	0.020
Oct-00	0.012	0.016	0.020
Nov-00	0.012	0.015	0.019
Dec-00	0.010	0.012	0.017
M3MADF/AADF Factor for 2000 = 1.35			
Jan-01	0.009	0.010	0.016
Feb-01	0.010	0.010	0.016
Mar-01	0.012	0.010	0.015
Apr-01	0.011	0.011	0.015
May-01	0.011	0.011	0.014
Jun-01	0.013	0.012	0.013
Jul-01	0.014	0.013	0.013
Aug-01	0.010	0.012	0.012
Sep-01	0.009	0.011	0.011
Oct-01	0.008	0.009	0.011
Nov-01	0.008	0.008	0.010
Dec-01	0.008	0.008	0.010
M3MADF/AADF Factor for 2001 = 1.24			

Table 2-2
Palm Port WWTF Flows (January 1993 – June 2003)
(Continued)

Month-Year	ADF (mgd)	3MADF (mgd)	12MADF (mgd)
Jan-02	0.011	0.009	0.010
Feb-02	0.012	0.010	0.011
Mar-02	0.011	0.011	0.011
Apr-02	0.012	0.012	0.011
May-02	0.012	0.012	0.011
Jun-02	0.014	0.013	0.011
Jul-02	0.015	0.014	0.011
Aug-02	0.015	0.014	0.011
Sep-02	0.016	0.015	0.012
Oct-02	0.015	0.015	0.012
Nov-02	0.014	0.015	0.013
Dec-02	0.017	0.015	0.014
M3MADF/AADF Factor for 2002 = 1.13			
Jan-03	0.016	0.016	0.014
Feb-03	0.016	0.016	0.014
Mar-03	0.019	0.017	0.015
Apr-03	0.015	0.016	0.015
May-03	0.014	0.016	0.015
Jun-03	0.017	0.015	0.016

Denotes M3MADF and AADF for each year.

* *Denotes M3MADF and M12MADF since January 1998.*

Figure 3-1
Palm Port Wastewater Flow Projections

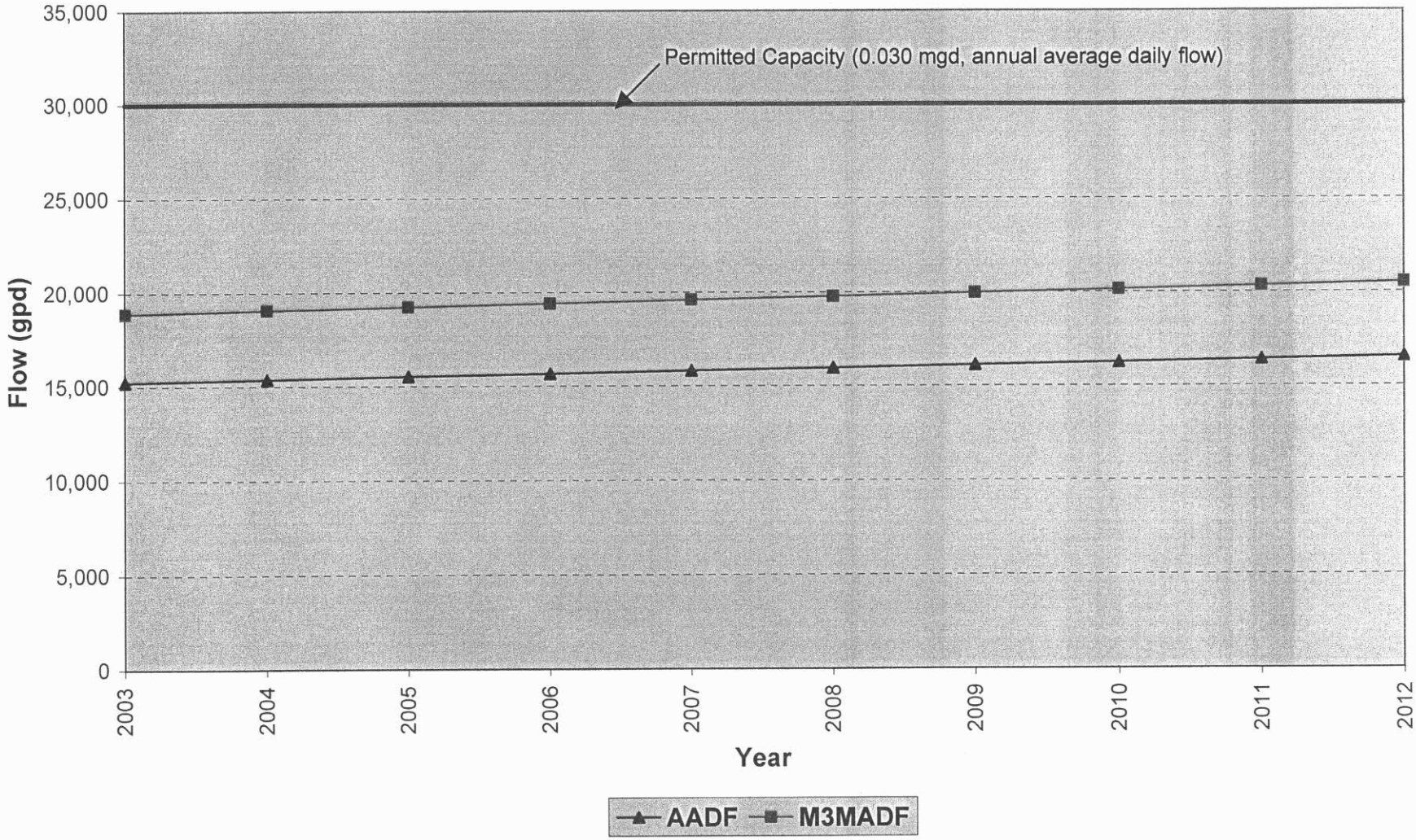


Table 2-3
Palm Port WWTF
Influent Loadings and Effluent Quality (January 1998 – June 2003)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
Jan-98	49.00	2.00	95.92	34.00	2.60	92.35	1.00	7.30	7.30	33	0.25
Feb-98	92.00	2.60	97.17	70.00	4.40	93.71	0.80	7.20	7.30	<1	0.09
Mar-98	150.00	2.00	98.67	180.00	2.00	98.89	0.80	7.20	7.20	4	0.52
Apr-98	180.00	2.40	98.67	120.00	4.00	96.67	1.00	7.20	7.20	<1	1.60
May-98	170.00	3.20	98.12	140.00	2.00	98.57	1.00	7.20	7.20	73	2.40
Jun-98	310.00	2.00	99.35	350.00	2.00	99.43	0.80	7.20	7.20	52	0.06
Jul-98	160.00	2.00	98.75	260.00	2.00	99.23	0.50	7.20	7.20	<1	2.90
Aug-98	200.00	2.20	98.90	240.00	2.00	99.17	1.00	7.20	7.20	1	2.30
Sep-98	170.00	2.10	98.76	170.00	3.20	98.12	0.50	7.20	7.20	<1	4.70
Oct-98	130.00	2.00	98.46	250.00	2.00	99.20	0.70	7.30	7.40	1	2.30
Nov-98	220.00	2.00	99.09	160.00	5.00	96.88	0.80	7.40	7.40	<1	3.00
Dec-98	270.00	2.00	99.26	340.00	2.80	99.18	0.60	7.40	7.40	2	2.60
Jan-99	160.00	2.00	98.75	190.00	4.80	97.47	1.00	7.40	7.40	100	2.70
Feb-99	130.00	2.00	98.46	140.00	2.00	98.57	0.70	7.40	7.40	9	3.30
Mar-99	280.00	2.00	99.29	460.00	4.80	98.96	1.00	7.20	7.40	20	3.40
Apr-99	150.00	2.00	98.67	87.00	2.00	97.70	1.00	7.10	7.21	2	2.20
May-99	90.00	2.00	97.78	360.00	2.00	99.44	1.00	7.20	7.20	<1	2.20
Jun-99	91.00	2.00	97.80	92.00	2.80	96.96	1.00	7.20	7.20	<1	3.90
Jul-99	200.00	2.40	98.80	82.00	2.00	97.56	1.00	7.20	7.30	<1	2.80
Aug-99	120.00	2.00	98.33	100.00	2.00	98.00	0.80	7.30	7.30	390	8.40
Sep-99	150.00	2.80	98.13	100.00	1.20	98.80	0.50	7.30	7.30	<1	3.90
Oct-99	100.00	2.00	98.00	92.00	1.30	98.59	0.90	7.30	7.30	<1	5.60
Nov-99	82.00	2.00	97.56	64.00	2.10	96.72	1.00	7.30	7.30	2	3.40
Dec-99	88.00	2.00	97.73	86.00	1.30	98.49	0.60	7.30	7.30	<1	0.36
Jan-00	72.00	2.00	97.22	120.00	4.30	96.42	0.50	7.30	7.30	14	1.20
Feb-00	87.00	2.00	97.70	98.00	1.30	98.67	0.50	7.30	7.30	<1	2.00

Table 2-3
Palm Port WWTF
Influent Loadings and Effluent Quality (January 1998 – June 2003)
(Continued)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
Mar-00	120.00	2.40	98.00	810.00	1.90	99.77	0.50	7.30	7.30	<1	0.08
Apr-00	68.00	2.00	97.06	36.00	3.60	90.00	0.50	7.30	7.30	<1	0.06
May-00	240.00	2.00	99.17	290.00	1.20	99.59	0.50	7.30	7.30	14	1.30
Jun-00	140.00	2.00	98.57	110.00	1.70	98.45	0.80	7.20	7.30	<1	9.60
Jul-00	120.00	2.00	98.33	50.00	5.80	88.40	0.50	7.30	7.30	<1	2.40
Aug-00	150.00	3.20	97.87	52.00	5.40	89.62	0.50	7.20	7.30	20	12.00
Sep-00	100.00	2.00	98.00	89.00	2.60	97.08	0.50	7.20	7.40	2	5.90
Oct-00	220.00	2.60	98.82	240.00	1.60	99.33	0.60	7.20	7.30	<1	7.50
Nov-00	240.00	2.30	99.04	240.00	1.00	99.58	0.50	7.10	7.40	<1	5.80
Dec-00	200.00	3.70	98.15	44.00	2.00	95.45	0.50	7.20	7.50	<1	2.90
Jan-01	210.00	2.00	99.05	760.00	4.40	99.42	0.80	6.90	7.40	<1	3.60
Feb-01	100.00	3.00	97.00	100.00	1.60	98.40	0.80	6.90	7.10	1	2.20
Mar-01	330.00	2.00	99.39	310.00	1.30	99.58	0.80	6.90	7.00	22	4.00
Apr-01	240.00	4.90	97.96	290.00	1.40	99.52	0.50	6.90	7.40	<1	3.70
May-01	260.00	2.00	99.23	340.00	6.40	98.12	0.60	7.20	7.50	<1	0.06
Jun-01	180.00	2.00	98.89	130.00	1.40	98.92	0.50	7.20	7.50	<1	4.30
Jul-01	250.00	2.00	99.20	1,100.00	2.70	99.75	0.80	7.00	7.50	<1	1.10
Aug-01	180.00	2.00	98.89	140.00	3.30	97.64	0.50	7.30	7.50	<1	1.00
Sep-01	200.00	2.00	99.00	210.00	1.50	99.29	0.50	7.40	7.40	<1	3.40
Oct-01	200.00	2.00	99.00	360.00	2.70	99.25	0.50	7.20	7.60	<1	2.00
Nov-01	280.00	2.00	99.29	290.00	3.40	98.83	0.80	7.30	7.50	<1	0.14
Dec-01	290.00	2.80	99.03	620.00	8.30	98.66	0.80	7.40	7.60	300	0.06
Jan-02	250.00	2.00	99.20	230.00	1.70	99.26	0.50	7.30	7.60	<1	3.90
Feb-02	220.00	2.00	99.09	210.00	1.30	99.38	0.50	7.40	7.60	5	4.20
Mar-02	320.00	2.00	99.38	320.00	1.60	99.50	0.60	7.40	7.50	<1	3.00
Apr-02	350.00	2.00	99.43	410.00	2.20	99.46	0.50	7.30	7.60	120	11.00

Table 2-3
Palm Port WWTF
Influent Loadings and Effluent Quality (January 1998 – June 2003)
(Continued)

Month-Year	$CBOD_5$ Inf (mg/L)	$CBOD_5$ Eff (mg/L)	$CBOD_5$ % Removal	TSS Inf (mg/L)	TSS Eff (mg/L)	TSS % Removal	MIN Cl_2 Res (mg/L)	MIN pH (std. Units)	MAX pH (std. Units)	Fecal Coliform (#/100mL)	Nitrate (mg/L)
May-02	160.00	2.00	98.75	150.00	2.10	98.60	0.50	7.20	7.60	5	2.60
Jun-02	140.00	2.00	98.57	110.00	1.00	99.09	1.10	7.20	7.30	<1	0.06
Jul-02	150.00	2.00	98.67	210.00	1.40	99.33	0.80	7.30	7.30	<1	0.06
Aug-02	110.00	2.00	98.18	96.00	4.40	95.42	0.50	6.90	7.40	<1	0.06
Sep-02	250.00	7.40	97.04	140.00	15.00	89.29	0.50	7.30	7.40	<1	0.06
Oct-02	330.00	2.50	99.24	390.00	7.20	98.15	0.50	7.30	7.50	3	0.06
Nov-02	380.00	2.00	99.47	450.00	6.10	98.64	0.60	7.20	7.40	<1	0.11
Dec-02	220.00	2.00	99.09	260.00	3.60	98.62	0.50	7.10	7.30	<1	0.06
Jan-03	49.00	3.90	92.04	64.00	6.00	90.63	0.50	7.20	7.40	<1	0.07
Feb-03	240.00	2.00	99.17	130.00	4.30	96.69	0.50	7.10	7.30	<1	0.06
Mar-03	140.00	2.00	98.57	170.00	7.00	95.88	0.50	7.20	7.60	7,600	2.50
Apr-03	230.00	2.70	98.83	300.00	3.60	98.80	0.80	7.30	7.40	<1	0.06
May-03	110.00	4.20	96.18	98.00	2.80	97.14	1.60	7.40	7.40	<1	0.17
Jun-03	120.00	2.00	98.33	110.00	3.20	97.09	0.60	7.30	7.60	<1	1.70

Notes:
1. Additional fecal coliform samples were collected and analyzed during March 2003. The average result for fecal coliform for March 2003 was 763 colonies/100 mL.

1. Influent Loading

As indicated in Table 2-3, $CBOD_5$ results ranged between 49 mg/L and 380 mg/L and averaged 182 mg/L while TSS results ranged between 34 mg/L and 1,100 mg/L and averaged 225 mg/L. The average results for $CBOD_5$ and TSS for the past year (July 2002 to June 2003) were 194 mg/L and 202 mg/L, respectively.

2. Effluent Quality

Results for all effluent parameters monitored were within acceptable limits, as indicated in Table 2-3. A fecal coliform result of 7,600 colonies/100 mL, however, occurred in March 2003, which exceeded the limit of 800 colonies/100 mL for a one time grab. It should be noted that nine additional fecal coliform samples were collected in March and the average for the month was 763 colonies/100 mL, allowing the annual average to remain below the limit of 200 colonies/100 mL.

CHAPTER 3 - FUTURE CONDITIONS

Population and flow projections for the Palm Port wastewater service area are presented in this chapter.

A. Population Projections

Florida Water's Palm Port wastewater service area is residential consisting of single-family homes. As of June 2003, the plant served a total of 107 ERCs of which 104 ERCs were active. The corresponding population served by the plant is 258 people, which is based on 2.48 people per household or ERC for Putnam County, in accordance with the Florida Population Studies by the Bureau of Economic and Business Research, dated June 2001. Buildout of the service area is estimated at 138 ERCs, which equates to approximately 342 people. Population projections for the next 10 years are presented in Table 3-2.

B. Flow Projections

Flow projections for the Palm Port service area are based on historical active ERCs and wastewater flows for the years 1998 to 2002. ERCs are based on water meter sizes and were obtained from Florida Water's billing records; the flow data was obtained from the DMRs. The existing average number of active ERCs, the AADFs, and the wastewater flow rates from 1998 to 2002 are presented in Table 3-1.

As indicated in Table 3-1, the average number of active ERCs has remained fairly the same while the wastewater flow rates have fluctuated during the past five years. It is believed that the higher wastewater flow rates prior to year 2000 were the result of canal water infiltrating the collection system as a gravity sewer crossing at a canal had collapsed. This gravity sewer was permanently repaired in March 2000 and plant flows have tended to decrease thereafter. In addition, a magnetic flow meter was installed in April 2002 to measure plant flows. Prior to the installation of this meter, plant flows were calculated from elapsed time meter readings on influent pumps and pumping rates. Because of the changes in flow measurement technique and repairs to the collection system, a conservative wastewater flow rate of 145 gpd/ERC was used to project future flows. This rate corresponds to flow data following the installation of the influent flow meter. A constant growth rate of one ERC per year was also used to project future flows. M3MADFs were calculated by applying a M3MADF/AADF factor of 1.24 based on the 2000-2002 data (see Table 2-2).

The projected average number of ERCs, the AADFs, and the M3MADFs for the next 10 years (2003 through 2012) are presented in Table 3-2. As indicated in this table, the projected AADF and M3MADF for the next five years (year 2008) are 15,950 gpd and 19,778 gpd, respectively, and are well below the capacity of the plant . The projected AADFs and M3MADFs are also shown graphically on Figure 3-1. As indicated in this figure, the plant is expected to have sufficient capacity during the next 10 years.

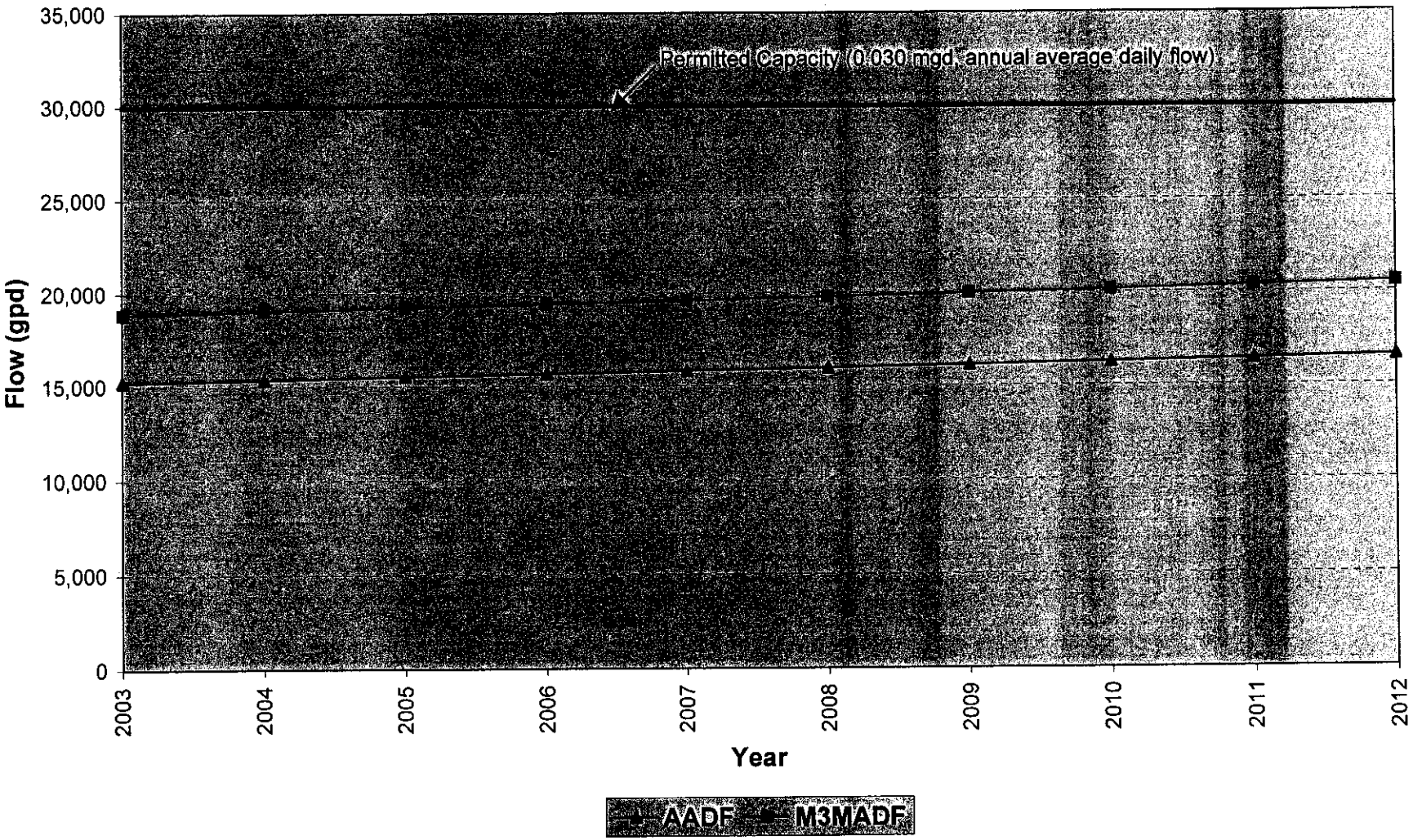
TABLE 3-1
Palm Port Wastewater Service Area
Existing Active ERCs and Wastewater Flows (Years 1998-2002)

Year	Existing Average Active ERCs	Existing AADF (gpd)	Existing Wastewater Flow Rate (gpd/ERC)
1998	102	24,940	244.51
1999	102.5	22,480	219.32
2000	103	17,430	169.22
2001	103.5	10,290	99.42
2002	103.5	13,570	131.11
Average Wastewater Flow Rate (Years 1998-2002) = 173 gpd/ERC Average Wastewater Flow Rate (Years 2000-2002) = 133 gpd/ERC			

TABLE 3-2
Palm Port Wastewater Service Area
Projected Active ERCs, Population and Wastewater Flows (Years 2003-2012)

Year	Projected Average Active ERCs	Population	Projected AADF (gpd)	Projected M3MADF (gpd)
2003	105	260	15,225	18,879
2004	106	263	15,370	19,059
2005	107	265	15,515	19,239
2006	108	268	15,660	19,418
2007	109	270	15,805	19,598
2008	110	273	15,950	19,778
2009	111	275	16,095	19,958
2010	112	278	16,240	20,138
2011	113	280	16,385	20,317
2012	114	283	16,530	20,497

Figure 3-1
Palm Port Wastewater Flow Projections



CHAPTER 4 - SUMMARY AND CONCLUSIONS

The time required for the M3MADF to reach the permitted capacity of the plant and the recommendations for the expansion of the plant are presented in this chapter.

A. Time Required for the M3MADF to Reach the Permitted Capacity

The M3MADF is not projected to reach the permitted capacity of the plant during the next ten years, as indicated in Table 3-2.

B. Recommendations for Expansion

As indicated in Chapter 3, the M3MADF and M12MADF are not projected to reach the capacity of the plant during the next 10 years. Therefore, a plant expansion is not proposed as part of this renewal.

CAPACITY ANALYSIS REPORT UPDATE

PALM TERRACE GARDENS
WASTEWATER TREATMENT FACILITY

GMS # 4051PO1846
PERMIT NO. DO51-234067

Prepared by:
ENVIRONMENTAL SERVICES DEPARTMENT
FLORIDA WATER SERVICES CORPORATION
P.O. Box 609520
Orlando, Florida 32860-9520

February, 1998

Certifications

Permittee:

Rafael A. Terrero, P.E., DEE
Manager, Environmental Services
Florida Water Services Corp.
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 880-0058

I certify that I have reviewed this report and am fully aware of and intend to comply with the recommendations and schedules included in the report.

2/18/98
Date

Rafael A. Terrero, P.E., DEE
Manager, Environmental Services

Engineer:

Catherine A. Walker, P.E.
Senior Permitting Engineer
Florida Water Services Corp.
P.O. Box 609520
Orlando, Florida 32860-9520
(407) 880-0058

I certify that the information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permittee or the permittee's delegated representative.

2/18/98
Date

52188
Registration Number

Catherine A. Walker
2/18/98
Catherine A. Walker, P.E.
Senior Permitting Engineer

Table of Contents

CHAPTER I INTRODUCTION

Florida Water Services owns and operates the Palm Terrace Gardens Wastewater Treatment Plant located in Pasco County. The permit for the facility is due for renewal. This Updated Capacity Analysis Report is prepared in support of the renewal application. The Initial Capacity Analysis Report (ICAR) was submitted in June, 1993.

A. *Service Area*

The service area for the Palm Terrace Gardens Wastewater Treatment Facility (WWTF) is located in Pasco County. The WWTF is located in Section 10, Township 25 South, Range 16 East, Latitude 28° 19' 10" N and Longitude 81° 41' 19" W, as shown in Figure I-1.

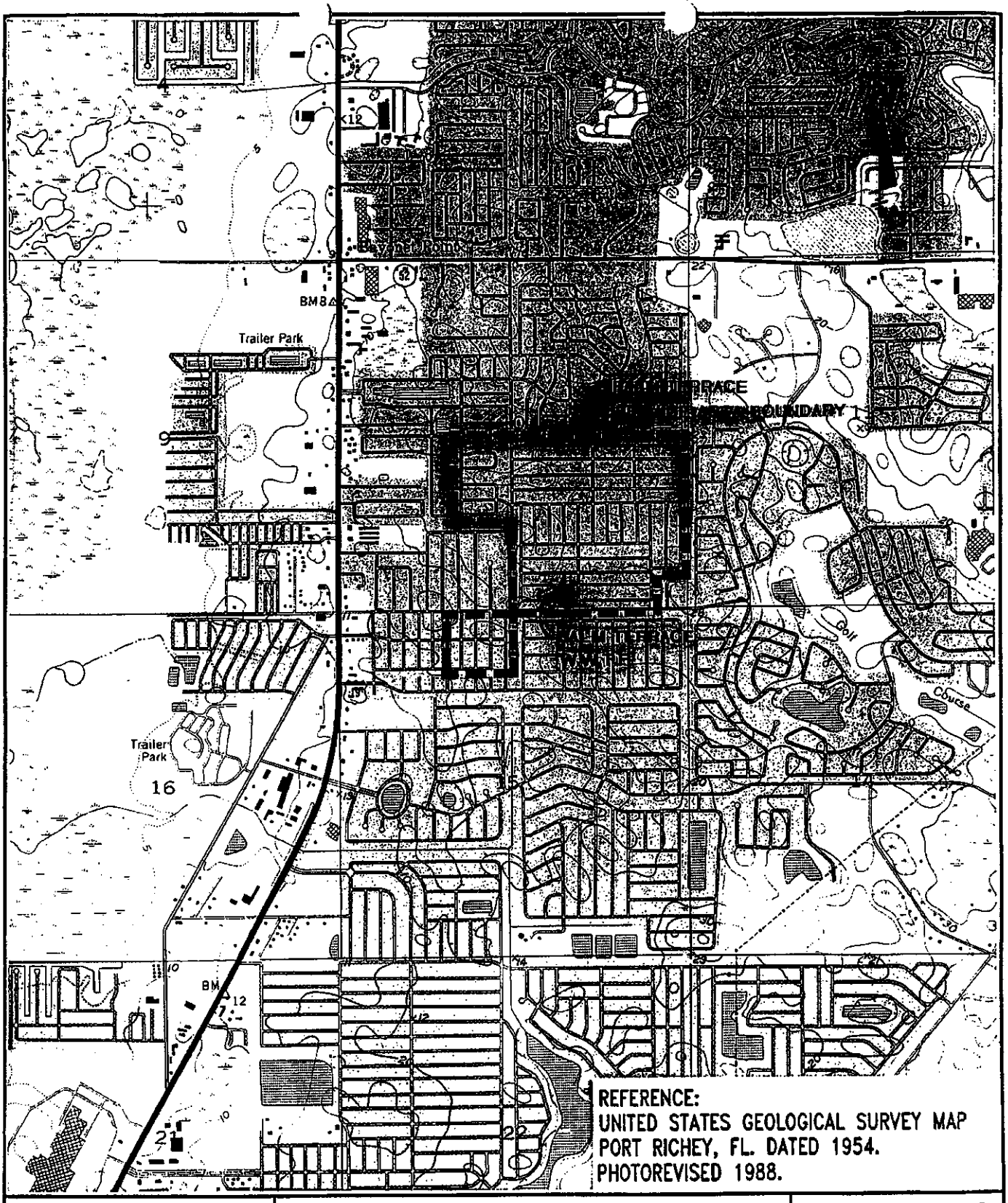
B. *Facility Description*

1. Treatment Process

The Palm Terrace Gardens treatment plant has a rated capacity of 0.130 MGD and utilizes the extended aeration modification of the activated sludge process, capable of secondary treatment, as defined in Chapter 62-600.420, F.A.C. The process consists of aeration, clarification, disinfection and effluent reuse to two percolation ponds and a restricted access sprayfield., Waste solids are partially aerobically digested, and hauled by a contract hauler to Pasco County's regional residuals management facility for treatment and distribution/marketing in accordance with local ordinance. A schematic flow diagram is shown in Figure I-2.

2. Unit Capacity Evaluation

This section will present a comparison of actual treatment process unit characteristics to generally accepted design criteria, in order to determine the effective treatment capacity on a unit-by-unit basis. Table I-1 shows the characteristics of each unit process, the design criteria used for evaluation and the effective capacities of each unit, for the extended aeration process. Each unit was evaluated at the rated capacity of the plant, 0.130 MGD, and at the current operating capacity of 0.095 MGD . The results are presented in Table I-1.



Florida Water SERVICES

PALM TERRACE WASTEWATER TREATMENT FACILITY SERVICE AREA

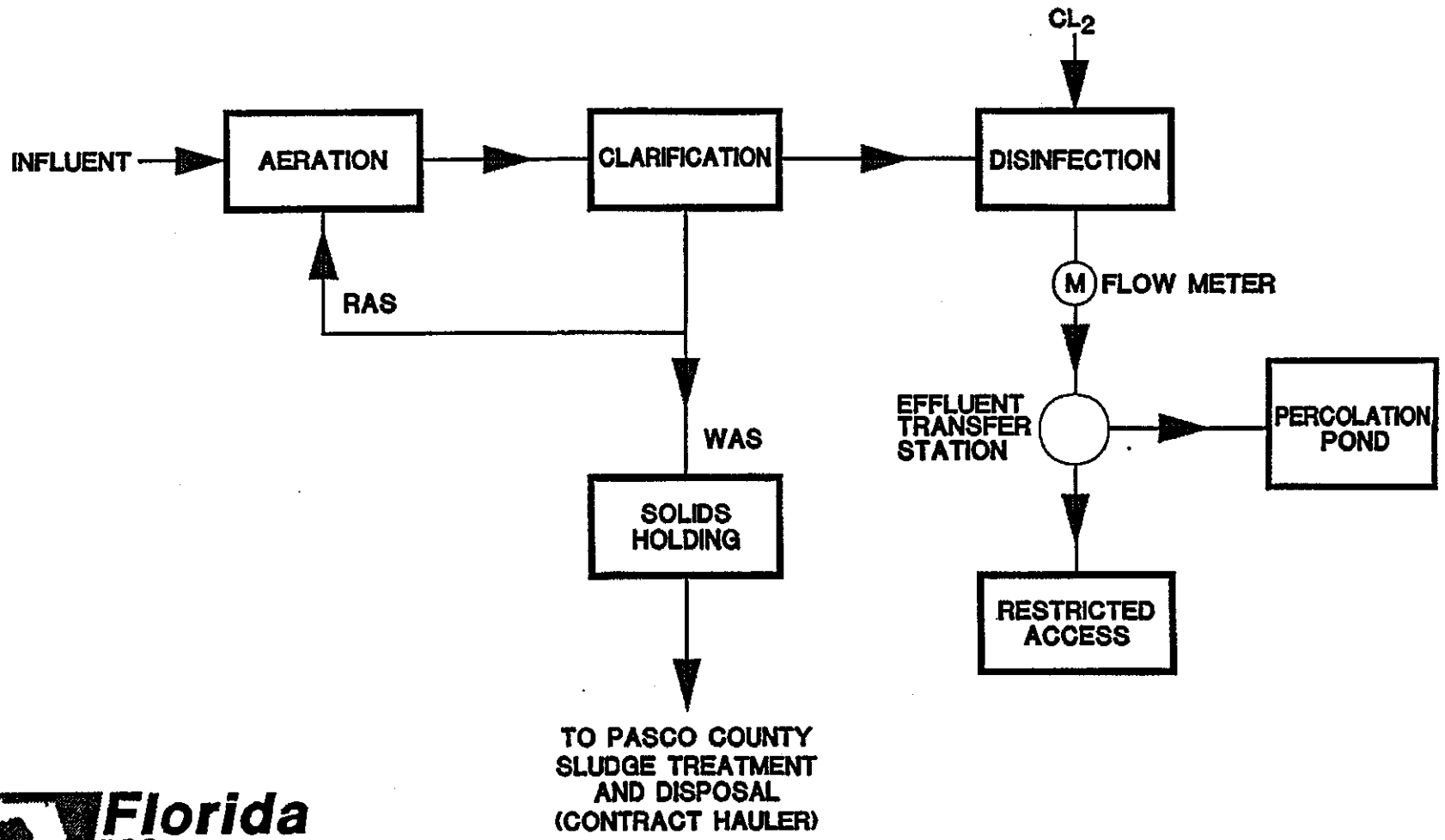
SECTIONS 10 & 15
TWP. 25S
RNG. 16E

PLANT NO. 1429
PASCO COUNTY

FIGURE I - 1

Acad I:\DEPTS\CAD\PROJ\PASCO\1429\WASTEWATER\PERMIT\FIG I-1

PALM TERRACE WASTEWATER TREATMENT FACILITY
SCHEMATIC FLOW DIAGRAM



Florida Water SERVICES

FIGURE I - 2

Table I-1
Unit Capacity Analysis
Palm Terrace Gardens WWTP

Treatment Unit	Dimensions/Capacity	Operating Criteria at 0.095 MGD	Design Criteria at 0.130 MGD	Recommended Design Criteria
Aeration	200,000 gallons	50.5hrs det. time	36.9 hrs det. time	18-24 hours
Clarification Surface Loading Rate Weir Loading Rate Solids Loading Rate	34, 600 gallons 364 Sq. ft. surf.area Weir length 56 l.f.	 261 gpd/sf 1696 gpd/lf 15.23 lb/d/sf.	 357 gpd/sf 2321 gpd/lf 20.85lb/d/sf	Surface Overflow Rate = 400 - 800 gpd/sf @ peak flow Weir Overflow Rate = less than 10,000 gpd/ft Solids loading Rate = 30 - 35 lb/d/sf
Chlorine Contact	4160 gallons	63 min @ ADF 31.5 min @peak	46 min @ ADF 23 min @peak	>30 min. @ ADF > 15 min @ peak
Aerobic Digestion	15,000 gallons	2.6 days (estimate)	1 ft^3/person @ 100 gpd each	Solids Retention Time = 40 days
Effluent Reuse	Ponds = 40,000 ft^2 Sprayfield = 2.2 acres	1.375 gpd/ft^2 8.05 in/wk	N/A - Refer to Effluent Loading Evaluation	N/A - Refer to Effluent Loading Evaluation

CHAPTER II - EXISTING CONDITIONS

A. Permitted Capacities

The plant currently operates under Florida Department of Environmental Protection (FDEP) Permit No. DO51-234067. This permit authorizes operation of a 0.130 MGD extended aeration wastewater facility. A copy of the current permit is included as Appendix A.

B. Monthly Average Daily Flows, Three-month Average Daily Flows, and Annual Average Daily Flows

Monthly average daily flows and three-month average daily flows for the last five years are tabulated in Table II-1, and shown graphically in Figure II-1.

C. Seasonal Flow

The flow data was reviewed for seasonal flow variation. As indicated in Figure II-1, and Table II-1, there is some consistency in peak flows occurring in the winter months. The maximum three-month average daily flow occurred most frequently in January during the last 5 years.

D. Updated Flow and Loading Information

Current loading information was reviewed and evaluated with respect to standard design data. Compared to typical domestic wastewater, the influent to the Palm Terrace Gardens WWTP is consistently within the expected range.

Table II-1
Palm Terrace Gardens Historical Flow

Month/year	Monthly ADF	Three-month ADF
Jan-93	0.117	
Feb-93	0.114	
Mar-93	0.111	0.114
Apr-93	0.112	0.112
May-93	0.103	0.109
Jun-93	0.097	0.104
Jul-93	0.096	0.099
Aug-93	0.096	0.097
Sep-93	0.100	0.097
Oct-93	0.107	0.101
Nov-93	0.105	0.104
Dec-93	0.107	0.106
Jan-94	0.117	0.110
Feb-94	0.112	0.112
Mar-94	0.113	0.114
Apr-94	0.102	0.109
May-94	0.106	0.107
Jun-94	0.116	0.108
Jul-94	0.107	0.110
Aug-94	0.113	0.112
Sep-94	0.109	0.110
Oct-94	0.112	0.112
Nov-94	0.142	0.121
Dec-94	0.148	0.134
Jan-95	0.151	0.147
Feb-95	0.100	0.133
Mar-95	0.110	0.120
Apr-95	0.118	0.109
May-95	0.126	0.118
Jun-95	0.132	0.125
Jul-95	0.146	0.135
Aug-95	0.128	0.135
Sep-95	0.080	0.118

Month/year	Monthly ADF	Three-month ADF
Oct-95	0.098	0.102
Nov-95	0.086	0.088
Dec-95	0.091	0.092
Jan-96	0.088	0.088
Feb-96	0.091	0.090
Mar-96	0.114	0.098
Apr-96	0.094	0.100
May-96	0.088	0.098
Jun-96	0.090	0.091
Jul-96	0.087	0.088
Aug-96	0.088	0.088
Sep-96	0.080	0.085
Oct-96	0.084	0.084
Nov-96	0.088	0.084
Dec-96	0.090	0.088
Jan-97	0.086	0.088
Feb-97	0.085	0.087
Mar-97	0.087	0.086
Apr-97	0.082	0.085
May-97	0.078	0.082
Jun-97	0.090	0.083
Jul-97	0.095	0.088
Aug-97	0.085	0.090
Sep-97	0.068	0.083
Oct-97	0.052	0.069
Nov-97	0.058	0.059
Dec-97	0.061	0.057

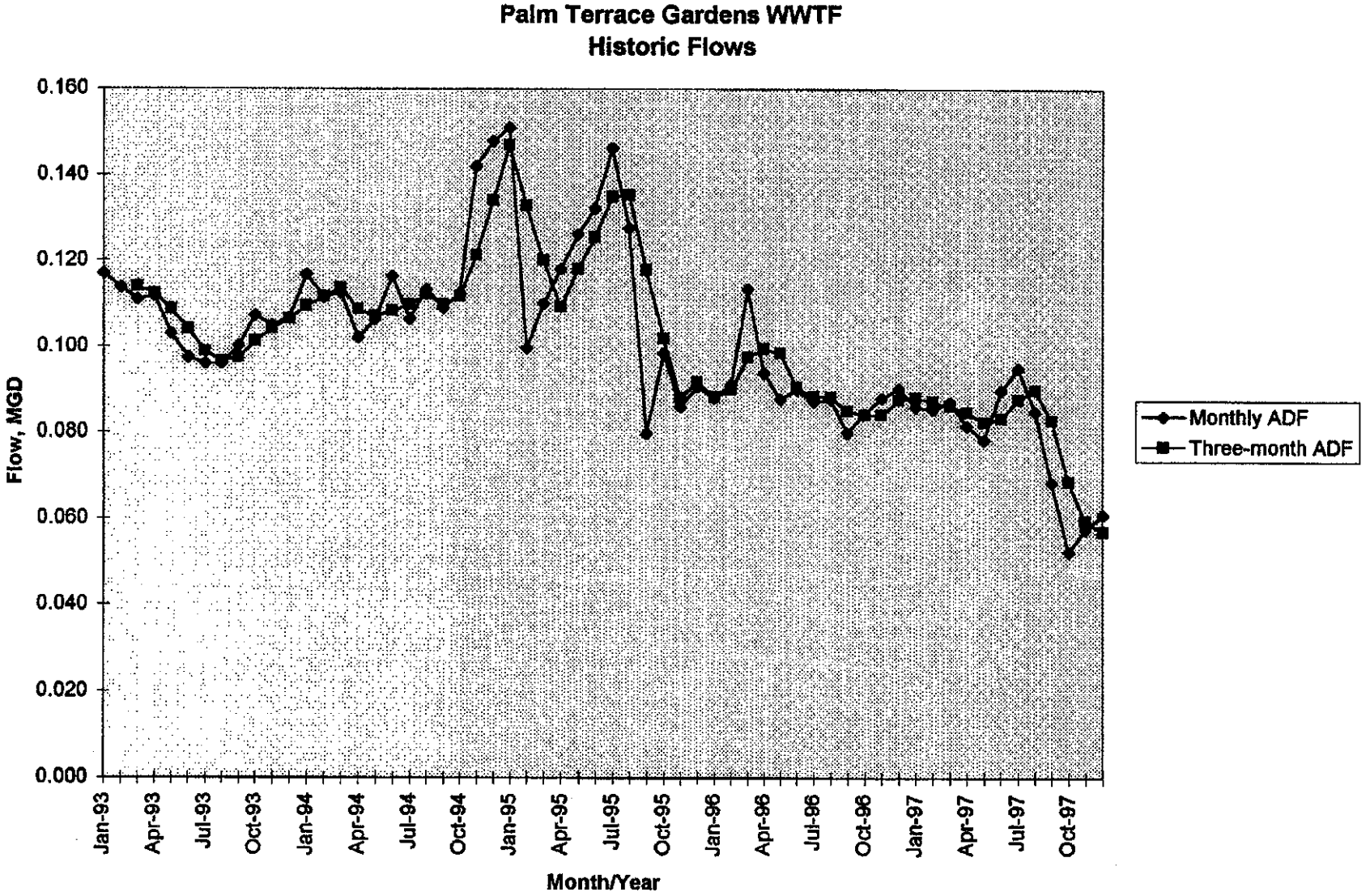

Palm Terrace Gardens WWTF
Historic Flows
Flow, MGD
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
Jan-93
Apr-93
Jul-93
Oct-93
Jan-94
Apr-94
Jul-94
Oct-94
Jan-95
Apr-95
Jul-95
Oct-95
Jan-96
Apr-96
Jul-96
Oct-96
Jan-97
Apr-97
Jul-97
Oct-97
Month/Year
Monthly ADF
Three-month ADF

Figure II-1

CHAPTER III - FUTURE CONDITIONS

A. Time Required for the Three-month Average Daily Flow to Reach the Permitted Capacity

The service area is built out, so flows are not expected to increase in the service area

B. Recommendations

To remain in compliance, it will be necessary to install baffles in the chlorine contact chamber to increase disinfectant contact time. It will also be necessary to complete proposed modifications to the perc pond system to allow for rotation of the ponds to optimize loading.

C. Improvement Schedule

The proposed improvements have been designed and are being submitted with the accompanying permit application package. It is anticipated that construction of the improvements can begin in early March, 1998, pending FDEP approval. Construction time is estimated to be approximately two months.

Initial Abbreviated
Capacity Analysis Report

FOR

PARK MANOR
WASTEWATER TREATMENT FACILITY
Located in Putnam County

DOMESTIC WASTEWATER FACILITY PERMIT NO. FLA011706
ISSUE DATE: JANUARY 16, 2003
EXPIRATION DATE: JANUARY 15, 2008

PREPARED BY:

AQUA UTILITIES FLORIDA INCORPORATED
1100 Thomas Avenue
Leesburg, Florida 34748

January 2008

CERTIFICATIONS

Permittee:

John M. Lihvarcik
President and COO
Aqua Utilities Florida Incorporated
1100 Thomas Avenue
Leesburg, Florida 34748
(352)435-4028

I certify that I have reviewed this report and am fully aware and intend to comply with recommendations and schedules included in this report.

Jan 10, 2008
Date

John M. Lihvarcik

Engineer:

Edward J. Pellenz, P.E.
Operations Manager
Aqua Utilities Florida Incorporated
1100 Thomas Avenue
Leesburg, Florida 32748
(352)435-4033

I certify that the information contained in this report is true and correct to the best of my knowledge, that the report was prepared in accordance with sound engineering principles, and that I have discussed the recommendations and schedules with the Permittee or the Permittee's delegated representative and the Lead Operator and agree 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, and will discharge effluent that complies with the limitations specified in the permit.

1/10/2008
Date

Edward J. Pellenz, P.E.
Professional Engineer No. 27409
State of Florida

CERTIFICATIONS
(Continued)

Lead Operator

Paul D. Thompson
Aqua Utilities Florida Incorporated
930 South S.R. 19, Suite #3
Palatka, Florida 32177
(386)329-1122

I certify that I have reviewed this report and am fully aware of the recommendations and schedules included in this report.

01/10/08
Date

Paul D. Thompson
Certification No. A-4894

A. Introduction

Aqua Utilities Florida Incorporated (AQUA) owns and operates the Park Manor Wastewater Treatment Facility (WWTF) located in Putnam County. This Capacity Analysis Report (CAR) is being submitted pursuant to Rule 62-600.405, Florida Administrative Code (F.A.C.) for renewal of the facility's Domestic Wastewater Facility Permit. This report was prepared in accordance with the Florida Department of Environmental Protection (FDEP) publication entitled: "Guidelines for Preparation of Capacity Analysis Reports", dated July 1992, and covers the period from July 2004 to present, the time frame since AQUA acquired Park Manor from Florida Water Services Corporation. This report is an update to the previously submitted CAR submitted by Florida Water Services October 2002. The report was prepared by Florida Water Service's Engineer Sandra J. Joiner, P.E.

The Park Manor wastewater service area is located in Section 18, Township 10 South, Range 25 East, in Putnam County, Florida, as shown on Figure 1-1. The service area has remained the same since the submittal of the last renewal application and is approximately 9 acres in size. The service area is primarily residential and is comprised of single family homes and some commercial businesses. The treatment plant only receives domestic wastewater. The service area consists of 38 equivalent residential connections (ERCs) and is at built-out. Please see attached system map showing all lots are occupied. There are no plans to expand the service area.

B. Plant Capacity and Description

The Park Manor WWTF has a rated capacity of 0.015 mgd, annual average daily flow, and is operated as an extended aeration facility. The operation of the plant is authorized under FDEP Domestic Wastewater Facility Permit No. FLA011706, which was issued on January 16, 2003 and expires on January 15, 2008.

The treatment process for the plant includes aeration, clarification, disinfection, and sludge thickening via digester. The effluent is discharged to two evaporation/percolation ponds located at the plant site. A process flow diagram for the plant and effluent reuse system is provided as Figure 1-2. The sludge is hauled to a permitted Residuals Management Facility by agreement for treatment and disposal.

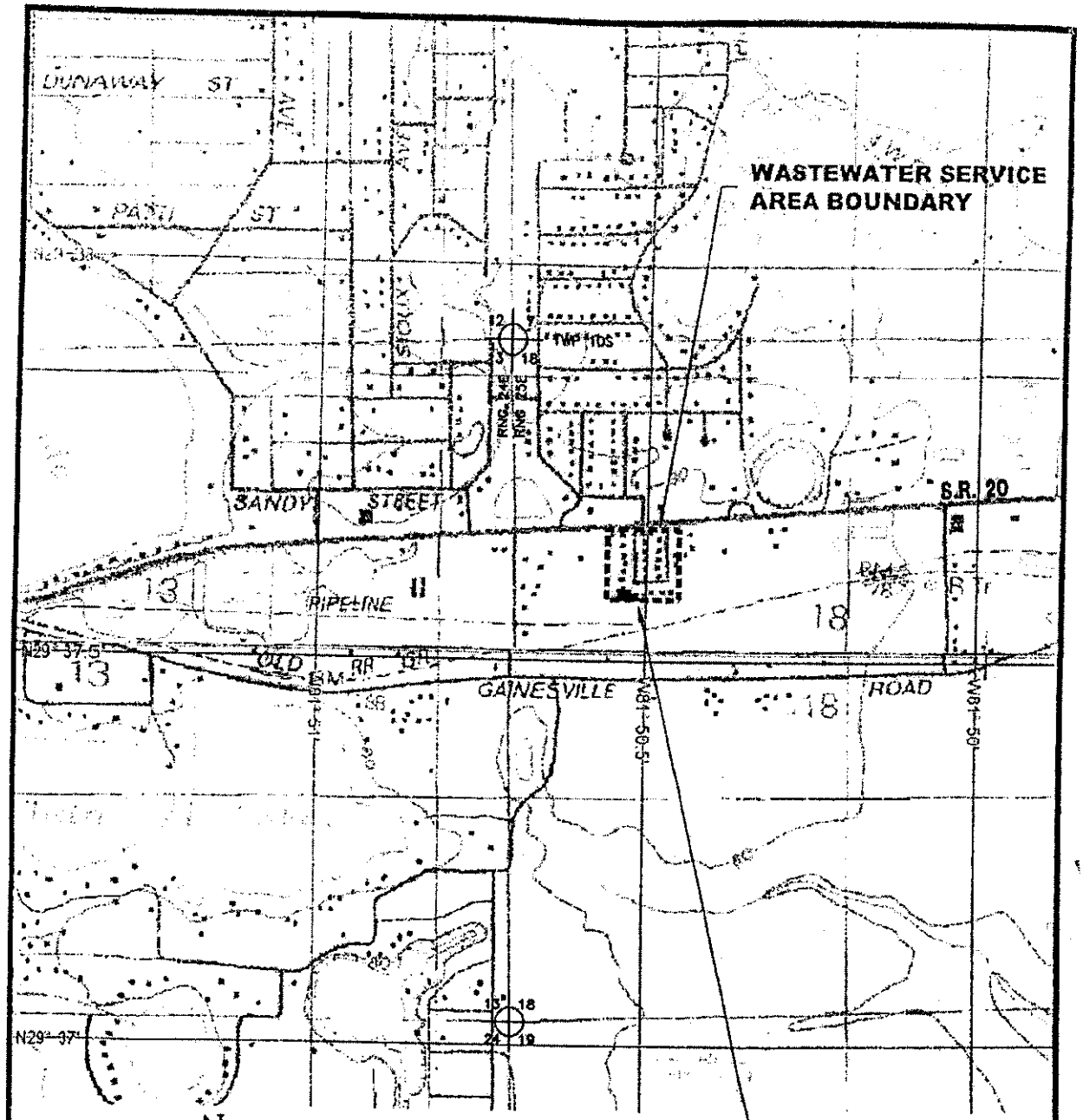
C. Treatment Process

Wastewater generated within the Park Manor service area is conveyed to the master lift station located at the plant site. The wastewater is pumped from the lift station to Aeration Tank No. 1 where it is discharged for treatment. There are three aeration tanks which are hydrostatically connected in series. The mixed liquor suspended solids (MLSS) in each aeration tank is aerated with diffused air. The MLSS is then conveyed from Aeration Tank No. 3 to the clarifier.

The clarifier is equipped with a stilling well to promote solids settleability and a skimmer and baffle to control the scum. The scum is air-lifted to the Aeration Tank No.1. The settled sludge is either air-lifted to Aeration Tank No. 1 or wasted and airlifted to the digester. During decanting, the supernatant is pumped to Aeration Tank No. 1. From the clarifier, the clarified effluent flows by gravity to the chlorine contact tank. Sodium hypochlorite is used to disinfect the effluent and is applied at the influent pipe to the chlorine contact tank. The disinfected effluent flows by gravity from the chlorine contact tank to the onsite evaporation/percolation ponds for reuse. The treatment plant and effluent reuse system are shown on Figure 1-3.

D. Plant Capacities

The permitted Capacity of this treatment is 0.015 MGD Annual Average Daily Flow (AADF). Currently the AADF is 0.004 MGD, the three month average daily flow is 0.005 MGD and the monthly average daily flow is 0.0035 MGD. Flow history is presented in Table CAR-1 and is shown graphically on Figure 1-4.



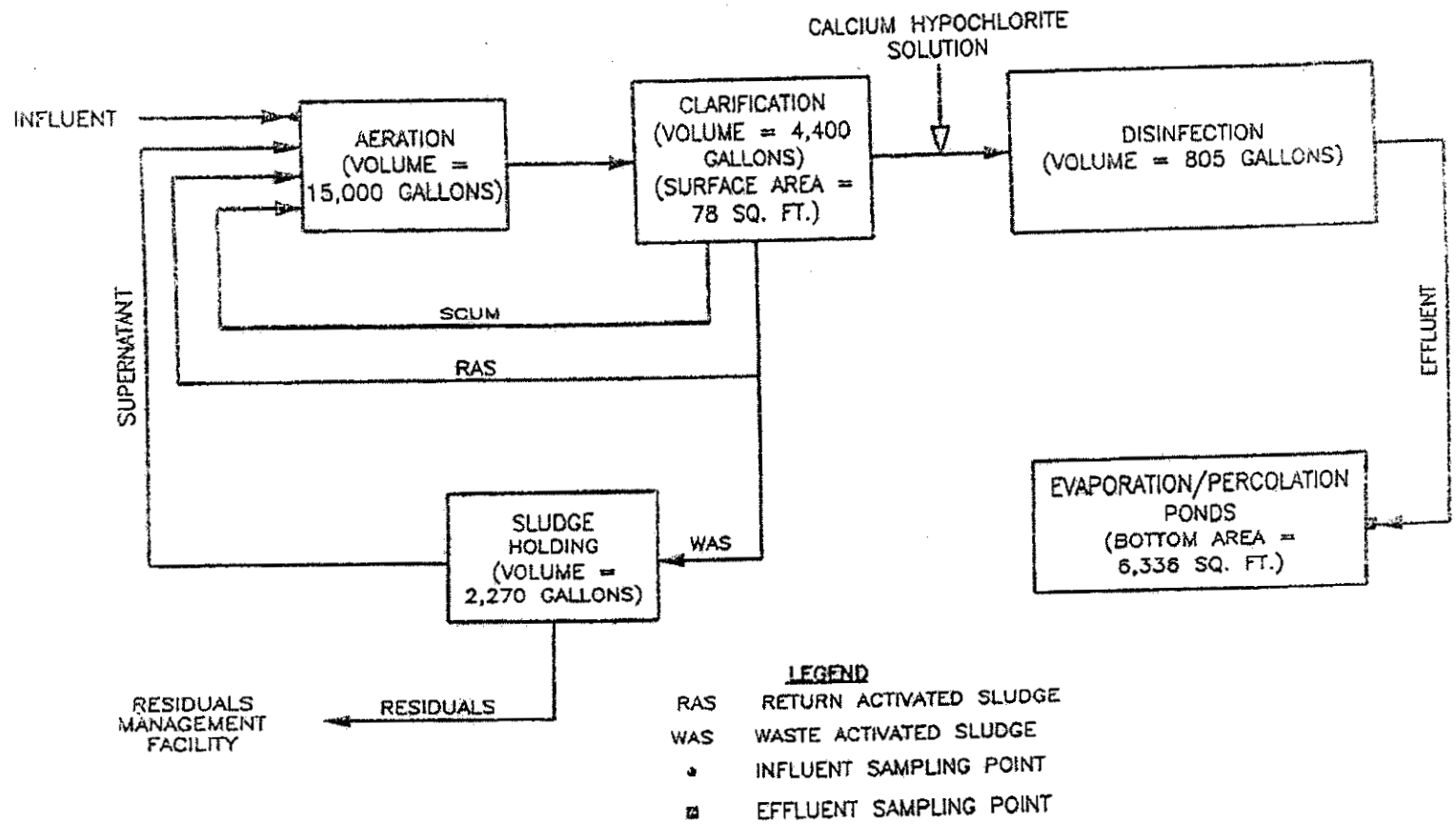
REFERENCE: UNITED STATES GEOLOGICAL SURVEY MAPS

BAYWOOD
PUTNAM COUNTY, FLORIDA
ORIG DATE: 1993

AQUA

PARK MANOR WASTEWATER SERVICE AREA & PLANT LOCATION

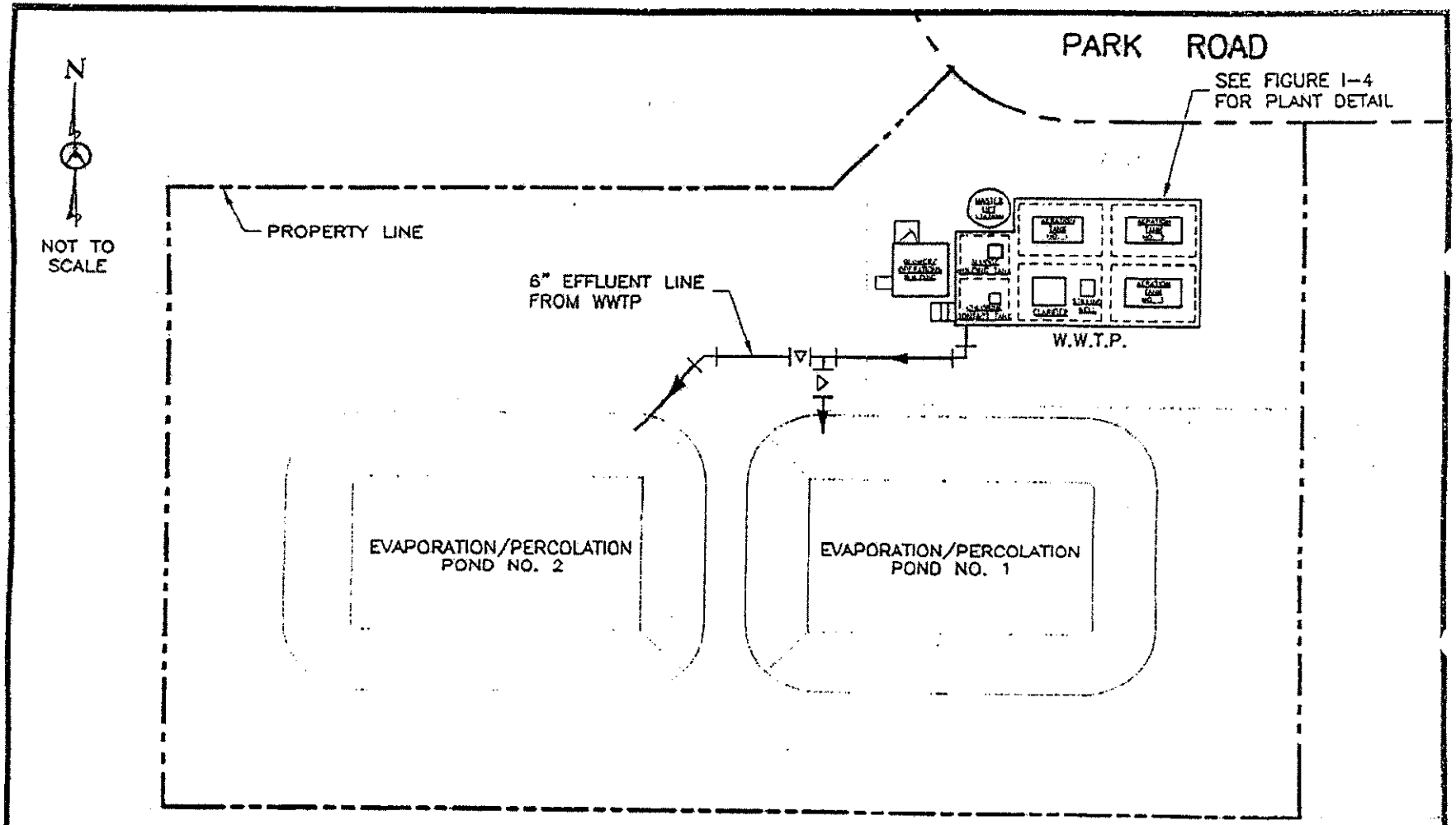
FIGURE I - 1



AQUA SM

PARK MANOR
WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM

FIGURE 1 - 2



AQUA

PARK MANOR
WASTEWATER TREATMENT FACILITY
SITE PLAN

FIGURE I - 3

Table CAR-1
Flow History

Date	Annual Average Daily Flow	Monthly Average Daily Flow	Three Month Average Daily Flow
December-07	0.004	0.0035	0.005
November-07	0.003	0.004	0.005
October-07	0.003	0.006	0.005
September-07	0.003	0.004	0.004
August-07	0.003	0.004	0.004
July-07	0.003	0.004	0.003
June-07	0.003	0.003	0.003
May-07	0.003	0.002	0.003
April-07	0.003	0.003	0.003
March-07	0.004	0.003	0.003
February-07	0.004	0.003	0.003
January-07	0.004	0.003	0.002
December-06	0.004	0.002	0.002
November-06	0.005	0.002	0.002
October-06	0.005	0.002	0.002
September-06	0.005	0.002	0.004
August-06	0.006	0.002	0.005
July-06	0.007	0.007	0.006
June-06	0.008	0.005	0.005
May-06	0.008	0.005	0.006
April-06	0.008	0.006	0.006
March-06	0.008	0.006	0.006
February-06	0.008	0.007	0.006
January-06	0.007	0.005	0.005

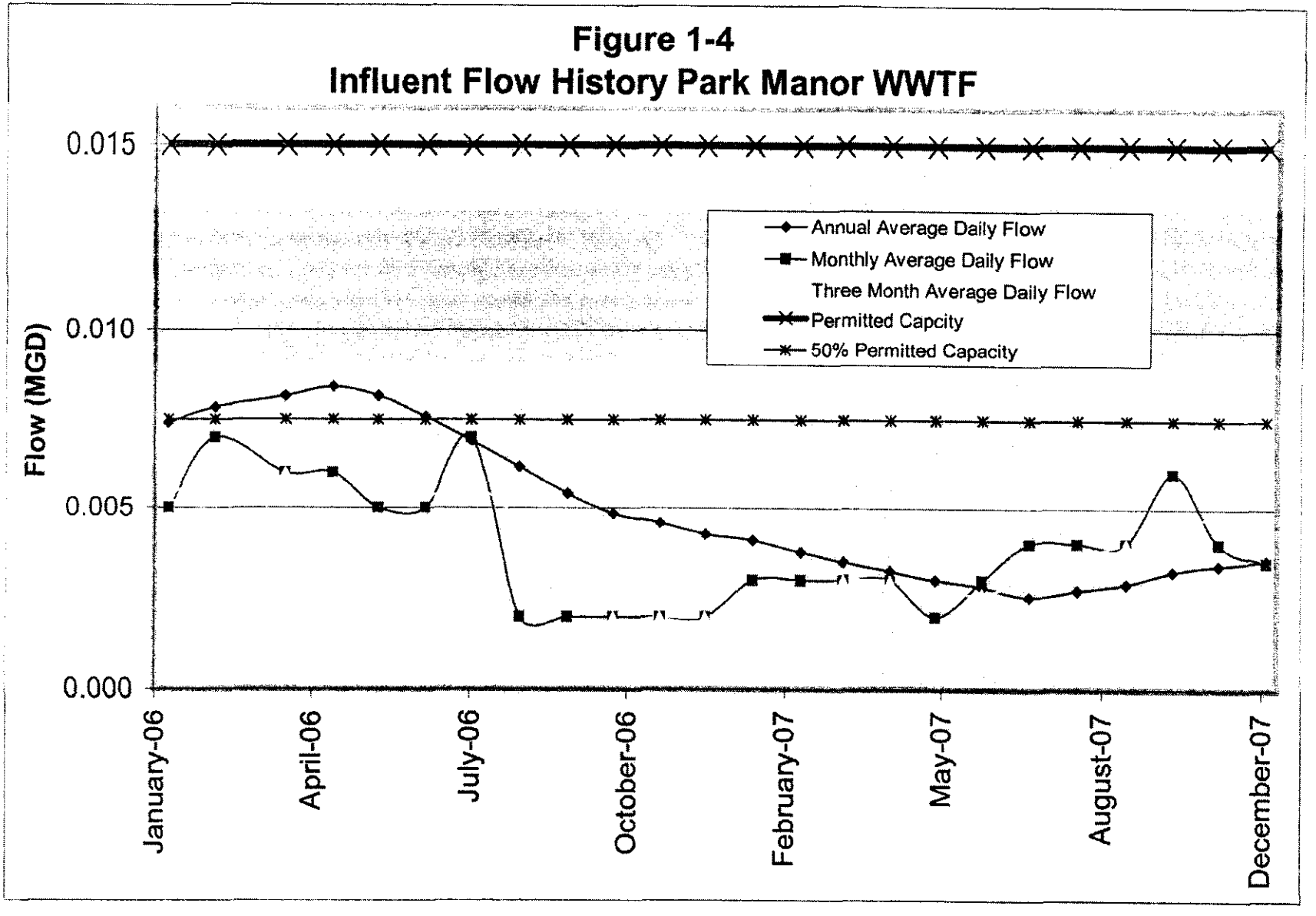


Figure 1-4
Influent Flow History Park Manor WWTF
Flow (MGD)
0.015
0.010
0.005
0.000
Annual Average Daily Flow
Monthly Average Daily Flow
Three Month Average Daily Flow
Permitted Capcity
50% Permitted Capacity
January-06
April-06
July-06
October-06
February-07
May-07
August-07
December-07

UPDATED CAPACITY ANALYSIS REPORT

For

ROSALIE OAKS SUBDIVISION
WASTEWATER TREATMENT PLANT
POLK COUNTY, FLORIDA

FDEP Permit No. FLA 011045
(Expires June 4, 2005)

Prepared By:
Andreyev Engineering, Inc.
561 Fieldcrest Drive
Lady Lake, Florida 32162

Prepared For:
Aqua Utilities Florida, Inc.
1343 N.E. 17th Road
Ocala, Florida, 34470

August 3, 2004

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CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	1343 N.E. 17th Road
	Ocala, FL 34470
Contact Person:	Glenn Labrecque
Title:	President
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report and Intent to Comply with Stated Recommendations.

The above named permitee is fully aware of the information contained in this report and intends to comply with the recommendations and schedules included in the report.

8/19/04

Glenn Labrecque Date

Statement by Permitee Regarding the Collection System and Service Area

The collection system serving the plant described above in this report receives only domestic wastewater. Additionally, there are no plans at this time to expand the service area.

8/19/04

Glenn Labrecque Date

Professional Engineer Preparing This Report:

Name:	Nicolas E. Andreyev, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway
	Sanford, FL 32771
Title:	President
Phone Number:	(407) 330- 7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative.

8/5/04

Nicolas E. Andreyev, P.E. Date
P.E. Registration No. 35459

1. INTRODUCTION

This facility's current FDEP Operation Permit No. FLA011045 will expire June 4, 2005.

This facility serves one (1) mobile home park (Rosalie Oaks Mobile Home Park), totaling 94 units. All but ten (10) of the lots were occupied as of May 2004. This service area is essentially near built-out, with no current plans for expansion.

The existing treatment plant is an extended aeration, type III facility, designed and approved for secondary treatment, basic disinfection and nitrate concentration not to exceed 12.0 mg/l in rapid rate infiltration percolation ponds. Design parameters include a concentration limit of 20 mg/l for CBOD's and 23.5 mg/L TSS in final plant effluent at flows of 83,000 GPD basis. The facility consists of one (1) master pump station, three (3) 5,000 gallon concrete aeration basins, two (2) 6,200 gallon clarifiers (of which one [1] is not in use), one (1) 4,592 gallon chlorine contact tank/chamber (CCC), seven (7) 5,000 gallon digesters (of which only four [4] are in use), one (1) 250 gallon Sodium Hypochlorite tank, and two (2) rapid rate infiltration percolation pond (0.76 acre [34,000 ft^2] area in total).

The treated (and chlorinated) effluent is discharged to two (2) rapid infiltration percolation ponds. This reuse system has an approved capacity of 0.015 MGD.

Residuals are removed by a licensed sludge hauler (Shelley's Septic Tanks, d.b.a., Shelley's Environmental Systems) to an approved sludge disposal area, on a disposal schedule that varied from a monthly basis to every 12 months in the last 16 month period.

The date of last capacity analysis report submitted to FDEP was June 2000. This report was prepared by Ed Coppock., P.E., of H2O Utility Services, Inc.

2. EXISTING CONDITIONS

CURRENT PERMITTED CAPACITY:
The current permitted treatment capacity is 0.015 MGD

MONTHLY AVERAGE DAILY FLOWS:
1) Varied Between 0.004 – 0.020 MGD over the Period 1/1/02 through 5/31/04
2) Average Monthly ADF was 0.011 MGD over the period 1/1/02 – 5/31/04

THREE-MONTH AVERAGE DAILY FLOWS:
1) Varied Between 0.007 – 0.015 MGD over the Period 3/1/02 through 5/31/04
2) 3-Month ADF was 0.011 MGD over the period 3/1/04 – 5/31/04

ANNUAL AVERAGE DAILY FLOWS:
1) Varied Between 0.008 – 0.013 MGD over the Period 1/1/03 through 5/31/04
2) Annual ADF was 0.012 MGD over the period 1/1/03 – 5/31/04

SEASONAL VARIATION IN FLOW:
Flows in June – September 2003 averaged a seasonal high of 0.0135 MGD, representing the time of maximum flows. Flows in Feb – March 2004 average 0.0130 MGD, also considered seasonal max flows. Low Seasonal flows were seen during the months of April and May for the last three (3) years: 0.0045 MGD in 2002, 0.010 MGD in 2003, and 0.0075 MGD in 2004.

UPDATED FLOW AND LOADING:
The average monthly flow (ADF) was 0.011 MGD over the period 1/1/02 – 5/31/04. The ADF (monthly basis) in January 2004 was 0.010 MGD.

The corresponding influent and effluent CBOD5 and TSS in January 2004 was as follows:
Influent CBOD5: 142 mg/L
Effluent CBOD5: 2.0 mg/L
Influent TSS: 118 mg/L
Effluent TSS: 1.6 mg/L

The corresponding current facility removal rates are as follows:
CBOD5: [(142-2)/142] x 100 = 98.59%
TSS: [(118-1.6)/118] x 100 = 98.64%

The current CBOD and TSS loading per person is as follows:
Current Population = 94 units x 2.5 persons per unit = 235 persons
Current Per Capita Usage = 11,000 GPD/235 persons = 46 Gallons/Persons-Day
CBOD Loading/person = [(142 mg/L x 8.34)/ 235] = 5.039 lbs/person
TSS Loading/person = [(118 mg/L x 8.34)/ 235] = 4.19lbs/person

The anticipated CBOD and TSS loading per person at development build-out is as follows:
Build-out Population = 104 units x 2.5 persons per unit = 260 persons
Flow at Development Build-out = (46 Gallons/Day) x 260 = 11,960 gallons/day

CBOD Loading at build-out:
(5.039 lbs/person x 260 persons) = 1,310.14 lbs
1310/8.34 = 150.17 mg/L CBOD5. At 98.59 % removal, the effluent will be 4.69 mg/L
Anticipated effluent CBOD at development build-out = 4.69mg/L @ 11,960 ADF

TSS Loading at build-out:
(4.19lbs/person x 260 persons) = 1,089.4 lbs
1,089.4/8.34 = 130.62 mg/L TSS. At 98.64 % removal, the effluent will be 1.78 mg/L
Anticipated effluent TSS at development build-out = 1.78mg/L @ 11,960 ADF

Current facility Design Criteria is 20 mg/L CBOD in effluent at flow 0.083 MGD
Current facility Design Criteria is 23.5 mg/L TSS in effluent at flow of 0.083 MGD

Since 4.69mg/L @ 11,960 ADF <20 mg/L @ 83,000 ADF (Design Criteria), No Further Improvements Are Required At This Time.

Alternately, since 1.78mg/L @ 11,960 ADF <23.5 mg/L @ 83,000 ADF (Design Criteria), No Further Improvements Are Required At This Time.

Considering Projected Flow, CBOD5 loading and TSS loading will be less than that designed for the facility, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application, no further treatment process will be required in this 10-year planning period.

3. FUTURE CONDITIONS

10-YEAR POPULATION PROJECTIONS:

At the present time 94 of the 104 mobile home lots in this subdivision are occupied. The remaining 10 lots are anticipated to be occupied within the next three (3) years. Once all 104 lots are occupied, this development will be built-out, with no plans for expansion or addition connections. The population is mixed retirement/family. It is assumed that the average population is 2.5 persons per lot. Given this assumption, the current population is as follows:

Current Population = 94 units x 2.5 persons per unit = 235

The anticipated population at development build-out is as follows:

Build-out Population = 104 units x 2.5 persons per unit = 260 persons

Population Projection

Year	Development Population
2004	235
2005	243
2006	251
2007	260
TOTAL	260

10-YEAR FLOW PROJECTIONS:

The average monthly ADF is 11,000 GPD, based a facility DMR's.
Current Per Capita Usage = 11,000 GPD/235 persons = 46 Gallons/Person-Day.
Anticipated ADF at Development Build-Out = (46 Gallons/Day) x 260 = 11,960 GPD

Current Annual ADF = 12,000 GPD (based on January 2003 – May 2004 data).
Anticipated Annual ADF at Development Build-out = (12,000 + 960) GPD = 12,960 GPD

Maximum 3-Month ADF/Annual ADF Factor = **1.061** (based on January 2003-May 2004 data).
Projected Maximum 3-Month ADF at Development Build-out=11,960 x 1.061= 12,690 GPD

In summary, the calculated projected facility Maximum 3-Month ADF of 12,690 GPD will not reach permitted capacity of 15,000 GPD at development build-out in 2007.

4. SUMMARY AND CONCLUSIONS

In summary, the current facility capacity was designed to treat 83,000 GPD. The anticipated wastewater flow at development build-out (104 lots) will be approximately 11,960 GPD (monthly ADF basis), and 12,692 GPD (Maximum 3-month ADF basis). Since the anticipated flows at development build-out are less than the permitted flow of 15,000 GPD (Max day), no additional treatment facilities or facility improvements will be required for this 10-year planning period.

Alternately, considering the projected flow, CBOD5 loading, and TSS loading (calculated above) will be less than that designed for the facility, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application, no further treatment process or facility improvements will be required in this 10-year planning period.

RECOMMENDATIONS FOR EXPANSION:

No further treatment process or facility improvements will be required in this 10-year planning period.

EXPANSION SCHEDULES:

None Required at this time.

The permit capacity for the treatment facility is 0.015 MGD. Peak monthly flows of 0.026 MGD in the last 12-month period occurred in August 2003. The peak three-month ADF of 0.015 MGD occurred in September 2003. Average daily flows for the period of January 2002 through May 2004 are shown on **Table 1.**

The facility is equipped with 2 blowers, each designed for an adequate, air supply. Also, the chlorine contact chamber is baffled to prevent "short circuiting".

Table 1:Rosalie Oaks WWF Flow, Influent & Effluent Data Summary

Month	Monthly ADF (MGD)	3-Month ADF (MGD)	Annual ADF (MGD)	3-Month ADF to Annual ADF Ratio	Influent 5-dayCBOD (mg/L)	Influent TSS (mg/L)	Effluent 5-dayCBOD (mg/L)	Effluent TSS (mg/L)	Effluent Nitrate (N) (mg/L)	pH min/max (S.U.)	Fecal (#/100)
Jan-02	0.007				160	150	2	1	0.051	7.4/8.3	1
Feb-02	0.01				220	270	2	3.,4	1.9	7.6/7.8	1
Mar-02	0.009	0.009					2	1.4	0.81	7.6/7.8	1
Apr-02	0.005	0.008					2.6	1	0.3	7.0/8.3	1
May-02	0.004	0.006					2	1	0.6	7.3/8.1	1
Jun-02	0.011	0.007					2.2	1	3.1	7.4/7.9	1
Jul-02	0.013	0.009					2	4.2	3.1	7.4/8.0	1
Aug-02	0.009	0.011					39	1.4	3.7	7.3/7.8	1
Sep-02	0.01	0.011					2	2.6	3.6	7.2/7.9	1
Oct-02	0.011	0.010					2	2	9.4	7.5/8.0	1
Nov-02	0.013	0.011					2	5	9.6	7.2/7.9	1
Dec-02	0.02	0.015					4.6	7	1.25	7.1/7.7	1
Jan-03	0.013	0.015	0.008	1.910			2	3.2	0.95	7.2/8.0	1
Feb-03	0.013	0.015	0.009	1.648	67	66	2.3	5.6	0.33	7.0/8.5	1
Mar-03	0.014	0.013	0.011	1.260			3.2	2.6	1.1	6.8/7.6	1
Apr-03	0.011	0.013	0.011	1.154			6.8	2	8.03	6.9/8.0	152
May-03	0.009	0.011	0.011	0.998			2	2	14	7.2/7.8	1
Jun-03	0.01	0.010	0.012	0.847			2.9	2	3.9	7.3/8.1	1
Jul-03	0.014	0.011	0.012	0.910			2	2	8.2	7.3/7.6	7700
Aug-03	0.017	0.014	0.012	1.118			4.6	3.8	0.05	7.1/7.8	1
Sep-03	0.013	0.015	0.012	1.179			2	2.2	4.6	7.3/7.8	1
Oct-03	0.009	0.013	0.013	1.017			3	3.4	8.83	7.2/7.9	1
Nov-03	0.009	0.010	0.013	0.793			2	3.2	8.7	7.2/8.0	1
Dec-03	0.009	0.009	0.013	0.695			4.3	1	0.3	6.8/7.9	1
Jan-04	0.01	0.009	0.012	0.748	142	118	2	1.6	2.97	6.3/7.2	4.5
Feb-04	0.013	0.011	0.012	0.891			3.3	2	0.97	6.8/7.0	1
Mar-04	0.013	0.012	0.012	1.036			4.2	3	20.08	6.8/7.3	5
Apr-04	0.009	0.012	0.011	1.017			4	3	2.1	6.8/7.3	1
May-04	0.006	0.009	0.011	0.820			3.5	2	0.04	6.9/7.2	1
AVERAGE	**0.011**	**0.011**	**0.012**	**1.061**	**147.3**	**151.0**	**4.1**	**2.6**	**4.2**		**271.95**

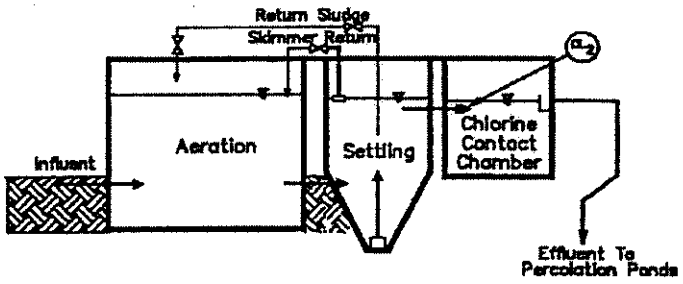
Notes

(1) Flow reported for August 2003 was miscalculated on the DMR (reported as 0.002 MGD). The correct value is above (0.017 MGD).

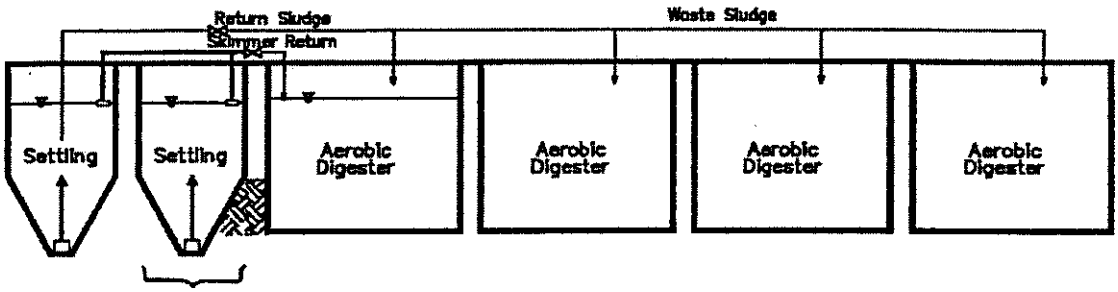
(2) Flow reported for December 2002 was miscalculated on the DMR (reported as 0.003 MGD). The correct value is shown above (0.02 MGD).

Source, Aqua Utilities Florida Inc., 2002-2004 DMR's and Andreyev Engineering Inc., 2004 WWTF Permit Application Renewal

file: U/Susanna/AquaSource/WWTF Permit Renewals/RosalieOaks Flow & Eff Data Summary.xls



SECTION "A–A"

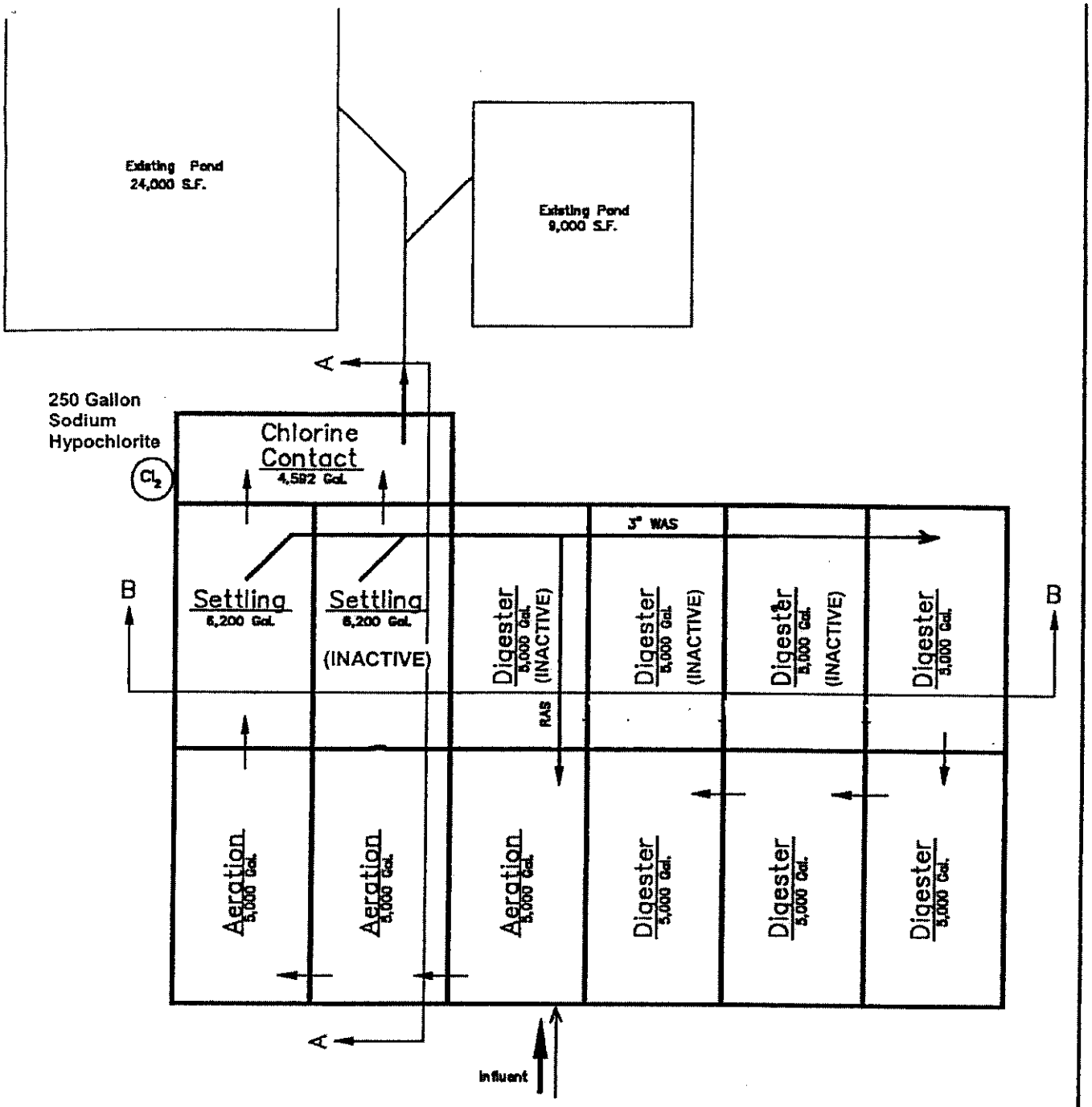


SECTION "B–B"

HYDRAULIC PROFILE

EXISTING ROSALIE OAKS WASTEWATER TREATMENT PLANT

Andreyev Engineering, Inc.		ROSALIE OAKS HYDRAULIC PROFILE
DATE: 7/23/04	ENGINEER: SL	TAVARES, LAKE COUNTY, FLORIDA
PN: VPGW-04-0018	DRAWN BY: TA	FIGURE 2.

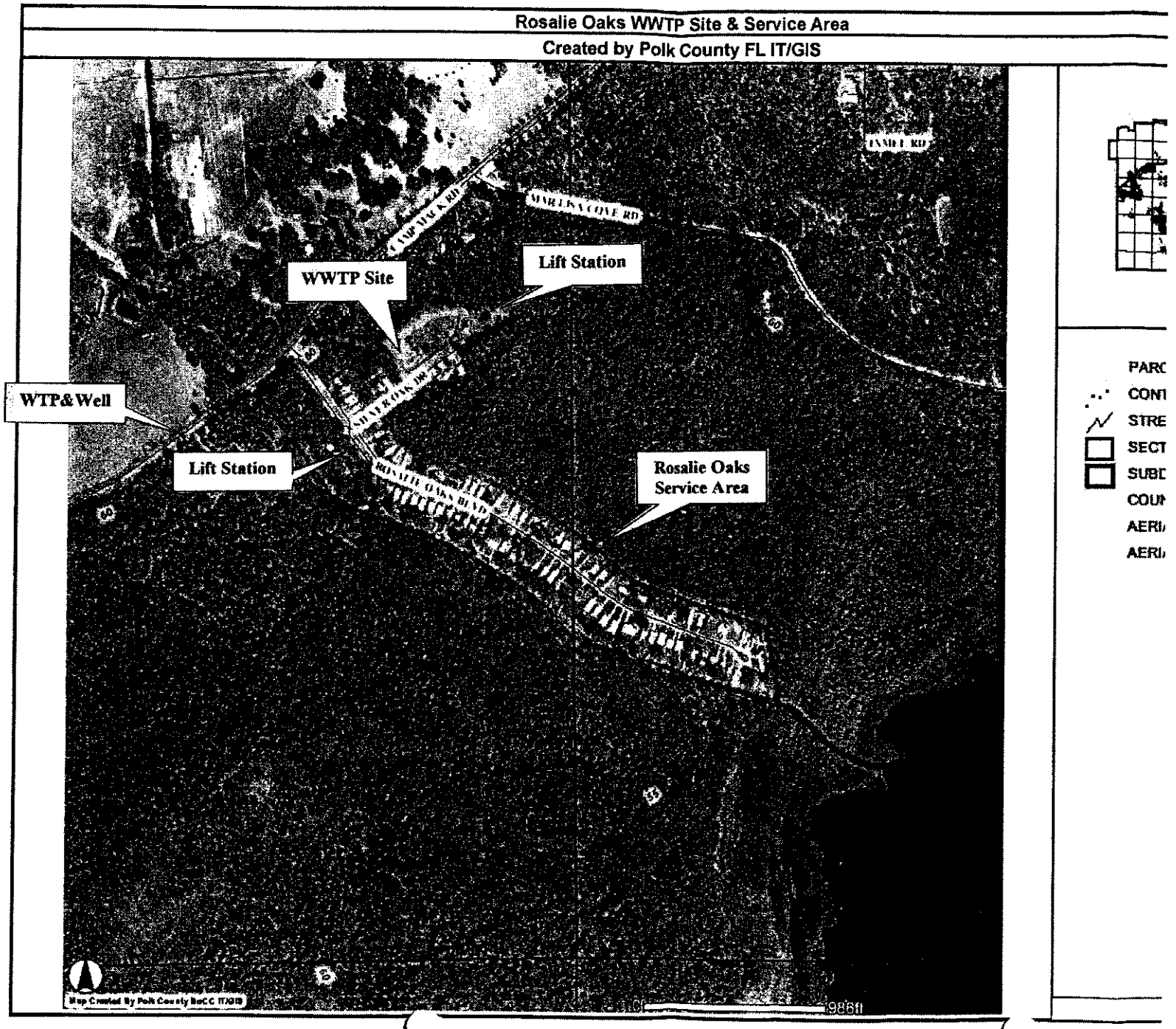


FLOW SCHEMATIC

EXISTING ROSALIE OAKS WASTEWATER TREATMENT PLANT

Andreyev Engineering, Inc.		ROSALIE OAKS PROCESS FLOW
DATE: 7/23/04	ENGINEER: SL	TAVARES, LAKE COUNTY, FLORIDA
PN: VPGW-04-0018	DRAWN BY: TA	FIGURE 1

Map Output


Rosalie Oaks WWTP Site & Service Area
Created by Polk County FL IT/GIS
WWTP Site
Lift Station
WTP&Well
Lift Station
Rosalie Oaks
Service Area
Map Created By Polk County BoCC IT/GIS
9861

UPDATED
CAPACITY ANALYSIS REPORT

For

SILVER LAKE OAKS SUBDIVISION
WASTEWATER TREATMENT PLANT
PALATKA, PUTNUM COUNTY, FLORIDA

FDEP Permit No. FLA 011715
(Expires December 11, 2005)

Prepared By:
Andreyev Engineering, Inc.
4055 St. John's Parkway
Sanford, Florida 32771

Prepared For:
Aqua Utilities Florida, Inc.
PO Box 490310
2315 Griffin Road
Leesburg Florida, 34749

May 2005

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CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	PO Box 490310
	2315 Griffin Road
	Leesburg FL, 34749
Contact Person:	Glenn Labrecque
Title:	*President*
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report and Intent to Comply with Stated Recommendations.

The above named permitee is fully aware of the information contained in this report and intends to comply with the recommendations and schedules included in the report.

Glenn Labrecque Date

Statement by Permitee Regarding the Collection System and Service Area

The collection system serving the plant described above in this report receives only domestic wastewater. Additionally, there are no plans at this time to expand the service area.

Glenn Labrecque Date

Professional Engineer Preparing This Report:

Name:	Raymond W. Jones, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway
	Sanford, FL 32771
Title:	Vice President
Phone Number:	(407) 330- 7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative.

6-7-05

Raymond W. Jones, P.E. Date
P.E. Registration No. 58079

1. INTRODUCTION

This facility's current FDEP Operation Permit No. FLA011715 will expire December 11, 2005.

This facility serves one (1) subdivision totaling 38 active units, with 18 vacant lots remaining. No lots have been developed over the five year period 2000-2005. No current building is being conducted or is planned. However, for the purposes of future planning, it is assumed the remaining 18 lots will be developed. There is no current plan to expand the current subdivision or service area.

Silver Lake Oaks WWTF is estimated to be 30 years old located in City of Palatka, located within Putnum County Florida Figure 1-1. This facility is an extended aeration, Type III facility, designed and approved for secondary treatment, sand filtration, basic disinfection and nitrate concentration not to exceed 12 mg/l, as applied to a rapid rate absorption field shown in Figure I-2. Design parameters include 90% removal of CBOD5 and TSS, or a concentration limit of 20 mg/l and 10 mg/L for each respective parameter. The facility consists of one (1) pump station, two (2) 6,000 gallon pre-cast concrete aeration basins, one (1) secondary clarifier with a surface area of 86.5 sq ft, one (1) 12 sq/ft gravity sand filter, one (1) 700 gallon, chlorine contact chamber (CCC), one (1) 1,900 gallon aerobic digester, one (1) 55 gallon sodium hypochlorite tank, and two (2) rapid rate absorption fields (total of 0.167 acres) operated in series with a design loading rate of insert 18.52 inches per week, with a total wetted surface area of 7,276 square feet.

Residuals are removed by a licensed sludge hauler (Shelly Septic) to an approved sludge disposal area. The facility is on a 6 day a week visitation schedule.

The date of last capacity analysis report submitted to FDEP was October 5, 2000. This report was prepared by Sandra J. Joiner., P.E., of Florida Water Services, Inc.

2. EXISTING CONDITIONS

The permit capacity for the treatment facility is 0.012 MGD (3MADF basis). Peak monthly flows of 0.005 MGD in the last 12-month period occurred in September 2004. The peak three-month ADF of 0.003 MGD occurred in September 2004. Average daily flows for the period of January 2002 through May 2004 are shown on Table 1.

CURRENT PERMITTED CAPACITY:
The current permitted treatment capacity is 0.012 MGD (3MADF basis).

MONTHLY AVERAGE DAILY FLOWS:
1) Varied between 0.001 MGD – 0.005 MGD over the period 4/1/02 through 3/31/05
2) Average Monthly ADF was 0.0019 MGD over the period 4/1/02 – 3/31/05

THREE-MONTH AVERAGE DAILY FLOWS:
1) Varied between 0.001 MGD – 0.003 MGD over the period 4/1/02 through 3/31/05
2) 3-Month ADF was 0.0017 MGD over the period 4/1/02 – 3/31/05

ANNUAL AVERAGE DAILY FLOWS:
1) Varied between 0.001 MGD – 0.003 MGD over the period 4/1/02 through 3/31/05
2) Annual ADF was 0.0019 MGD over the period 4/1/02 – 3/31/05

SEASONAL VARIATION IN FLOW:
Flows in September 2004 experienced a seasonal high of 0.005 MGD, representing the time of maximum flows. This single high flow event was directly affected by the extraordinary multiple hurricanes of 2004. Low seasonal flows (0.001 MGD) were recorded during the months of July 2003 through February 2004, and December 2002 through February 2003, as well as April and May 2003.

CURRENT FLOW AND LOADING:
Over the past 12 month evaluation period of 4/1/04 – 3/31/05, the average Monthly ADF was 0.0021 MGD. The ADF in March 2005 was 0.001 MGD.

CBOD5 and TSS efficiency of removal (based over the same 12 month period) is as follows:

Parameter Evaluated	**Average Influent Values *4/2004 – 3/2005***	**Average Effluent Values *4/2004 – 3/2005***	**Percent Removal**
CBOD5	254.2 mg/L	4.1 mg/L	98.4%
TSS	125.5 mg/L	7.6 mg/L	93.9%

The current CBOD5 and TSS loading per person are as follows:
Current Population = 38 units x 2.07 persons = 79 total persons
Current Per Capita Wastewater Generation = 2,100 GPD / 79 = 26.6 gpd/person

Current CBOD5 Loading = (254.2 mg/L x 8.34 x 0.0021 MGD ADF) = 4.45 lbs.
4.45 lbs. / 79 = **0.056 lbs/person**

Current TSS Loading = (125.5 mg/L x 8.34 x 0.0021 MGD) = 2.20 lbs.
2.20 lbs. / 79 = **0.028 lbs/person**

3. FUTURE CONDITIONS

10-YEAR POPULATION PROJECTIONS:

At the present time, 38 of the 56 resident lots in this subdivision are occupied. The remaining 18 lots are anticipated to be occupied with the next ten (10) years. Once all 56 lots are occupied, this development will be built-out, with no plans for expansion or addition connections. The population is mixed retirement/family. It is assumed that the average population is 2.07 persons per lot, per 2000 U.S. Census data for the Putnam County. Given this assumption, the current population is as follows:

Current Population = 38 units x 2.07 persons per unit = 79 persons

The anticipated population at development build-out is as follows:

Build-out Population = 56 units x 2.07 persons per unit = 116 persons

Population Projections

Year	Development Population
2005	79
2006	83
2007	87
2008	91
2009	95
2010	99
2011	103
2012	107
2013	112
2014	116

10-YEAR FLOW PROJECTIONS:

Anticipated Monthly ADF Flows:

Current average Monthly ADF is 2,100 gpd, based on facility DMR's.
Current Per Capita Usage = 2,100 gpd / 79 persons= 26.6 gpd per person
Anticipated Monthly ADF @ development build-out
= (26.6 gpd/person) x 116 persons = 3,086 gpd

Anticipated Annual ADF Flows:

Current Annual ADF = 0.0019 MGD (April 2002 – March 2005 AADF)
Anticipated Annual ADF at development build-out:
Annual ADF: 1,900 gpd/79 persons = 24.05 gpd/person
Annual ADF @ development build-out: *116 persons x 24.05 gpd/person* ***= 2,790 gpd***

Anticipated M3MADF Flows:
Current Maximum 3-Month ADF 0.003 MGD
Anticipated M3MADF at development build-out:
M3MADF: 3,000 gpd/79 persons = 37.97 gpd/person
M3MADF @ development build-out: *116 persons x 37.97 gpd/person* ***= 4,405 gpd***

Since both the projected facility AADF of 2,790 gpd and the M3MAFD of 4,405 gpd at development build-out do not exceed the permitted capacity of 12,000 gpd, no expansion or facility improvements are recommended at this time.

10-YEAR EFFLUENT CBOD5 & TSS LOADING PROJECTIONS:
Assuming Future Loading projections on a Monthly ADF Basis (3,095 gpd), the anticipated CBOD5 and TSS loading per person at development build-out are as follows:

CBOD5 Loading at build-out:
(0.045 lbs/person x 116 persons) = 5.22 lbs
5.22 lbs./ (0.0030856 MGD x 8.34) = 200.8 mg/L CBOD5.
At 98.4 % removal, the effluent is projected to be 2.04 mg/L
Anticipated effluent CBOD @ development build-out = 2.04 mg/L *@ 3,085 gpd ADF*

TSS Loading at build-out:
(0.028 lbs/person x 116 persons) = 3.25 lbs
3.25 lbs. / (0.0030856 MGD x 8.34) = 125 mg/L TSS
At 93.9 % removal, the effluent will be 1.33 mg/L
Anticipated effluent TSS @ development build-out = 1.33 mg/L *@ 3,085 gpd ADF*

Current facility design criteria is 20 mg/L CBOD5 at 12,000 gpd
Current facility design criteria is 10 mg/L TSS at 12,000 gpd

Since the projected CBOD concentration at development build-out (2.04 mg/L) and the projected TSS at development build-out (1.33 mg/L) are less than current permit limits and facility design criteria for these two parameters (20 mg/L for CBOD5 and 10 mg/L for TSS) @ projected development build-out Monthly ADF of 3,085 gpd, no further improvements are required at this time.

Considering projected flow, CBOD5 and TSS loading will be significantly less than that designed for the facility, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application. No further treatment process will be required in this 10-year planning period.

4. SUMMARY AND CONCLUSIONS

In summary, the current facility capacity is designed to treat 12,000 gpd. The anticipated wastewater flow at development build-out (116 lots) is projected to be approximately **3,086 gpd** (monthly ADF basis), and **4,405 gpd** (Maximum 3-month ADF projection). Since the anticipated flows at development build-out are far less than the permitted flow of 12,000 gpd, no additional treatment facilities, or facility improvements will be required for this 10-year planning period.

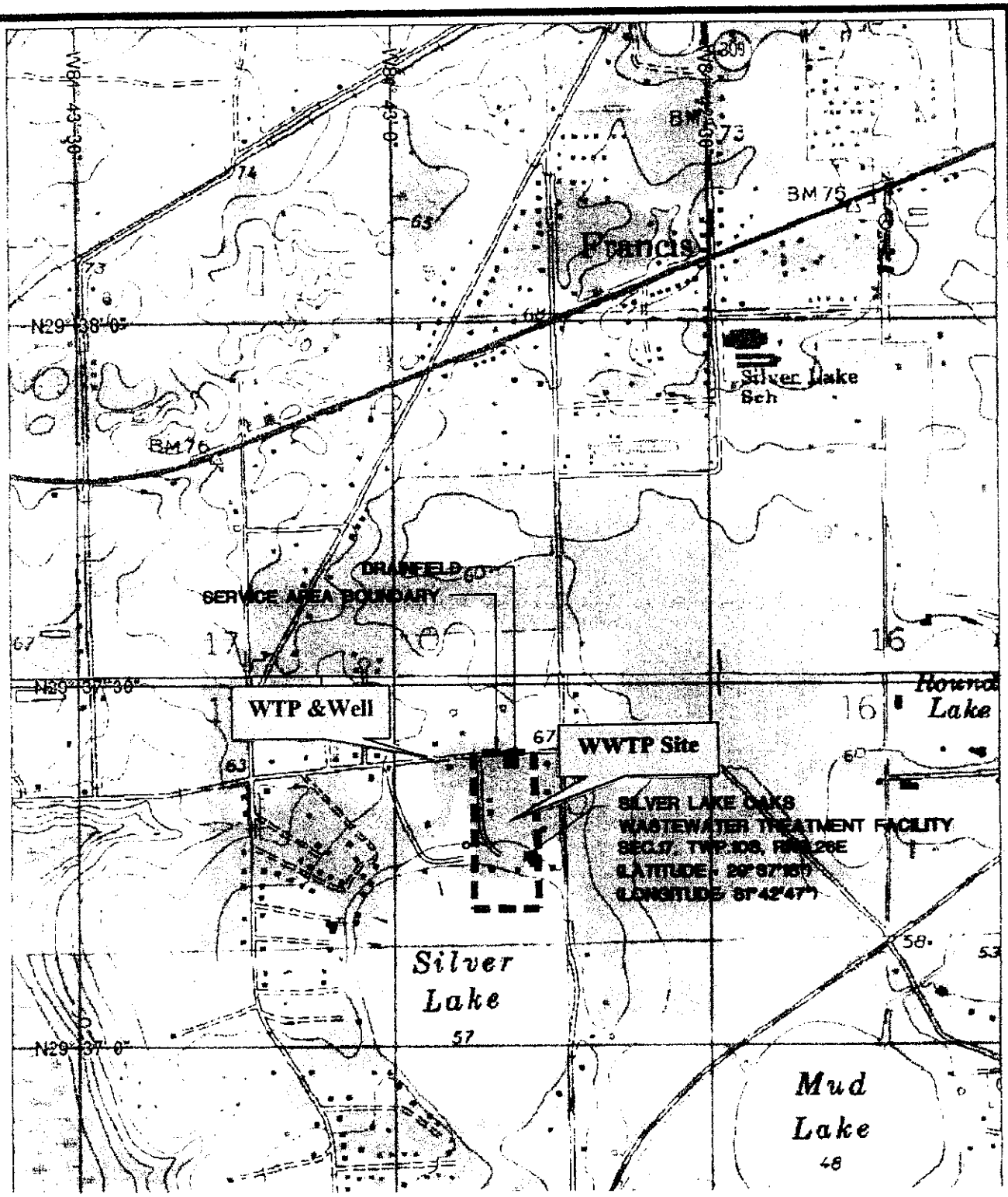
Alternately, the projected CBOD5, and TSS loading at development build-out (calculated above) will be less than that designed/permitted for Silver Lake Oaks WWTP, per the Facility Preliminary Design values reported in the 2000 Operations Permit Application. No further treatment process or facility improvements will be required in this 10-year planning period.

RECOMMENDATIONS FOR EXPANSION:
No further treatment process or facility improvements will be required in this 10-year planning period.

EXPANSION SCHEDULES:
None required at this time.

Table 1: Silver Lake Oaks Influent Flow Data

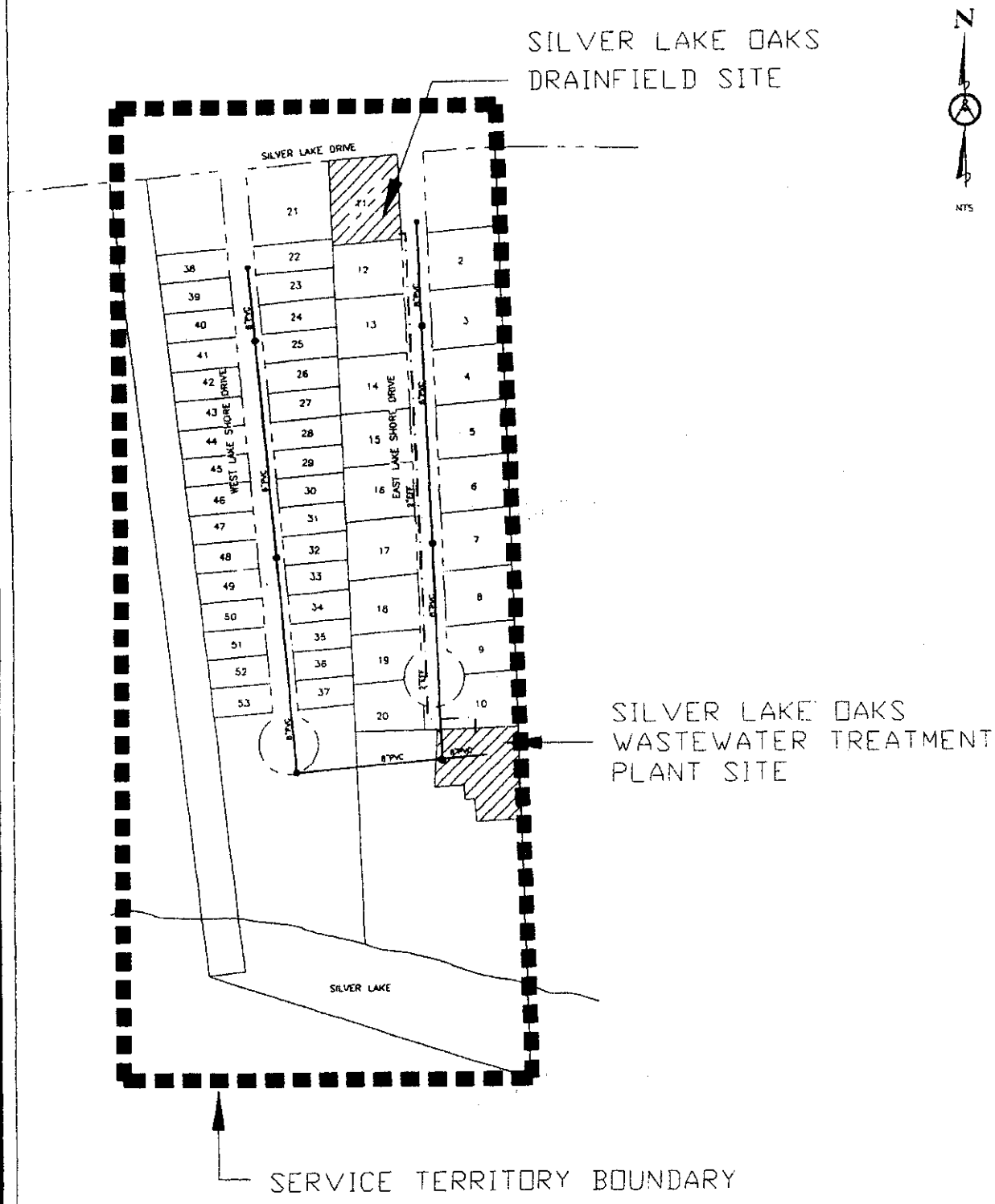
Month	Influent Monthly ADF (MGD)	Influent 3-Month ADF (MGD)	Influent Annual ADF (MGD)	Influent 3-Month ADF to Annual ADF Ratio
Apr-02	0.003	0.003	0.003	1.000
May-02	0.003	0.003	0.003	1.000
Jun-02	0.003	0.003	0.003	1.000
Jul-02	0.003	0.003	0.003	1.000
Aug-02	0.003	0.001	0.003	0.333
Sep-02	0.003	0.002	0.003	0.667
Oct-02	0.003	0.003	0.003	1.000
Nov-02	0.003	0.003	0.003	1.000
Dec-02	0.001	0.002	0.003	0.667
Jan-03	0.001	0.002	0.003	0.667
Feb-03	0.001	0.001	0.003	0.333
Mar-03	0.002	0.001	0.002	0.500
Apr-03	0.001	0.001	0.002	0.500
May-03	0.001	0.001	0.002	0.500
Jun-03	0.002	0.001	0.002	0.500
Jul-03	0.001	0.001	0.002	0.500
Aug-03	0.001	0.001	0.002	0.500
Sep-03	0.001	0.001	0.002	0.500
Oct-03	0.001	0.001	0.001	1.000
Nov-03	0.001	0.001	0.001	1.000
Dec-03	0.001	0.001	0.001	1.000
Jan-04	0.001	0.001	0.001	1.000
Feb-04	0.001	0.001	0.001	1.000
Mar-04	0.002	0.001	0.001	1.000
Apr-04	0.002	0.002	0.001	2.000
May-04	0.001	0.002	0.001	2.000
Jun-04	0.002	0.002	0.001	2.000
Jul-04	0.002	0.001	0.001	1.000
Aug-04	0.002	0.002	0.001	2.000
Sep-04	0.005	0.003	0.002	1.500
Oct-04	0.003	0.002	0.001	2.000
Nov-04	0.002	0.002	0.001	2.000
Dec-04	0.002	0.002	0.001	2.000
Jan-05	0.002	0.002	0.002	1.000
Feb-05	0.001	0.002	0.002	1.000
Mar-05	0.001	0.001	0.002	0.500
PERIOD AVERAGE	**0.0019**	**0.0017**	**0.0019**	**1.032**
Year 1 Ave.	**0.0021**	**0.0019**	**0.0013**	**1.583**
Year 2 Ave.	**0.0012**	**0.0010**	**0.0015**	**0.750**
Year 3 Ave.	**0.0024**	**0.0023**	**0.0029**	**0.764**



Andreyev Engineering, Inc.

SILVER LAKE OAKS WASTEWATER SERVICE AREA & PLANT LOCATION

FIGURE I-I



Andreyev Engineering, Inc.

SILVER LAKE OAKS
WASTEWATER SERVICE AREA

FIGURE I-2

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Updated Capacity Analysis Report

South Seas Resort

Wastewater Treatment Plant

Lee County, Florida

FDEP permit No. FLA014686 (Expires January 30, 2005)

July 22, 2004

Certification by Permittee:

I certify that I am fully aware of and intend to comply with the recommendations and schedules included in this report.

Glenn LaBrecque
Vice President & Chief Operating Officer

7/23/04
Date

Aqua Utilities Florida, Inc.
6960 Professional Parkway East
Sarasota, Florida 34240
(941) 907-7420

Certification by Professional Engineer:

I certify that the information contained in this report is true and correct to the best of my knowledge; this report was prepared in accordance with sound engineering principles. I have discussed the recommendations and schedules with the permittee.

David L. Farabee, PE
Florida PE No. 22308

7/22/04
Date

David L. Farabee, PE
4263 Lancaster Drive
Sarasota, Florida 34241
(941) 356-6561

Capacity Analysis Report

South Seas Resort Wastewater Treatment Plant

Introduction

This report has been prepared in accordance with rules of the Florida Department of Environmental Protection (FDEP) to review the available capacity of the South Seas Resort Wastewater Treatment Plant (WWTP). Specifically, this report is intended to comply with the requirements of FAC 62-600.405, which requires the preparation of such reports.

This report is intended to update the previous Capacity Analysis Report, which was prepared by Johnson Engineering, Inc., and dated February 1997. Under the provisions of FDEP's "Guidelines for Preparation of Capacity Analysis Reports," this is intended to be an "Abbreviated Report."

The existing WWTP has a permitted capacity of 264,000 gallons per day. The treatment plant and uses a contact stabilization wastewater treatment process. Clarified effluent is filtered and chlorinated to meet high-level disinfection standards. The facilities include tanks for influent flow equalization, sludge aerobic digestion and lime stabilization, and reject storage. All effluent is reused for irrigation of the South Seas Resort golf course. The treatment plant is in good operating condition, and consistently produces effluent that exceeds relevant FDEP requirements.

Existing Conditions and Flows

The permitted capacity of the existing wastewater treatment plant is 264,000 gallons per day. Table 1 and Figure 1 show the flows measured and reported to FDEP on monthly operating reports since 2001. Due to the storage of older files, previous flow records are not available. However, these flows are consistent with the flows reported in the 1997 Capacity Analysis Report, which averaged 209,000 gallons per day from 1993 through 1996.

Because of the nature of the service area, seasonally variable flow rates could be expected. However, a comparison of monthly flows for various years shows that this is not the case. That comparison is shown in Figure 2.

As these flow records show, the actual flows are significantly less than the design capacity. The maximum annual average flow, in 2001, was 190,000 gallons per day. The maximum 3-month rolling average flow, in April 2001, was 229,000 gallons per day. The maximum monthly average flow, in June 2001, was 256,000 gallons per day. All these values are less than the permitted capacity.

In reviewing the flow data, it is apparent that flows since the fall of 2001 have been somewhat lower than previous flows. The plant operator attributes this to a change in

the flow meter at that time, which has apparently resulted in more accurate flow measurement since then.

Future Conditions

The WWTP service area, South Seas Resort, is largely built out. There was a recent expansion with the construction of a 10-unit apartment building, which should add about 3,500 gallons per day (or 1.3% of the design capacity) to the WWTP demand. No further expansion of the park or the WWTP service area is planned. Existing wastewater flow rates are expected to continue into the future.

Summary and Conclusions

On the basis of the flow rates and conditions described above, it is concluded that the existing permitted capacity of the WWTP will not be exceeded within the next ten years.

Table 1
South Seas Resort WWTP Flows (in MGD)

Month	2001			2002			2003			2004		
	ADF	3-Mo Avg	Max Day	ADF	3-Mo Avg	Max Day	ADF	3-Mo Avg	Max Day	ADF	3-Mo Avg	Max Day
January	0.192		0.260	0.143	0.166	0.240	0.106	0.135	0.169	0.106	0.118	0.169
February	0.220		0.274	0.142	0.154	0.187	0.134	0.120	0.169	0.152	0.125	0.209
March	0.237	0.216	0.291	0.170	0.152	0.230	0.154	0.131	0.254	0.179	0.146	0.220
April	0.230	0.229	0.355	0.171	0.161	0.355	0.168	0.152	0.235	0.174	0.168	0.203
May	0.166	0.211	0.258	0.136	0.159	0.168	0.141	0.154	0.200	0.146	0.166	0.208
June	0.256	0.217	0.514	0.156	0.154	0.182	0.152	0.154	0.229	0.161	0.160	0.180
July	0.236	0.219	0.327	0.161	0.151	0.219	0.161	0.151	0.230			
August	0.172	0.221	0.274	0.158	0.158	0.209	0.154	0.156	0.192			
September	0.113	0.174	0.235	0.128	0.149	0.305	0.111	0.142	0.176			
October	0.104	0.130	0.158	0.104	0.130	0.158	0.116	0.127	0.150			
November	0.180	0.132	0.240	0.180	0.137	0.240	0.131	0.119	0.187			
December	0.175	0.153	0.271	0.119	0.134	0.188	0.117	0.121	0.202			
Average	**0.190**			**0.147**			**0.137**			**0.153**		

Figure 1
South Seas Resort WWTP Monthly Average Flow

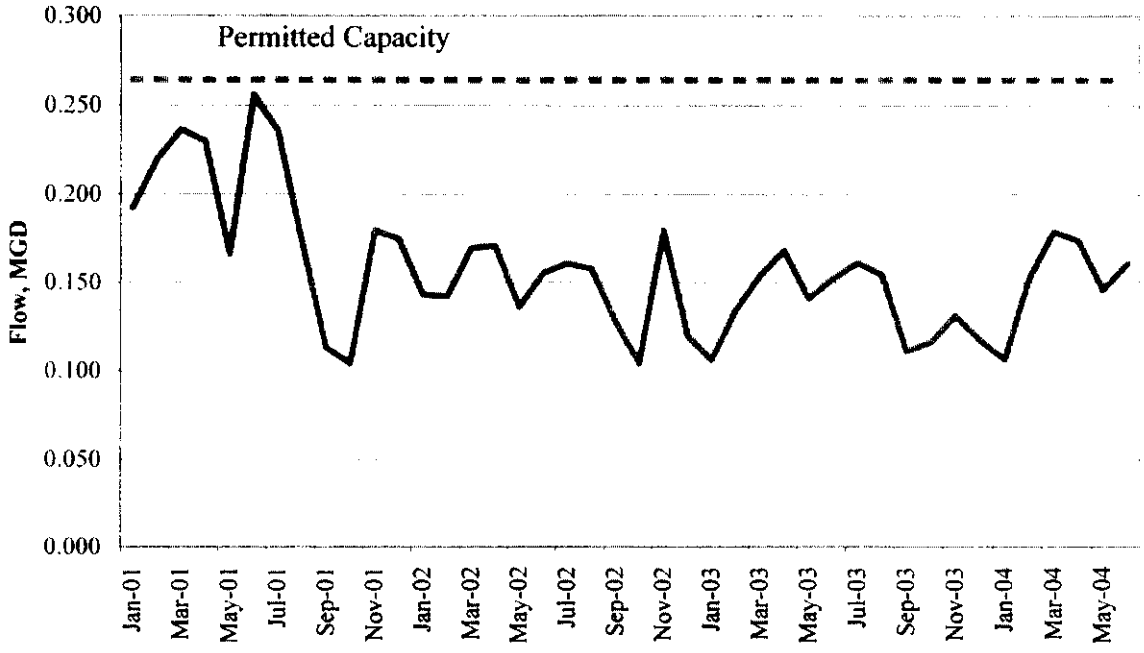
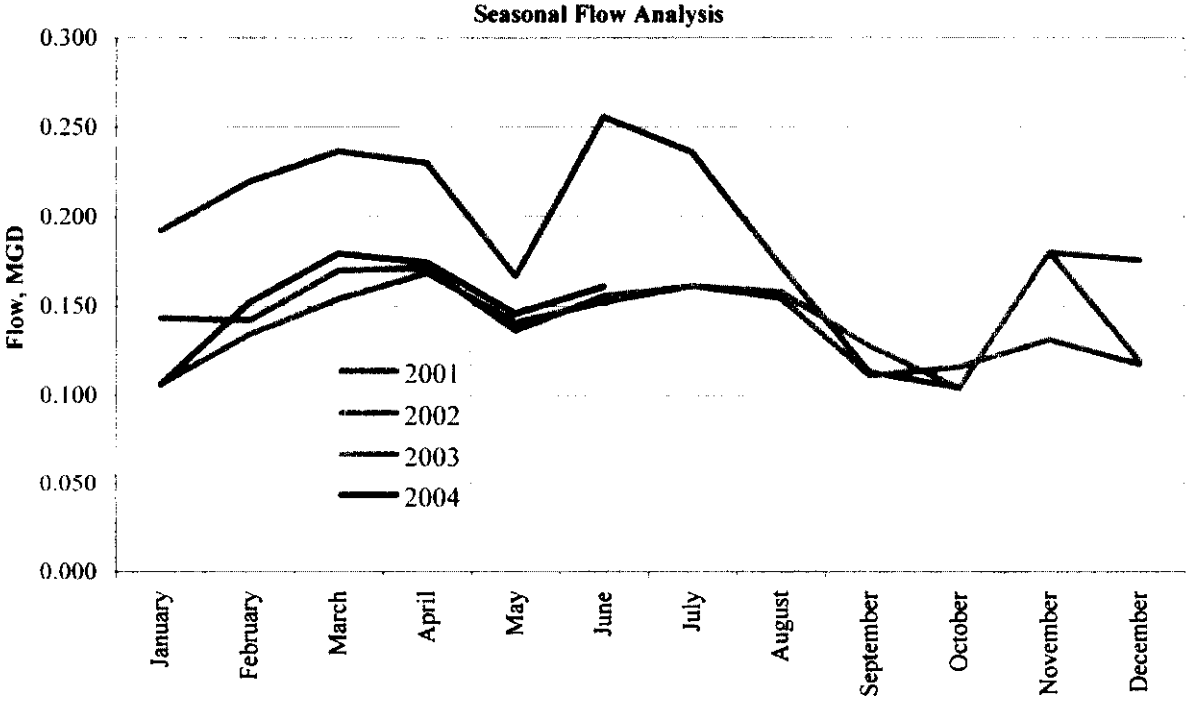


Figure 2
South Seas Resort WWTP
Seasonal Flow Analysis



SUMMIT CHASE VILLAS WWTP

CAPACITY ANALYSIS REPORT

UPDATED ABBREVIATED CAPACITY ANALYSIS REPORT
August 2, 2004

For The SUMMIT CHASE VILLAS WWTP
TAVARES, LAKE COUNTY, FLORIDA

FDEP Permit No. FLA 010533 (Expires March 30, 2005)

DATE OF LAST CAPACITY ANALYSIS REPORT SUBMITTED TO FDEP: 3/7/2000
PREPARED BY: Frank Banning, Jr., P.E.,

CURRENT PERMITTED CAPACITY: 0.054 MGD

MONTHLY AVERAGE DAILY FLOWS:
1) Varied Between 0.020 – 0.025 MGD over the Period 1/1/02 through 5/31/04
2) Average Monthly ADF was 0.022 MGD over the period 1/1/02 – 5/31/04

THREE-MONTH AVERAGE DAILY FLOWS:
1) Varied Between 0.020 – 0.024 MGD over the Period 3/1/02 through 5/31/04
2) 3-Month ADF was 0.022 MGD over the period 3/1/04 – 5/31/04

ANNUAL AVERAGE DAILY FLOWS:
1) Varied Between 0.019 – 0.023 MGD over the Period 1/1/03 through 5/31/04
2) Annual ADF was 0.022 MGD over the period 5/1/03 – 5/31/04

SEASONAL VARIATION IN FLOW:
Flows in April - July 2003 average 0.024 MGD, representing the time of maximum flows.
Flows in December 2003 – April 2004 average 0.021 MGD.

FLOW PROJECTIONS FOR NEXT 10 YEARS:
At the present time all of the 216 condominiums/apartments are occupied and the two developments served by this utility (Summit Chase Villas and Tavares Ridge) are built-out, with no plans for expansion or addition connections. Therefore, the current facility capacity is adequate to serve the service area for the next 10-year period.

UPDATED ABBREVIATED CAPACITY ANALYSIS REPORT

CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	1343 N.E. 17th Road
	Ocala, FL 34470
Contact Person:	Glenn Labrecque
Title:	President
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report

The above named permitee is fully aware of the information contained in this report.

8/19/04

Glenn Labrecque — Date

Professional Engineer Preparing This Report:

Name:	Nicolas E. Andreyev, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway
	Sanford, FL 32771
Title:	President
Phone Number:	(407) 330- 7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative and the responsible operator.

8/3/04

Nicolas E. Andreyev, P.E. — Date

P.E. Registration No. 35459

CAPACITY ANALYSIS REPORT UPDATE

SUNNY HILLS WASTEWATER TREATMENT FACILITY

SUNNY HILLS, FLORIDA
WASHINGTON COUNTY

FDEP ID No: FLA010258
FDEP PERMIT No: FLA010258
EXPIRATION DATE: JUNE 6, 2001

PREPARED FOR:

FLORIDA WATER SERVICES
P.O. BOX 609520
ORLANDO, FLORIDA 32860-9520

PREPARED BY:

CUMMINGS ASSOCIATES, Ltd.
12864 SQUIRREL TREE COURT
JACKSONVILLE, FLORIDA 32246
(904) 220-0270

FEBRUARY 2001

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Introduction

The Sunny Hills development is located seven miles south of Wausau on State Road 77 in Washington County. The existing collection system has a total of 500 connections. Presently, there are 171 connections in service. The number of connections in service in 1998 and 1999 were 169.

The wastewater treatment facility is owned and operated by Florida Water Services and is a permitted 50,000-gallon per day (annual average) contact stabilization plant with effluent disposal to a dual percolation pond system. The WWTF was designed to serve portions of the residential area. Three lift stations transfer the wastewater from the various areas in the residential area to the treatment facility.

This facility was originally put into service 1971. The only modifications were made prior to 1991 and included the installation of an emergency generator, an additional blower, new chlorine contact tank and a berm to divide the percolation pond.

The treatment plant consists of a 6,670-gallon contact chamber and a 13,180-gallon stabilization chamber in a single 19,850-gallon tank, one 11,317-gallon clarifier, one 12,960-gallon chlorine contact tank, one 13,500-gallon aerobic digesters and two percolation ponds with a total bottom area of approximately 25,200 ft^2.

Residuals are dewatered in dual drying beds with a total surface area of 1,860 ft^2 and then hauled to the Springhill Regional Landfill.

An up to date flow diagram is attached to this report as Figure 1.

Water Treatment & Controls on December 6, 2000 calibrated the Badger Flowmeter Model 2000 used to record flow.

A Capacity Analysis Report was prepared in January 1996 by the Environmental Services Department of Southern States Utilities now known as Florida Water Services.

Existing Conditions

1. The permitted capacity of this facility is 0.050 mgd. The basis for the original design flow for this plant is not known, for this report the design flow will be assumed to be the permitted flow.

2. Table 6 lists the monthly average daily flows, three month average daily flows, the percentage of the three month average daily to the permitted plant capacity and the annual average daily flows for the period January 1995 to the present.

3. The ratios of the maximum three-month average daily flow to the annual average daily flow for the period 1995 to the present are listed below:

ABBREVIATED CAPACITY ANALYSIS REPORT

For

The WOODS WASTEWATER TREATMENT PLANT
SUMTER COUNTY, FLORIDA

FDEP Permit No. FLA 013500 (Expires November 13, 2005)

May 24, 2005

Prepared By:
Andreyev Engineering, Inc.
4055 St. John's Parkway
Sanford Florida, 32771

Prepared For:
Aqua Utilities, Inc.
6960 Professional Parkway East - Suite 400
Sarasota Florida, 34240

CERTIFICATIONS

Permitee:

Name:	Aqua Utilities Florida, Inc.
Address:	2315 Griffin Road, Suite 4 Leesburg, Florida, 34748
Contact Person:	Glenn Labrecque
Title:	Vice President
Phone Number:	(941) 907- 7400

Statement by Permitee Regarding Awareness of the Information Contained in This Report and Intent to Comply with Stated Recommendations.

The above named permitee is fully aware of the information contained in this report and intends to comply with the recommendations and schedules included in the report.

4/28/05

Glenn Labrecque — Date

Statement by Permitee Regarding the Collection System and Service Area

The collection system serving the plant described above in this report receives only domestic wastewater. Additionally, there are no plans at this time to expand the service area.

4/28/05

Glenn Labrecque — Date

Professional Engineer Preparing This Report:

Name:	Raymond W. Jones, P.E.
Firm Name:	Andreyev Engineering, Inc.
Address:	4055 St. John's Parkway Sanford, FL 32771
Title:	Vice President
Phone Number:	(407) 330-7763

Statement by Professional Engineer

The information contained in this report is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I have discussed the recommendations and schedules with the permitee or the permitee's delegated representative.

4-26-05

Raymond W. Jones, P.E. — Date
P.E. Registration No. 58079

ABBREVIATED CAPACITY ANALYSIS REPORT
For The WOODS WWTP, SUMTER COUNTY FLORIDA

April 24, 2005

FDEP Permit No. FLA 013500 (Expires November 13, 2005)

DATE OF THE LAST CAPACITY ANALYSIS REPORT SUBMITTED TO FDEP: 7/21/2000

CURRENT PERMITTED CAPACITY: 0.015 MGD (3MADF Basis)

INFLUENT MONTHLY AVERAGE DAILY FLOWS (Monthly ADF):

1) The Monthly ADF variance was 0.005 MGD – 0.050 MGD over the period 1/1/02 through 12/31/04.
2) The average Monthly ADF was 0.010 MGD over the period 1/1/02 through 12/31/04.

INFLUENT THREE-MONTH AVERAGE DAILY FLOWS (3MADF):

1) The 3MADF variance was 0.005 MGD – 0.024 MGD over the period 1/1/02 through 12/31/04.
2) The average 3MADF was 0.010 MGD over the period 1/1/02 through 12/31/04
3) The peak 3MADF was 0.024 MGD in November 2004, attributed to water plant filter frequent (daily) backwash problems, which have been corrected by the permitee.

INFLUENT ANNUAL AVERAGE DAILY FLOWS (AADF):

1) The AADF variance was 0.007 MGD – 0.014 MGD over the period 1/1/02 through 12/31/04.
2) The average AADF was 0.009 MGD over the period 1/1/02 through 12/31/04.

SEASONAL VARIATION IN INFLUENT FLOWS:

Seasonal low (Monthly ADF) flow periods spanned from November 2002 (0.005 MGD) through February 2003 (0.006 MGD), as well as May 2004 through June 2004 (0.007 MGD over both months).

Seasonal high (Monthly ADF) flow periods spanned July 2002 (0.015 MGD), June 2003 through July 2003 (0.010 MGD over both months) and August 2004 (0.015 MGD) and November 2004 (0.050 MGD) representing the time of maximum flows.

	2002	2003	2004
Influent High Flow Period	July (0.015 MGD)	June – July (0.010 MGD)	August (0.015 MGD) November (0.050 MGD)*
Influent Low Flow Period	November (0.005 MGD)	February (0.006 MGD) May – June (0.007 MGD)	February (0.006 MGD) May – June (0.007 MGD)

* Artificially induced through neighboring water plant backwash discharge to the wastewater facility

FLOW PROJECTION FOR NEXT 10 YEARS:
At the present time, 65 of the available 80 lots are occupied. However, the remaining 15 lots are located on a low elevation flood plain with consistently saturated soils. Based on available community information, the 15 remaining lots are not suitable for development or occupation, defining The Woods subdivision as built-out with no future plans for expansion.

Collection system repairs (to 9 locations) were performed on the service area collection system in 2004 to correct point source inflow and infiltration problems. With the continued rehabilitation of the collection system and reduction of seasonal flows attributed to inflow and infiltration, future influent flow rates are expected to be reduced. Additionally, the water treatment plant filters have been rehabilitated, resulting in the significant reduction of backwash water to the wastewater treatment system lift station. With the continued implementation of collection system repairs, the anticipated reuse flows are expected to mirror the flows observed in 2003 (0.009 MGD, Monthly ADF basis). Therefore, the current facility capacity is adequate to serve the service area for the next 10 year period, based on the review of available flow data. A summary of the three-year flow data is presented in Table 1.

RECOMMENDATIONS FOR EXPANSION:
No facility expansion is required or recommended at this time.

Table 1: The Woods WWTP 3-Year Influent Flow Data

Month	Monthly ADF (MGD)	3-Month ADF (MGD)	Annual ADF (MGD)	3-Month ADF to Annual ADF Ratio
Jan-02	0.009	0.007	0.008	0.875
Feb-02	0.009	0.008	0.008	1.000
Mar-02	0.011	0.010	0.008	1.250
Apr-02	0.011	0.010	0.010	1.000
May-02	0.012	0.011	0.009	1.222
Jun-02	0.012	0.012	0.010	1.200
Jul-02	0.015	0.013	0.010	1.300
Aug-02	0.013	0.013	0.010	1.300
Sep-02	0.012	0.013	0.010	1.300
Oct-02	0.006	0.010	0.010	1.000
Nov-02	0.005	0.008	0.010	0.800
Dec-02	0.006	0.006	0.010	0.600
Jan-03	0.006	0.005	0.010	0.500
Feb-03	0.006	0.006	0.009	0.667
Mar-03	0.009	0.007	0.009	0.778
Apr-03	0.008	0.008	0.009	0.889
May-03	0.007	0.008	0.009	0.889
Jun-03	0.010	0.008	0.009	0.889
Jul-03	0.010	0.010	0.008	1.250
Aug-03	0.009	0.010	0.008	1.250
Sep-03	0.007	0.008	0.007	1.143
Oct-03	0.009	0.008	0.008	1.000
Nov-03	0.009	0.008	0.008	1.000
Dec-03	0.014	0.011	0.009	1.222
Jan-04	0.011	0.011	0.009	1.222
Feb-04	0.009	0.011	0.009	1.222
Mar-04	0.008	0.009	0.009	1.000
Apr-04	0.008	0.008	0.009	0.889
May-04	0.007	0.008	0.010	0.800
Jun-04	0.007	0.007	0.010	0.700
Jul-04	0.008	0.007	0.010	0.700
Aug-04	0.015	0.010	0.010	1.000
Sep-04	0.010	0.011	0.011	1.000
Oct-04	0.011	0.012	0.011	1.091
Nov-04 *	**0.050**	**0.024**	0.014	1.714
Dec-04	0.008	**0.023**	0.013	1.769
PERIOD AVERAGE	**0.010**	**0.010**	**0.009**	**1.040**
2002 AVERAGE	**0.010**	**0.010**	**0.009**	**1.071**
2003 AVERAGE	**0.009**	**0.008**	**0.009**	**0.956**
2004 AVERAGE	**0.013**	**0.012**	**0.010**	**1.092**

Notes

Flows during the period August-October 2004 are thought to be attributed to Hurricane storm I&I.
Flows in November were attributed to excessive, frequent WTP filter backwash condition.

Source: Facility DRMs, as reported by Aqua Utilities of Florida, 2005.

UPDATED CAPACITY ANALYSIS REPORT

VALENCIA TERRACE WASTEWATER TREATMENT FACILITY

PREPARED FOR:

AQUA UTILITIES FLORIDA, INC.
P.O. BOX 490310
LEESBURG, FL 34749
(352) 787-0980

PREPARED BY:

BOYD ENVIRONMENTAL ENGINEERING, INC.
1349 INTERNATIONAL PARKWAY SOUTH
SUITE 2401
LAKE MARY, FL 32746
(407) 936-1257
C.O.A. #6444

APRIL 2006

Certifications

Permittee

I am fully aware and intend to comply with the recommendations and schedules included in this report.

John M. Lihvarcik
Chief Operating Officer
Aqua Utilities Florida, Inc.
P.O. Box 490310
Leesburg, Florida 34749
352-787-0980

Professional Engineer

The information contained in this report is true and correct to the best of my knowledge. The report was prepared in accordance with sound engineering principles, and I discussed the recommendations and schedules with the permittee.

4-27-06

James C. Boyd, P.E. (P.E. No. 35480)
Boyd Environmental Engineering, Inc.
1349 International Parkway South
Suite 2401
Lake Mary, FL 32746
407-936-1257
COA No. 6444

UPDATED CAPACITY ANALYSIS REPORT
FOR
VALENCIA TERRACE
WASTEWATER TREATMENT FACILITY

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UPDATED CAPACITY ANALYSIS REPORT
FOR
VALENCIA TERRACE
WASTEWATER TREATMENT FACILITY

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APPENDICES

CHAPTER I - INTRODUCTION

The Valencia Terrace Wastewater Treatment Facility ("WWTF") is authorized to operate under the Florida Department of Environmental Protection ("FDEP") wastewater permit No. FLA010599. This permit was issued on November 5, 2001 and expires on October 30, 2006. The purpose of this report is to satisfy the requirements of Rule 62-600.405(5)(a), which requires the submittal of an Updated Capacity Analysis Report at the time of permit renewal.

The WWTF is located in Lake County, Florida, just south of Fruitland Park. The WWTF permittee is Aqua Utilities Florida, Inc. (AQUA"). A map depicting the facility location and surrounding service area is included as Figure I-1. The service area is predominately residential in nature. As of December 31, 2005, there were 334 active wastewater connections within the service area.

Brief Description of Treatment and Disposal Facilities

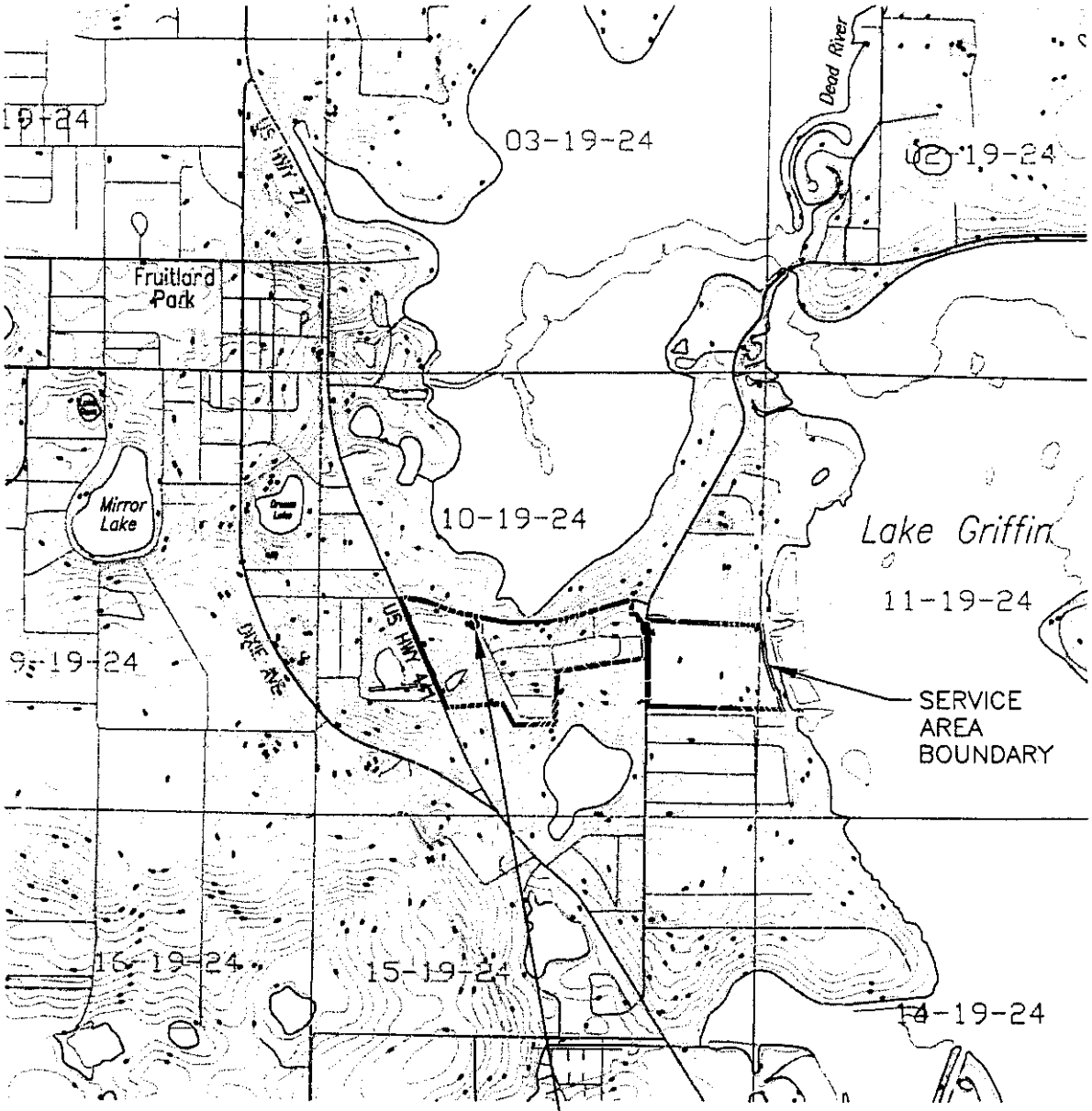
The Valencia Terrace WWTF has a permitted treatment and disposal capacity of 0.080 million gallons per day ("mgd") on an annual average daily flow ("AADF") basis. The following commentary provides a brief description of the existing treatment and disposal facilities employed at the WWTF. The reader is also encouraged to refer to the following figures for additional information:

1. Figure I-2 (Process Flow Diagram).
2. Figure I-3 (Site Plan).
3. Figure I-4 (Plant Detail).

Finally, Table I-1 provides a summary of the major facility components, including unit capacities.

Wastewater Treatment and Disposal. The WWTF employs the extended aeration process for wastewater treatment. As indicated in Figure I-2 (Process Flow Diagram), raw influent from the service area is routed to an onsite lift station that consists of two pumps. These pumps transfer flow to a manual bar screen and thence to flow equalization, which consists of two surge tanks. Equalized influent is pumped to a flow splitter box that splits the flow between two plants – north plant and south plant. Each plant consists of aeration, clarification and disinfection unit processes. Disinfection is provided via a dedicated sodium hypochlorite station for each plant. The disinfected effluent from each plant recombines before discharging to two on-site percolation ponds. The percolation ponds are identified as Land Application System R-001 in the FDEP wastewater permit.

Residuals Management. Waste sludge is not stabilized at the WWTF. Rather, each plant is served by an aerated sludge holding tank. A contractor periodically transports stored residuals to several residuals management facilities ("RMFs") for stabilization and disposal.



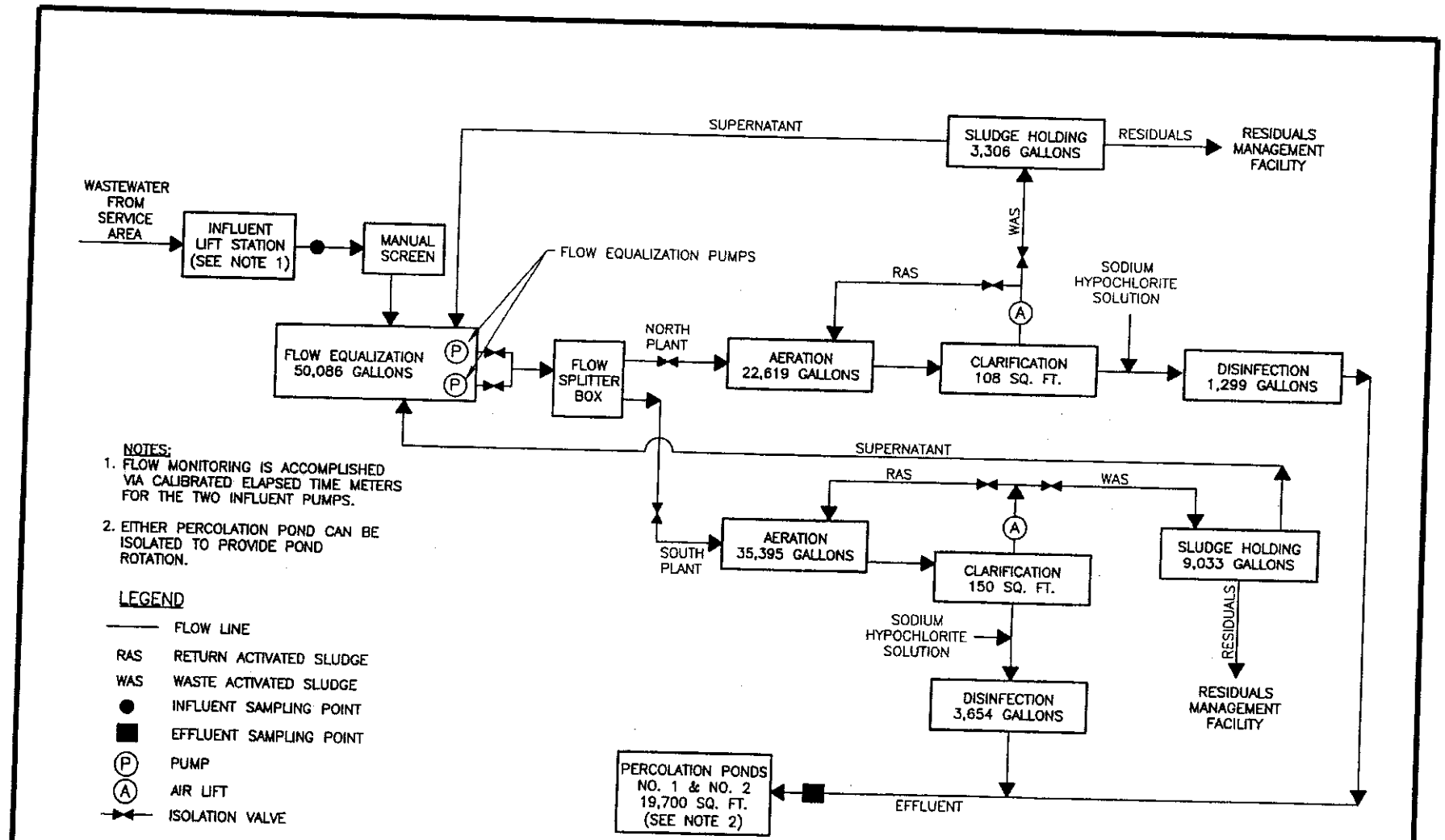
VALENCIA TERRACE WASTEWATER TREATMENT FACILITY
SEC. 10, TWP. 19S, RNG. 24E
LATITUDE = 28° 50' 58" N
LONGITUDE = 81° 53' 52" W

BOYD
ENVIRONMENTAL ENGINEERING, INC.
1349 INTERNATIONAL PARKWAY SOUTH, SUITE 2401
LAKE MARY, FL 32746
C.O.A. # 6444 PHONE (407) 936-1257

VALENCIA TERRACE WWTF SERVICE AREA & PLANT LOCATION

FIGURE I-1

SCALE: 1"=2000'



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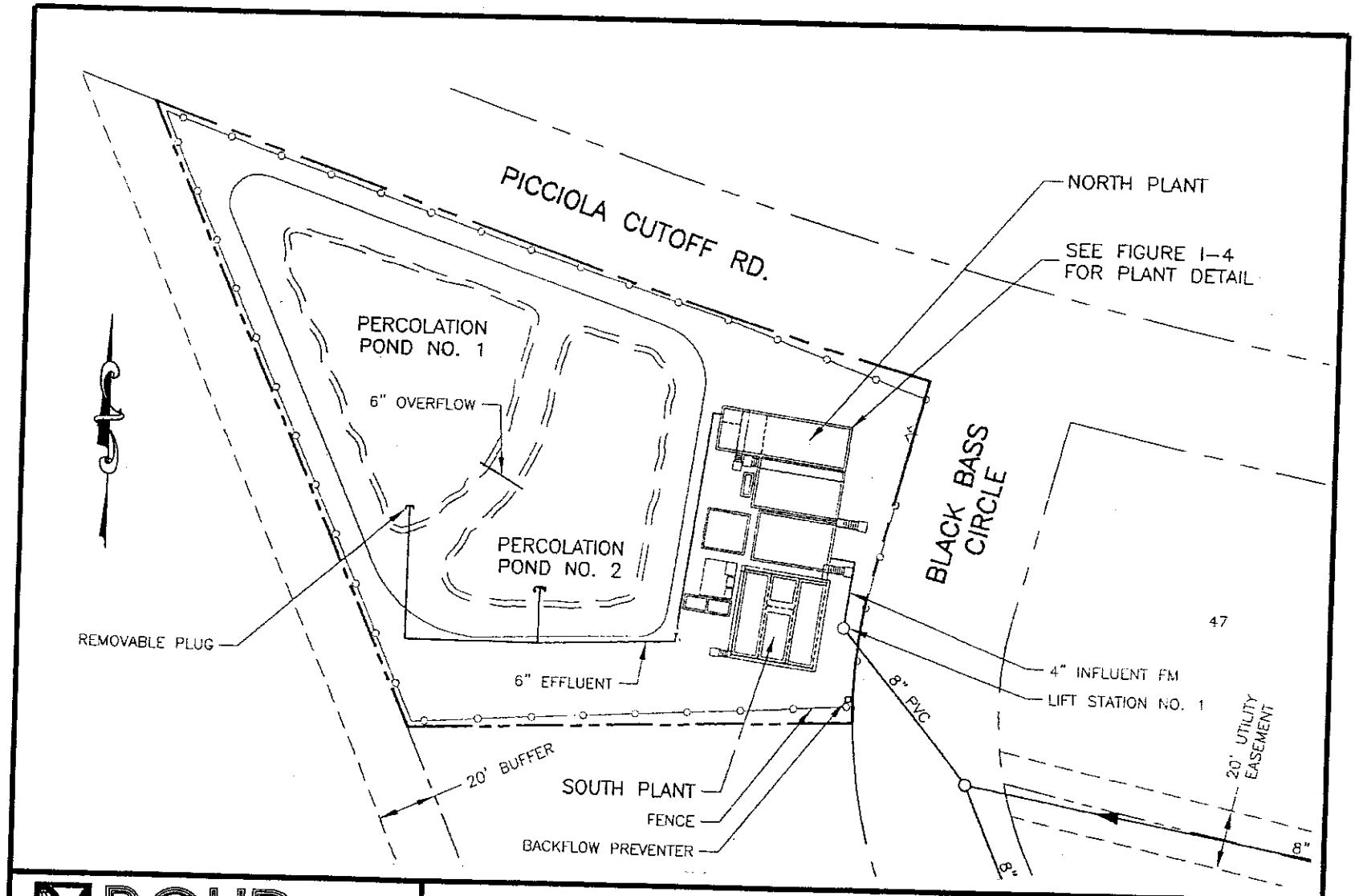
VALENCIA TERRACE WASTEWATER TREATMENT FACILITY PROCESS FLOW DIAGRAM

FIGURE I-2



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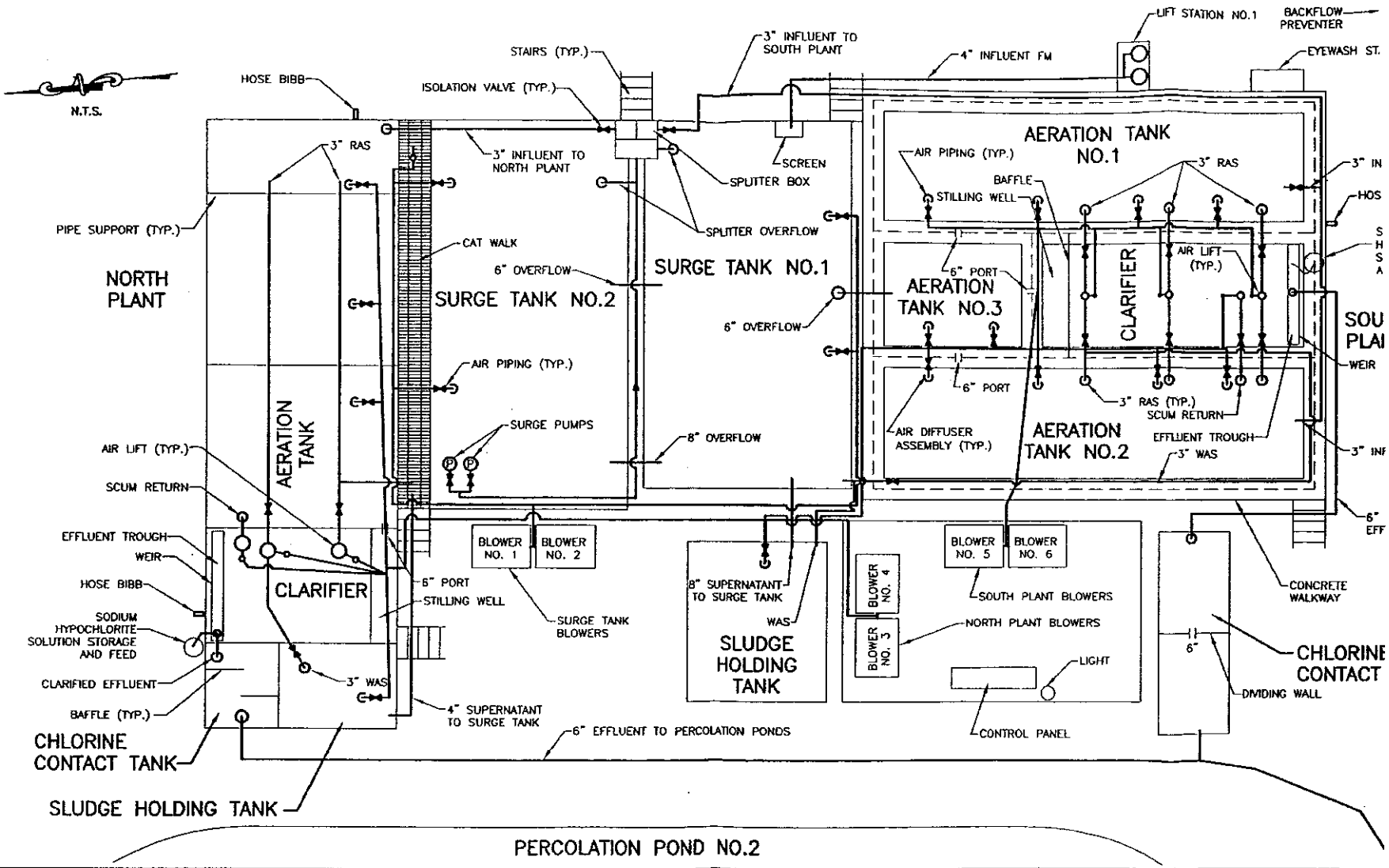
VALENCIA TERRACE
WASTEWATER TREATMENT FACILITY
SITE PLAN

FIGURE I-3



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VALENCIA TERRACE
WASTEWATER TREATMENT FACILITY
PLANT DETAIL

FIGURE I-

Table I-1

Valencia Terrace
Wastewater Treatment Facility

Major Unit Processes and Capacities

MAJOR UNIT PROCESSES		
Unit Process	**North Plant Capacity**	**South Plant Capacity**
Flow Equalization	Two tanks; 50,086 gallons total (common to both plants)	
Aeration	22,619 gallons	35,395 gallons
Secondary Clarification	108 sq.ft.	150 sq.ft.
Chlorine Contact	1,299 gallons	3,654 gallons
Aerated Sludge Holding	3,306 gallons	9,033 gallons
Effluent Disposal	Two cells; 19,700 sq.ft. total (common to both plants)	

MAJOR EQUIPMENT ITEMS		
Item	**No. Units**	**Capacity Per Unit**
Equalization Blowers	2	3 HP
Equalization Pumps	2	0.5 HP
Aeration Blowers (North)	2	5 HP
Aeration Blowers (South)	2	7.5 HP
Hypochlorite Pump (North)	1	15 gpd
Hypochlorite Pump (South)	1	15 gpd

Notes

1. Unit process and equipment capacities obtained from "Valencia Terrace Wastewater Treatment Facility, Operation and Maintenance Performance Report," Florida Water Services Corporation, April 2001.

CHAPTER II – EXISTING CONDITIONS

An analysis of existing conditions includes consideration of historic flows and updated flow and loading information.

MADF, TMADF and AADF

Table A-1 in Appendix A presents a summary of monthly average daily flow ("MADF"), three-month average daily flow ("TMADF") and annual average daily flow ("AADF") for the past ten years. MADF data were obtained from the monthly discharge monitoring reports ("DMRs") for the facility. The TMADF and AADF were then calculated using the MADF data as a basis. Figures II-1 through II-3 present a plot of the MADF, TMADF and AADF for the past five years, respectively.

Seasonal Variations in Flow

Table II-1 presents a tabulation of AADF and maximum TMADF for the past five years (2001 - 2005). Also included in Table II-1 are the month of the year in which the maximum TMADF occurred, and the ratio of maximum TMADF to AADF. As indicated in the table, the ratio of maximum TMADF to AADF has ranged from 1.14 to 1.43 during the past five years. This provides a 5-year average of 1.26. The maximum TMADF occurs during the period of December through March. Higher flows during this period are indicative of seasonal residents who live in the Valencia Terrace service area during the winter months. It is also important to note that this peak flow period does not coincide with the rainy season (June through September). Hence, there does not appear to be excessive inflow/infiltration due to seasonal rainfall conditions.

Updated Flow and Loading Information

The prior Capacity Analysis Report Update for the Valencia Terrace WWTF (prepared by Florida Water Services, April 2001) assumed $CBOD_5$ and TSS loadings of 265 mg/L and 200 mg/L, respectively. In order to determine whether these assumptions are still valid, it is necessary to review historic data concerning $CBOD_5$ and TSS loadings. A summary of annual average $CBOD_5$ and TSS influent concentrations for the past three calendar years (2003 – 2005) is presented in the following table:

Year	Annual Average Influent $CBOD_5$ (mg/L)	Annual Average Influent TSS, mg/L
2003	243	181
2004	230	223
2005	213	177
3- Year Average	229	194

Figure II-1
Valencia Terrace WWTF
Plot of Monthly Average Daily Flow
2001-2005

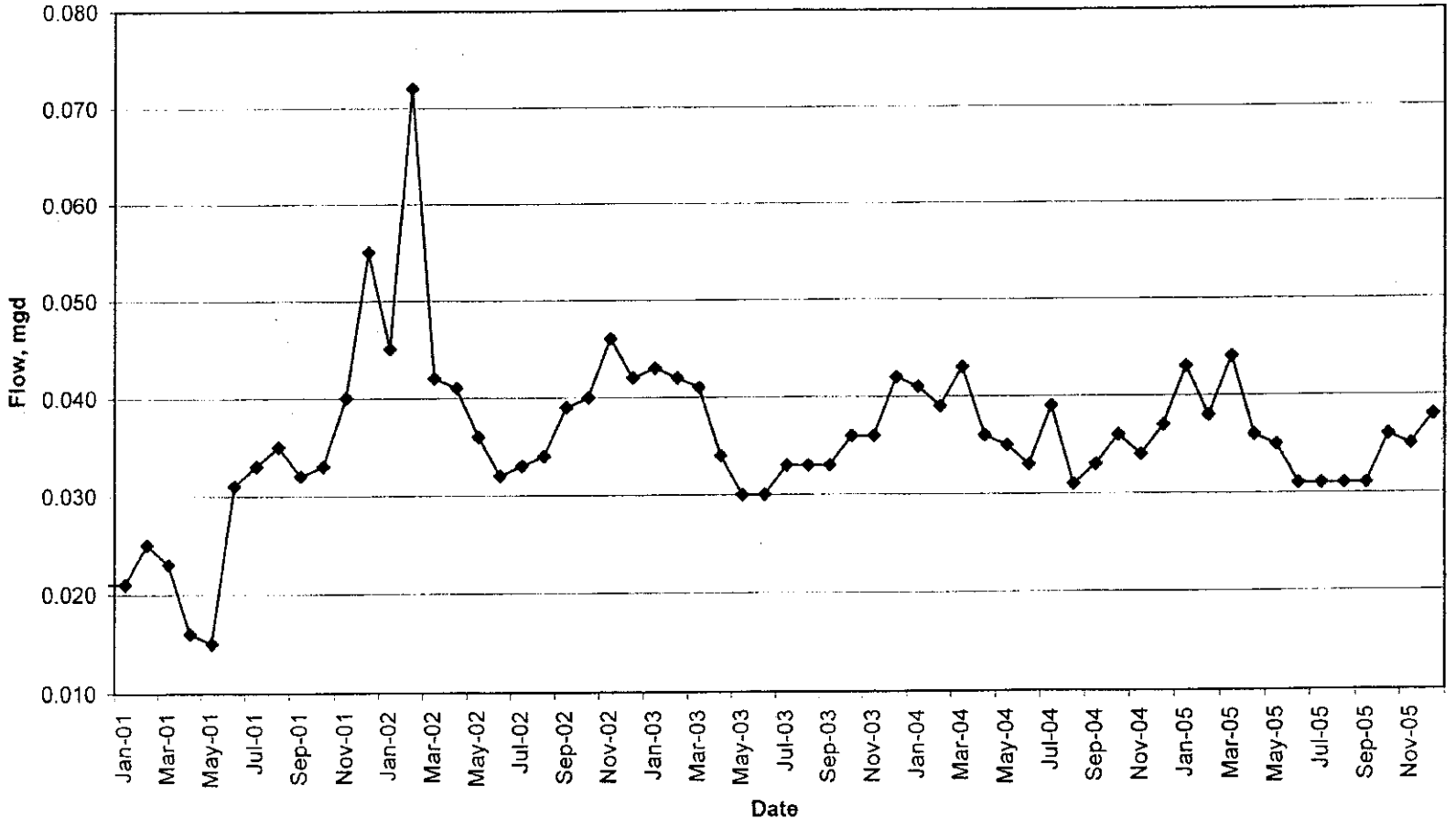


Figure II-2
Valencia Terrace WWTF
Plot of Three-Month Average Daily Flow
2001-2005

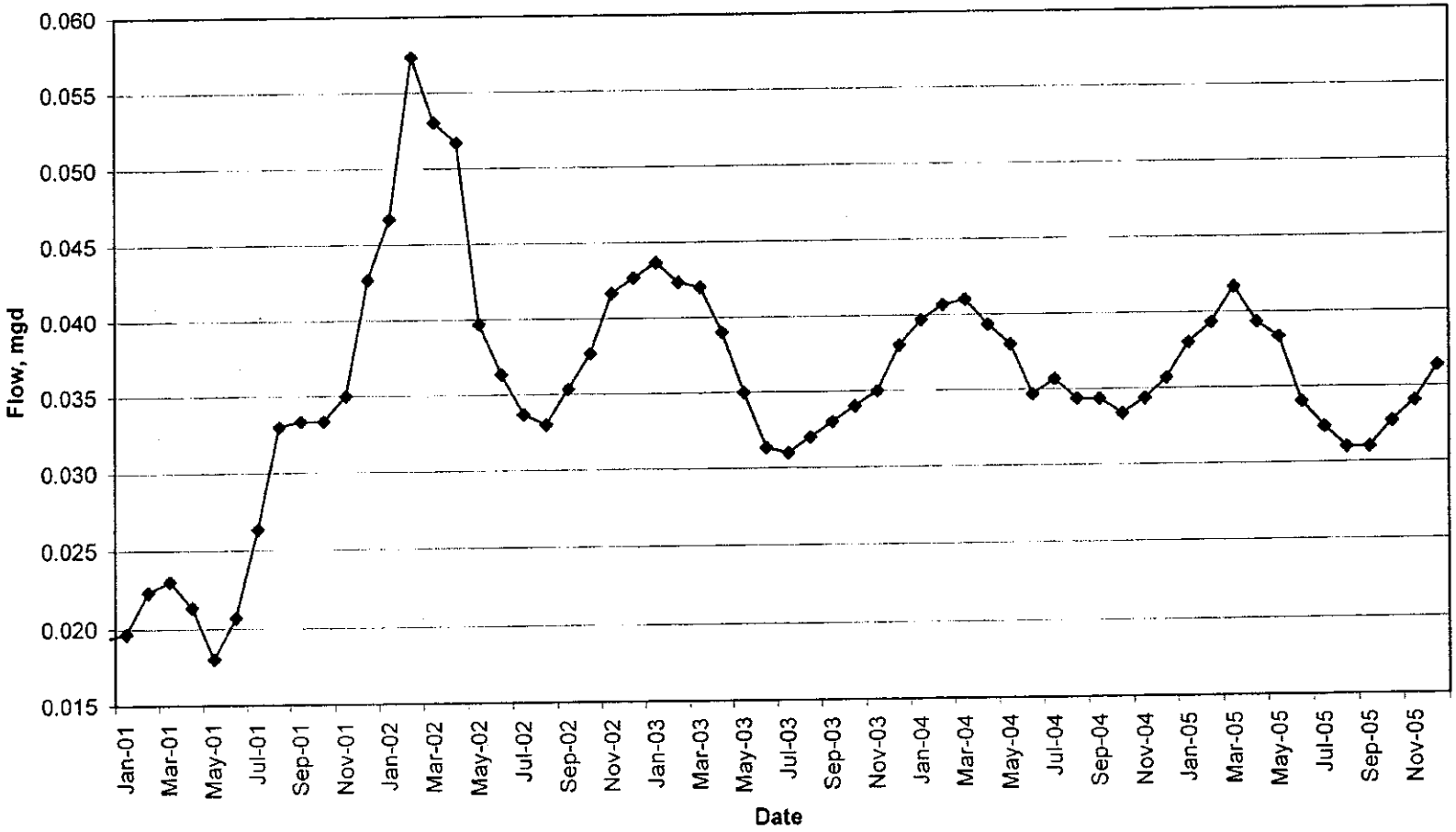


Figure II-3
Valencia Terrace WWTF
Plot of Annual Average Daily Flow
2001-2005

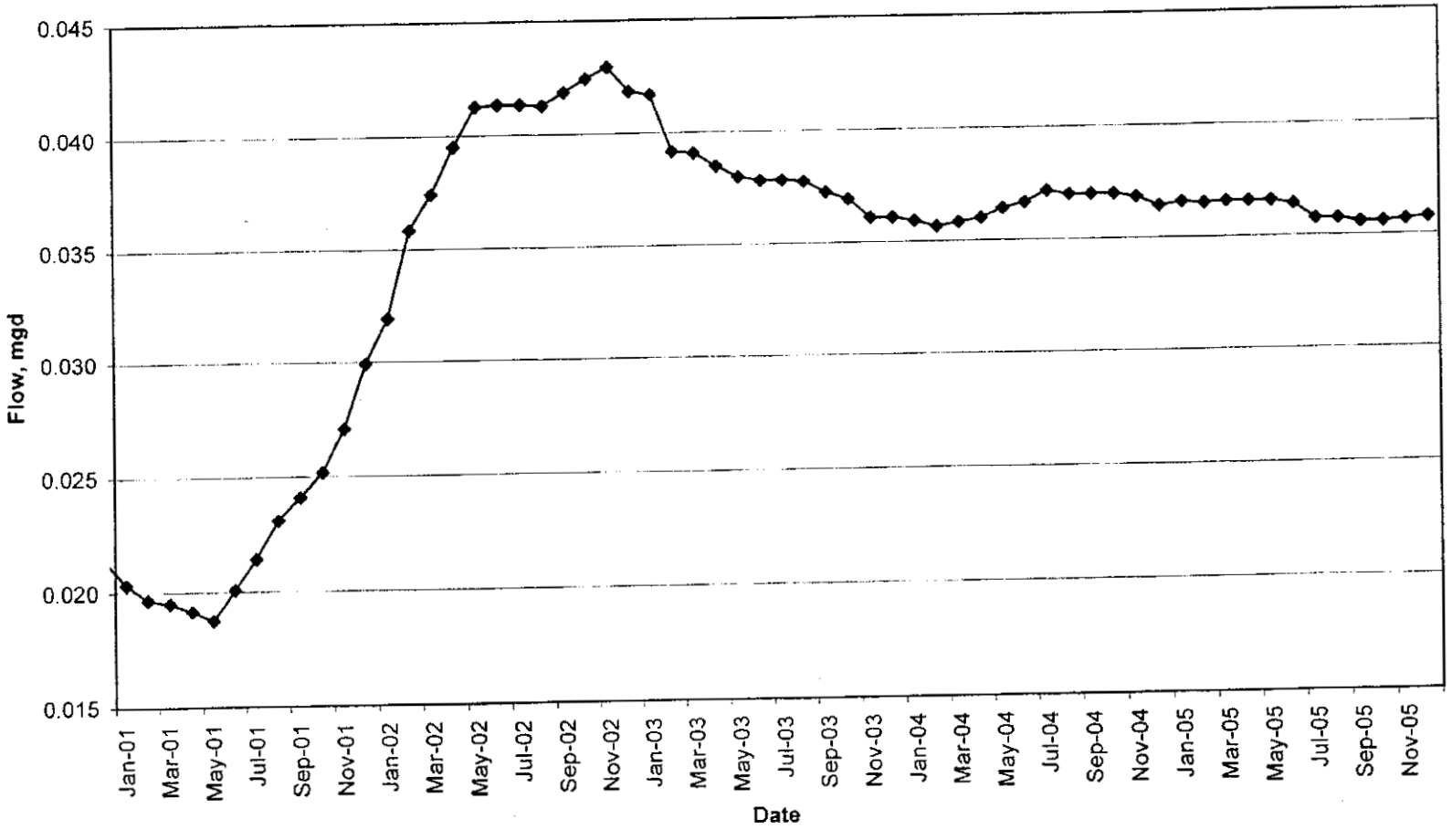


Table II-1

Valencia Terrace
Wastewater Treatment Facility

Seasonal Flow Variations
(2001 - 2005)

Year	Maximum TMADF (mgd)	AADF (mgd)	Max TMADF/ AADF Ratio	Month
2001	0.043	0.030	1.43	Dec
2002	0.057	0.042	1.36	Feb
2003	0.044	0.036	1.22	Jan
2004	0.041	0.036	1.14	Mar
2005	0.042	0.036	1.17	Mar
		Average (2001 - 2005)	1.26	

As shown in the preceding table on Page 7, the annual average influent $CBOD_5$ concentration has ranged from 213 mg/L to 243 mg/L during the past three years, for a three-year average of 229 mg/L. The annual average influent TSS concentration has ranged from 177 mg/L to 223 mg/L during the past three years, for a three-year average of 194 mg/L.

For influent $CBOD_5$, the previous assumption of 265 mg/L appears too high, since the historic data shows that the actual influent concentration is significantly lower. However, the historic influent TSS concentration is very close to the previous 200 mg/L assumption. Hence, based on historic data for the past three years, it would be more prudent to assume an influent $CBOD_5$, concentration of 230 mg/L, while maintaining the influent TSS concentration of 200 mg/L.

Tables II-2 through II-4 provide a summary of key process parameters for the Valencia Terrace WWTF. As previously discussed, the WWTF is divided into two plants (north plant and south plant). However, there are common unit processes that precede and follow the individual plants. Consequently, these tables are organized as follows:

1. Table II-2 addresses key process parameters for the common unit processes including flow equalization and effluent disposal. The assumed AADF for these common unit processes is 0.080 mgd, which matches the permitted WWTF capacity.
2. Table II-3 addresses key process parameters for the north plant. The assumed AADF for this treatment train is 0.030 mgd.
3. Table II-4 addresses key process parameters for the south plant. The assumed AADF for this treatment train is 0.050 mgd.

It should be noted that the AADF for the north plant (0.030 mgd) and the AADF for the south plant (0.050 mgd) combine to equal the permitted AADF for the WWTF (0.08 mgd). Also, as previously discussed, it is possible to regulate the flow to each plant via the flow splitter box.

As noted in Tables II-3 and II-4, the following assumptions were used in calculating the key process parameters:

Influent $CBOD_5$ concentration = 230 mg/L

Influent TSS concentration = 200 mg/L

Peak Hour Flow = AADF * 2

Mixed liquor suspended solids concentration = 3,500 mg/L, 65-percent volatile

Return sludge recycle rate = 100%

Table II-2

Valencia Terrace
Wastewater Treatment Facility

Key Process Parameters
Common Unit Processes

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Flow Equalization	Percent Storage Capacity	10 - 40	47
Effluent Disposal (Rapid Infiltration Basins)	Loading Rate, gpd/ft^2	≤ 5.6 (See Note 2)	4.1

Notes:

1. All parameters are based on the permitted facility capacity of 0.080 mgd AADF.
2. Maximum loading rate for rapid infiltration basin systems is 5.6 gpd/ft^2 per Chapter 62-610.523(3), F.A.C.

Table II-3

Valencia Terrace
Wastewater Treatment Facility

Key Process Parameters
North Plant

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Extended Aeration	Detention Time, hrs	18 - 36	18.1
	F:M Ratio, lb $CBOD_5$/lb MLVSS	0.05 – 0.15	0.134
	Volumetric Loading, lb $CBOD_5$/1000 ft^3/day	10 - 25	19
Secondary Clarification	Surface Overflow Rate, gpd/ft^2	200 - 400	278
	Peak Surface Overflow Rate, gpd/ft^2	600 - 800	556
	Solids Loading, lb/ft^2/day	10 - 24	16.2
	Peak Solids Loading, lb/ft^2/day	30 - 35	24.3
Chlorine Contact	Detention Time, minutes	30	62
	Peak Detention Time, minutes	15	31

Notes:

1. The assumed AADF for the North Plant is 0.030 mgd. Parameters shown as "peak" are based on a peak hour flow of 0.060 mgd (two times AADF).
2. The assumed influent $CBOD_5$ concentration is 230 mg/L, and the assumed influent TSS concentration is 200 mg/L.
3. The assumed mixed liquor suspended solids concentration is 3,500 mg/L, and the assumed volatile percentage is 65 percent.
4. The assumed return sludge recycle rate is 100%.

Table II-4

Valencia Terrace
Wastewater Treatment Facility

Key Process Parameters
South Plant

Unit Process	Operating Criteria	Typical Range	Calculated Criteria
Extended Aeration	Detention Time, hrs	18 - 36	17
	F:M Ratio, lb $CBOD_5$/lb MLVSS	0.05 – 0.15	0.143
	Volumetric Loading, lb $CBOD_5$/1000 ft^3/day	10 - 25	20.3
Secondary Clarification	Surface Overflow Rate, gpd/ft^2	200 - 400	333
	Peak Surface Overflow Rate, gpd/ft^2	600 - 800	667
	Solids Loading, lb/ft^2/day	10 - 24	19.5
	Peak Solids Loading, lb/ft^2/day	30 - 35	29.2
Chlorine Contact	Detention Time, minutes	30	105
	Peak Detention Time, minutes	15	53

Notes:

1. The assumed AADF for the South Plant is 0.050 mgd. Parameters shown as "peak" are based on a peak hour flow of 0.100 mgd (two times AADF).
2. The assumed influent $CBOD_5$ concentration is 230 mg/L, and the assumed influent TSS concentration is 200 mg/L.
3. The assumed mixed liquor suspended solids concentration is 3,500 mg/L, and the assumed volatile percentage is 65 percent.
4. The assumed return sludge recycle rate is 100%.

A review of Tables II-2, II-3 and II-4 indicates that the WWTF can operate within recommended process parameters at the permitted WWTF capacity. The only parameter that is outside of the typical operating range is detention time for the south plant aeration process. (The 17-hour operating parameter is slightly less than the typical 18 – 36 hour range for the extended aeration process.) However, all other aeration parameters for the south plant are within acceptable ranges, and the utilization of flow equalization serves to minimize any adverse impact from a shorter hydraulic detention time. It should also be noted that other excursions from the typical operating range are actually beneficial excursions. For example, the percent flow equalization storage capacity and chlorine detention time exceed the typical operating ranges, which represent beneficial excursions.

CHAPTER III – FUTURE CONDITIONS

The assessment of future conditions includes population and flow projections, which are based on historic wastewater connections and flows. An accounting of wastewater service connections is presented as follows for the past five calendar years:

Year	Year End Connections	Annual Average Connections
2000 (Base)	345	NA (Base)
2001	337	341
2002	339	338
2003	330	335
2004	338	334
2005	334	336

Notes

1. Year-end connections were provided by AQUA.
2. Annual average connections represent the average of the end of year figures for the current and prior years. For example, annual average connections for calendar year 2001 = (345+337)/2 = 341.

As indicated in the above table, there has been no growth in the number of service connections, which is typical for a service area that is essentially built-out.

The average flow per connection can be calculated as follows:

Year	Annual Average Connections	AADF (mgd)	AADF per Connection (gpd)
2001	341	0.030	88
2002	338	0.042	124
2003	335	0.036	107
2004	334	0.036	108
2005	336	0.036	107
		5-Year Average	107

Based on information provided by AQUA, there will be 356 wastewater connections upon build-out of the Valencia Terrace WWTF service area. Hence, build-out population and flow projections will be based on 356 wastewater connections. In order to estimate yearly population and flow projections for the next ten years, the following additional assumptions are made:

1. Annual growth in connections = 2 (which will provide the build-out projection of 356 wastewater connections at the end of year 10).
2. AADF per connection = 107 gpd (5-year average as derived in above table).
3. Maximum TMADF/AADF Ratio = 1.26 (5-year average as derived in Table II-1).
4. Average population per connection = 2.34 (based on Year 2000 Lake County census data for average persons per household).

Population and flow projections, based on the above assumptions, are presented in Table III-1. A graph of projected AADF and maximum TMADF for the next ten years is presented in Figure III-1.

Table III-1

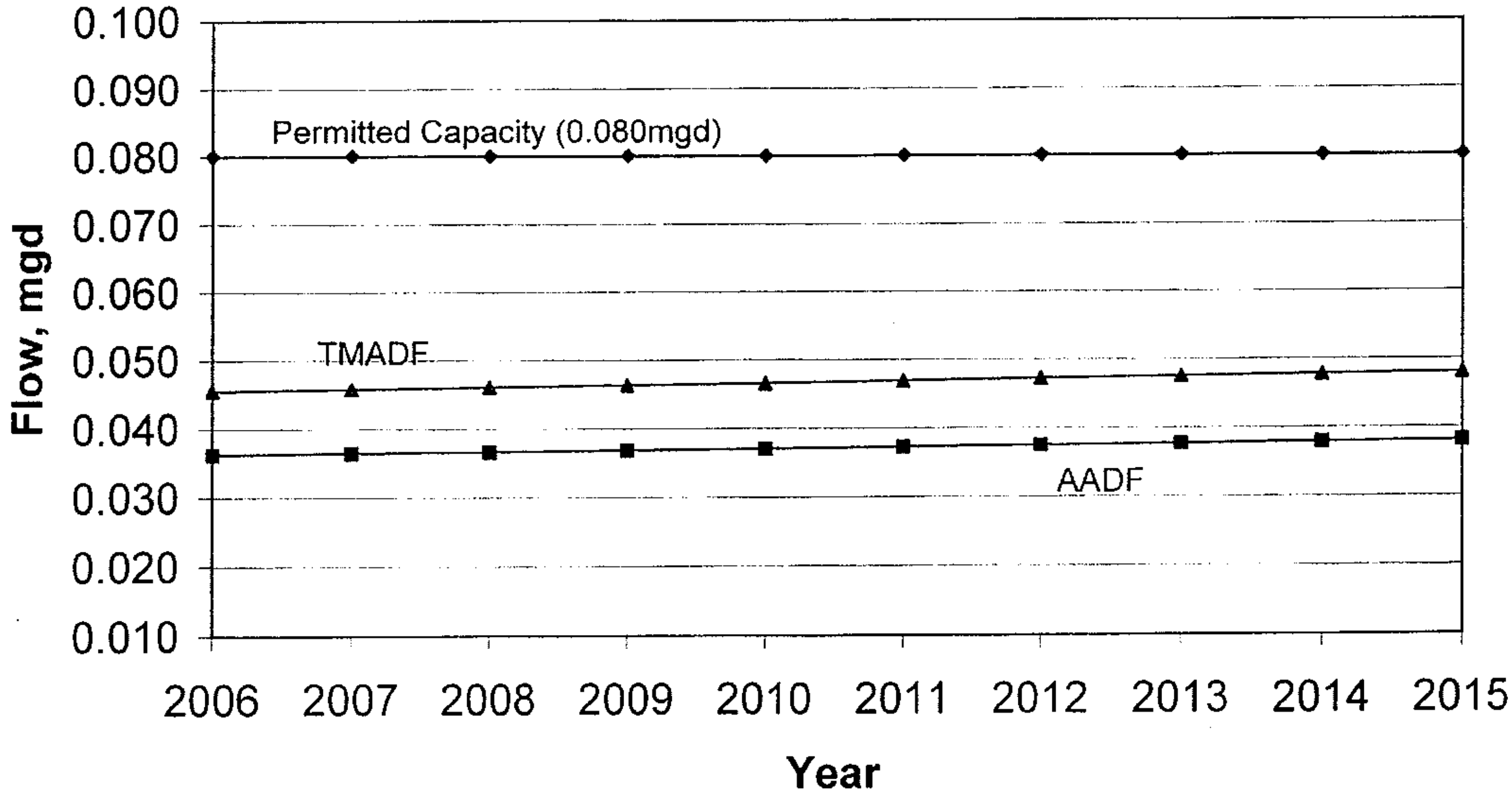
Valencia Terrace
Wastewater Treatment Facility

Population and Flow Projections
2006 - 2015

Year	Projected Average Connections	Population Per Connection	Projected Population	AADF Per Connection (gpd)	Projected AADF (mgd)	Maximum TMADF/ AADF Ratio	Projected Maximum TMADF (mgd)
2006	338	2.34	791	107	0.036	1.26	0.046
2007	340	2.34	796	107	0.036	1.26	0.046
2008	342	2.34	800	107	0.037	1.26	0.046
2009	344	2.34	805	107	0.037	1.26	0.046
2010	346	2.34	810	107	0.037	1.26	0.047
2011	348	2.34	814	107	0.037	1.26	0.047
2012	350	2.34	819	107	0.037	1.26	0.047
2013	352	2.34	824	107	0.038	1.26	0.047
2014	354	2.34	828	107	0.038	1.26	0.048
2015	356	2.34	833	107	0.038	1.26	0.048

Notes
1. AADF = annual average daily flow.
2. TMADF = three-month average daily flow.
3. Average connection growth per year = 2 (2005 Baseline = 336 connections)
4. Average population per connection = 2.34 (based on Year 2000 Lake County census data for average persons per household).
5. Maximum TMADF to AADF ratio of 1.26 was derived from calendar years 2001 - 2005 as shown in Table II-1.

Figure III-1
Valencia Terrace WWTF
Flow Projections
2006 - 2015



CHAPTER IV – SUMMARY AND CONCLUSIONS

A graph of projected AADF and maximum TMADF for the next ten years is presented in Figure III-1. A review of Figure III-1 indicates that the following projected build-out flows will occur in calendar year 2015, which corresponds to Year 10 of the 10-year projection period:

AADF = 0.038 mgd.

Maximum TMADF = 0.048 mgd

The permitted capacity for the WWTF is 0.080 mgd on an AADF basis. Hence, based on the flow projections provided herein, the permitted WWTF capacity will not be exceeded on either an AADF basis or maximum TMADF basis at service area build-out.

Since the projected maximum TMADF will not equal or exceed the permitted WWTF capacity within the next ten years, it is unnecessary to provide expansion recommendations in this report. However, since the projected maximum TMADF will exceed 50-percent of the permitted WWTF capacity within the next ten years, it will be necessary to submit an Updated Capacity Analysis Report with the next permit renewal application.

Appendix A

Valencia Terrace
Wastewater Treatment Facility

Flow Summary (Table A-1)
1996 - 2005

TABLE A-1 Valencia Terrace WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (mgd)	(TMADF) Three-Month Average Daily Flow Flow (mgd)	(AADF) Annual Average Daily Flow (mgd)
Jan-96	0.046	0.050	N/A
Feb-96	0.044	0.045	N/A
Mar-96	0.048	0.046	N/A
Apr-96	0.048	0.047	N/A
May-96	0.043	0.046	N/A
Jun-96	0.042	0.044	0.050
Jul-96	0.044	0.043	0.050
Aug-96	0.038	0.041	0.048
Sep-96	0.037	0.040	0.046
Oct-96	0.039	0.038	0.044
Nov-96	0.038	0.038	0.043
Dec-96	0.041	0.039	0.042
Jan-97	0.042	0.040	0.042
Feb-97	0.038	0.040	0.042
Mar-97	0.038	0.039	0.041
Apr-97	0.039	0.038	0.040
May-97	0.031	0.036	0.039
Jun-97	0.029	0.033	0.038
Jul-97	0.025	0.028	0.036
Aug-97	0.023	0.026	0.035
Sep-97	0.025	0.024	0.034
Oct-97	0.027	0.025	0.033
Nov-97	0.029	0.027	0.032
Dec-97	0.032	0.029	0.032
Jan-98	0.035	0.032	0.031
Feb-98	0.037	0.035	0.031
Mar-98	0.036	0.036	0.031
Apr-98	0.033	0.035	0.030
May-98	0.028	0.032	0.030
Jun-98	0.028	0.030	0.030

TABLE A-1 (Cont.) Valencia Terrace WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (mgd)	(TMADF) Three-Month Average Daily Flow Flow (mgd)	(AADF) Annual Average Daily Flow (mgd)
Jul-98	0.028	0.028	0.030
Aug-98	0.027	0.028	0.030
Sep-98	0.028	0.028	0.031
Oct-98	0.027	0.027	0.031
Nov-98	0.031	0.029	0.031
Dec-98	0.032	0.030	0.031
Jan-99	0.036	0.033	0.031
Feb-99	0.040	0.036	0.031
Mar-99	0.042	0.039	0.032
Apr-99	0.035	0.039	0.032
May-99	0.028	0.035	0.032
Jun-99	0.023	0.029	0.031
Jul-99	0.018	0.023	0.031
Aug-99	0.020	0.020	0.030
Sep-99	0.021	0.020	0.029
Oct-99	0.022	0.021	0.029
Nov-99	0.030	0.024	0.029
Dec-99	0.025	0.026	0.028
Jan-00	0.034	0.030	0.028
Feb-00	0.033	0.031	0.028
Mar-00	0.025	0.031	0.026
Apr-00	0.020	0.026	0.025
May-00	0.020	0.022	0.024
Jun-00	0.015	0.018	0.024
Jul-00	0.017	0.017	0.024
Aug-00	0.015	0.016	0.023
Sep-00	0.020	0.017	0.023
Oct-00	0.020	0.018	0.023
Nov-00	0.017	0.019	0.022
Dec-00	0.021	0.019	0.021

TABLE A-1 (Cont.) Valencia Terrace WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (mgd)	(TMADF) Three-Month Average Daily Flow Flow (mgd)	(AADF) Annual Average Daily Flow (mgd)
Jan-01	0.021	0.020	0.020
Feb-01	0.025	0.022	0.020
Mar-01	0.023	0.023	0.020
Apr-01	0.016	0.021	0.019
May-01	0.015	0.018	0.019
Jun-01	0.031	0.021	0.020
Jul-01	0.033	0.026	0.021
Aug-01	0.035	0.033	0.023
Sep-01	0.032	0.033	0.024
Oct-01	0.033	0.033	0.025
Nov-01	0.040	0.035	0.027
Dec-01	0.055	0.043	0.030
Jan-02	0.045	0.047	0.032
Feb-02	0.072	0.057	0.036
Mar-02	0.042	0.053	0.037
Apr-02	0.041	0.052	0.040
May-02	0.036	0.040	0.041
Jun-02	0.032	0.036	0.041
Jul-02	0.033	0.034	0.041
Aug-02	0.034	0.033	0.041
Sep-02	0.039	0.035	0.042
Oct-02	0.040	0.038	0.042
Nov-02	0.046	0.042	0.043
Dec-02	0.042	0.043	0.042
Jan-03	0.043	0.044	0.042
Feb-03	0.042	0.042	0.039
Mar-03	0.041	0.042	0.039
Apr-03	0.034	0.039	0.039
May-03	0.030	0.035	0.038
Jun-03	0.030	0.031	0.038
Jul-03	0.033	0.031	0.038

TABLE A-1 (Cont.) Valencia Terrace WWTF Flow Summary 1996-2005			
Month	(MADF) Monthly Average Daily Flow (mgd)	(TMADF) Three-Month Average Daily Flow Flow (mgd)	(AADF) Annual Average Daily Flow (mgd)
Aug-03	0.033	0.032	0.038
Sep-03	0.033	0.033	0.037
Oct-03	0.036	0.034	0.037
Nov-03	0.036	0.035	0.036
Dec-03	0.042	0.038	0.036
Jan-04	0.041	0.040	0.036
Feb-04	0.039	0.041	0.036
Mar-04	0.043	0.041	0.036
Apr-04	0.036	0.039	0.036
May-04	0.035	0.038	0.036
Jun-04	0.033	0.035	0.037
Jul-04	0.039	0.036	0.037
Aug-04	0.031	0.034	0.037
Sep-04	0.033	0.034	0.037
Oct-04	0.036	0.033	0.037
Nov-04	0.034	0.034	0.037
Dec-04	0.037	0.036	0.036
Jan-05	0.043	0.038	0.037
Feb-05	0.038	0.039	0.037
Mar-05	0.044	0.042	0.037
Apr-05	0.036	0.039	0.037
May-05	0.035	0.038	0.037
Jun-05	0.031	0.034	0.036
Jul-05	0.031	0.032	0.036
Aug-05	0.031	0.031	0.036
Sep-05	0.031	0.031	0.036
Oct-05	0.036	0.033	0.036
Nov-05	0.035	0.034	0.036
Dec-05	0.038	0.036	0.036

Commonwealt
ENGINEERING ASSOCIAT

CAPACITY ANALYSIS REPORT

VENETIAN VILLAGE
WASTEWATER TREATMENT FACILITY

GMS #3035PO1268
PERMIT #DO35-155737

SOUTHERN STATES UTILITIES, INC.
Apopka, Florida

June 1992

VENETIAN VILLAGE
WASTEWATER TREATMENT FACILITY

Capacity Analysis Report

Prepared for:

SOUTHERN STATES UTILITIES, INC.
1000 Color Place
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(407) 880-0058

Prepared by:

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(407) 788-8111

June 1992

Applicant

Robert L. Adams Jr.
Registered Engineer

CAPACITY ANALYSIS REPORT

KINGS COVE SUBDIVISION WASTEWATER FACILITY

IN

LAKE COUNTY

PERMITTED CAPACITY: 55,000 GPD

MONTHLY AVERAGE DAILY FLOW: 42,000 GPD

AVERAGE ANNUAL DAILY FLOW: 42,000 GPD

3 MONTHS AVERAGE DAILY FLOW: 48,000 GPD (JAN-MAR)

SEASONAL VARIATION IN FLOW

Typical of most Florida retirement type subdivisions, the January-March period is the peak flow time. Generally, flows during this period are 50,000+ GPD. The May-September period represents the time of minimal flow averaging 45,000+ GPD.

FLOW PROJECTIONS FOR NEXT 10 YEARS:

At the present time there are 190 lots occupied out of 210 lots permitted. There are no plans at this time for additional connections. Therefore, this final expansion should be adequate to serve the subdivision for the next 10 years.

PERMITTEE

FRANK J. BANNING, JR., P.E.

12-3-1998

DATE

12/3/98

DATE

VENETIAN VILLAGE
WASTEWATER TREATMENT FACILITY
CAPACITY ANALYSIS REPORT

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CAPACITY ANALYSIS REPORT
VENETIAN VILLAGE WASTEWATER TREATMENT FACILITY

I. FACILITY DESCRIPTION

A. Service Area

The service area for the Venetian Village Wastewater Treatment Facility (WWTF) is located northwest of the Town of Lake Jem in unincorporated Lake County, Florida, as shown in Figure I-1. The service area lies in Section 11, Township 20 South, Range 26 East.

The wastewater treatment system is owned and operated by Southern States Utilities, Inc. (SSU) and serves the franchise area shown in the Sewer Service Area Map (Sheet 1 and 2 located in the pocket at the end of the report). The WWTF serves the platted subdivision known as Venetian Village.

A field survey was performed to determine the number of individual single family dwelling units (D.U.'s) in the subdivision. The sewer service area includes a total of 104 single family lots. Of the 104 lots, 86 are currently connected to the collection system, and 18 are sewered but not yet connected.

B. Facility Description

The existing WWTF is a pre-engineered, "package"-type plant, employing the extended aeration modification of the activated sludge process. Reclamation of treated effluent is by discharge to groundwater through an evaporation/percolation pond.

The plant is operated under Florida Department of Environmental Regulation (FDER) Permit No. DO35-155737 (GMS No. 3035PO1268). The current permit was issued under the provisions of Chapter 403, Florida Statutes and Chapters 17-3, 17-4 and 17-6 of the Florida Administrative Code, with a date of expiration of April 21, 1994. A copy of the FDER Operation Permit is included as Appendix A. The permitted treatment capacity is 0.036 million gallons per day (MGD) operating in the extended aeration mode. The level of treatment imposed by permit is secondary treatment with basic disinfection.

The treatment plant is designed and constructed to use either an extended aeration or contact-stabilization process. The aeration time will be determined based on the influent flow rate. Smaller package plants are normally operated initially in the extended aeration mode. When the detention time in the aeration tanks approaches approximately 18 hours due to the increase in influent flow rates, the plant is converted by the operator to the contact stabilization

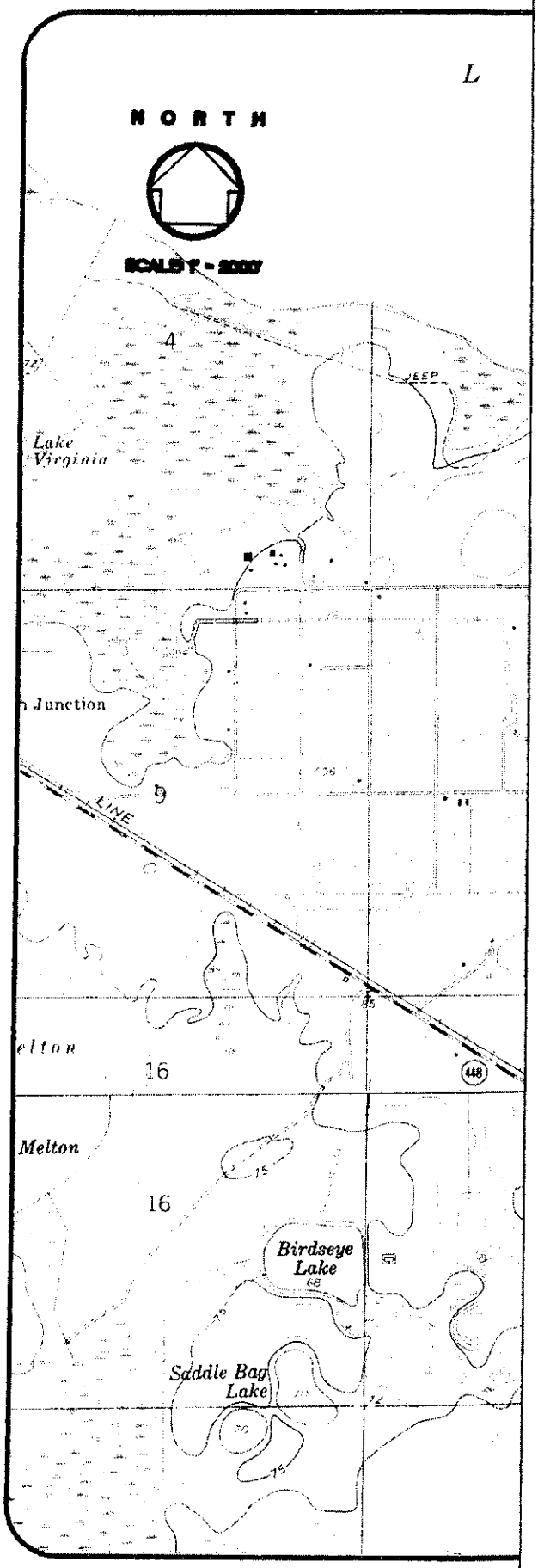

FIGURE I-1

PLANT LOCATION & SERVICE AREA BOUNDARY

VENETIAN VILLAGE WASTEWATER TREATMENT FACILITY

LEGEND

SERVICE AREA BOUNDARY

WASTEWATER TREATMENT FACILITY LOCATION

REFERENCE: UNITED STATES GEOLOGICAL SURVEY MAPS, ASTATULA & EUSTIS FLA. QUADRANGLE PHOTOREVISED 1980

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mode. The Venetian Village WWTF is being operated in the extended aeration mode based on the current average daily flow of approximately 0.024 MGD.

The schematic flow diagram of the treatment plant is shown in Figure I-2.

The influent is transmitted by force main, from two lift stations, into the first of three aeration tanks. The collection system has a total of four lift stations.

The plant processes are standard complete mix extended aeration processes consisting of aeration, clarification and sludge recycle, and chlorine disinfection. The clarified and disinfected effluent flows by gravity to the evaporation/percolation pond.

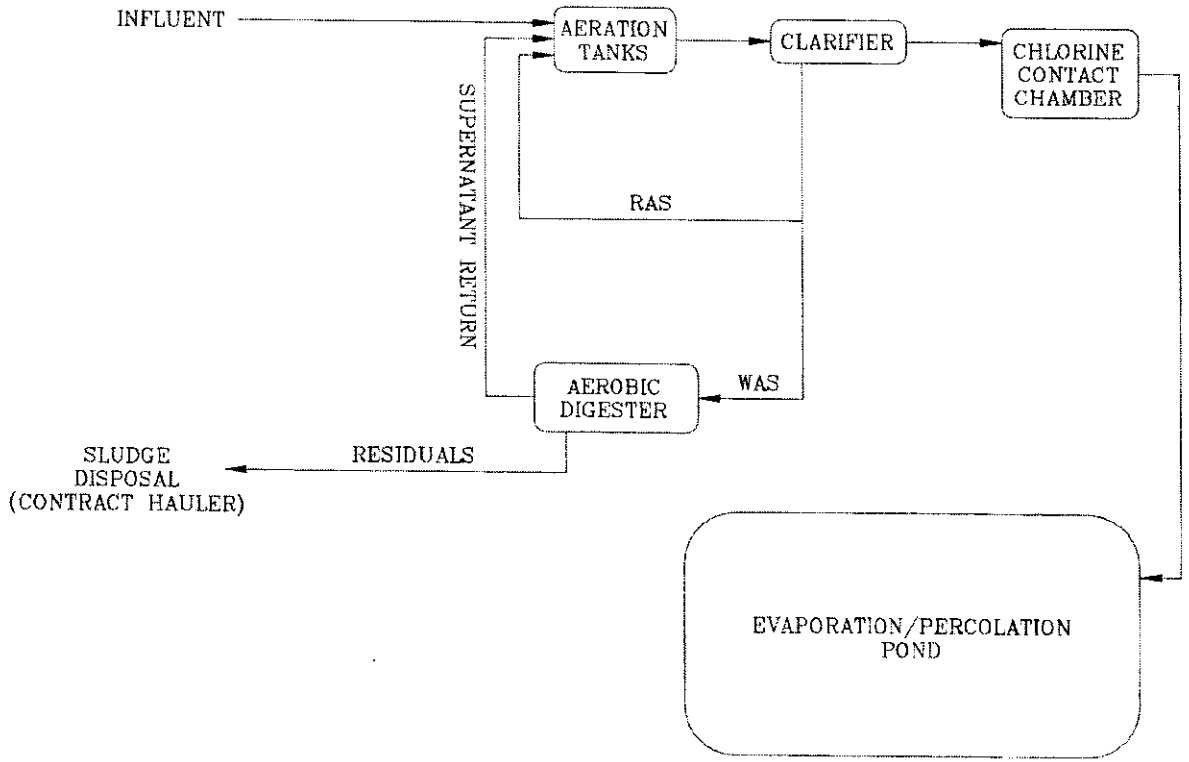
Excess sludge is stabilized by aerobic digestion then disposed of by land application through an independent contract sludge hauler.

FIGURE I-2

VENETIAN VILLAGE

WASTEWATER TREATMENT FACILITY

SCHEMATIC FLOW DIAGRAM



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II. HISTORICAL FLOW DATA

A. Historical Flows

The monthly average daily flows (ADF) rates for the years 1987 to 1991 are shown in Figure II-1 and Table II-1, below.

As can be seen from the above, the highest flows are experienced during the spring months (March - May). However, prior to June 13, 1990, the WWTF flow was estimated by multiplying the lift station pump run times by the rated capacity of the pumps. An ultrasonic flow meter was installed at the WWTF on June 13, 1990, and has been in service since that date. Due to the inherent inaccuracies in the prior method of estimating the flows, the flow analysis shall be based on the flows recorded after installation of the flow meter. The previous records, however, are useful in evaluating trends in the flows.

The highest monthly 5 year average ADF of 0.031 MGD occurs in July. This represents 86 percent of the permitted capacity of 0.036 MGD. The highest 3-month average of 0.029 MGD occurred in May and represents 80 percent of the permitted capacity.

The 4-year average daily flows and the 3-month averages are plotted in Figure II-2 to investigate seasonal flow variations. Although the variations are not considered to be extreme, the plot does indicate the possibility of infiltration into the collection system.

Overall, since the installation of the flow meter, the ADF's are relatively constant throughout the year and show little variation from the average on a month-to-month basis.

According to SSU records, the average number of sewer connections for 1991 was 82 customers. With an annual ADF of 0.024 MGD for 1991, the wastewater generation rate is 293 gallons per day (gpd) per sewer connection. Assuming 2.5 persons per connection, the per capita generation rate then would be approximately 117 gpd. These figures are slightly higher than the generally accepted per capita generation rates for similar developments. It is probable that infiltration/inflow (I/I) is the primary contributing cause of the higher than average flow per connection. This is due to a constant high water table throughout the year and the close proximity to adjacent canals.

FIGURE II-1

VENETIAN VILLAGE

WASTEWATER TREATMENT FACILITY

AVERAGE DAILY FLOWS - MGD (JANUARY 1987 TO DECEMBER 1991)

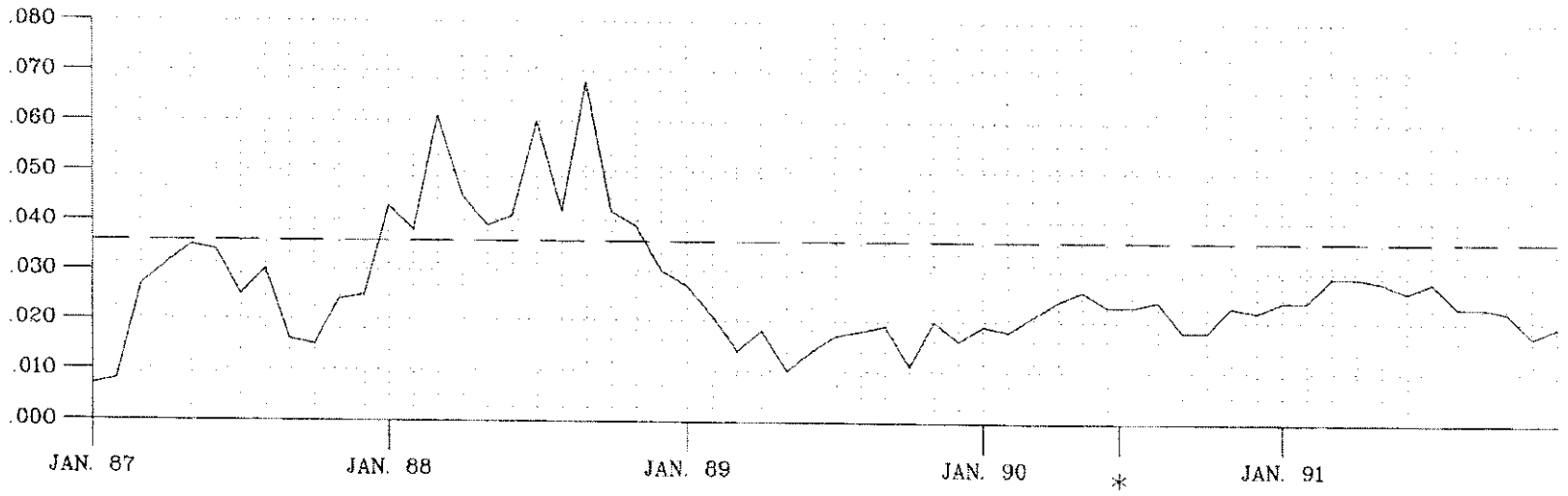

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TABLE II-1

VENETIAN VILLAGE WWTF[1]
MONTHLY AVERAGE DAILY FLOWS, 1987-1991

Month	MONTHLY ADF (MGD) 1987	1988	1989	1990	1991	5-YEAR AVERAGE MONTHLY ADF (MGD)	3-MONTH AVERAGE[3]
JAN	0.007	0.043	0.027	0.019	0.024	0.024	0.023
FEB	0.008	0.038	0.021	0.018	0.024	0.022	0.023
MAR	0.027	0.061	0.014	0.021	0.029	0.030	0.026
APR	0.031	0.045	0.018	0.024	0.029	0.029	0.027
MAY	0.035	0.039	0.010	0.026	0.028	0.028	0.029
JUN	0.034	0.041	0.014	0.023[2]	0.026	0.028	0.028
JUL	0.025	0.060	0.017	0.023	0.028	0.031	0.027
AUG	0.030	0.042	0.018	0.024	0.023	0.027	0.026
SEP	0.016	0.068	0.019	0.018	0.023	0.029	0.025
OCT	0.015	0.042	0.011	0.018	0.022	0.022	0.023
NOV	0.024	0.039	0.020	0.023	0.017	0.025	0.021
DEC	0.025	0.030	0.016	0.022	0.019	0.022	0.023
12-MONTH AVERAGE	0.029	0.046	0.017	0.022	0.024	0.026	0.025

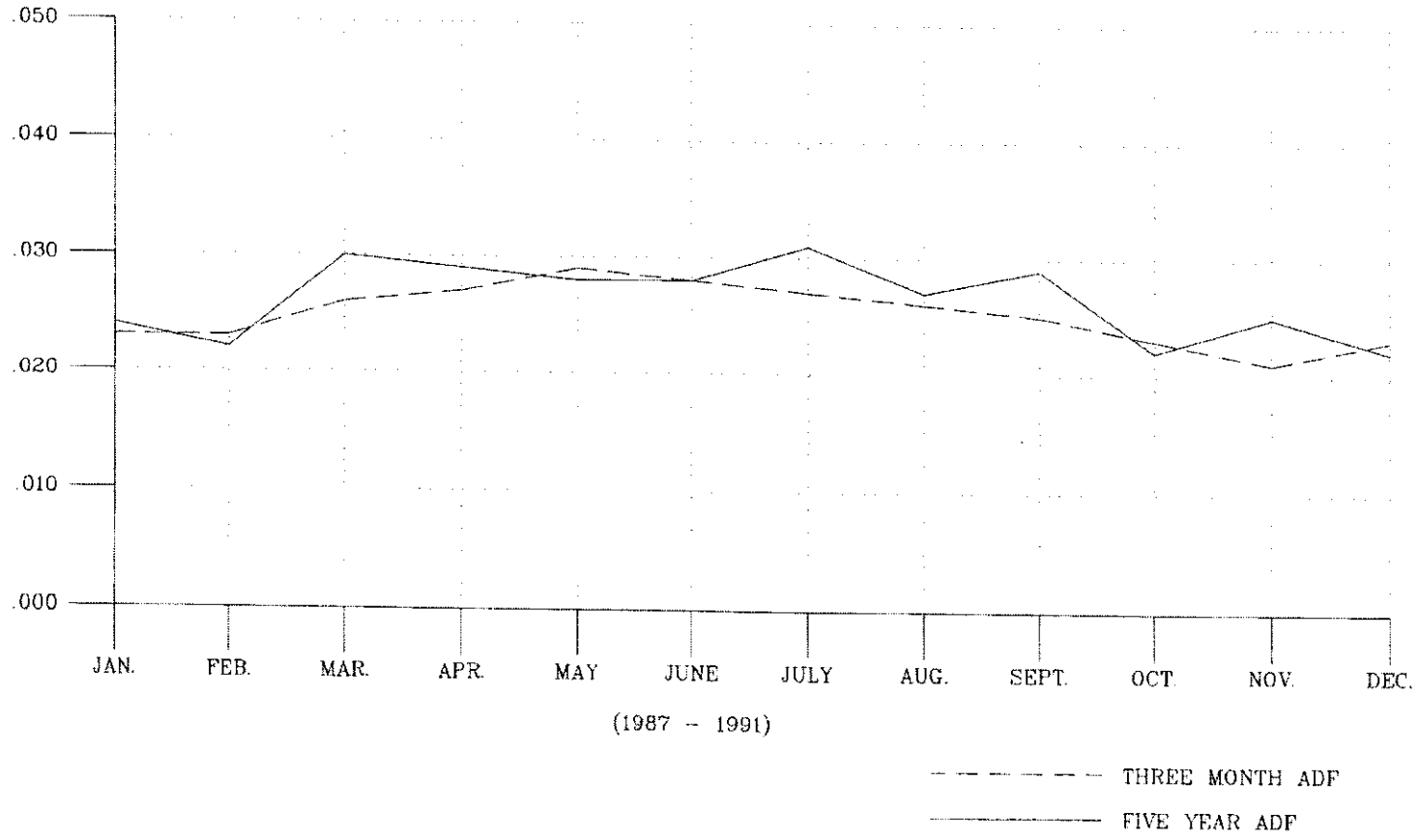
NOTES:
1. Information was obtained from FDER Monthly Operating Reports.
2. An ultrasonic flow meter was installed at the WWTF on June 13, 1990. Prior to that date flows were estimated using lift station pump run times and rated pumping capacities.
3. From November 1990 to December 1991 flows.

FIGURE II-2

VENETIAN VILLAGE

WASTEWATER TREATMENT FACILITY

FIVE YEAR AVERAGE OF MONTHLY AVERAGE DAILY FLOWS – MGD



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ENGINEERING ASSOCIATES

B. Raw Wastewater Characteristics

Influent testing prior to July of 1991 was sporadic, however, since that time, samples of the influent are taken and tested during most months, along with the required effluent sampling. The influent concentrations for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are shown below.

Parameter	Minimum	Maximum	Average
BOD_5	138mg/l	258mg/l	207mg/l
TSS	56mg/l	180mg/l	115mg/l

The average concentration for the influent BOD_5 is considered normal for untreated domestic wastewater. However, the low average TSS values are typical of raw wastewater that has a contribution from I/I. The light color and appearance of the raw wastewater entering the WWTF also tended to confirm a of I/I.

C. Overall Treatment Efficiencies

The results of the effluent testing for the previous 12 months for BOD_5 and TSS are shown in Table II-2. Overall, the plant is performing adequately and is providing the required secondary treatment levels imposed by the existing operation permit.

D. Effluent Disposal

As stated previously, the treated effluent is applied to an unlined evaporation/percolation pond. Based on approved capacity of 0.036 MGD, the effluent disposal system is exempt from groundwater monitoring requirements.

E. Residuals Disposal

Following stabilization by aerobic digestion, the limited volume of residuals generated by the extended aeration process is disposed of by contract with A-1 Septic, an independent sludge hauler. The sludge has been tested and conforms to a Grade II sludge under Chapter 17-7 (Copper being the only parameter exceeding Grade I limitations). A copy of the latest sludge analysis is included as Appendix B. The residuals are disposed of at the Adkinson Farm, located at 24321 County Road 561 in Astatula.

TABLE II-2

VENETIAN VILLAGE WWTF
EFFLUENT CHARACTERISTICS

MONTH/YEAR	MONTHLY ADF (MGD)	EFFLUENT BOD_5 (mg/l)	EFFLUENT TSS_5 (mg/l)
APRIL 1991	0.029	3.0	4.0
MAY	0.028	1.0	1.0
JUNE	0.026	4.0	11.0
JULY	0.028	2.0	1.0
AUGUST	0.023	2.0	1.0
SEPTEMBER	0.023	*.*	*.*
OCTOBER	0.022	<1.0	<1.0
NOVEMBER	0.017	3.7	1.0
DECEMBER	0.019	5.7	27.0
JANUARY 1992	0.018	2.5	3.0
FEBRUARY	0.019	4.6	1.0
MARCH	0.019	1.9	<1.0
AVERAGE	0.023	2.9	4.7

Source: FDER Monthly Operating Reports

. Information not available.

III. TREATMENT UNIT CAPACITY

A. General

This section will present a comparison of actual treatment process unit characteristics to generally accepted design criteria, in order to determine the effective treatment capacity on a unit-by-unit basis. The design criteria to be used are contained in the U.S. Environmental Protection Agency publication, titled "Process Design Manual for Wastewater Treatment Facilities for Sewered Small Communities" [Chapter 17-6.040(4)(K)]. This manual was prepared specifically for the conditions encountered in wastewater systems less than 1.0 MGD.

Table III-1 shows the characteristics of each unit process, the design criteria used for evaluation and the effective capacities of each unit, for the extended aeration process.

From Table III-1, all of the WWTF unit processes are operating within the generally acceptable ranges for treatment facilities of this type. The key operating parameters for each unit process are summarized below at the design flow of 36,000 gpd:

1. Aeration:
   a. Detention time = 21 hours
   b. Volumetric loading = 14.6 lb BOD_5/day/1000 ft^3

2. Clarification:
   a. Surface Overflow Rate = 281 gpd/ft^2 (equalized)
   b. Solids Loading Rate = 21.1 lb SS/day/ft^2

3. Disinfection:
   a. 32.4 minutes at design flow.
   b. 21.6 minutes at Peak flow.

4. Digestion:
   31.8 days retention time

From the above analysis, all the WWTF unit processes have adequate capacity at the design flow rate of 36,000 gpd.

TABLE III-1

VENETIAN VILLAGE WWTF
UNIT CAPACITY ANALYSIS
EXTENDED AERATION PROCESS

	Unit Process	Unit Characteristics	Design Criteria	Range of Unit Capacity
1.	Aeration	a. Volume = 31,885 gal. b. Volume = 4,262 ft^3	a. Detention time = 18-36 hrs. b. Volumetric loading = 10-25 lb. BOD_5/day/ 1000 ft^3	a. 42,513 gpd, maximum (18hr.) b. 24,688 gpd - 61,719 gpd (1)
2.	Clarification	Surface Area = 128 ft^2	a. Surface Overflow Rate = 800 gpd/ft^2 (Peak) b. Solids Loading Rate = 20-30 lb. SS/day/ft^2	a. 102,400 gpd b. 34,106 gpd - 51,159 gpd (2)
3.	Disinfection	Volume = 810 gal.	Detention time = 15 minutes at Peak Flow	77,760 gpd, maximum Peak Flow
4.	Aerobic Digestion	Volume = 2,375 gal.	Detention time = 7-10 days	38,230 gpd - 54,450 gpd (3)

NOTES:
(1) Assumes influent BOD_5 of 207 mg/l
(2) Assumes MLSS = 4500 mg/l and recycle ratio of 1.0
(3) Assumes: a) Influent BOD_5 of 207 mg/l, b) 0.3 lb. solids produced/lb. BOD_5 removed and c) Sludge solids = 1.0%

IV. FLOW PROJECTIONS

A. Basis of Flow Projections

The flow projections contained in this section are based on the historical generation rates as derived in Section II, i.e., 2.5 people per dwelling unit (connection) and 117 gallons per day per person, for a total dwelling unit generation rate of 293 gpd.

B. Flow Projections

With the exception of eighteen (18) vacant lots, the service area is at build-out. Assuming the 18 vacant lots are developed as single family dwelling units, the current sewer system serves 104 dwelling units. At 293 gpd unit, the ultimate wastewater flow rate would be 30,472 gpd for the existing sewer system, which is well within the current permitted capacity of the treatment and disposal system.

V. CONCLUSIONS & RECOMMENDATIONS

A. Treatment Process

The Venetian Village WWTF is currently operating at an average annual flow of 0.024 MGD while the treatment capacity is 0.036 MGD. At build-out of the sewer service area, the estimated ultimate flow is 30,472 gpd, still well below the effective capacity of the treatment plant.

Therefore, the conclusion is that the existing treatment plant has adequate capacity, under the current FDER Operating Permit, to serve the entire service area at build-out and consequently, no expansion of the treatment plant is required.

B. Effluent Disposal/Reuse

The permitted capacity of the existing effluent disposal/reuse system is 0.036 MGD. This is more than sufficient to serve the existing sewered area.

The conclusion is that the effluent disposal/reuse system is sufficient to serve the entire sewer service area. This includes the existing customers, and the remaining undeveloped lots, within the sewer service area.

APPENDIX A

FDER OPERATION PERMIT

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

Permittee:
Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035P01268
Permit/Certification
Number: DO35-155737
Date of Issue:
Expiration Date: April 21, 1994
County: Lake
Project: Venetian Village, S.T.P.

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3, 17-4 and 17-6, F.A.C. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Operate: A 0.036 MGD design capacity extended aeration wastewater treatment facility. The disinfected effluent is discharged to ground water via a percolation pond and no discharge to surface waters.

Location: Tammi Drive, Lake Jem, Lake County, Florida.

Treatment Required: Secondary treatment and basic disinfection.

Operators Required: This is a Class C, Category III treatment facility. In accordance with Chapter 17-16, F.A.C. an operator of minimum certification Class C shall be on-site for one-half (1/2) hour per day for five (5) days per week and a weekend visit, as a minimum.

General Conditions are attached to be distributed to the permittee only.

MITTEE:

I.D. Number:
Permit/Certification Number:
Date of Issue:
Expiration Date:

ENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

   a. Having access to and copying any records that must be kept under the conditions of the permit;

   b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

   a. a description of and cause of non-compliance; and

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)

( ) Determination of Prevention of Significant Deterioration (PSD)

( ) Certification of compliance with state Water Quality Standards (Section 401, PL 92-500)

( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

PERMITTEE:
Southern States Utilities, Inc.

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035P01268
Permit/Certification Number:
DO35-15537
Date of Issue:
Expiration Date: April 21, 1994

SPECIFIC CONDITIONS:

1. The required sampling shall be as follows:

Parameter	Recording or sampling Frequency
TSS	monthly
BOD_5	monthly
pH	daily, 5 days per week
Chlorine residual	daily, 5 days per week
Flow	daily, 5 days per week
Fecal coliform	quarterly

The sampling and analysis required above shall be in accordance with Chapter 17-19, F.A.C. and approved standard methods. Properly executed reports shall be submitted monthly to this office and to Lake County Pollution Control on a monthly basis, by the 15th day of the following month.

2. This facility which has a design capacity less than 100,000 GPD is exempt from groundwater monitoring as set forth in Rule 17-4.245, F.A.C.

3. Facilities discharging to groundwaters shall be operated and maintained at all times so as to prevent overflow or seepage of water to adjacent ground surfaces or runoff to surface waters.

4. The maintenance and operation log required pursuant to Rule 17-16.360(e), F.A.C., shall be stored on-site in a weather resistant structure.

5. The boundary of the zone of discharge shall be 100 feet from the site (wetted disposal area) boundary or to the installation's property boundary whichever is less. The zone of discharge shall be the volume underlying the surface within this boundary to the base of the unconfined aquifer.

6. Operational difficulties shall be immediately reported to both the local pollution control program and to the Department of Environmental Regulation.

7. The permittee shall submit the prescribed application and supporting data for an operation permit no later than 60 days prior to expiration of this permit.

PERMITTEE:
Southern States Utilities, Inc.

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035P01268
Permit/Certification Number:
D035-15537
Date of Issue:
Expiration Date: April 21, 1993

SPECIFIC CONDITIONS:

8. The reclaimed water delivered to the land application system shall be adequately chlorinated at all times so as to maintain 0.5 mg/l total chlorine residual after a minimum contact period of 15 minutes (based upon peak flow).

9. Waste sludge disposal shall be in accordance with Rule 17-7, Part IV, F.A.C. Sludge which has not been analyzed pursuant to Rule 17-7.540(1) and (2), F.A.C. shall be disposed of at approved sanitary landfills or as otherwise provided in Rule 17-7.540(6), F.A.C.

ISSUED 5-16-89

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

A. Alexander
Deputy Assistant Secretary
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803

APPENDIX B

SLUDGE ANALYSIS

ORLANDO LABORATORIES INC.

P.O. Box 149127 • Orlando, Florida 32814

REPORT OF ANALYSIS

Southern States Utilities
1000 Color Place
Apopka, FL 32703

Attn: Don Corder

Work Order # : 91-05-328
Date Received: 05/22/91
Date Reported: 06/04/91
OLI Contact: L_BALTZLEY

Work ID: Venetian Village
Samples collected by: Client
Total Samples: 1

SAMPLE IDENTIFICATION
01 Composite #1

TEST CODES and NAMES used on this report
1_COMP Composite Data For Samples
SLUDG1 Sludge Analysis (AA)
SLUDG2 Sludge Analysis (Wet Chem)

Copy of report to:
Brian Heath
300 N. Fern
Leesburg, FL 34748

OLI Florida Department of Health & Rehabilitative Service Identification Numbers are:
Drinking Water Certification Number 83141. Environmental Certification Number E83033

Respectfully Submitted,
ORLANDO LABORATORIES, INC.

John Hobbs
LABORATORY DIRECTOR

Eric Malarek
QUALITY CONTROL

ANOD LABORATORIES,INC.
ived: 05/22/91

REPORT OF ANALYSIS
Results by Sample

Work Order # 91-05-328

E ID Composite #1
COLLECTED not specified
ST NAME Composite Data For Samples

SAMPLE# 01A
MATRIX SLUDGE
TEST CODE 1 COMP

NUMBER OF SAMPLES COMPOSITED: 4

	Sample Identification	Date & Time Collected
#1	1 OF WEEK 1	05/16/91 16:30
#2	2 OF WEEK 1	05/17/91 09:00
#3	1 OF WEEK 2	05/20/91 16:00
#4	2 OF WEEK 2	05/21/91 16:00
#5		
#6		
#7		
#8		
#9		
#10		
#11		
#12		

NOO LABORATORIES,INC.
ived: 05/22/91

REPORT OF ANALYSIS
Results by Sample

Work Order # 91-05-328

E ID Composite #1
COLLECTED not specified
ST NAME Sludge Analysis (AA)

SAMPLE# 01A
MATRIX SLUDGE
TEST CODE SLUDG1

ELEMENT NAME	RESULT	UNITS	ANALYST
Cadmium	2.4	mg/kg Dry Wt.	TWB
Copper	1500	mg/kg Dry Wt.	TWB
Lead	66	mg/kg Dry Wt.	RJW
Nickel	9.6	mg/kg Dry Wt.	CFG
Zinc	580	mg/kg Dry Wt.	TWB
Total Potassium	0.34	% Dry Wt.	TWB

NOD LABORATORIES,INC.
ived: 05/22/91

REPORT OF ANALYSIS
Results by Sample

Work Order # 91-05-328

ID Composite #1
OLLECTED not specified
ST NAME Sludge Analysis (Wet Chem)

SAMPLE# 01A
MATRIX SLUDGE
TEST CODE SLUDG2

ELEMENT NAME	RESULT	UNITS	ANALYST
Total Nitrogen	5.73	% Dry Wt.	RAW
Total Phosphorus	1.82	% Dry Wt.	RAW
pH	7.21	Units	RG
Total Solids	0.56	Percent	LD

Southern States Utilities
Attn: Don Corder

Report No: 91-05-328
Page No: 5

QUALITY CONTROL DATA SHEET

PARAMETER	DUPLICATES % DIFFERENCE	SPIKES % RECOVERY	DATE	ANALYST
Total Phosphorus	2	106	05/23/91	RAW
pH	<1	N/A	05/22/91	RG
TKN	<1	97	05/28/91	RAW
Nitrate Nitrogen	<1	101	05/30/91	RAW
Nickel	3	95	05/31/91	CFG
Cadmium	1	101	05/31/91	TWB
Copper	<1	98	05/31/91	TWB
Zinc	<1	97	05/31/91	TWB
Potassium	1	95	05/31/91	TWB
Lead	6	92	05/31/91	RJW

CODES

CFU	Colony Forming Units
DIL	Diluted Out
D.O.	Diluted Out
H	Greater Than 200 Background Colonies
J	Indicates an estimated value
L	Less Than 100 Background Colonies
M	100-200 Background Colonies
MCL	Maximium Contaminant Level
N	No Background Colonies
NA	Not Applicable
N/C	No Combustion
NR	Not Requested
TNTC	Too Numerous To Count
U	Indicates the compound was analyzed for but not detected. The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.
<	Less Than
>	Greater Than

End of Report

P. Box 149127, Orlando, FL 32814
(407) 896-6645 FAX (407) 898-6588

CHAIN-OF-CUSTODY RECORD
(INSTRUCTIONS ON BACK)

Page 1 of 1

1 INVOICE TO (COMPANY AND INDIVIDUAL)	ADDRESS (CITY, STATE, ZIP)	2 CONTACT PERSON/PHONE # INVOICE	3 OLI WORK ORDER # (LAB USE)
SSU Services	1000 Color Place		9105328
4 ORIGINAL REPORT TO (COMPANY AND INDIVIDUAL)	**ADDRESS (CITY, STATE, ZIP)**	**5 CONTACT PERSON/PHONE # REPORT**	**6 RB NUMBER (LAB USE)**
Dan Corder	Apopka Fla. 32703		3816
7 (OPTIONAL) ADDITIONAL REPORTS SENT TO:	**ADDRESS: (CITY, STATE, ZIP)**		
Brian Heath	300 N Fern Lees. Fla. 34748		
8 CLIENT PROJECT NAME	**9 CLIENT PROJECT #**		
Venetian Village	PO# 111403		

10 SAMPLE IDENTIFICATION	11 DATE/TIME	12 COMP	GRAB	WATER	SOIL	OTHER	13 SAMPLE DESCRIPTION	17 NUMBER OF CONTAINERS	18 REQUESTED ANALYSIS: Sludge Anal.	19 REMARKS
1 of wk 1	5-16-91 16:30		X	X			Aeration Basin	3		
2 of wk 1	5-17-91 9:00		X	X			" " "	3		
1 of wk 2	5-20-91 16:00		X	X			" " "	3		
2 of wk 2	5-21-91 16:00		X	X			" " "	3		

TRANSFER NUMBER	14 RELINQUISHED BY	15 DATE/TIME	16 ACCEPTED BY
1st	[signature]	4/9 1510	
2nd	John D. Wilkerson	5/22 11:45	Deedee Homan
3rd			

20 ADDITIONAL REMARKS

21 COOLER #'s: 587

22 SAMPLER'S SIGNATURE: [signature]

ORIGINAL - LAB
YELLOW - FILE
PINK - CLIENT

Florida Department of Environmental Regulation

Central District ● 3319 Maguire Boulevard, Suite 232 ● Orlando, Florida 32803-3767 ● 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

Permittee:
Southern States Utilities, Inc.
1000 Color Place
Apopka, FL 32703

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035PO1268
Permit/Certification
Number: DO35-155737
Date of Issue:
Expiration Date: April 21, 1994
County: Lake
Project: Venetian Village, S.T.P.

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3, 17-4 and 17-6, F.A.C. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Operate: A 0.036 MGD design capacity extended aeration wastewater treatment facility. The disinfected effluent is discharged to ground water via a percolation pond and no discharge to surface waters.

Location: Tammi Drive, Lake Jem, Lake County, Florida.

Treatment Required: Secondary treatment and basic disinfection.

Operators Required: This is a Class C, Category III treatment facility. In accordance with Chapter 17-16, F.A.C. an operator of minimum certification Class C shall be on-site for one-half (1/2) hour per day for five (5) days per week and a weekend visit, as a minimum.

General Conditions are attached to be distributed to the permittee only.

MITTEE:

I.D. Number:
Permit/Certification Number:
Date of Issue:
Expiration Date:

ENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

   a. Having access to and copying any records that must be kept under the conditions of the permit;

   b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

   a. a description of and cause of non-compliance; and

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)

( ) Determination of Prevention of Significant Deterioration (PSD)

( ) Certification of compliance with state Water Quality Standards (Section 401, PL 92-500)

( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

PERMITTEE:
Southern States Utilities, Inc.

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035P01268
Permit/Certification Number:
D035-15537
Date of Issue:
Expiration Date: April 21, 1994

SPECIFIC CONDITIONS:

1. The required sampling shall be as follows:

Parameter	Recording or sampling Frequency
TSS	monthly
BOD_5	monthly
pH	daily, 5 days per week
Chlorine residual	daily, 5 days per week
Flow	daily, 5 days per week
Fecal coliform	quarterly

The sampling and analysis required above shall be in accordance with Chapter 17-19, F.A.C. and approved standard methods. Properly executed reports shall be submitted monthly to this office and to Lake County Pollution Control on a monthly basis, by the 15th day of the following month.

2. This facility which has a design capacity less than 100,000 GPD is exempt from groundwater monitoring as set forth in Rule 17-4.245, F.A.C.

3. Facilities discharging to groundwaters shall be operated and maintained at all times so as to prevent overflow or seepage of water to adjacent ground surfaces or runoff to surface waters.

4. The maintenance and operation log required pursuant to Rule 17-16.360(e), F.A.C., shall be stored on-site in a weather resistant structure.

5. The boundary of the zone of discharge shall be 100 feet from the site (wetted disposal area) boundary or to the installation's property boundary whichever is less. The zone of discharge shall be the volume underlying the surface within this boundary to the base of the unconfined aquifer.

6. Operational difficulties shall be immediately reported to both the local pollution control program and to the Department of Environmental Regulation.

7. The permittee shall submit the prescribed application and supporting data for an operation permit no later than 60 days prior to expiration of this permit.

PERMITTEE:
Southern States Utilities, Inc.

Attention: Charles L. Sweat, Pres.

I. D. Number: 3035P01268
Permit/Certification Number:
D035-15537
Date of Issue:
Expiration Date: April 21, 1993

SPECIFIC CONDITIONS:

8. The reclaimed water delivered to the land application system shall be adequately chlorinated at all times so as to maintain 0.5 mg/l total chlorine residual after a minimum contact period of 15 minutes (based upon peak flow).

9. Waste sludge disposal shall be in accordance with Rule 17-7, Part IV, F.A.C. Sludge which has not been analyzed pursuant to Rule 17-7.540(1) and (2), F.A.C. shall be disposed of at approved sanitary landfills or as otherwise provided in Rule 17-7.540(6), F.A.C.

ISSUED 5-16-89

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

A. Alexander
Deputy Assistant Secretary
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803

REPORT OF
PERCOLATION MODEL
AND
PERCOLATION POND CAPACITY

VILLAGE WATER
WASTEWATER TREATMENT FACILITY
LAKELAND, FLORIDA

Prepared for:

Aqua Utilities Florida, Inc.

Leesburg, Florida

Prepared by:

BCI Engineers & Scientists, Inc.
2000 E. Edgewood Drive, Suite 215
Lakeland, Florida 33803

BCI File No. 01-15725

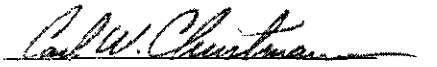
June 2008

BCI engineers & scientists

CERTIFICATION

Engineering Certification

I hereby certify that I am a registered professional engineer in the State of Florida practicing with BCI Engineers & Scientists, Inc., 2000 E. Edgewood Drive, Suite 215, Lakeland, FL 33803, a corporation authorized to operate as a business providing engineering consulting services (EB 0007867) by the State of Florida Department of Professional Regulation, Board of Engineers. I further certify that I, or others under my direct supervision, have prepared the geotechnical engineering evaluations, findings, opinions, calculations, conclusions or technical advice hereby represented in this report.

SIGNATURE: 

NAME: Carl W. Christmann, P.E.

LICENSE No.: 59285

DATE: June 12, 2008

Report Title: REPORT OF SEEPAGE MODEL AND
PERCOLATION POND CAPACITY
VILLAGE WATER WASTEWATER TREATMENT FACILITY
LAKELAND, FLORIDA
BCI Project No. 01-15725

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1.0 INTRODUCTION

Aqua Utilities Florida, Inc. (AQUA) has requested BCI Engineers & Scientists, Inc. (BCI) to provide geotechnical and hydrological engineering services for the Village Water Wastewater Treatment Facility. As specified in the proposal by BCI dated on October 11, 2007, the scope of services included Task 1 and Task 2. In Task 1, the capacity of the percolation ponds will be estimated and a technical report will be prepared for submittal to the Florida Department of Environmental Protection (FDEP) in support of the permit application. In Task 2 a geotechnical exploration program of the site will be conducted, and the embankments will be inspected in accordance with Rule 62-672.500 (5) and (7) Florida Administrative Code (FAC). Task 2 included analysis of the slope stability, and evaluation of potential impacts of vegetation within the project area on the structural integrity and percolation capacity of the ponds. A separate report pertaining primarily to Task 2 was submitted to AQUA in March 2008.

The primary objective of Task 1 was to evaluate percolation conditions through the bottom of the percolation ponds and along the perimeter of the earth embankments levee surrounding the ponds. The results of the percolation analyses may be used to estimate the capacity of the percolation ponds can be made. The scope of services for Task 1 includes:

- Perform a site visit of the project area;
- Perform two deep SPT borings along the north embankment to a maximum depth of 45 feet below the ground to characterize the confining unit;
- Install three piezometers along the northern embankment to determine the hydraulic conductivity of its fill material by performance of a pump test and to allow measurement of the phreatic surface within the embankments for the purpose of seepage analyses;
- Collect and compile groundwater readings from piezometers;
- Conduct pump tests at the location of piezometers to determine the hydraulic conductivity of the soils;
- Perform a series of hand-auger borings to determine the seasonal high water table at the project site;
- Collect topographic data at the project site for the development of percolation model geometry;
- Develop a conceptual percolation model for the west and east ponds using the computer software program SEEP/W;
- Calibrate conceptual percolation models with the ground-water levels obtained from the piezometer readings, hand-auger borings, and shallow hand-auger borings;
- Estimate the annual percolation capacity of the ponds; and
- Evaluate the sensitivity of the percolation models to hydraulic conductivity of sand and clayey sand, and boundary conditions at the south and north end of the model.

This report presents an overview of available information, including regional and site hydrogeological conditions, percolation model construction and calibration, and estimation of the capacity of the percolation ponds. The findings from the geotechnical exploration program and pump tests at the site were summarized in the report for Task 2. The current report should be read in conjunction with the technical report prepared for Task 2 (BCI, 2008).

2.0 BACKGROUND

2.1 Site Description

The Village Water Wastewater Treatment facility, operated by AQUA Florida, Inc., is located at 4411 Maine Avenue, Easton Park, FL and within Section 35, Township 28 South, Range 24 East. It is bounded on the north by Maine Avenue and the south by the Polk Parkway (State Road 570). The location of the site is illustrated in **Figure 1**.

The Village Water Wastewater Treatment facility consists of a wastewater treatment plant and two percolation ponds (the east and west ponds). The wastewater treatment plant is located at the west side of the project area. The reclaimed water is discharged directly into the west pond. The west pond discharges to the east pond when the water level within the west pond rises above the invert of the overflow pipe. **Figure 2** presents an aerial image of the Village Water wastewater treatment facility together with adjacent properties.

The percolation ponds are enclosed by earthen embankment levees with side slopes ranging between 2H:1V and 3H:1V. The crest widths of the levees vary between 15 and 35 feet at elevations ranging between 112.0 and 123.0 feet NGVD. A drainage ditch runs along the northern embankment at a distance of approximately 50 feet from the downstream toe of the berm embankment. The levees are equipped with five overflow pipes that are located as follows:

- Three on the southern embankment of the west pond (P-1 through P-3);
- One on the eastern embankment of the eastern pond (P-5); and
- One connects both ponds (P-4).

Table 1 summarizes the dimensions of the overflow pipes and **Figure 2** shows their approximate locations.

Table 1
Dimension of Overflow Pipes

Pipe No.	Invert (ft, NGVD)		Approximate Length (ft)
	Upstream	Downstream	
P-1	112.35	111.99	75
P-2	112.31	111.78	75
P-3	112.18	111.57	75
P-4	111.71	111.17	45
P-5	109.56	109.29	45

Notes:
P-1, P-2, and P-3 are located at the south embankment of West Pond
P-4 connects West Pond and East Pond
P-5 is located at the east embankment of East Pond

2.2 Regional Hydrogeology

The stratigraphic units underlying the project site form a layered sequence of aquifers and confining units. The regional hydrogeology at the site is separated into the Surficial Aquifer System (SAS), the underlying confining unit or the Intermediate Aquifer System (IAS), and the Floridan Aquifer System (FAS). This report focuses on the surface water and near surface groundwater interactions, and therefore concentrates on the SAS within the region.

The surficial aquifer system is composed primarily of undifferentiated fine- to medium-grained quartz sand near the land surface that grades with depth to silty and clayey sands. The surficial aquifer system within Polk County generally thickens towards the east, especially along the southern part of the Lake Wales Ridge where thickness can exceed 200 feet. However, in much of the western one-third of the county, thicknesses generally are less than 50 feet (Spechler and Kroening, 2006).

Even though most water in the surficial aquifer system flows vertically to recharge the Upper Floridan aquifer, there is also a lateral component of flow. The lateral direction of flow in the surficial aquifer system generally is governed by land surface topography. Water in the surficial aquifer system usually flows laterally from areas of high altitude and discharge into lakes, streams, and wetlands in areas of low altitude.

Hydraulic properties of the surficial aquifer system vary considerably across the county and are dependent largely upon aquifer thickness, grain-size distribution, sorting, packing, and cementation of the sediments within the aquifer. Horizontal hydraulic conductivity determined for the surficial aquifer system from six wells in Polk County ranged from 0.3 to 55 feet per day (ft/d) (Southwest Florida Water Management District (SWFWMD), 2000).

2.3 Site Specific Hydrogeologic Data

Figure 3 presents the soil boring profiles for SPT-1 through SPT-5. Two deep SPT borings (PZ-1 and PZ-2) encountered a layer of light gray to pale tan clay at a depth of 33 to 43 feet below the crest of the embankments. Recorded SPT blow counts for this soil unit were in excess of 50 blows per foot, indicating a very hard consistency material. The permeability of the clayey soil was expected to be very low, and therefore the top of this layer was selected to be the bottom boundary of the percolation models included in this study.

The geotechnical exploration program also included a series of borings along the crest of embankments to characterize the soils used for the construction of the embankments. Generally, the embankments were constructed of clayey sand interbedded with sand, silt, and clay. Horizontal conductivity values of the in-situ soils of the embankment as determined from pump tests range from 3.5 to 16.6 (ft/d).

Efforts were made to retrieve the soils samples from the bottom of the west and east ponds for classification purposes. A sample recovered from the west pond bottom indicated that the material was very soft clay overlain by approximately one inch of sandy material. A sample from the east pond indicated that the pond bottom consisted of light brown to brown fine-grained quartz sand.

Figure 2 shows the approximate locations of the piezometers, borings, and shallow borings. **Table 2** summarizes groundwater levels obtained from the piezometers (PZ-1 through PZ-3), borings performed through the embankments (HA-4 through HA-6), and shallow borings performed along the levee's exterior (SH-8 through SH-10). Generally, groundwater levels in the surficial aquifer system fluctuate in response to seasonal changes in precipitation, evapotranspiration, and especially water levels within the percolation ponds. During our investigation, however, no significant variation in water levels within the percolation ponds was observed. The water levels recorded for the west and east ponds were 111.5 and 107.2 ft NGVD, respectively.

Table 2
Groundwater Readings

Locations	Ground Surface Elevation (ft, NGVD)	Depth to Ground Surface (ft)	Groundwater Elevation (ft, NGVD)
PZ-1	116.2	9.8	106.4
PZ-2	116.2	8.4	107.8
PZ-3	114.6	11.8	102.8
HA-4	115.0	8.0	107.0
HA-5	114.8	8.0	106.8
HA-6	120.9	10.0	110.9
SH-8	108.0	3.9	104.1
SH-9	107.5	3.8	103.7
SH-10	114.7	4.5	110.2

Notes:
Average values taken after the installation of PZs.
Estimated during hand angering process for HA locations.
Surveyed data on February 18, 2008 for SH locations.

3.0 PERCOLATION MODEL CONSTRUCTION

3.1 Description of SEEP/W

Two-dimensional steady state percolation analyses were performed using the finite element computer software program SEEP/W. SEEP/W is a module of Geostudio 2004 developed by Geoslope International Ltd of Calgary, Alberta, Canada. SEEP/W assumes that flow through both saturated and unsaturated media can be described using Darcy's law, which is applicable to porous media. Setting up and running of the percolation model involved the following steps:

- Developing a conceptual cross-sectional model of the levees and subsurface conditions and defining the geometry of the levees and stratigraphic units of subsurface soils (layers);
- Discretizing the model into a finite element mesh;
- Assigning hydrogeologic material properties to the different material layers;
- Assigning boundary conditions to the model;
- Simulating various conditions or scenarios; and
- Analyzing the results for those scenarios

3.2 Model Geometry and Mesh

Percolation model cross sections for the west pond and the east pond were located as shown in **Figure 2**. **Figures 4** and **5** show the general layout of the percolation model cross sections. AQUA provided a detailed survey for the percolation ponds. However, the provided data did not include detailed topographic information for the adjacent areas, which was needed for the development of the percolation model cross sections. Consequently, we relied on Light Detection and Ranging (LiDAR) data collected by SWFWMD in 2005 for those areas.

Also shown in **Figures 4** and **5** are soil materials of the percolation ponds. The percolation models were constructed using three soil layers identified during the geotechnical exploration program:

- Silty sand
- Sand/Sand with some silt
- Clayey sand

The cross section for the north and south embankments of the west pond represent conditions reported for SPT -1 and SPT-5, respectively. The information obtained from SPT-2 and SPT-4 was used to delineate the soil profiles for the north and south embankments of the east pond. The limited information available describing soil conditions at the bottom of the percolation ponds was applied to the model in conjunction with available soil survey information.

Soil data from the Soil Survey of Polk County, Florida (USDA-SCS, 1990) indicates that the soil unit at the Village Water Wastewater Treatment Facility was identified as Hydraquents, clayey soil with 85 percent clay, 10 percent silt, and 5 percent sand. In the percolation models, the pond bottom was represented as a clayey sand.

The finite element mesh was generated in accordance with the guidelines presented in the SEEP/W guidance document (Krahn, 2004). A coarse mesh was used in peripheral areas of the model and a finer or higher resolution mesh was used in areas of specific interest or areas with potentially higher gradients. The finite element types used in the model included 4-node quadrilateral and 3-node triangular elements. A structured meshing technique was employed to generate the finite element mesh for the percolation models.

3.3 Material Properties

The hydraulic conductivity of soils is required for the percolation simulation using SEEP/W. Pump tests were performed at the piezometer locations to determine the horizontal hydraulic conductivity of the embankment soils. The test results at PZ-1 and PZ-2 indicated that the horizontal conductivity of soils ranged from 3.5 to 16.6 feet/day (ft/d).

The hydraulic conductivity of a particular soil type may vary within a broad range, depending upon the grain-size distribution, sorting, packing, and soil cementation. **Table 3** presents the lower and upper bounds of expected horizontal and vertical hydraulic conductivities for silty sand, sand, and clayey sand. The vertical hydraulic conductivity of soils is usually smaller than its horizontal hydraulic conductivity. For this investigation, it was assumed that the vertical hydraulic conductivity is half of its horizontal hydraulic conductivity in the percolation models. The final set of material properties resulting from the model calibration are also provided in **Table 3**.

Table 3
Hydraulic Conductivity of Soils

Location	Material No.	Material Name	Lower Bound		Upper Bound		Calibrated	
			K_h (ft/d)	K_v (ft/d)	K_h (ft/d)	K_v (ft/d)	K_h (ft/d)	K_v (ft/d)
East Pond	1	Silty Sand	0.1	0.05	5	2.5	1.0	0.5
	2	Sand	1	0.5	20	10	12.2	6.1
	3	Clayey Sand	0.01	0.005	1	0.5	0.20	0.10
West Pond	1	Silty Sand	0.1	0.05	5	2.5	1.0	0.5
	2	Sand	1	0.5	20	10	13.0	6.5
	3	Clayey Sand	0.01	0.005	1	0.5	0.30	0.15

3.4 Boundary Conditions

The boundary conditions for the 2-dimensional, steady state, finite element analyses include:

- The "potential seepage face" boundary condition assigned to nodes where seepage may exit the ground surface, but surface water will be drained and not allowed to mound above the ground surface elevation; and
- The "constant head" boundary condition specified for nodes at the bottom of ponds and drainage ditches, with a known or assigned surface water stage;

The potential seepage face boundary condition is a zero-flux boundary with the option to change to a constant head boundary condition should the node fall within seepage face. SEEP/W uses an iterative procedure to determine whether a node is on a seepage face or not. The first iteration assumes that the seepage face nodes are zero-flux nodes then compares the computed head with the elevation of the node after the heads are computed for all nodes. If the resulting head elevation were to be greater than the node elevation (positive pressure), the boundary condition for the node is changed to a constant-head that is equal to the node elevation (zero pressure with flow out of model). For subsequent iterations, the program checks each potential seepage face node to determine if the node has positive pressure or negative flux (flow into the model) and automatically and appropriately changes the boundary of these nodes. The iteration continues until the seepage face is determined, that is all nodes are properly assigned with either zero pressure or zero-flux conditions, and the computations are carried out to a solution. Potential seepage face boundary conditions were assigned at the downstream slope of embankments, above the north drainage ditch pool stage. All perimeter nodes without an assigned boundary condition defaulted to a zero-flux condition.

Constant head boundary conditions were assigned to the model surface nodes within the storage ponds. The centerline of the north drainage ditch was selected to be the northern end of the model. During site visits, approximately one foot of water was observed within the north ditch. In this analysis, a constant head boundary condition was assigned to the northern end of the model to represent the water level within north ditch, which was assumed to be one foot above the bottom of the ditch.

The percolation model in this analysis included boundary conditions on the south and north ends of the model. The south end of the cross section represents conditions along the centerline of the drainage ditch just north of Highway 570. Observations at SH-8 and SH-9 indicate that the groundwater along the model southern boundary is approximately 3.8 feet below the ground surface. A constant head boundary condition was applied to the southern edge of the model, located to represent the approximate of groundwater levels.

3.5 Model Calibration and Verification

The primary purpose of the percolation model calibration was to adjust soil parameters to better represent observed conditions at the site. The percolation models developed for the east and west ponds were calibrated by comparing the model results with measured groundwater levels at the locations of piezometers, borings, and shallow borings. Numerous iterations of the model were evaluated during the calibration processes, and the following parameters were observed to have a significant effect on the model results:

- Position of sand drainage layer;
- Hydraulic conductivity of sand; and
- Hydraulic conductivity of clayey sand.

The water levels within the west and east ponds for the calibration purpose were 111.5 and 107.2 ft/d, respectively. **Table 4** provides a comparison of the measured groundwater levels to the simulated groundwater levels at various locations. The differences in water levels vary from -0.3 to 0.2 feet, indicating that the percolation model developed for the west and east ponds reasonably simulates actual site conditions.

Table 4
Measured and Simulated Groundwater Levels

Location	Measured Groundwater Elevations (ft, NGVD)	Simulated Groundwater Elevations (ft, NGVD)	Difference (ft)
PZ-1	106.4	106.6	-0.2
PZ-2	107.8	107.5	0.3
PZ-3	102.8	103.1	-0.3
HA-5	106.8	106.7	0.1
HA-6	110.9	110.9	0.0
SH-8	104.1	104.4	-0.3
SH-10	110.2	110.0	0.2

4.0 PERCOLATION POND CAPACITY

4.1 Methodology

As defined in the request letter by AQUA dated on October 11, 2007, the percolation pond capacity is based on the total volume from the annual average rate of net percolated and evaporated volumes from the west and east ponds without the water levels rising above the overflow pipe invert in the east pond (i.e., 109.56 ft NGVD). For this assessment, it was assumed that pond evapotranspiration rates are nearly equal to the runoff and direct rainfall to the pond. Therefore, the capacity of the percolation ponds can be computed from the percolation rate from the west and east ponds at their maximum water levels (i.e., 111.71 and 109.56 ft NGVD, respectively). In summary, the following assumptions were made to estimate the percolation pond's capacity:

- Soil profiles used to calibrate the models may be used to reasonably represent the overall soil conditions within the project area;
- The annual rainfall within the project area will be equal to the evapotranspiration and, thus, the effects of rainfall and evapotranspirataion on the percolation pond capacity were ignored;
- The boundary conditions, used at the south ditch and north ditch, during model calibration will not change even when the water levels within the percolation ponds rise to the maximum water levels, under which the capacity of the percolation ponds are estimated;
- The seepage through the western bank of the west pond will be negligible;

4.2 Percolation Pond Capacity

Based on the calibrated 2-D models for the west and east ponds, the percolation through the bottom and the embankments of the percolation ponds were estimated for the conditions of maximum water levels within the east and west ponds. **Table 5** summarizes the input boundary conditions applied to the percolation models during its development and, hence, used to estimate pond percolation capacity.

Table 5
Input Boundary Conditions

Percolation Model	Water Level within Pond (ft, NGVD)	Constant Head at North Ditch (ft, NGVD)	Constant Head at South Ditch (ft, NGVD)
West Pond	111.71	103.0	106.0
East Pond	109.56	100.2	103.7

SEEP/W computes the instantaneous seepage rate across a user-defined section for either a steady state or transient analysis. In order to obtain seepage flow rates through the bottom of the percolation ponds and perimeter levees, flux sections were identified on the inside slope of the north and south embankments and also at the bottom of the ponds, as shown in **Figures 6** and **7**, respectively. After performing the finite element analysis, the SEEP/W software is capable of calculating the total flow rate across the flux section line. The seepage quantity through the bottom and the embankments can be computed by multiplying the percolation rate at each flux section with the corresponding length, as shown in **Table 6**. As summarized in **Table 6,** the combined percolation volume from the west and east ponds is 17.8 million gallons per year, corresponding to a percolation volume of about 48,700 gallons per day.

Table 6
Percolation Quantity Calculations

Pond	Locations	Percolation Rate (gal/yr/ft)	Length (ft)	Percolation Quantity (gal/yr)
West	North Embankment	1.82E3	950	1.73E6
	South Embankment	1.42E3	1150	1.63E6
	Bottom	9.44E2	1050	9.91E5
East	North Embankment	3.30E3	1890	6.24E6
	South Embankment	3.18E3	1850	5.89E6
	Bottom	4.25E2	1920	8.15E5
	East Embankment	3.30E3	150	4.95E5
Total				1.78E7

4.3 Sensitivity Analyses

Sensitivity analyses were performed using the model to test the effects of modifying various factors on the computed capacity of the percolation ponds. The factors modified for the sensitivity analyses included boundary conditions at the north ditch and south ditch and hydraulic conductivity of sand and clayey sand. The effects of selectively altering these parameters were evaluated in terms of the percolation volume rate under maximum water levels within the percolation ponds and are further discussed in the following sections:

4.3.1 Boundary Condition Effects

Table 7 presents the percolation volume rates at different groundwater levels at the South Ditch. The percolation volume increases with the groundwater depth below the ground surface due to the increase of head difference between the percolation ponds and the boundary. The percolation volume rate was 1.37 million gallons per year in the case of groundwater 1.0 foot below the ground surface, while in the case of 7.0 feet below the ground surface the percolation volume rate was 1.83 million gallons per year.

The percolation rate under different surface water levels within north drainage ditch was shown in **Table 8.** With the increase of surface water levels, the percolation volume rate decreases due to the reduced head difference between the ponds and the north boundary. The percolation rate varies from 1.56 million gallons per year for the surface water depth of 1.0 foot to 1.71 million gallons per year for the surface water depth of 4.0 feet.

Table 7
Effect of Groundwater Levels at South Ditch

No.	Groundwater Depth (ft)	Groundwater Elevations (ft, NGVD)	Percolation Rate (gal/year)
1	1.0	109.0 / 107.0	1.38E7
2	3.0	107.0 / 105.0	1.64E7
3	5.0	105.0 / 103.0	1.82E7
4	7.0	103.0 / 101.0	1.83E7

Notes:
The value before "/"applies to the groundwater levels used in the east pond percolation models.
The value after "/"applies to the groundwater levels used in the west pond percolation models.

Table 8
Effect of Surface Water Levels at North Ditch

No.	Surface Water Depth (ft)	Surface Water Elevations (ft, NGVD)	Percolation Rate (gal/year)
1	1.0	104.0 / 101.0	1.71E+07
2	2.0	105.0 / 102.0	1.66E+07
3	3.0	106.0 / 103.0	1.62E+07
4	4.0	107.0 / 104.0	1.56E+07

Notes:
The value before "/"applies to the groundwater levels used in the east pond percolation models.
The value after "/"applies to the groundwater levels used in the west pond percolation models.

4.3.2 Soil Permeability

Table 9 presents the percolation rates of the percolation ponds at different hydraulic conductivity rates for the sand and the percolation rates at different permeability rates for the clayey sand were summarized in **Table 10**. Generally, the percolation rate through the percolation ponds is proportional to the permeability of sand and clayey sand.

Table 9
Effect of Permeability of Sand

No.	Horizontal Permeability (ft /d)	Vertical Permeability (ft/d)	Percolation Rate (gal/year)
1	1	0.5	5.79E6
2	5	2.5	1.10E7
3	10	5.0	1.58E7
4	20	10.0	2.31E7

Table 10
Effect of Permeability of Clayey Sand

No.	Horizontal Permeability (ft /d)	Vertical Permeability (ft/d)	Percolation Rate (gal/year)
1	0.01	0.005	6.21E6
2	0.1	0.05	1.27E7
3	0.5	0.25	2.58E7
4	1.0	0.5	3.72E7

5.0 CONCLUSIONS

The computer software program SEEP/W was used to estimate the capacity of the percolation ponds at the Village Water Wastewater Treatment facility operated by Aqua Utilities Florida, Inc. Based upon the results from the two-dimensional finite-element seepage models developed for the west and east ponds, the total annual capacity of the west and east ponds was estimated to be 17.8 million gallons. The estimated capacity of the percolation ponds through percolation of the existing system is dependent on the embankment geometry, soil profiles, surrounding topographic elevations, and the boundary conditions assumed in the percolation models. The limitations of numerical percolation models and absence of both historical and spatial data to simulate actual site conditions should be recognized when interpreting the results of these and other simulations.

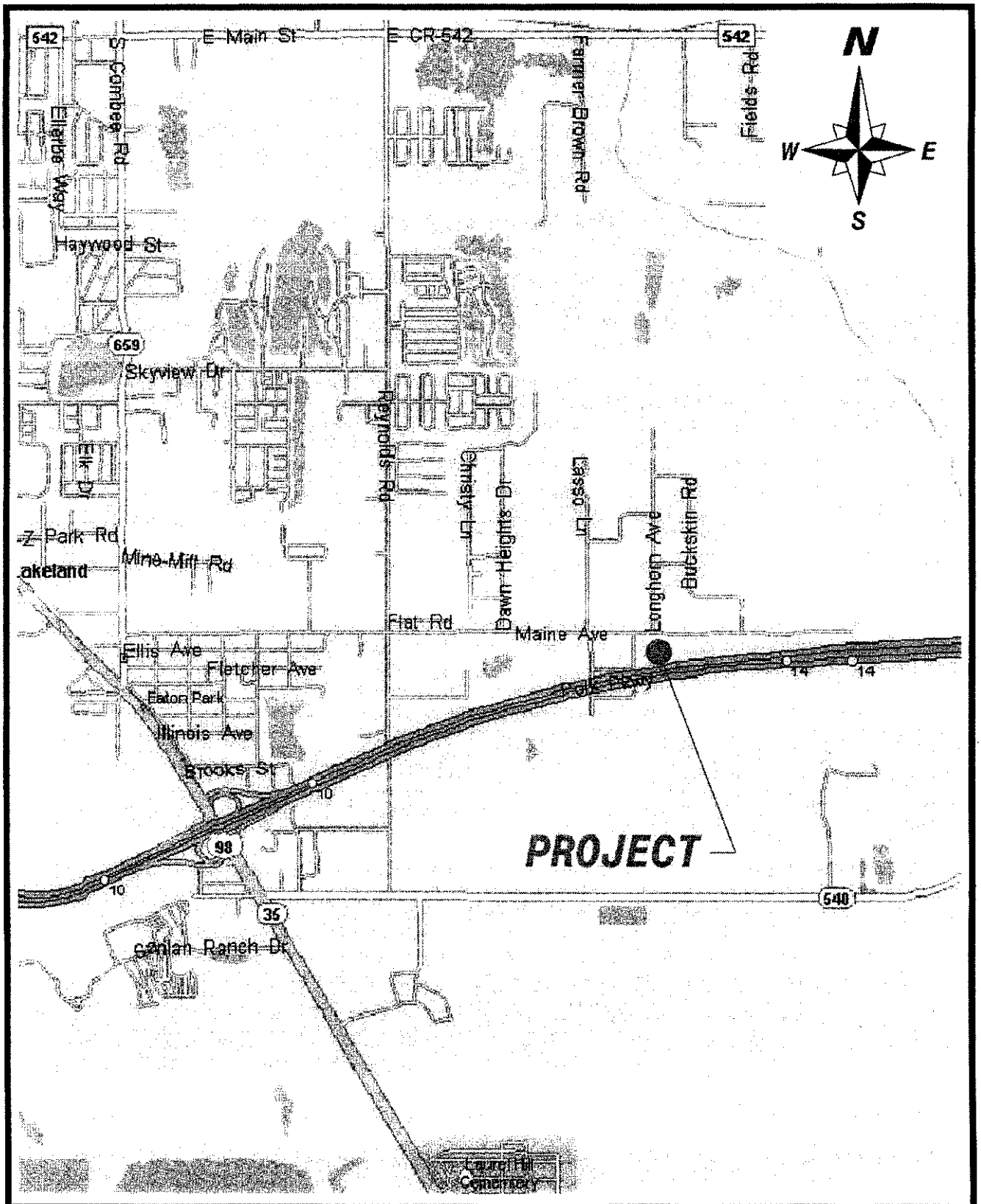
6.0 REFERENCES

BCI Engineers & Scientists, Inc. (2008). Report of Geotechnical Investigation and Embankment Inspection, Village Water Wastewater Treatment Facility. BCI Project No. 01-15725.

Geo-Slope International Ltd. (1994). SEEP/W, Version 4. Finite Element Seepage Analysis Program. Calgary, Alberta, Canada.

Spechler, R.M. and Kroening, S.E. (2006). Hydrology of Polk County, Florida. U.S. Geological Survey Scientific Investigations Report 2006-5320.

FIGURES



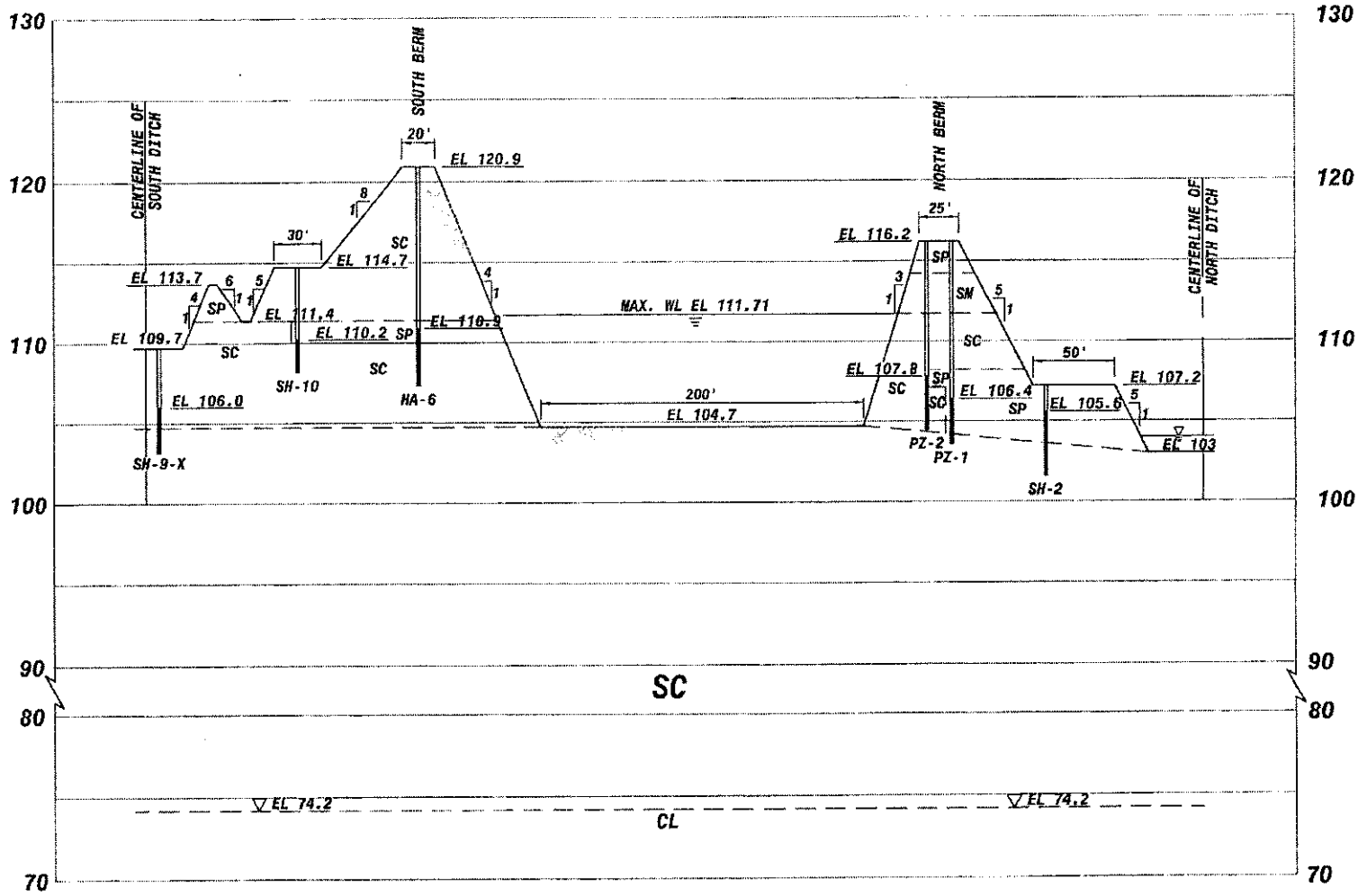
BCI engineers & scientists 2000 E. Edgewood Dr., Ste #215 Lakeland, FL 33803 863.667.2345 - www.bcieng.com EB-0007867	DESIGNED BY:	YL	SCALE:	N.T.S.
	DRAWN BY:	gd	DATE:	6/12/2008
	CHECKED BY:	YL	PROJECT NO.	
	APPROVED BY:		BCI NO.	01-15725

AQUA UTILITIES

FIGURE 1
SITE LOCATION MAP
VILLAGE WATER WASTEWATER TREATMENT FACILITY
LAKELAND, FLORIDA

P:\PROJECTS\01-15725 Aqua Utilities\Dwgs\01-15725 Aqua Utilities.dwg, FIG 1, 6/12/2008 9:47:27 AM, gdrace, BCI Engineers & Scientists, Inc.

BCI engineers & scientists
2030 E. Edgewood Dr. Ste #215
Lakeland, FL 33803
863.687.2345 - www.bcieng.com
EB-0007887



SECTION A-A
(WEST POND CROSS SECTION)

DESIGNED BY:	YL	SCALE:	N.T.S.
DRAWN BY:	gd	DATE:	6/12/2008
CHECKED BY:	YL	PROJECT NO.	
APPROVED BY:		BCI NO.	01-15725

AQUA UTILITIES

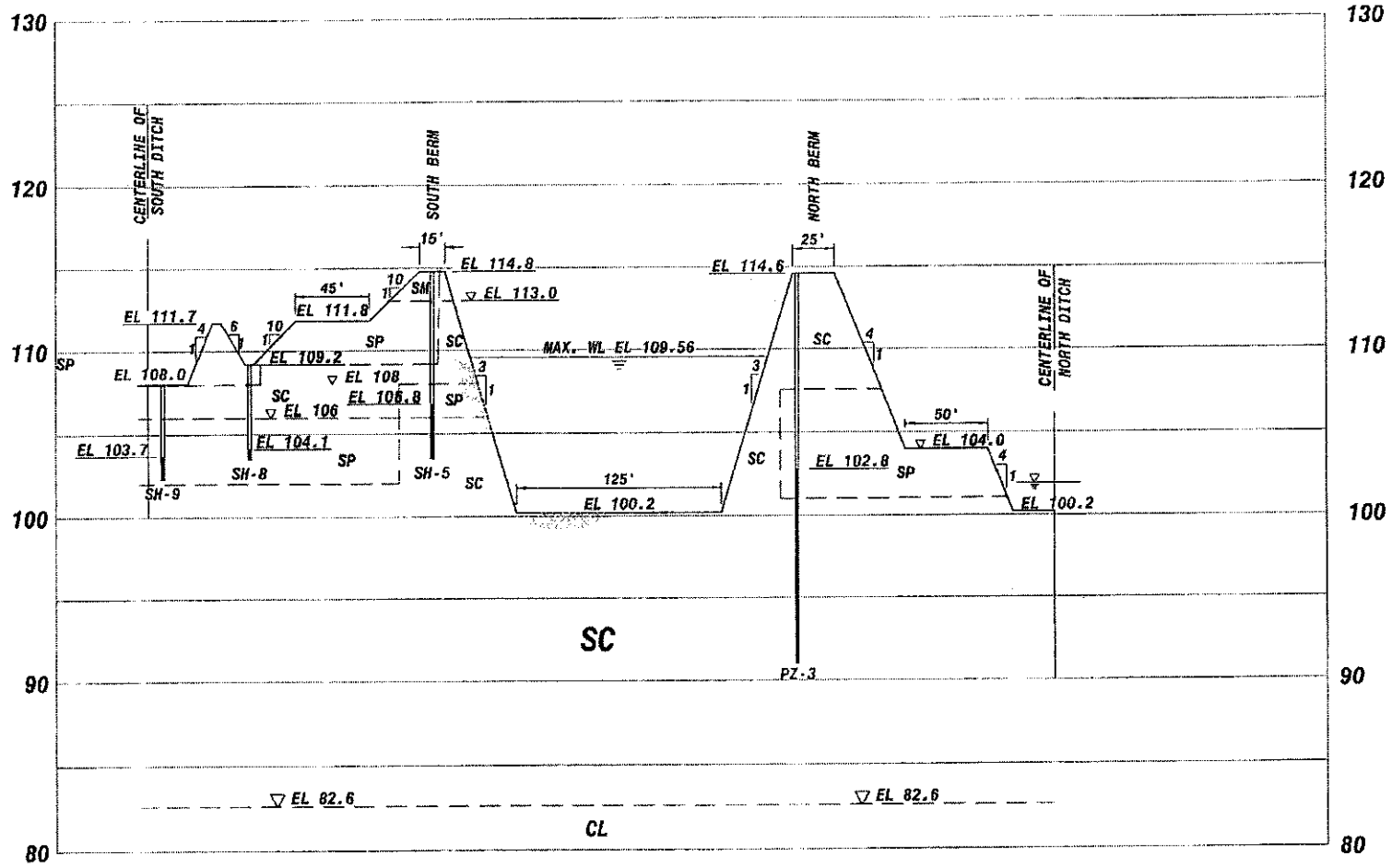
FIGURE 4
WEST POND CROSS SECTION (SECTION "A-A")
VILLAGE WATER WASTEWATER TREATMENT FACILITY
LAKELAND, FLORIDA

BCI engineers & scientists
2000 E Edgewood Dr. Ste #215
Lakeland, FL 33803
863.667.2345 www.bcieng.com
EB-0007867

DESIGNED BY:	YL	SCALE:	N.T.S.
DRAWN BY:	gd	DATE:	6/12/2008
CHECKED BY:	YL	PROJECT NO.	
APPROVED BY:		BCI NO.	01-15725

AQUA UTILITIES

EAST POND CROSS SECTION (SECTION "B-B")
VILLAGE WATER WASTEWATER TREATMENT FACILITY
LAKELAND, FLORIDA



SECTION B-B
(EAST POND CROSS SECTION)

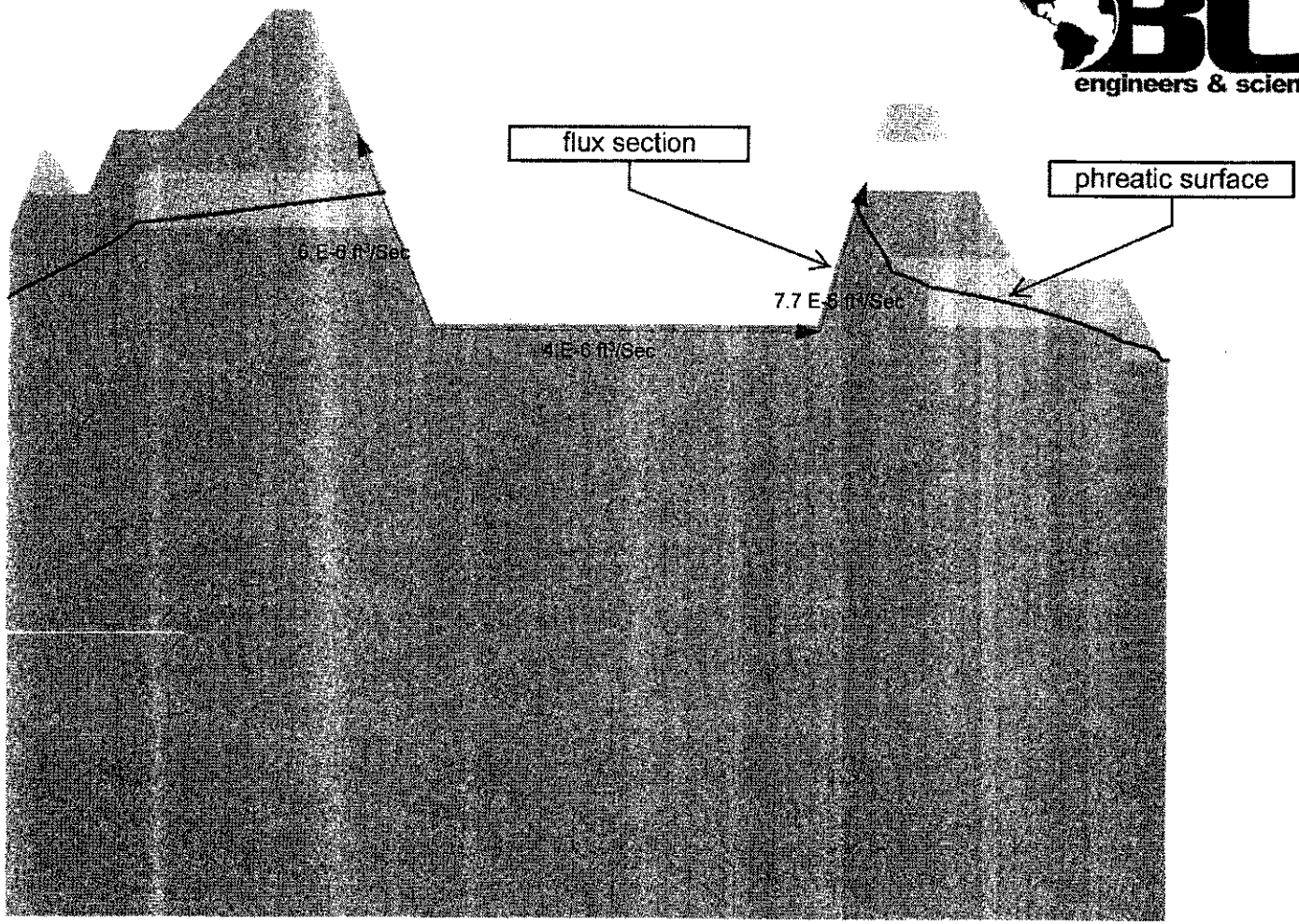
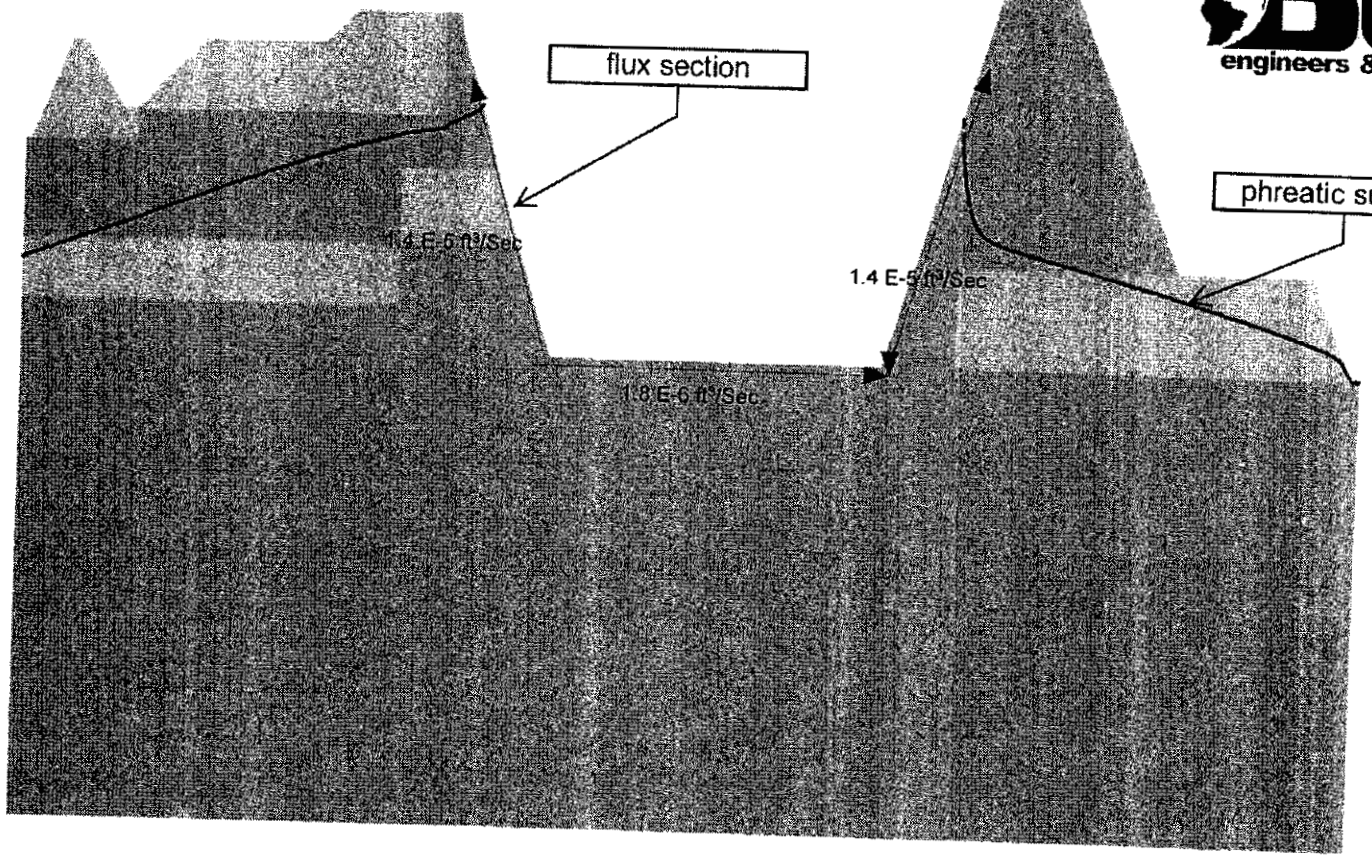


Figure 6
West Pond Seepage Analysis

Aqua Utilities Florida, Inc.
Report of Percolation Model and Percolation Pond Capacity
Village Water Wastewater Treatment Facility
Lakeland, Florida

BCI Project No. 01-15725
June 2008



BCI engineers & scientists

Figure 7
East Pond Seepage Analysis

Aqua Utilities Florida, Inc.
Report of Percolation Model and Percolation Pond Capacity
Village Water Wastewater Treatment Facility
Lakeland, Florida

BCI Project No. 01-15725
June 2008

28. Schedule F-3, Water Treatment Data

The utility is required to provide documentation to support the required fire flow. The utility failed to provide any documentation for all of its water systems.

Fire Hydrant Requirements

Sunny Hills	7	Sec. 30-32. Codes and standards adopted. (1)*Uniform fire safety standards.* F.S. ch. 633, Fire Prevention and Control, and F.A.C. ch. 4A, Florida Fire Prevention Code. (2)*Minimum fire safety standards.* F.S. ch. 633, Fire Prevention and Control, and F.A.C. ch. 4A, Florida Fire Prevention Code. (3)*Standard Fire Prevention Code.* The minimum mandatory edition of the Standard Fire Prevention Code as adopted by the state. (4)*Life Safety Code.* The National Fire Protection Association, (NFPA) 101, "Life Safety Code" as adopted by the state fire marshal, and all addenda, appendices and standards referenced and incorporated in such code as if set out fully in this article. (Code 1986, § 12-22; Ord. No. 89-7, § 8, 12-21-1989; Ord. No. 95-7, § 1, 4-20-1995)
Chuluota	**73**	1997 Standard Fire Prevention Code as published by the Southern Building Code Congress International and the 1997 National Fire Protection Association Standard 101 Life Safety Code and FAC 4A-40, published by the State Fire Marshall. Not less than one copy of the adopted issue of the Life Safety Code, NFPA 101, as published by the National Fire Protection Association 1997 Edition,
Valencia Terrace	**11**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Village Water	**22**	Polk County (Ord No 01-73 privately Owned Fire Hydrants which adopts NFPA25 as referenced in Section6-5, NFPA 1, and Section 4-4.3 NFPA25

Fire Hydrant Requirements

Water System	# of Fire Hydrants	Source of information
Grand Terrace	**12**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Kings Cove	**11**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Lake Gibson Estates	**20**	Polk County (Ord No 01-73 privately Owned Fire Hydrants which adopts NFPA25 as referenced in Section6-5, NFPA 1, and Section 4-4.3 NFPA25
Lake Suzy	**52**	Please see attached agreement between Aqua and DeSoto County
Morning-view	**2**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Quail Ridge	**10**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Silver Lake	**63**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03), 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Skycrest	**3**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03), 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Summit Chase	**7**	Lake county Florida (Ord. No. 1996-42, § 1, 5-7-96; Ord. No. 2003-32, § 3, 4-22-03) , 9.08.04 Standard Requirements. Fire Hydrants. Hydrants Shall comply with AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service",
Tangerine	**7**	Florida Fire Prevention Code, 2005 Edition, NFPA 101, Life Safety Code, 2003 Edition, Orange County Ordinance Chapter 18

LAKE SUZY UTILITY WATER SUPPLY CONTRACT

THIS CONTRACT, is entered into this 14 day of July, 2006, by and between DeSoto County, a political subdivision of the State of Florida, acting by and through its Board of County Commissioners, the governing board thereof (hereinafter the "County") and Lake Suzy Utility, Inc., a Florida corporation, also known as Lake Suzy Utilities, Inc., and Aqua Utilities, Inc., a Texas corporation, registered as a foreign profit corporation in Florida, (hereinafter "LSU"). The County and LSU are sometimes collectively referred to as the "Parties".

WITNESSETH:

WHEREAS, pursuant to water and wastewater tariffs, both filed with the Florida Public Service Commission, LSU provides water and wastewater services to a portion of DeSoto County as more particularly described in Exhibit A attached hereto and made a part hereof (hereinafter the "Lake Suzy Service Area"); and

WHEREAS, the County and Lake Suzy Utilities, Inc., LSU's predecessor in interest, entered into that certain Lake Suzy Water Supply Contract dated February 24, 1992 (hereinafter the "1992 Water Supply Contract"); and

WHEREAS, the County and Lake Suzy Utilities, Inc. entered into that certain Lake Suzy Amended Water Supply Contract dated April 12, 1995 (hereinafter the "1995 Amended Water Supply Contract") which operated as a novation and superseded the 1992 Water Supply Contract; and

WHEREAS, the 1995 Amended Water Supply Contract has a term that shall extend for whatever period of time the County may be obligated to purchase water from the Peace River/Manasota Regional Water Supply Authority under the Peace River Water Supply Contract or the Peace River Option Water Supply Contract or from Charlotte County under the Interlocal

Agreement for Water Supply Between Charlotte and DeSoto County, all of which have expired or have been superseded; and

WHEREAS, the County and LSU (hereinafter the "Parties"), entered into that certain DeSoto County, Florida Lake Suzy Utility, Inc. Master Utility Agreement dated September 30, 2004, the Kingsway Wastewater System Utility Asset Transfer Agreement dated September 30, 2004 and the Lake Suzy Water System Utility Asset Transfer Agreement dated September 30, 2004 (collectively the "Master Utility Agreements") in order to establish a new relationship between the County and LSU in relation to utility service to the Lake Suzy Service Area; and

WHEREAS, a dispute arose between the Parties over the Master Utility Agreements and the 1995 Amended Water Supply Contract.

WHEREAS, as full and complete resolution of the dispute with respect to the Master Utility Agreements and the 1995 Amended Water Supply Contract, the Parties hereby agree that the Master Utility Agreements and the 1995 Amended Water Supply Contract are terminated and that the Parties waive any and all rights, claims, or causes of action against each other as a result or in connection with the Master Utility Agreements and the 1995 Amended Water Supply Contract.

WHEREAS, as a specific condition of this Agreement, the Parties will enter into a certain Utility Service Area Transfer Agreement

WHEREAS, the Parties are desirous of entering into a contract to update and supersede the 1995 Amended Water Supply Contract and the Master Utility Agreements and to provide for the bulk sale of water by the County to LSU for distribution, to the Lake Suzy Service Area and agree that this Agreement, and the Utility Service Area Transfer Agreement, supersede the 1995 Amended Water Supply Contract and the Master Utility Agreement; and

WHEREAS, LSU has notified the County that it will require additional quantities of water; and

WHEREAS, the County has entered into that certain Second Amended Interlocal Agreement Creating the Peace River/Manasota Regional Water Supply Authority, recorded at Official Records Book 570, Page 981 of the Public Records of DeSoto County, Florida; Official Records Book 2850, Page 1475 of the Public Records of Charlotte County, Florida; Official Records Book 2072, Page 1915 of the Public Records of Manatee County, Florida; and as Instrument # 2005235135 of the Official Records of Sarasota County, Florida; and that certain Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract, recorded at Official Records Book 570, Page 1007 of the Public Records of DeSoto County, Florida; Official Records Book 2850, Page 1501 of the Public Records of Charlotte County, Florida; Official Records Book 2072, Page 1941 of the Public Records of Manatee County, Florida; and as Instrument # 2005235134 of the Official Records of Sarasota County, Florida (hereinafter collectively the "PR/MRWSA Contracts") which have recently been adopted in order to meet the water demand needs of the Lake Suzy Service Area water customers and all other water customers in DeSoto County; and

WHEREAS, it is necessary and in the public interest that the County provide potable water to the Lake Suzy Service Area and LSU pursuant to the terms of this Lake Suzy Utility Water Supply Contract (hereinafter the "Contract");

WHEREAS, the County therefore proposes to supply LSU with the Water Allocation (as that term is defined in this Contract) pursuant to the terms and conditions of this Contract.

NOW, THEREFORE, in consideration of the foregoing premises, which shall be

deemed an integral part of this Contract and the Parties hereto agree are true and correct, and of the mutual covenants and agreements, hereinafter set forth, the Parties, intending to be legally bound hereby agree as follows:

1. DEFINITIONS: In the absence of a clear implication otherwise, capitalized terms under this Contract and in the attached exhibits shall have the following meanings:

1.1 Contract Year. The fiscal year of the County (beginning on each October 1, and ending on the following September 30) during the term of this Contract.

1.2 Delivery Point(s). The point(s) of delivery of water by the County under this Contract, as more specifically described in Exhibit B, attached hereto.

1.3 DeSoto Utility Regulation Ordinance. DeSoto Ordinance Number 1999-01 as amended by DeSoto Ordinance Number 2002-04 and as subsequently amended or superseded pursuant to action by the DeSoto County Board of County Commissioners in the future.

1.4 Effective Date. The date when the last party to this Contract executes the Contract and the PR/MRWSA Agreements have been adopted by the Peace River/Manasota Regional Water Supply Authority and all Members and Customers thereto as such terms are defined in the PR/MRWSA Agreements.

1.5 GPM. Gallons per minute.

1.6 Water Allocation. For any Contract Year, the maximum quantity of water committed by the County to be delivered to LSU as shown in Exhibit C.

1.7 Water Charge. For any Contract Year, the rate to be paid by LSU for water delivered by the County to the Delivery Point(s), as such rate is established and as may be revised from time to time in accordance with the DeSoto Utility Regulation Ordinance, by the Board of County Commissioners of DeSoto County.

1.8 Water Use and Needs Report. The report, prepared in substantially the same format as Exhibit D attached hereto, to be prepared by LSU and delivered to the County pursuant to the terms of this Contract.

2. TERM. The term of this Contract shall begin on the Effective Date and end on the 10-year anniversary of the Effective Date, or by mutual agreement of the Parties, or if LSU conveys its interest in the Lake Suzy Service Area to another unaffiliated entity.

3. CONDITIONS PRECEDENT. All rights, obligations, and liabilities of the Parties shall be subject to the satisfaction of the conditions precedent identified in this Section as follows:

3.1 The complete execution of this Contract by the County and LSU; and

3.2 The representations set forth in Section 4 are true and correct as of the Effective Date; and

3.3 The PR/MRWSA Agreements have been adopted by the Peace River/Manasota Regional Water Supply Authority and all Members and Customers thereto as such terms are defined in the PR/MRWSA Agreements.

3.4 Delivery by LSU to the County a current accounting of all existing, reserved and future connections for which the water delivered to LSU will be distributed. Said accounting shall be in a format acceptable to the County and in substantially the same format as the report in Exhibit E attached hereto.

3.5 Delivery by LSU to the County of an initial Master Plan of Planned Future Improvements to illustrate how service is to be provided to customers within the Lake Suzy Service Area. Said Master Plan shall be in a format acceptable to the County and shall indicate

planned construction start and completion dates. Sufficient distribution system planning must be illustrated to justify requested water allocation in the Water Use and Needs Report. LSU shall annually update and resubmit said Master Plan for the County's review on the anniversary of the Effective Date.

4. REPRESENTATION OF THE PARTIES. The Parties make the following representations:

4.1 Both Parties are duly organized and existing in good standing under the laws of the State of Florida; and

4.2 Both Parties have the power, authority, and legal right to enter into and perform the obligations set forth in this Contract, and the execution, delivery, and performance hereof by them (a) has been duly authorized; (b) does not require any other approvals by any other governmental officers or bodies; (c) will not violate any judgment, order, law, or regulation applicable to either of the Parties; and (d) does not constitute a default under, nor result in the creation of, any lien, charge, encumbrance, or security interest upon the assets of either party under any agreement or instrument to which it is a party or by which the party and its assets may be bound or effected; and

4.3 This Contract has been duly entered into and delivered and, as of the Effective Date, constitutes a legal, valid, and binding obligation of the Parties hereto, fully enforceable in accordance with its terms; and

4.4 There is no action, suit, or proceeding, at law or in equity, before or by any court or governmental authority pending, or, to the best of each party's knowledge, threatened against either party, wherein any unfavorable decision, ruling, or finding would materially adversely effect the performance by a party of its obligations hereunder or the other transactions

contemplated hereby, or which, in any way, would adversely effect the validity or enforceability of this Contract, or any other agreement or instrument entered into by the parties in connection with the transaction contemplated hereby; and,

4.5 The Parties agree that as of the Effective Date, neither party shall have any further right, obligation, or legal remedy against the other party arising from the 1992 Water Supply Contract, the 1995 Amended Water Supply Contract, the Master Utility Agreements, or any other previous contract or agreement existing between the Parties or their predecessors in interest; and, .

4.6 The Parties agree that LSU shall be subject to all rules, regulations and obligations outlined in the DeSoto Utility Regulation Ordinance(s), as such may be amended from time to time, in the same manner as any other water franchisee of the County; and,

4.7 The Parties represent and warrant to each other that each will use its best efforts and will negotiate in good faith to fully execute all documents required by this Contract, including the Utility Service Area Transfer Agreement, and all documents that are required or related to the Utility Service Area Transfer Agreement.

5. DELIVERY OF WATER ALLOCATION. During each Contract Year, the County shall use its best efforts to deliver to LSU its Water Allocation, as follows:

5.1 Delivery Schedule. The County shall not be required to deliver water to LSU in excess of the Water Allocation, nor shall the County be required to provide water to LSU, if prohibited by any applicable federal, state, regional, or local statute, rule, ordinance, law, administrative order, or judicial decree or in violation of applicable environmental permits. Further, in the event that at any time there is insufficient potable water available from the Peace

River/Manasota Regional Water Supply Authority to fully meet the Water Allocation, then the Water Allocation shall be reduced pro-rata in accordance with Section 10.2 of the Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract.

5.2 Rate of Delivery. The County need not deliver water to LSU at a rate which shall cause the County to exceed its delivery schedule as outlined in Section 10.4 of the Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract. In the event that LSU's rate of water usage causes the County to exceed the delivery schedule as outlined in Section 10.4 of the Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract, and the Authority imposes a Conservation Rate upon the County for such demand, LSU, in addition to the Water Charges outlined in Section 6 herein, shall pay to the County the difference between the Conservation Rate and the County's normal water charges payable to the Authority for the amount of water usage that caused the County to exceed its delivery schedule from the Authority.

5.3 Source of Water. The County's obligation to supply LSU with its Water Allocation is limited to water delivered to the County from the Peace River/Manasota Regional Water Supply Authority. The County is not required to provide water to satisfy LSU's Water Allocation from any other source.

5.4 Future Water Allocation. Future water allocations may be requested by LSU for the Lake Suzy Service Area from time to time. LSU may not request future water allocations to serve customers outside the current Lake Suzy Service Area without the express written consent of the County's Board of County Commissioners. Upon receipt of a request by LSU to increase future water allocations for the Lake Suzy Service Area, the County shall consider whether LSU is currently operating within the parameters of the then-current DeSoto Utility Regulation

Ordinance(s). If so, the County shall submit the increased water allocation request to the Peace River/Manasota Regional Water Supply Authority as part of the County's water demands projection to be delivered to the Peace River/Manasota Regional Water Supply Authority pursuant to Section 12 of the Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract. No later than October 15 of each year, LSU shall submit to the County a Water Use and Needs Report. Within thirty (30) days of receipt of the Water Use and Needs Report, the County shall notify LSU that it has accepted LSU's Water Use and Needs Report and that it will submit the increased water allocation request to the Peace River/Manasota Regional Water Supply Authority as part of the County's water demand projections report due on or before the following January 15 in accordance with Section 12 of the Peace River/Manasota Regional Water Supply Authority Master Water Supply Contract. Failure of LSU to submit the Water Use and Needs Report by October 15 waives the County's obligation to provide additional water allocation to LSU for the coming year as outlined in this section.

5.5 Delivery Point. The County shall only deliver water to LSU at its Delivery Point(s) specified in Exhibit B.

6. WATER CHARGE. For each Contract Year, LSU shall pay the County the applicable water charge as follows:

6.1 Rate Setting Elements. On or before September 30 of each calendar year, the Board of County Commissioners of Desoto County shall fix the Water Charge for the subsequent Contract Year to be paid by LSU, taking into account:

6.1.1 the water charge paid by the County to the Peace River Manasota Regional Water Supply Authority Master Water Supply Contract as such may be amended from time to time;

6.1.2 the County's then-existing DeSoto Utility Regulation Ordinance(s); and

6.1.3 any additional costs, which are not arbitrary and capricious, associated with the delivery of water by the County to LSU, including but not limited to increased costs anticipated to be paid by the County to the Peace River/Manasota Regional Water Supply Authority to meet future water allocation increases requested by LSU.

6.2 Rate Setting and Internal Audit. The initial Water Charge payable by LSU to the County pursuant to this Contract shall be $3.75 per 1,000 gallons (hereinafter the "Initial Water Charge"). The Initial Water Charge shall be effective from the Effective Date through the following November 30 (hereinafter the "Initial Water Charge Period"). Thereafter, the Board of County Commissioners shall fix the Water Charge after an internal audit of the costs associated with delivery of water to LSU in the previous calendar year and projected costs for the delivery of water in the subsequent calendar year. LSU's rate shall be set in a per 1,000 gallon rate and divided into a monthly charge. Upon request, LSU shall be entitled to review the internal audit at its completion and shall have the right to make comment either in writing or by oral presentation to the County Board of County Commissioners regarding the fixing of the Water Charge.

6.3 Effective Date of Water Charge. Other than the Initial Water Charge, the Water Charge set pursuant to Section 6.1 of this Contract shall be effective beginning on the immediately following December 1 and shall remain in effect until the immediately following November 30, unless adjusted pursuant to Section 6.5 of this Contract. During the interim period between, (a) the date the Board of County Commissioners of DeSoto County fixes the Water Charge to be paid by LSU, and (b) the effective date of the revised Water Charge, any deficiency between the monthly Water Charge currently being paid by LSU to the County and the monthly

water charges owed by the County to the Peace River/Manasota Regional Water Supply Authority for water provided to LSU shall be paid by LSU by making ten equal monthly payments beginning December 1 and continuing through to the following September 30.

6.4 Irrevocable Commitment to Pay. It is the intent of the Parties that LSU shall bear all the costs incurred by the County in providing LSU with water pursuant to this Contract. In no event shall LSU pay a Water Charge which is less than the County's costs for obtaining water from the Peace River/Manasota Regional Water Supply Authority, including any administrative or incidental costs incurred by the County. LSU shall be obligated to pay its Water Charge regardless of whether or not it utilizes the whole of its Water Allocation. Moreover, LSU recognizes that circumstances such as equipment failure, construction delays, failure to obtain permits, limitations on permits, transmission line ruptures or defects, acts of God, etc., may prevent the performance by the County of its obligations pursuant to this Contract. Nevertheless, LSU shall pay its Water Charges throughout the term of this Contract. Said payments by LSU shall be made without notice or demand and without set-off, counterclaim, abatement, suspension or deduction.

6.5 Rate Adjustments. If the Peace River/Manasota Regional Water Supply Authority should raise rates subsequent to the County's fixing LSU's Water Charge, the County shall adjust, and LSU shall pay, an adjustment in LSU's Water Charge in an amount equal to the County's costs incurred by reason of such rate increase, including any administrative or incidental costs. The revised Water Charge set pursuant to this Section shall be effective sixty (60) days after the date the County adjusts LSU's Water Charge and shall remain in effect until the immediately following November 30.

6.6 Payment. On or before the twentieth day of each month, the County shall bill

LSU the Water Charge and payment shall be made by LSU to the County within thirty (30) days following receipt of said bill by LSU. The County, in addition to all other legal remedies, shall have the right to discontinue the delivery of water under this Contract for non-payment by LSU.

6.7 Bankruptcy, Assignment of Fees, Water Charges, and Receivables. In the event of a default, following notice and an opportunity to cure LSU hereby assigns to the County any fees, water charges, or other receivables due to LSU by LSU's customers for the provision of water. Such assignment shall be absolute in the event of any default in payment by LSU to the County, upon written demand made by the County. In the event LSU should file a petition for bankruptcy LSU hereby agrees and consents to the entry of an order providing the County with relief from the automatic stay or adequate protection and consents that a court of competent jurisdiction may appoint a receiver to collect such fees, water charges, or other receivables and pay the County the Water Charge owed by LSU to the County in the manner provided in Section 6.6 of this Contract .

6.8 Impact Fees. In addition to the Water Charge, LSU shall also be liable to the County for water capital charges, also known as impact fees, and any other fees and costs pursuant to the DeSoto Utility Regulation Ordinance(s), as such may be amended from time to time, in the same manner as any other water franchisee of the County.

7. WATER QUALITY. The County shall use its best efforts to deliver water of the same quality, and same terms as set forth in the Peace River Manasota Regional Water Supply Authority Master Water Supply Contract to the Delivery Point(s).

8. WATER MEASUREMENT. The County shall measure all water delivered at the Delivery Point(s) and shall maintain complete and accurate records of its water measurements. Water flow measurements recorded by the County shall be the exclusive means of determining

the quantity of water delivered to the Delivery Point(s) under this Contract. The metering equipment shall be of the standard make and type, installed at a readily accessible location, and shall record flow with an accuracy sufficient to meet all applicable reporting requirements. The cost for said metering equipment and installation thereof shall be shared equally by the Parties. Likewise, the cost of any calibration, repair or replacement of the metering equipment shall be shared equally by the Parties. The County shall annually check the accuracy of the metering equipment and arrange for recalibration if necessary. LSU may be present when the metering equipment is checked for accuracy and the test records shall be made available for LSU's inspection upon reasonable written request. LSU may request, and the County shall conduct, more frequent testing and recalibration. However, all costs associated with requested testing and recalibration, more frequent than the annual testing and recalibration, shall be at the sole expense of LSU.

9. PLEDGE OF REVENUES. The County reserves the right to pledge or assign all or any part of the revenues derived from the rates and fees charged under this Contract to the repayment of any loan, bond, or other indebtedness of the County utility system.

10. FRANCHISE. The County is in the process of restructuring its utility franchise ordinance. LSU has determined that it wishes to become a utility franchisee of the County and thereby remove itself from Florida Public Service Commission oversight in favor of local oversight by the County. To that end, LSU and the County agree as follows:

10.1 County Franchisee. As a condition of this Contract, LSU agrees to use all commercially reasonable efforts to become a utility franchisee of the County and withdraw from oversight of the Public Service Commission. Said withdrawal shall be completed within one (1) year of the Effective Date of this Contract.

10.2 Ordinance Revision. LSU and the County agree to work together to restructure the current utility franchise ordinance.

10.3 Three Party Agreements. LSU and the County agree that certain infrastructure will be required to support growth in LSU's anticipated franchise area. LSU and the County agree to enter into agreements with developers to allow contributions-in-aid-of-construction from developers within the anticipated franchise area.

10.4 Franchise Agreement. LSU and the County agree to enter into a franchise agreement to include all other terms and conditions. Said franchise agreement shall be effective contemporaneously with LSU's withdrawal from Florida Public Service Commission oversight.

11. ASSIGNMENT. No assignment, delegation, transfer, or novation of this Contract or any part hereof shall be made, unless approved by both the County and LSU.

12. SUCCESSORS & PARENTS BOUND. Lake Suzy and Aqua Utilities, Inc. hereby binds itself, its successors and assigns to the County with respect to all covenants of this Contract.

13. FORCE MAJEURE. The County's non-performance of its obligations under this Contract may be excused by the occurrence of strikes, or other labor disputes, damage to or destruction of the facilities delivering water to LSU, or prevention of performance by governmental authority or by act of God.

14. NOTICES. All notices, or other writings permitted or required to be delivered to the County at its County Administrator's office:

DeSoto County Courthouse, 11 5 E. Oak Street, Arcadia, Florida 33821

and to Lake Suzy at:

12408 SW Sheri Street, Lake Suzy, FL 33821

With a required copy to:

Aqua Utilities Florida, Inc.
1100 Thomas Avenue
P.O. Box 490310
Leesburg, FL 34749

15. DISCLAIMER OF THIRD PARTY BENEFICIARIES. This Contract is solely for the benefit of the County and LSU and no right or cause of action shall accrue upon or by reason hereof, or for the benefit of any other person.

16. AMENDMENT. This Contract may only be amended by a writing duly executed by the County and LSU.

17. CONSTRUCTION. This Contract shall be governed by and constructed in accordance with the laws of the State of Florida.

18. SEVERABILITY. If any part, section, subsection, or other portion of this Contract or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, such part, section, subsection, or other portion, or the prescribed application thereof shall be severable, and the remaining provisions of the Contract, and all applications thereof not having been declared void, unconstitutional, or invalid, shall remain in full force and effect.

19. ENTIRE AGREEMENT. This Contract constitutes the entire agreement between the Parties and has been entered into voluntarily and with independent advice and legal counsel and has been executed by authorized representatives of each party on the date written above. Furthermore, it is the intent of the Parties that this Contract operate as a novation and to supersede and replace the 1995 Amended Water Supply Contract which is hereby null and void. However, this Contract is not to be construed to supercede or in anyway contradict County

utility ordinances currently existing or as they shall be amended from time to time. In the event any provision of this Contract contradicts a County utility ordinance, the provision in the County utility ordinance shall prevail. Further, all construction that LSU may plan or undertake pursuant to its rights and obligations herein, shall be subject to County review, permitting and approvals in the same manner as all other construction in the County.

20. COUNTY EXCLUSIVE SUPPLIER. LSU agrees that the County shall be its exclusive supplier of water during the term of this Contract.

21. WAIVER. Unless otherwise specifically provided by the terms of this Contract, no delay or failure to exercise a right resulting from any breach of this Contract shall impair such right or shall be construed to be a waiver thereof, but such right may be exercised from time to time and as often as may be deemed expedient. Any waiver shall be in writing and signed by the party granting such waiver. If any representation, warranty or covenant contained in this Contract is breached by any party and thereafter waived by another party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive, either expressly or impliedly, any other breach under this Contract.

22. FURTHER ASSURANCES. The County and LSU each shall use all reasonable efforts to provide such information, execute such further instruments and documents and take actions as may be reasonably requested by the other party and not inconsistent with the provisions of this Contract and not involving the assumption of obligations or liabilities different from, in excess of or in addition to those expressly provided for in this Contract to carry out the intent of this Contract.

23. FIRE PROTECTION. The parties agree that the following shall apply to the Lake Suzy Service Area with regard to water flows for fire protection.

23.1 Within thirty (30) days of the Effective Date, LSU agrees to demonstrate to the satisfaction of the County that the water distribution system in the Lake Suzy Service Area meets or exceeds current fire flow requirements of 1000 GPM at a 20 psi residual for residential connections and 2000 GPM at 20 psi residual for commercial connections or such other fire flow requirements the County may have in place at the time of the testing, so long as the County delivers water at the Delivery Point at a flow rate of at least 2000 GPM at 20 psi residual. Should the water distribution system fail to meet the requirements outlined above, within sixty (60) days of receipt of a written notice by the County that the system has been found deficient, LSU shall submit to the County for its review and comment, a system improvement plan that includes watermains, loops or other improvements to meet or exceed the required fire flow requirements and a construction schedule for the implementation of the plan. Upon the County's approval of the plan, LSU shall install the improvements in accordance with the plan, but in no event shall LSU have more than five (5) years from the date of said approval to install the improvements . The County shall be allowed to inspect the installation during construction. LSU shall then resubmit the system for flow testing to meet the County's fire flow requirements. If the system does not pass, the County shall have the right, but not the duty, to improve the system to meet the fire flow requirements and be reimbursed by LSU for the cost to do so. The system shall be tested on an annual basis thereafter on the anniversary of the Effective Date. On each subsequent testing, the rights and responsibilities of the parties shall remain the same as on the initial testing.

23.2 In the event the County utilizes water from LSU's distribution system for fire protection and said fire protection is not for the protection of LSU's customers, the County shall give LSU a credit against its Water Charge for the quantities of water so utilized by the County.

24. EXHIBITS AND ADDENDUMS. This Contract incorporates the following exhibits and addendums which are attached hereto and made a part hereof:

Exhibit A	Lake Suzy Service Areas
Exhibit B	Delivery Point(s)
Exhibit C	Water Allocation
Exhibit D	Water Use and Needs Report Format
Exhibit E	Existing, Reserved and Future Connections Report Format

[SIGNATURE PAGES AND EXHIBITS TO COME]

EXHIBIT "B"

Delivery Points for AQUA Utilities

	Delivery Points
36-Inch/12-Inch RTS	• PemBrook Pines (No Existing Service Address) • Kings Highway @ Lake Suzy Utilities (910 Kings Highway) @ Sherri Street
24-Inch Kings Highway RTS	• Kings Highway @ adjacent to Lake Suzy [1,2]
16-Inch DeSoto County System	• Kings Highway @ North Franchise Boundary [1,3]

[1] To be planned and approved by DeSoto County for future Franchise utilization.

[2] Future connection to be used to supplement existing Franchise Service Area customers.

[3] Future connection to be used to supplement existing and new Franchise Service Area customers.

EXHIBIT "C"
Water Allocation/Demands

Annual Average Day (MGD)			
Fiscal Year	Existing Allocation	Water Supply Demands	Total
FY06	0.125	0.018	0.143
FY07	0.125	0.055	0.180
FY08	0.125	0.108	0.233
FY09	0.125	0.177	0.302
FY10	0.125	0.278	0.403
FY11	0.125	0.378	0.503
FY12	0.125	0.417	0.542
FY13	0.125	0.417	0.542
FY14	0.125	0.417	0.542
FY15	0.125	0.417	542
FY16			

Peak Monthly Average Day (MGD) (1.02026)			
Fiscal Year	Existing Allocation	Water Supply Demands	Total
FY06 560-570	0.125	0.000	0.146
FY07 135-705	0.125	0.042	0.184
FY08 210-915	0.125	0.073	0.238
FY09 270-1185	0.125	0.113	0.308
FY10 395-1580	0.125	0.168	0.411
FY11 389-1969	0.125	0.192	0.513
FY12 155-2124	0.125	0.216	0.553
FY13	0.125	0.239	0.553
FY14	0.125	0.263	0.553
FY15	0.125	0.263	0.535

Maximum Day (MGD) (1.4)			
Fiscal Year	Existing Allocation	Water Supply Demands	Total
FY06 560-570	0.125	0.000	0.200
FY07 135-705	0.125	0.307	0.252
FY08 210-915	0.125	0.385	0.326
FY09 270-1185	0.125	0.490	0.423
FY10 395-1580	0.125	0.634	0.564
FY11 389-1969	0.125	0.694	0.704
FY12 155-2124	0.125	0.757	0.759
FY13	0.125	0.817	0.759
FY14	0.125	0.877	0.759
	0.125		

Annual Average Day, Peak Month Average Day, Peak Day are expressed in million gallons per day (MGD)

EXHIBIT "D"
Water Use and Needs Report Format

In accordance with the Lake Suzy Water Supply Contract, LSU shall offer the following Water Use and Needs Report to establish the future water needs in the Lake Suzy Area. Such data, if accepted by the County, would be incorporated into the County's annual request for additional water supply from the Peace River Manasota Regional Water Supply Authority.
LSU shall offer the following data on an annual basis:

Annual Average Day (MGD)			
Fiscal Year	Existing Water Use	Additional Water Use	Total
FY06	0.125	0.018	0.143
FY07	0.125	0.055	0.180
FY08	0.125	0.108	0.233
FY09	0.125	0.177	0.302
FY10	0.125	0.278	0.403
FY11	0.125	0.378	0.503
FY12	0.125	0.417	0.542
FY13	0.125	0.417	0.542
FY14	0.125	0.417	0.542
FY15	0.125	0.417	0.542

Annual Average Day is expressed in million gallons per day (MGD)

LSU agrees to supply an updated Existing, Reserved and Future Connection Report, which shall justify the additional water use proposed within the request.

Submitted by: LSU

Name: John M. Lihvarcik

Title: Chief Operating Officer

Date: July 14, 2006

Signature: _____

Accepted by: DeSoto County

Name: _____

Title: _____

Date: _____

Signature: _____

EXHIBIT "E"
Existing, Reserved and Future Connections Report Format

In accordance with the Lake Suzy Water Supply Contract, LSU shall offer the following Existing, Reserved and Future Connections Report to support the water needs within the Lake Suzy Area. Such data shall be incorporated into the Annual Water Use and Needs Report and shall justify the additional water allocations associated with the request. LSU shall offer the following data on an annual basis:

CONNECTIONS	ERUs	GAL/ERU	TOTAL GALLONS
Existing 6-1-06	560	255	**142,800**
Reserved:		255	
Sonoma Preserve 2007	100	255	**25,500**
Lake Suzy 2007	20	255	**5,100**
North of Runway 2007	10	255	**2,550**
Misc. 2007	5	255	**1,275**
Future:			
Sonoma Preserve	969	255	**248,000**
Misc.	25	255	**6,375**
Spring Lake	150	255	**38,250**
North of Runway	90	255	**22,950**
Commercial	45	255	**11,475**
Lake Suzy	100	255	**25,500**
TOTAL			

Annual Average Day is expressed in million gallons per day (MGD)

Submitted by:	LSU	Accepted by:	DeSoto County
Name:	John M. Lihvarcik	Name:	
Title:	Chief Operating Officer	Title:	
Date:	July 14, 2006	Date:	
Signature:		Signature:	

Rule 25-30.440(3), F.A.C., requires the utility to provide the most recent chemical analysis for each water system conducted by a certified laboratory covering the inorganic, organic turbidity, microbiological, radionuclide, secondary and unregulated contaminants specified in Chapter 17-550, F.A.C.

35. The applicant did not provide the chemical analyses required by this rule for its Jungle Den system.

DRINKING WATER BACTERIOLOGICAL SAMPLE COLLECTION AND LABORATORY REPORTING FORMAT

[ ]	[X]	[ ]	[ ]
5600 US 1 North Fort Pierce, FL 34946 FDOH # E96080	4155 St. Johns Parkway Suite 1300 Sanford, FL 32771 FDOH # E83509	307 Coolidge Ave. Lehigh Acres, FL 33936 FDOH # E85370	16331 Cortez Blvd. Brooksville, FL 3460 FDOH # E84418

HARBOR BRANCH ENVIRONMENTAL LABORATORIES, INC.
5600 U.S. 1 North, Fort Pierce FL 34946
Phone: (772) 465-2400, Ext. 285 Fax: (772) 467-1584

Lab Receipt Date and Time: 12/4/07 1600

Received for Laboratory By: PAll

Analysis Date and Time: 12/4/07 1655

Sample Acceptance Criteria:
Sample Preservation [X] On Ice [ ] Not On Ice [ ] 3.5 °C
Disinfectant Check [X] Not Detected [ ] >0.1 mg/l

HBEL Report Number: 2130077 Sub-Contract Lab ID: ______

Analysis Method Requested:
[X] Colilert [ ] Membrane Filtration **PWS I.D.** 3 6 4 4 1 2 7

System Name: Jungle Den

System Address: Alice Dr

City: Astor System or Owner's Phone #: ______ Fax #: ______

Collector: David Haring Collector's Phone #: ______

Relinquished By: David Haring **Received By:** [signature] **Relinquished By:** [signature]

Date/Time: 4 Dec 07 1410 Date/Time: 12-4-07 1410 Date/Time: 12-4-07 1600

Type of Supply: (check only one) [ ] Community Water System [ ] Private Well [ ] Noncommunity Water System [ ] Swimming Pool [ ] Nontransient-Noncommunity Water System [ ] Bottled Water [ ] Limited Use System [X] Other Consecutive

Reason for Sampling: (check only one) [X] Routine Compliance [ ] Repeat [ ] Replacement [ ] Main Clearance [ ] Well Survey [ ] Other

Sample Collection Date(s): 4 Dec 07

LABORATORY CERTIFICATE OF ANALYSIS
Total Coliform Analysis Method: (MF) SM9222B (Colilert) SM9223B
Fecal (MF) SM9221E E. coli (MF) EC+MUG (Colilert) SM9223B

Sample Number	SAMPLE POINT (Location or Specific Address)	Collection Time	Sample Type[1]	Disinfect Res'd mg/L	pH	Non Coliform	Total Coliform	Fecal or E. Coli	Data Qual.[2]	Lab Sample Number
106	1640 Junot #10E	1142	D	2.5	/		A			2130077001
107	1848 Alice Dr	1150	D	1.2	/		A			2130077002

Average of disinfectant residuals for routine and repeat samples. (Complete for community and nontransient noncommunity systems serving populations up to and including 4,900. Do not include raw or plant samples in the average.) 1.9

Key: P - Present A - Absent C - Confluent Growth
TNTC-Too Numerous to Count TA-Turbid
L.C.A. Absence of gas or acid
Analyst: [signature]

Disinfectant Residual Analysis Method: [X] DPD Colorimetric [ ] Other ______
Person performing analysis is:
[X] A certified operator (# C14091) [ ] Employed by a certified lab
[ ] Supervised by a certified operator (# ______) [ ] Employed by DEP or DOH

Report authorized by: [signature]
Technical Director or Designee

Date: 12/9/07 *Unless otherwise noted, all test results contained within this report meet all applicable Method, Laboratory and NELAC guidelines. Questions regarding this report should be directed to the report Signatory at the phone number above.*

Name and Mailing Address of Person/Firm to Receive Report
Aqua Utilities
1100 Thomas Ave
Leesburg FL 34748

ACCREDITED IN ACCORDANCE WITH

Page 1 of 1

[ ] Satisfactory [ ] Repeat Samples Required
[ ] Incomplete Collection Information [ ] Replacement Samples Required
Date Reviewed by DEP/DOH: ______
DEP/DOH Reviewing Official: ______

1 DEP Sample Types: D=Distribution (Routine Compliance); C=Repeat or Check; R=Raw; N=Entry to Distribution; P=Plant Tap; S=Special (clearance, etc.) 2 Defined in Florida Administrative Code Rule 62-160

Top Form - ORIGINAL FORM # 1975 - PRINTING BY HEARN Middle Form - LABORATORY Pink Form - CLIENT

Rule 25-30.440(5), F.A.C., requires the utility to provide the most recent sanitary survey for each water plant and inspection report for each wastewater plant conducted by the health department or the Department of Environmental Protection (DEP).

36. The applicant did not provide any water sanitary surveys or wastewater inspection reports for its Jasmine Lakes and Wootens systems.

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926
Telephone: 813-632-7600

Colleen M. Castille
Secretary

August 8, 2006

Mr. Jack Lihvarcik, President
Aqua Utilities Florida, Inc.
P. O. Box 490310
Leesburg, FL 34749

Re: Compliance Evaluation Inspection
Jasmine Lake S/D WWTF
Facility ID No. FLA012768
Pasco County

Dear Mr. Lihvarcik:

On July 27, 2006, the Florida Department of Environmental Protection (Department) conducted a Compliance Evaluation Inspection at the referenced facility to determine compliance with wastewater requirements and, overall, the facility was Out of Compliance. A copy of the inspection report is attached for your records.

You are requested to respond to this letter with the plans you have made to correct any noted deficiencies and to submit any requested information for those items indicated by an asterisk (*). Your response is requested to be in writing and should include a time frame needed to achieve compliance. This response is due to the Department by September 1, 2006. Please direct any questions to the undersigned at (813) 632-7600, extension 411, or e-mail: jerry.nichols @dep.state.fl.us.

Sincerely,

Jerry E. Nichols

Jerry E. Nichols
Environmental Specialist II
Domestic Wastewater Program

Attachment

cc: Mr. Dennis Muldoon, Operator of Record

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

WASTEWATER COMPLIANCE INSPECTION REPORT

FACILITY AND INSPECTION INFORMATION

@ = Optional

Name and Physical Location of Facility	WAFR ID:	County	Entry Date/Time
Jasmine Lakes S/D WWTF	FLA012768	Pasco	7/27/2006 12:30:00 AM
1000 Holly Drive		Phone	@ Edit Date/Time
Port Richey, FL		(813) 938-6463	7/27/2006 2:00:00 PM

Name(s) of Field Representative(s)	Title	Phone
Mr. Dennis Muldoon	Operator of Record	(352) 302-9713

Name and Address of Permittee or Designated Representative	Title	Phone	@ Operator Certification #
Mr. Jack Lihvarcik	President	(352) 552-8532	
P. O. Box 490310	Aqua Utilities Florida, Inc.		
Leesburg, FL 34749			

Inspection Type	C	E	I	Samples Taken(Y/N): N	@ Sample ID#:	Samples Split (Y/N): N
X Domestic	_ Industrial			Were Photos Taken(Y/N): N	@ Log book Volume:	@ Page

FACILITY COMPLIANCE AREAS EVALUATED

IC = In Compliance; NC = Out of Compliance; SC = Significant out of Compliance; NA = Not Applicable; NE = Not Evaluated
Significant Non-Compliance Criteria Should be Reviewed when Out of Compliance Ratings Are Given in Areas Marked by a "♦"

PERMITS/ORDERS		SELF MONITORING PROGRAM		FACILITY OPERATIONS		EFFLUENT/DISPOSAL	
IC	1. ♦Permit	IC	3. Laboratory	IC	6. Facility Site Review	IC	9. ♦Effluent Quality
NA	2. ♦Compliance Schedules	IC	4. Sampling	IC	7. Flow Measurement	NC	10. ♦Effluent Disposal
		NC	5. ♦Records & Reports	NC	8. ♦Operation & Maintenance	IC	11. Residuals/Sludge
NE	13. Other:					NC	12. Groundwater

Facility and/or Order Compliance Status: _ In-Compliance X Out-Of-Compliance _ Significant-Out-Of-Compliance

Recommended Actions: See attached Field Notes

Name(s) and Signature(s) of Inspector(s)		District Office/Phone Number	Date
Vicki Wheeler	Vicki S Wheeler	SWD(813)632-7600X308	8-3-06
Jerry Nichols	Jerry E. Nichols	SWD(813)632-7600X411	8-3-06
@ Signature of Reviewer: Michele Duggan	Michele Duggan	District Office/Phone Number SWD(813)632-7600X335	Date 08/03/06

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI, RI)

Transaction Code	NPDES Number	YR/MO/DA	Insp. Type	Inspector	Fac. Type
			1	2	3

ADDITIONAL NPDES COMMENTS

Inspection Type (Field 1) A=PAI, B=CBI, C=CEI, S=CSI, X=XSI, R=RI
Inspection Code (Field 2): S=State, J=Joint EPA/State-EPA Lead, T=Joint State/EPA-State Lead, L=Local Program
Facility Type (Field 3): 1=Municipal (Publicly Owned), 2=Industrial and Privately Owned Domestic, 3= Agricultural, 4=Federal
Every other field is self explanatory

INSPECTION FINDINGS

Facility Name: Jasmine Lakes S/D WWTF
Facility ID: FLA012768
Inspection Type: Compliance Evaluation Inspection
Date: 7/27/2006 at 2:00:00 PM

Facility Background:
Address: 1000 Holly Drive, Port Richey, FL, Pasco County
Permit Information: Wastewater Permit issued: 10/4/2000, and expired: 10/3/2005
Treatment Summary: Type II Extended Aeration
Permitted Capacity: 0.3685 MGD

1. Permit: In Compliance

   1.1 Observation: A copy of the permit was on site and available to plant personnel. The current permit expired on November 2004. An applicant for renewal was timely and the current permit is administratively continued by the Department.

2. Compliance Schedules: Not Applicable

3. Laboratory: In Compliance

   3.1 Observation: The laboratory is certified by the Department of Health.

4. Sampling: In Compliance

   4.1 Observation: No problems or deficiencies were identified.

5. Records and Reports: Out of Compliance

   5.1 *Observation: General - There were several transcription errors found in the Discharge Monitoring Reports (DMRs) from December 2004 through January 2006:

      5.1.a The May 2005 through January 2006 DMRs' percent capacity appeared to be miscalculated.

      5.1.b The July 2005 DMR's monthly maximum Fecal Coliform should read 96 CFU/100 mL.

      5.1.c The August 2005 DMR's CBOD and TSS annual average appeared to be miscalculated.

      5.1.d The August 2005 DMR's annual average daily flow appeared to be miscalculated.

      5.1.e The November 2005 DMR's three-month average daily flow appeared to be miscalculated.

      5.1.f The December 2005 DMR's CBOD monthly average and monthly maximum appeared to be influent data.

   5.2 Observation: General - All required documents and reports were available at the facility.

6. Facility Site Review: In Compliance

   6.1 Observation: General - The facility grounds were secured properly.

11. Residuals/Sludge: In Compliance

    11.1 Observation: General - No problems or deficiencies were observed.

12. Groundwater Quality: Out of Compliance

    12.1 Observation: A review of the 2005 ground water monitoring reports revealed the following exceedances in compliance wells #MWC-03, #MWC-04 and #MWC-05 for Total Dissolved Solids, Chloride, Sodium, Fecal Coliform and Ammonia. Please investigate.

13. Other: Not Evaluated

AQUA.
Utilities Florida

Aqua Utilities Florida, Inc.
P.O. Box 490310
Leesburg, FL 34749-0310

T: 352.787.0980
F: 352.787.6333
www.aquautilitiesflorida.com

September 1, 2006

Dept. of Environmental Protection

SEP 05 2006

Southwest District

Jerry E. Nichols
Environmental Specialist II
Domestic Wastewater Program
Department of Environmental Protection
Southwest District
13051 North Telecom Parkway
Temple Terrace, Florida 33637-7600

RECEIVED
SEP 05 2006
Department of Environmental Protection
SOUTHWEST DISTRICT
Domestic Wastewater Program

RE: Compliance Evaluation Inspection
Jasmine Lakes S/D WWTF
Facility ID No. FLA012768
Pasco County

Dear Mr. Nichols:

The purpose of the correspondence is to provide a written response as requested in your August 8, 2006 letter regarding the wastewater treatment facility compliance inspection conducted at Palm Terrace Gardens on July 27, 2006.

RECORDS AND REPORTS

1. There were several transcription errors found in the Discharge Monitoring Reports (DMRs) from December 2004 through January 2006:
   a. The May 2005 through January 2006 DMR's percent capacity appeared to be miscalculated.
   b. The July 2005 DMR's monthly maximum Fecal Coliform should read 96 CFU/100 mL.
   c. The August 2005 DMR's CBOD and TSS annual average appeared to be miscalculated.
   d. The August 2005 DMR's annual average daily flow appeared to be miscalculated.
   e. The November 2005 DMR's three-month average daily flow appeared to be miscalculated.
   f. The December 2005 DMR's CBOD monthly average and monthly maximum appeared to be influent data.

Response:

We have reviewed the aforementioned DMR's and have made the necessary corrections. The revised DMR's are attached.

To DMR File, Except for 8/05.

OPERATION AND MAINTENANCE

1. Lift Stations – The sump pump in the valve pit was not working at the lift station number one.

Response:

We have scheduled a contractor to repair the wiring and conduit for the sump pump. We anticipate the work to be completed by October 1, 2006.

EFFLUENT QUALITY

a. The percolation/evaporation ponds were not properly rotated. The operator has not used the three east ponds in the last year.

Response:

We are trying to get the ponds emptied and cleaned. In order to accomplish this, we are trying to dry the ponds and have not rotated them since our last inspection. It was our understanding that this was recommended during our last inspection and discussed with Vicki Wheeler, the Environmental Specialist who performed this inspection and she seemed pleased with the progress.

If you have any questions, please contact me at (352) 435-4033. Thank you.

Sincerely,
AQUA UTILITIES FLORIDA, INC.

Gerard P. Connolly

Gerard P. Connolly, P.E.
Manager of Operations

Attachments

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926
Telephone: 813-632-7600

Colleen M. Castille
Secretary

September 6, 2006

Mr. Jack Lihvarcik, President
Aqua Utilities Florida, Inc.
P. O. Box 490310
Leesburg, FL 34749

RECEIVED
SEP 07 2006
By

Re: Reply to Compliance Evaluation Inspection
Jasmine Lake S/D WWTF
Facility ID No. FLA012768
Pasco County

Dear Mr. Lihvarcik:

On September 5, 2006, the Florida Department of Environmental Protection (Department) received a reply to the July 27, 2006, Compliance Evaluation Inspection at the referenced facility. The following responses were inadequately addressed:

Who calculated these?

1. The August 2005 Discharge Monitoring Report's (DMR) annual average daily flow, annual average CBOD and TSS were not properly calculated. Please resubmit a corrected original DMR to this office.

IS THIS BECAUSE THE NE POND IS BEING REHABBED?

2. The effluent disposal ponds were not properly rotated. The permit states that rapid infiltration basins shall be loaded for one to seven days and rested five to 14 days. The infiltration basins shall be allowed to dry during the resting portion of the cycle. Please explain why this permit requirement is not being met.

You are requested to respond to this letter with the plans you have made to correct any noted deficiencies and to submit any requested information. Your response is requested to be in writing and should include a time frame needed to achieve compliance. This response is due to the Department by October 10, 2006. Please direct any questions to the undersigned at (813) 632-7600, extension 411, or e-mail: jerry.nichols @dep.state.fl.us.

Sincerely,

Jerry E. Nichols

Jerry E. Nichols
Environmental Specialist II
Domestic Wastewater Program

Attachment

cc: Mr. Dennis Muldoon, Operator of Record

AQUA
Utilities Florida

September 27, 2006

Aqua Utilities Florida, Inc.
P.O. Box 490310
Leesburg, FL 34749-0310

T: 352.787.0980
F: 352.787.6333
www.aquautilitiesflorida.com

Jerry E. Nichols
Environmental Specialist II
Domestic Wastewater Program
Department of Environmental Protection
Southwest District
13051 North Telecom Parkway
Temple Terrace, Florida 33637-7600

RE: Reply to Compliance Evaluation Inspection
Jasmine Lakes S/D WWTF
Facility ID No. FLA012768
Pasco County

Dear Mr. Nichols:

The purpose of the correspondence is to provide a written response as requested in your September 6, 2006 letter regarding the wastewater treatment facility compliance inspection conducted at the referenced facility.

1. The August 2005 Discharge Monitoring Report's (DMR) annual average daily flow, annual average CBOD and TSS were not properly calculated. Please resubmit a corrected original DMR to this office.

   Response:

   We have reviewed the aforementioned DMR's and have made the necessary corrections. The revised DMR's are attached.

2. The effluent disposal ponds were not properly rotated. The permit states that rapid infiltration basins shall be loaded for one to seven days and rested five to 14 days. The infiltration basins shall be allowed to dry during the resting portion of the cycle. Please explain why this permit requirement is not being met.

   Response:

   A pump will be brought in by September 30, 2006, to pump water from one pond to the other to accelerate the drying time of the pond being pumped down. We will then get a tractor to remove the deposits and scarify the bottom. This will be done in rotation to get ponds 1 through 3 cleaned. The operator then will be able to load and rest the ponds in rotation in accordance with the permit.

If you have any questions, please contact me at (352) 435-4029. Thank you.

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When completed mail this report to: Department of Environmental Protection, Mail Station 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Aqua Utilities Florida
MAILING ADDRESS: 1343 N.E. 17th Rd.
Ocala, Fl. 34470

FACILITY: Jasmine Lakes WWTP
LOCATION: 7612 Pineapple Lane
Port Richey, FL 34668

COUNTY: Pasco

PERMIT NUMBER: FLA012768
MONTORING PERIOD--From: 08/01/2005 To: 08/31/2005
THREE MONTH ROLLING ADF 0.229 % OF PERMITTED CAPACITY 60%
LIMIT: Final REPORT: Monthly
CLASS SIZE: N/A GROUP: Domestic
FACILITY ID: FLA012768 WAFR SITE NO.:37591
DISCHARGE POINT NUMBER: ☐ R001 (RIBs)
PLANTSIZE/TREATMENT TYPE: IIIC

DMR Version 9/00

Parameter		Quantity of Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement	0.232							0		
PARM Code 50050 Y Mon.Site No.EFA-01-13862	Permit Requirement	0.308 (Annual Avg)		mgd						Report Monthly	Calculated Roll.An.Avg.
Flow	Sample Measurement		0.234						0		
PARM Code 50050 1 Mon.Site No.EFA-01-13862	Permit Requirement		0.370 (Mo.Avg.)	mgd						Continuous	Flow meter and totalizer
CBODs	Sample Measurement				4.7				0		
PARM Code 80082 Y Mon.Site No.EFA-01-13862	Permit Requirement				20.0 (An.Avg.)			MG/L		Report Monthly	Calculated Roll.An.Avg.
CBODs	Sample Measurement				2.1		2.2		0		
PARM Code 80082 1 Mon.Site No.EFA-01-13862	Permit Requirement				30.0 (Mo. Avg.)		60.0 (Max.)	MG/L		Every two weeks	6-hour FPC
TSS	Sample Measurement				6.6				0		
PARM Code 00530 Y Mon.Site No.EFA-01-13862	Permit Requirement				20.0 (An.Avg.)			MG/L		Report Monthly	Calculated Roll.An.Avg.
tss	Sample Measurement				4.47		5.2		0		
PARM Code 00530 1 Mon.Site No.EFA-01-13862	Permit Requirement				30.0 (Mo. Avg.)		60.0 (Max.)	MG/L		Every two weeks	6-hour FPC

1 Rolling Annual Average is the average of the current monthly average and the preceding 11 month's monthlyaverage.

2 Upon notification of completion of Part II slow-rate restricted-access sprayfield.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO.	DATE (YY/MM/DD)
Dennis Muldoon / Senior Facilities Operator		352-302-9713	06/09/20

JOHN M. LIHVARCIK PRESIDENT
352-435-4028 6/29/06
06/09/27

PA File No. FLA012773-002-DW2P
Version 2-9-04

DISCHARGE MONITORING REPORT - PART A (Continued)

Facility Name: Jasmine Lakes WWTP PERMIT NUMBER: FLA012768 DISCHARGE POINT NO.: R001 (RIBs) WAFR SITE No.: 37591

Parameter		Quantity of Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Fecal Coliform Bacteria	Sample Measurement				2.8				0		
Parm Code 31615 Y Mon.Site No.EFA-01-13862	Permit Requirement				200 (An.Avg.)			#/100mL		Report Monthly	Calculated Roll.An.Avg.
Fecal Coliform Bacteria	Sample Measurement				2.3	4.7	12.0		0		
Parm Code 31615 1 Mon.Site No.EFA-01-13862	Permit Requirement				Report (Mo.Geo.Mean)	400 (Mo.Avg.)	800 (max)	#/100mL		Every two weeks	Grab
pH	Sample Measurement				7.3		7.5		0		
PARM Code 00400 A Mon.Site No.EFA-01-13862	Permit Requirement				6.0 (Min.)		8.5 (Max.)	S.U.		Daily, 5/wk	Meter/Grab
TRC (For Disinfection)	Sample Measurement				1.2				0		
PARM Code 50060 A Mon.Site No.EFA-01-13862	Permit Requirement				0.5 (Min)			MG/L		Daily, 5/wk	Meter/Grab
Nitrate (as N)	Sample Measurement						0.40		0		
PARM Code 00620 A Mon.Site No.EFA-01-13862	Permit Requirement						12.0 (max)	MG/L		Every Two Weeks	Grab
	Sample Measurement										
	Permit Requirement										
CBOD5	Sample Measurement				297				0		
PARM Code 80082 G Mon.Site No.INF-01-24863	Permit Requirement				Report (Mo.Avg.)			MG/L		Every two weeks	8-hour FPC
TSS	Sample Measurement				179				0		
PARM Code 00530 G Mon.Site No.INF-01-24863	Permit Requirement				Report (Mo.Avg.)			MG/L		Every two weeks	8-hour FPC

1 Rolling Twelve Month Average is the average of the current month's average and the preceding eleven (11) month's averages. For Fecal Coliform, use the monthly geometric mean.

2 Rolling Three Month Average is the average of the current month's average and the preceding two (2) month's averages.

3 The 3MADF % Capacity is the 3MADF divided by the plant capacity multiplied by 100, Reported as a percent.

4 FPC - flow proportioned composite

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

Florida Department of Environmental Protection

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

February 29, 2008

Mr. Don Hostetler
Aqua Utilities Florida
7616 Arbordale Drive
Port Richey, FL 34668

Re: Sanitary Survey Report and Compliance Inspection Report
Jasmine Lakes PWS-ID No. 651-2070
Palm Terrace PWS-ID No. 651-1331
Pasco County

Dear Mr. Hostetler:

Enclosed please find a copy of the Sanitary Survey Report and Compliance Inspection Report for the above-referenced potable water systems. Please submit a written response to the Department on the asterisked (*) items, identified herein, within 30 days of receipt of this letter.

Please direct all responses and questions to me at (813) 632-7600, extension 314, or via e-mail at frank.fulghum@dep.state.fl.us.

Sincerely,

Frank L. Fulghum III
Environmental Specialist II
Drinking Water Section

FLF/dm

Enclosures

LARGE GROUND WATER / SURFACE WATER SURVEY FORM

SURVEY SUMMARY

SURVEY ESSENTIALS

Water System Name: Jasmine Lakes
Date(s) Surveyed: January 28, 2008
Survey Inspector(s): Frank L. Fulghum III
Person(s) Contacted: Don Hostetler

WATER SYSTEM INFORMATION

PWS ID: 6512070
Phone: (352) 302-9713
Email: N/A
System (Office) Address: 7612 Pineapple Lane, Port Richey, FL 34668
Cell: N/A
Fax Number: N/A
Directions to water system office or plant:

OWNER INFORMATION

Owner Name: Aqua Utilities Florida
Owner Address: 7616 Arbordale Drive
Owner Phone: (727) 919-0674
Fax Number: (727) 697-3137
City: Port Richey
State: FL
Zip: 34668
Owner Title:
Cell: N/A
Email: N/A

OPERATOR INFORMATION

Operator Name: Don Hostetler
Operator Address: 7616 Arbordale Drive
Operator Phone: (727) 919-0674
Fax Number: (727) 697-3137
City: Port Richey
State: FL
Zip: 34668
Lead Operator Class & Certification Number: C14147
Cell: N/A
Email: N/A

SYSTEM CHARACTERISTICS SUMMARY

Source Summary:
Number of Sources: 4
☐ Surface — Name of Source(s):
☐ Purchase — Name of System(s):

Treatment Summary:
Number of Plants: 1
Number of Operators: 1
☒ Disinfection
☐ Stabilization
☒ Corrosion Control
☐ Aeration
☐ Filtration
☐ Softening
☐ Coagulation
☐ Flocculation
☐ Reverse Osmosis

Service Area Characteristics Summary:
☐ City or Community ☒ Residential ☐ Mobile Home Park ☐ Institution ☐ Medical ☐ School ☐ Wholesaler ☐ Other:
Number of Service Connections: 1540
Population Served: 3311
Approx number of outstanding DEP permits

Demand & Capacity:
Maximum Daily Demand: *0.35 MGD
Average Daily Demand: *0.263
Total Design Capacity: 0.748 MGD
Stand-by Power Capacity:
Total Storage Capacity: 0.5 MGD
Firm Capacity:
Comment: *Information from the December Monthly Operation Report

SYSTEM COMPLIANCE SUMMARY

Past Compliance Status Summary:
Date of last inspection: 01/21/05 — Results: ☒ In compliance ☐ Deficiencies, but not significant ☐ Out of compliance
Date of last sanitary survey: 05/10/04 — Results: ☒ In compliance ☐ Deficiencies, but not significant ☐ Out of compliance

Current Sanitary Survey Results:
☐ In Compliance ☒ Deficiencies, but not significant ☐ Out of compliance
Comment:

SOURCE (GROUNDWATER)						
GROUNDWATER WELLS						
Well Name or Number	7	7C	7D	7E		
Florida Unique Well Identification	AAB4535?	AAB4536	AAB4537	AAB4539		
Year Drilled	1972	1972	1999	1999		
Depth Drilled	186'	225'	127'	130'		
Aquifer Name	FLORIDAN	FLORIDAN	FLORIDAN	FLORIDAN		
Depth & Diameter of casing?	18 ' 8"	14 ' 8"	10"	10"		
Depth of Screen & Material						
Depth of grouting & type?			CEMENT	CEMENT		
Depth to Static Water Level?	13'	11'				
Is the drawdown measured?	NO	NO	NO	NO		
Is the site subject to flooding?	NO	NO	NO	NO		
Is the well below grade?	NO	NO	NO	NO		
Potential pollution sources near?	NO	NO	NO	NO		
Contaminated, UDI, or ASR Well?	NO	NO	NO	NO		
Is lightning protection provided?	NO	NO	NO	NO		
Is the well housed or fenced?	HOUSED	HOUSED	FENCED	FENCED		
Pump Type	Vert. Turbine	Vert. Turbine	Submersible	Submersible		
Horse Power	5	15	5	5		
Rated Pump Capacity (GPM@PSI)			150	150		
Normal Yield (GPM @ PSI)						
Proper raw water tap?	YES	YES	YES	YES		
Proper casing height?	YES	YES	YES	YES		
Well head properly sealed?	YES	YES	YES	YES		
Proper casing vent?	YES	YES	YES	YES		
Dumpline installed?	YES	YES	NO	NO		
Proper Check Valve?	YES	YES	YES	YES		
Air-relief valve installed?	N/A	N/A	N/A	N/A		
Proper Water Meter?	WATER SPECIALITIES	WATER SPECIALITIES	WATER SPECIALITIES	WATER SPECIALITIES		
Meter check for accuracy?						
Stand-by Capacity?	YES	YES	YES	YES		
Overall Site Condition	COMPLIANT	COMPLIANT	COMPLIANT	COMPLIANT		

DISINFECTION - PLANT INFORMATION	Jasmine Lakes	Plant Name	Comment
Chlorinator Type (gas, hypo, chloramination)	HYPO		
Condition of Chlorination Equipment	COMPLIANT		
Capacity (PPD, GPD)	2.5 GPH		
Chlorine Feed Rate (PPD, GPD)			
Max Day Run Time (Hr/Day)			
Is chlorinator manual or flow paced?	FLOW		
Loss of chlorination alarm function?	NO		
Chlorine leak detection functioning?	NO		
Chlorine detection equipment & alarms tested?	NO		
Operation and maintenance manual onsite?	NO		
Compliant housing/security	YES		
Overall condition of facility	COMPLIANT		
Stand-by Power Capability?	YES		
POE Chlorine Residual/pH	1.47 mg/L		
GAS CHLORINATION			
150 lb or Ton Cylinders?			
Vacuum or pressure system			
Automatic Switchover?			
Scale condition?			
In place wrench with ¼ turn			
Cylinder restrained/chained?			
Ammonia onsite?			
Evidence of leaks			
Adequate leak containment?			
Storage & feed facilities in separate room?			
Chlorine leak repair kit provided?			
Ventilation Proper?			
Vent switch on exterior?			
Panic hardware and window provided?			
Booster Pump Capacity (GPM/ft head)			
HYPO CHLORINATION			
Sodium or Calcium Hypo Chlorite?	SODIUM		
Positive Displacement Pump?	YES		
Solution strength	12%		
How often replenished?	WEEKLY		
Solution tank compliant? (cover/measure/drain)	YES		
Adequate spill containment?	NO		
CHLORAMINATION			
Chlorine to ammonia ratio? (5:1 recommended)			
Is the ammonia flow-paced?			
Ammonia added before or after chlorine?			
Frequency of free chlorine "burn"?			
Backflow prevention from chlorine chambers?			
Any bacteriological MCL's in last 12 months?	If yes, explain?		
OZONE			
Equipment Condition			
Adequate dose?			
Stand-by Power Capability?			
Injection point proper & ensures mixing?			

Comments:

OTHER TREATMENTS (CHECK ☐ IF APPLICABLE OR OPTIONALLY REMOVE SECTION IF NOT APPLICABLE)

☒ CORROSION CONTROL

Why is corrosion control practiced? To coat pipes

What chemicals are used? ☐ PO4 ☒ Aqua-Mag® ☐ Other: _____

Results of current lead and copper exceed action level? ☐ Yes ☒ No Are water quality parameters are tested? ☒ Yes ☐ No

What are the characteristics of the water entering and leaving the treatment plant? _____

Distribution system sampling for the corrosion control program conducted? ☐ Yes ☒ No

Comments:

☐ STABILIZATION

Why is stabilization practiced? _____

Stability Index of effluent (Langelier) _____ Chemical(s) used _____

Are dusty and dry chemicals, and feed equipment housed separately? ☐ Yes ☐ No Is proper and adequate ventilation provided? ☐ Yes ☐ No

Appropriate safety equipment available & in use? ☐ Yes ☐ No Are the building as clean and as dry as possible? ☐ Yes ☐ No

Comments:

☐ IRON AND MANGANESE REMOVAL

What treatment process is used? _____

Is the process performing adequately based on visual observation? ☐ Yes ☐ No

What chemicals are used and in what amounts? _____

Comments:

☐ ACTIVATED CARBON

Why is activated carbon used? _____

What process is being used? _____

What testing is performed to determine effectiveness of activated carbon?

☐ POWDERED ACTIVATED CARBON (PAC)

Why is powdered activated carbon used? _____

Black water prevented? ☐ Yes ☐ No Is the PAC stored properly? ☐ Yes ☐ No How often are the feeders calibrated? _____

Comments:

☐ GRANULAR ACTIVATED CARBON (GAC)

Why is activated carbon used? _____

Is backwash compliant? ☐ Yes ☐ No What is the depth of the GAC? _____

Any problems observed? _____

Comments:

☐ AERATION

Why is aeration used? _____

What type of aeration system is used? _____

What parameters are monitored to evaluate the performance of the process? _____

Is the aerator isolated from any contaminants which could be pulled from the air supply? ☐ Yes ☐ No Is screening intact? ☐ Yes ☐ No

Appropriate mesh size (#24)? ☐ Yes ☐ No Aerator adequately covered? ☐ Yes ☐ No Chlorination after aeration? ☐ Yes ☐ No

What is the condition of the aerator, both inside and out? _____

Comments:

☐ SOFTENING

Why is softening used? _____

What are treatment goals? _____

Performing adequate process control testing? ☐ Yes ☐ No Is the facility tracking the chemicals used? ☐ Yes ☐ No

Is the facility meeting the TOC removal requirements of the Stage 1 DBP Rule? ☐ Yes ☐ No

Comments:

☐ ION EXCHANGE

What are the treatment goals? _____

What is condition of equipment? _____

Any other problems observed?

☐ FLUORIDATION

Proper concentration of fluoride in the distribution system? ☐ Yes ☐ No Fluoride concentrations tested in the system daily? ☐ Yes ☐ No

Are fluoride concentration consistent? ☐ Yes ☐ No Is the testing performed correctly? ☐ Yes ☐ No

When was the testing instrument last calibrated? _____ How often is the saturator tank cleaned? _____

Is the electrical system wired with a fail-safe? ☐ Yes ☐ No Is there a scale for weighing the solution tank? ☐ Yes ☐ No ☐ NA

Comments:

DISTRIBUTION

MAINS, HYDRANTS, & VALVES

Material: ☒PVC ☐Ductile Iron ☐Steel ☐Concrete ☐Asbestos-Cement Pipe Size Max. (in) 8 Min 2 PSI Max ___ Min ___

Are main breaks recorded? ☒Yes ☐No Standard Operating Procedures (SOP) for main repair? ☐Yes ☐No

Are all connections metered? ☐Yes ☐No Meters (installed after 2003) NSF approved? ☐Yes ☐No

Flushing program compliant? ☐Yes ☒No # dead ends: ___ # flush points/hydrants? ___ # fire hydrants? ___ Any Auto-flush? ☐Yes ☐No

Valve maintenance program compliant? ☐Yes ☐No # of in-line valves: ___ How often exercised? ___

CROSS-CONNECTION CONTROL (CCC)

Written CCC Program Compliant? ☒Yes ☐No Is the program adequately implemented? ☐Yes ☐No Annual Testing Required: ☐Yes ☐No

Total Number of Devices: ___ Approx. # RPZ's: ___ DCVA's: ___ PVB's: ___ Other: ___ Approx. # of tests last year: ___

Any cross-connections observed during survey? ☐Yes ☒No If yes, describe: ___

MAPS, ENGINEERING, AND PERMITTING

MAPS INCLUDE: ☒Lines (all) ☒Valves ☐Flush/Fire Hydrants ☐Storage/Booster Pumps ☒Interconnections

☒Line Size ☒Line Material ☐Updates ☐Air relief/Blow-off Valves ☐Complaints

SOP for new line installation and clearance? ☐Yes ☒No Hydraulic model been performed? ☐Yes ☐No

Approximate number of outstanding permits distribution permits? ___ Any currently in use without clearance? ☐Yes ☐No

RESIDUAL DISINFECTANT AND MONITORING

Chorine Residual Max (mg/L): 1 Min ___ Are residuals tested in the system daily? ☒Yes ☐No How many sampling sites? ___

FIELD TESTING					
Free and/or total Cl (MGL)	1.47				
pH					

STORAGE FACILITIES

Tank Name or Number	1							
Storage Type	GROUND							
Tank Material	CONCRETE							
Capacity (Gallons)	500,000							
Watertight Roof/Hatch?	YES							
Venting/Screens Proper?	SEE COMMENT							
Overflow Proper?	N/A							
Level/PSI Indicator Functional?	YES							
On/Off PSI	N/A							
Flow-through or Float?	FLOW THROUGH							
Drain & Bypass Installed?	NO							
Compliant Security?	YES							
Overall Condition?	SEE COMMENT							
Date of last annual inspection	UNK							
Year of last 5 year inspection?	UNK							
Year of last washout	UNK							

Storage capacity exceed 25% of the max day? ☒Yes ☐No Is the interior tank coating NSF/ANSI approved? ☐Yes ☐No

Do any of the ground storage tanks have baffles? ☐Yes ☒No Any elevated storage tanks utilize altitude valves? ☐Yes ☐No

Do the storage tanks have a proper turnover? ☐Yes ☒No Do the storage facilities utilize low level alarms? ☐Yes ☐No

How are tanks levels controlled: ☐Manually ☒Auto (onsite) ☐Auto (SCADA)

Comment: *The screens on the Ground storage tank need to be repaired

PUMPS AND CONTROLS

Pump Category																						
Pump Name or Model	1	2																				
Type	VFD	VFD																				
Year Installed																						
Year of last servicing																						
Horsepower	50	50																				
Pump Capacity-MG/day																						
Standby Capacity?	YES	YES																				
Proper valves/gauges?	YES	YES																				
Overall Condition?																						
Housing/Security?	YES	YES																				

Adequate access for maintenance & pump removal? ☒Yes ☐No Pump lubrication NSF/ANSI Approved? ☐Yes ☐No

Are transmission lines visible and in good condition? ☒Yes ☐No Low flow or failure alarm provided? ☐Yes ☐No

Are Protective Guards/Fire Extinguishers Provided? ☐Yes ☒No Are adequate spares available? ☒Yes ☐No

Overall Capacity Compliant? ☒Yes ☐No Firm Capacity Compliant? ☐Yes ☐No Standby Power Capacity Compliant? ☒Yes ☐No

MONITORING, REPORTING, & DATA VERIFICATION

MONITORING PLANS AND PROGRAMS

Required Monitoring Plans: ☒ Bacteriological ☒ DBP ☐ Pb/Cu ☒ CCC ☐ Emergency Preparedness ☐ Other:

Adequate monitoring in place? ☒ Yes ☐ No — Is monitoring program adequately maintained and followed? ☐ Yes ☐ No

Proper monitoring procedures? ☒ Yes ☐ No — Results adequately recorded? ☒ Yes ☐ No — Records maintained? ☒ Yes ☐ No

Timely submittal of samples? ☒ Yes ☐ No — Compliance samples analyzed by a Certified Lab? ☒ Yes ☐ No

MONITORING FACILITIES AND EQUIPMENT

Testing facilities adequate? ☐ Yes ☐ No ☒ Not Applicable — Testing equipment adequate? ☐ Yes ☐ No

Are the reagents out of date? ☐ Yes ☐ No — Proper procedures for calibrating monitoring equipment? ☐ Yes ☐ No

Which parameters does the system monitor? ☐ Chlorine ☐ pH ☐ F ☐ PO4 ☐ Fe ☐ H2S ☐ Other(s) _____

FILE REVIEW

Does the system maintain adequate compliance records? ☐ Yes ☒ No — System in compliance with parameters below? ☒ Yes ☐ No

Compliance Schedule: The following parameters are due during the year shown.

NO_2/NO_3: 2008 Inorganic: 2008 Secondary: 2008 VOC: 2008 Pb/Cu: 2008 THMs: 2008 Rad_s: 2008 SOC: 2008 Asbestos: 2008

Comments:

SYSTEM MANAGEMENT AND OPERATION

ADMINISTRATION

Formal Organization Chart: ☐ Available ☒ Not available — Operating authority to make decisions: ☐ Sufficient ☐ Insufficient

Administrators familiar with the SDWA: ☐ Yes ☐ No — Planning Process: Formal and adequate: ☐ Yes ☐ No

INFORMATION MANAGEMENT

Does the utility manage the following information (check if yes):

☒ Maintaining plans ☒ Updating maps ☒ Handling customer complaints

☐ Collecting O & M data ☐ SOPs ☒ Maintenance Records ☐ Financial Records

Does the system track typical operating data such as unaccounted-for water? ☐ Yes ☒ No

Cost/unit of production? ☐ Yes ☐ No — Customer Complaints? ☒ Yes ☐ No

Are financial, operational data and maintenance records tracked via a PC? ☐ Yes ☐ No

COMMUNICATION

Communication effective between management, operations, & FDEP? ☐ Yes ☐ No

Cooperation adequate between the system & other agencies/organizations? ☐ Yes ☐ No

Cooperation level between system and local fire department? ☐ Effective ☐ Needs improvement.

PLANNING

Emergency response plan include: ☐ Communication Chart ☐ Written Agreements ☐ Disaster Plan ☐ Standby Power Info ☐ Inventories

Written available plans for: ☒ Sampling & monitoring ☐ Materials Survey ☐ Water Quality Parameters ☐ Repair replacement & expansion

PERSONNEL

Proper staffing ☐ Yes ☐ No — Proper qualifications ☒ Yes ☐ No — Proper training ☐ Yes ☐ No

FACILITIES AND EQUIPMENT

Preventative Maintenance Program in place? ☐ Yes ☒ No

Facilities for storing parts, equipment, vehicles, traffic control devices, & supplies sufficient? ☐ Yes ☐ No

Are facilities for personnel adequate? ☐ Yes ☐ No — Are system facilities adequate? ☐ Yes ☐ No

Maintenance of facilities adequate? ☐ Yes ☐ No — Equipment properly sized? ☐ Yes ☐ No

Stand-by capacity meet requirements? ☐ Yes ☐ No — Is stand-by equipment exercised at least monthly? ☐ Yes ☐ No

FINANCE

Financing & budget satisfactory: ☐ Yes ☐ No — Funds allocated properly: ☐ Yes ☐ No

Training funds sufficient: ☐ Yes ☐ No — Is there a water conservation policy/program? ☐ Yes ☐ No

Were any deficiencies identified or is technical assistance recommended for this element? ☐ Yes ☐ No

Comments:

OPERATOR STAFFING REQUIREMENTS

Treatment Category/Class: VC — Lead Operator Name & Class/Cert. Number: Don Hostetler C14147

Staffing Requirements: *Comments — Total Number of Operators Staffed 1 — Staffing meet FAC 62-699? ☐ Yes ☒ No

Name(s) of all other operator(s) and Class & Cert. number:

Comments: Class C or higher 5 days/week and one weekend visit for a total of 0.6 hour/week

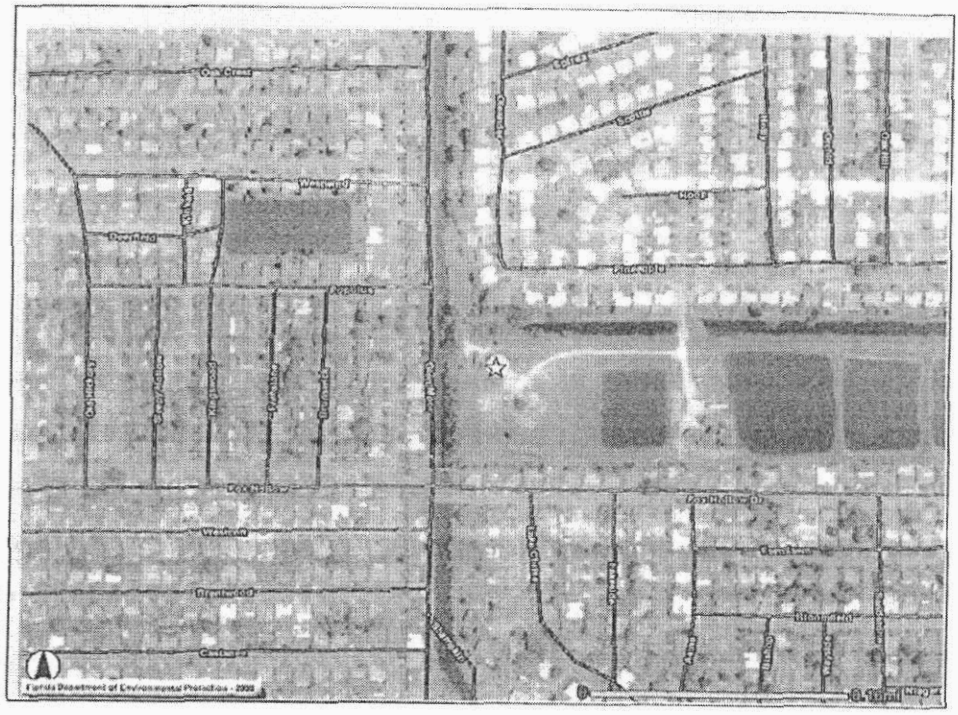
TECHNICAL ASSISTANCE

Technical assistance providers (tap) recommended? ☐ Yes (see enclosed tap information) ☒ No tap recommended at this time

CPE required? ☐ Yes ☐ No — Should a CTA be performed? ☐ Yes ☐ No

Comments:

MAP



COMMENTS:

The star in the middle of the map is the ground storage tank, which is located at the treatment plant. The physical plant address is 7612 Pineapple Lane. Previous interconnects with Pasco County Utilities are located at 10638 Labarnum Drive and at the southwest corner of the treatment plant.

PHOTOS

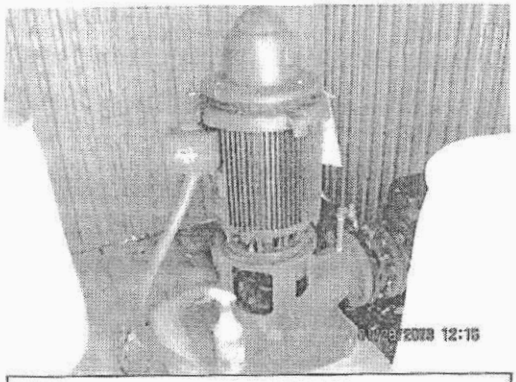


Photo ID# 1- Well #7

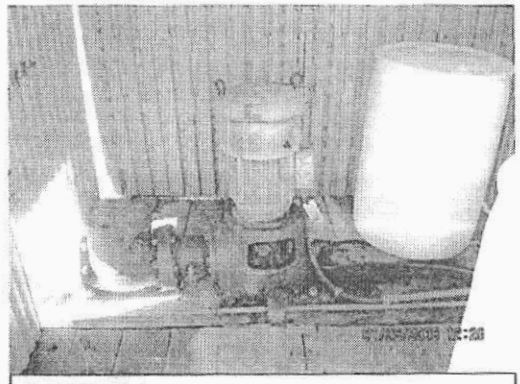


Photo ID# 2- Well #7C

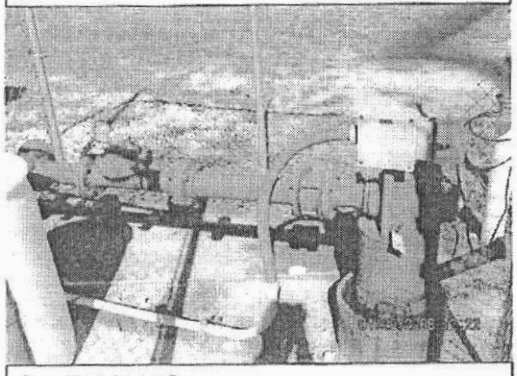


Photo ID# 3- Well #7D

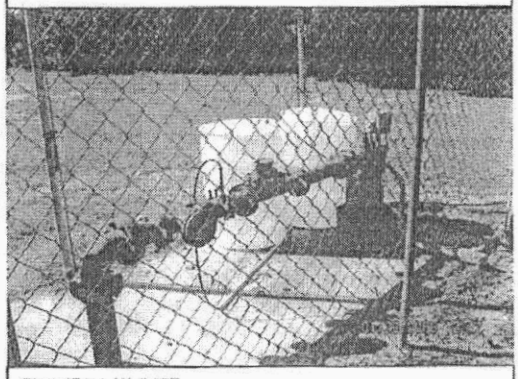


Photo ID# 4- Well #7E

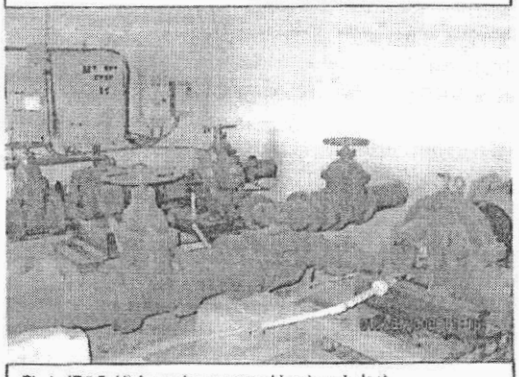


Photo ID# 5- High service pumps at treatment plant

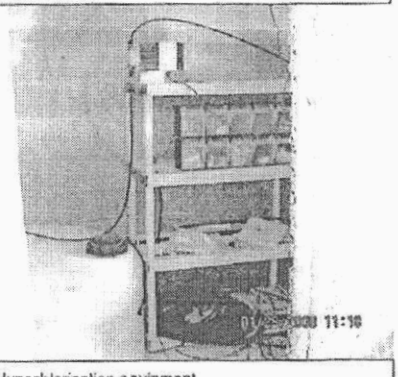


Photo ID# 6- Hypochlorination equipment

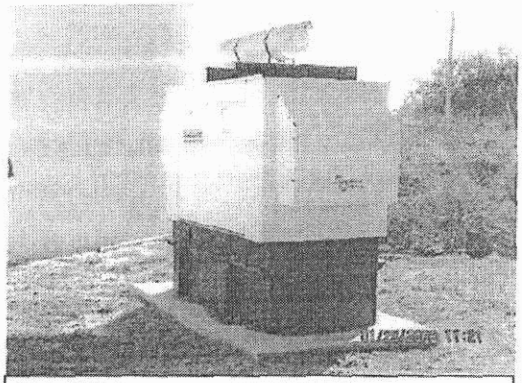


Photo ID# 7- Onsite generator

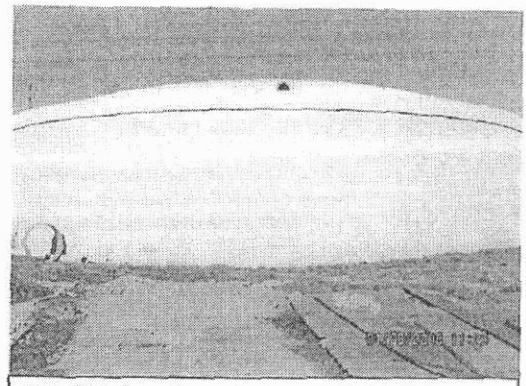


Photo ID# 8- Ground Storage Tank

Photo ID# 9- Photo reveal that no screens are present on the vents. Please repair to prevent birds from nesting in finish water.

SUMMARY OF DEFICIENCIES

DEFICIENCY : DEFICIENCY: NO OPERATION AND MAINTENANCE MANUAL AT THE WATER TREATMENT PLANT.

REGULATION REFERENCE: FAC Rule 62-555.350 (13)

RECOMMENDED ACTION:
Suppliers of water shall provide an operation and maintenance manual for each of their drinking water treatment plants by no later than December 31, 2005, and shall update the manual thereafter as necessary to reflect plant alterations and additions. The manual shall contain operation and control procedures, and preventive maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of this subsection.

DEFICIENCY : NO EMERGENCY RESPONSE PLAN

REGULATION REFERENCE: FAC 62-555.350 (15)

RECOMMENDED ACTION:
Suppliers of water who own or operate a community water system serving, or designed to serve, 350 or more persons or 150 or more service connections shall develop a written emergency preparedness/response plan in accordance with Emergency Planning for Water Utilities, AWWA Manual M19, as adopted in Rule 62-555.335, F.A.C., by no later than December 31, 2004, and shall update and implement the plan as necessary thereafter. Said suppliers of water shall coordinate with their Local Emergency Planning Committee and their Florida Department of Law Enforcement Regional Security Task Force when developing their emergency plan and shall include in their plan all of the information in paragraphs (a) through (e) below.(a) A communication chart as described in Chapter 5 of AWWA Manual M19.(b) Written agreements with other agencies, utilities, or response organizations.(c) A disaster-specific preparedness/response plan as described in Chapter 5 of AWWA Manual M19 for each of the following disasters: vandalism or sabotage; a drought; a hurricane; a structure fire; and if applicable, a flood, a forest or brush fire, and a hazardous material release. Each disaster-specific preparedness/response plan shall incorporate the results of a vulnerability assessment; shall include actions and procedures, and identify equipment, that can obviate or lessen the impact of such a disaster; and shall include plans and procedures that can be implemented, and identify equipment that can be utilized, in the event of such a disaster.(d) Details about how the water system meets the standby power requirements under subsection 62-555.320(14), F.A.C., and, if applicable, recommendations regarding the amount of fuel to maintain on site, and the amount of fuel to hold in reserve under contracts with fuel suppliers, for operation of auxiliary power sources.(e) If applicable, recommendations regarding the amount of drinking water treatment chemicals, including chemicals used for regeneration of ion-exchange resins or for onsite generation of disinfectants, to maintain in inventory at treatment plants.

TECHNICAL ASSISTANCE PROVIDERS

FLORIDA RURAL WATER ASSOCIATION
2970 Wellington Circle W, Suite 101
Tallahassee FL 32309-6885
E-Mail: FRWA@frwa.net
Home Page: http://www.frwa.net
850.668.2746

Inspector Signature _____ Date: February 21, 2008

Reviewer's Signature _____ Date: February 21, 2008

Compliance Inspection Form

Page 1

Water system: PALM TERRACE | System PWS #: 6511331 | Inspection Date: 01/28/2008

Inspector: FRANK L. FULGHUM III | Person(s) contacted: DON HOSTETLER | System Type: C

System address: 7616 ARBORDALE DRIVE | City: FORT RICHEY | State: FL | Zip: 34668

Owner name: AQUA UTILITIES FLORIDA | Owner title:

Owner address: 6960 PROFESSIONAL PKWY E | City: SARASOTA | State: FL | Zip: 34240

Owner phone: 727-849-1704 | Cell:

Operator required? ☒ Yes ☐ No (If "No", Operator sections not applicable) | Operator class & cert. number: C 14147

Operator name: DON HOSTETLER | Phone: 727-849-1704

SOURCE - WELL INFORMATION		
Well Number/Well ID #	~	
Well head sealed? (Pad/conduit/openings)	~	
Well casing 12" above grade?	~	
Casing vent compliant? (2008)	~	
Check valve compliant?	~	
Flowmeter/Timeclock	S	Model: ABB
Well Pad Compliant?	~	
Security measures compliant?	S	

TREATMENT			
O & M manual compliant?		U	
Auxiliary Power		~	
Loss of chlorine alarm compliant?		~	
Treated sample tap provided?		~	
HYPO	Cl solution NSF approved?	~	
	Cl storage compliant	~	
	Chlorinator	~	Model:
	Chlorine test kit compliant?	S	
GAS	Cl room compliant?	~	
	Scales compliant?	~	
	Auto switchover provided?	~	
	Safety: (SCBA/Gloves/Antidote/Paste HYP)	~	
OTHER	Aeration	~	
	pH adjustment	~	
	Orthophosphate	~	
	Other:	~	

STORAGE		
Tank(s)/Type(s)	~	
Inspections compliant? (annual/5yr)	~	
Pressure Gauge Compliant	~	On/Off: /
Pressure relief valve provided? (hydro)	~	
Security measures compliant?	~	

DISTRIBUTION	
Water system map compliant?	Yes
Flushing of dead ends compliant?	NA
Valve maintenance compliant?	Yes
Chlorine residual > 0.2 mg/L	Yes

MANAGEMENT	
Number of high service pumps?	NA
Flow meter accuracy checked?	NA
ERP & CCC Plans Onsite?	No

OPERATOR	
Operator visits compliant?	Yes
Plant checked 5 times per week?	NA
Last inspection fully compliant? ☒ Yes ☐ No (see below)	
Have deficiencies been addressed?	NA
Were any of the deficiencies "repeat"?	NA

FIELD SAMPLING RESULTS			
Plant Cl (mg/L)			
Distribution Cl mg/L	>4.0	Location:	11312 YELLOWOOD LN

REMARKS AND RECOMMENDATIONS:

*Palm Terrace is a consecutive system that receives water from the PCUD West System. The interconnection is located at 11312 Yellowood Lane

*Beginning on March 1, 2008, Palm Terrace will be required to submit three (3) monthly bacteriological distribution samples. This is due to the population of 2,543 being served.

INSPECTOR'S SIGNATURE _____ TITLE ESA DATE: 2-20-08

REVIEWED BY _____ TITLE Env Manager DATE: 2-20-08

DEFICIENCIES

*DEFICIENCY : EMERGENCY RESPONSE PLAN (NOT COMPLIANT)

REGULATION REFERENCE: FAC 62-555.350 (15)

RECOMMENDED ACTION:
Suppliers of water who own or operate a community water system serving, or designed to serve, 350 or more persons or 150 or more service connections shall develop a written emergency preparedness/response plan in accordance with Emergency Planning for Water Utilities, AWWA Manual M19, as adopted in Rule 62-555.335, F.A.C., by no later than December 31, 2004, and shall update and implement the plan as necessary thereafter. Said suppliers of water shall coordinate with their Local Emergency Planning Committee and their Florida Department of Law Enforcement Regional Security Task Force when developing their emergency plan and shall include in their plan all of the information in paragraphs (a) through (e) below.(a) A communication chart as described in Chapter 5 of AWWA Manual M19.(b) Written agreements with other agencies, utilities, or response organizations.(c) A disaster-specific preparedness/response plan as described in Chapter 5 of AWWA Manual M19 for each of the following disasters: vandalism or sabotage; a drought; a hurricane; a structure fire; and if applicable, a flood, a forest or brush fire, and a hazardous material release. Each disaster-specific preparedness/response plan shall incorporate the results of a vulnerability assessment; shall include actions and procedures, and identify equipment, that can obviate or lessen the impact of such a disaster; and shall include plans and procedures that can be implemented, and identify equipment that can be utilized, in the event of such a disaster.(d) Details about how the water system meets the standby power requirements under subsection 62-555.320(14), F.A.C., and, if applicable, recommendations regarding the amount of fuel to maintain on site, and the amount of fuel to hold in reserve under contracts with fuel suppliers, for operation of auxiliary power sources.(e) If applicable, recommendations regarding the amount of drinking water treatment chemicals, including chemicals used for regeneration of ion-exchange resins or for onsite generation of disinfectants, to maintain in inventory at treatment plants.

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850.668.2746

PICTURES

Photo ID #1- Picture of the interconnect on 11312 Yellowood Lane

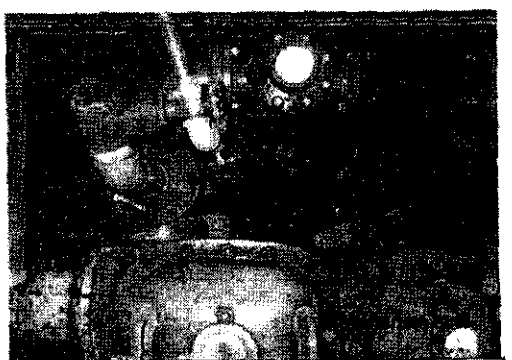


Photo ID #2- The flow meter on the top of the picture is used for meter readings.

Department of
Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

David B. Struhs
Secretary

March 4, 2004

Mr. Craig Anderson
Florida Water Services
Post Office Box 609520
Orlando, Florida 32860

Dear Mr. Anderson:

Putnam County – Potable Water
Wootens Mobile Home Park
PWS ID: 2541280

On March 3, 2004 a Sanitary Survey inspection of the referenced community water system was conducted with the courteous assistance of Mr. Paul Thompson and Mr. Donald Holcomb of Florida Water Services. I was pleased to find that the water system is in good operating condition and generally well maintained. Based on this survey and our records, the Department is pleased to inform you that the above referenced facility is in compliance with the Florida Safe Drinking Water Act, Sections 403, Florida Statutes (FS), and the rules promulgated there-under, Florida Administrative Code (FAC) Title 62.

A copy of the sanitary survey report is enclosed for your records. If I may be of further assistance to you, please contact me at Annalise.Stahlman@dep.state.fl.us or (904) 807-3335. Thank you for your cooperation with Florida's Safe Drinking Water Act.

Sincerely:

Annalise M. Stahlman

Annalise M. Stahlman
Environmental Specialist

cc: Correspondence File
EDC:BRR:AMS:ams

Enclosure: Sanitary Survey Dated 3/3/04

State of Florida
Department of Environmental Protection
Northeast District

SANITARY SURVEY REPORT

Plant Name WOOTENS MOBILE HOME PARK County Putnam PWS ID # 2541280
Plant Location Point Pleasant at Hess Road, Georgetown, Florida Phone 386-329-1122
Owner Name Florida Water Services Phone 407-880-0058
Owner Address Post Office Box 609520, Orlando, Florida 32860
Contact Person Mr. Paul Thompson Title Lead Operator, FWS Phone 386-329-1122
This Survey Date 3/3/04 Last Survey Date 6/18/01 Last C.I. Date 8/1/02

PWS TYPE & CLASS: Community - (5D)

SERVICE AREA CHARACTERISTICS
Residential Mobile Home Park

Food Service: ☐ Yes ☐ No ☒ N/A

GENERAL INFORMATION
Number of Service Connections 29
Population Served 29 Basis approximation
Plant Design Capacity 36,000 gpd
Basis well design capacity
Average Day (from MORs) 2,267 gpd
Max. Day (from MORs) 3,560 gpd
Total Storage Capacity 670 gallons
Comments Data based on January 2004 MOR

LOCATION
Latitude 29° 23' 45.66" North
Longitude 81° 39' 0.56" West
GPS: Yes Date: 7/30/97
Directions US 17 South, Right at CR309, right on Parker Rd., Right on Hess Rd., Plant is at the intersection with Pleasant Circle

OPERATION & MAINTENANCE
Certified Operator: ☒ Yes ☐ No ☐ Not required
Operator(s) & Certification Class-Number
Paul Thompson, A-7251
Donald Holcomb, A-5091
O & M Log: ☒ Yes ☐ No ☐ Not required
Operator Visitation Frequency
Hrs/day: *Required* N/A *Actual* N/A
Days/wk: *Required* 3 *Actual* 5
Non-consecutive Days? ☐ Yes ☐ No ☒ N/A
MORs submitted regularly? ☒ Yes ☐ No ☐ N/A
Data missing from MORs? ☒ No ☐ Yes ☐ N/A
Complete Operations, Maintenance, Equipment Logs and Sampling plans on site.

COMET: SITE ID _____ PROJECT ID _____

RAW WATER SOURCE
☒ GROUND; Number of Wells 1
☐ SURFACE/UDI; Source _____
☐ PURCHASED from PWS ID # _____
☐ Emergency Water Source _____
Emergency Water Capacity _____

AUXILIARY POWER SOURCE
☐ Yes ☐ None ☒ Not Required
Source _____
Capacity of Standby (kW) _____
Switchover: ☐ Automatic ☐ Manual
Standby Plan: ☐ Yes ☐ No
Hrs Operated Under Load _____
What equipment does it operate?
☐ Well pumps _____
☐ High Service Pumps _____
☐ Treatment Equipment _____
Satisfy 1/2 max-day demand? ☐Yes ☐No ☐Unk
Comments _____

TREATMENT PROCESSES IN USE
Hypo-chlorination and Aeration

What additional treatment is needed?
None
For control of what deficiencies?
N/A

DISTRIBUTION SYSTEM
Flow Measuring Device Flow Meter
Meter Size & Type 2" Precision Meter
Backflow Prevention Devices: ☒ Yes ☐ No
Cross-connections None Noted
Written Cross-connection Control Program: Yes
Coliform Sampling Plan: ☒ Yes ☐ No ☐ N/A
Comments Satisfactory

PWS ID # 2541280
Survey Date 3/3/04

GROUND WATER SOURCE

Well Number (PWS Identification)		2541280			
Well Name (System Identification)		1			
Year Drilled		Unknown			
Depth Drilled		Unknown			
Latitutude		29:23:45.66			
Longitude		81:39:0.559			
GPS (Y or N) / Date (If applicable)		Yes, 7/30/97			
Florida Well ID		AAC1981			
Static Water Level		Unknown			
Actual Yield (If different than rated capacity)					
Strainer		Unknown			
Length (outside casing)		Unknown			
Diameter (outside casing)		2"			
Material (outside casing)		Steel			
Well Contamination History		None			
Is inundation of well possible?		No			
6' X 6' X 4" Concrete Pad		OK			
SET BACKS	Septic Tank				
	Reuse Water				
	WW Plumbing				
	Other Sanitary Hazard				
PUMP	Type	Jet			
	Manufacturer Name	Goulds			
	Model Number	GT10			
	Rated Capacity (gpm)	20			
	Motor Horsepower	1			
Well casing 12" above grade?		OK			
Well Casing Sanitary Seal		OK			
Raw Water Sampling Tap		OK – smooth			
Above Ground Check Valve		OK			
Fence/Housing		Secure			
Well Vent Protection		Not required			

COMMENTS The well appears to be in good condition.

PWS ID # 2541280
Survey Date 3-Mar-04

CHLORINATION (Disinfection)
Type: Hypo-Chlorination
Make Stenner Capacity 17 gpd
Chlorine Feed Rate 40%
Avg. Amount of Cl_2 gas used N/A
Chlorine Residuals: Plant 1.0 Remote 1.0
Remote tap location outside tap
DPD Test Kit: ☒ On-site ☒ With operator
☐ None ☐ Not Used Daily
Injection Points upstream of hydro tank
Booster Pump Info N/A
Comments Satisfactory

Chlorine Gas Use Requirements	YES	NO	Comments
Dual System	☐	☐	
Auto-switchover	☐	☐	
Alarms:			
Loss of Cl_2 capability	☐	☐	
Loss of Cl_2 residual	☐	☐	
Cl_2 leak detection	☐	☐	
Scale	☐	☐	
Chained Cylinders	☐	☐	
Reserve Supply	☐	☐	
Adequate Air-pak	☐	☐	
Sign of Leaks	☐	☐	
Fresh Ammonia	☐	☐	
Ventilation	☐	☐	
Room Lighting	☐	☐	
Warning Signs	☐	☐	
Repair Kits	☐	☐	
Fitted Wrench	☐	☐	
Housing/Protection	☐	☐	

AERATION (Gases, Fe, & Mn Removal)
Type Cascade Capacity
Aerator Condition Good
Bloodworm Presence No
Visible Algae Growth No
Protective Screen Condition Good
Comments Aerator appears to be in good condition

STORAGE FACILITIES
(G) Ground (H) Hydropneumatic (E) Elevated
(B) Bladder (C) Clearwell

Tank Type/Number	G	H1	H2
Capacity (gal)	1000	480	315
Material	fiber	steel	steel
Gravity Drain	Yes	Yes	Yes
By-pass Piping	Yes	Yes	Yes
Pressure Gauge	N/A	Yes	Yes
Sight Glass or Level Indicator	No	No	No
Fittings for Sight Glass	N/A	N/A	N/A
Protected Openings	Yes	N/A	N/A
PRV/ARV	N/A	None	None
On/Off Pressure	N/A	40/50	40/50
Access Padlocked	Yes	Yes	Yes
Height to Bottom of Elevated Tank	N/A	N/A	N/A
Height to Max. Water Level	N/A	N/A	N/A

Comments Storage Facilities appear to be in good operating condition.

HIGH SERVICE PUMPS

Pump Number	1	2	
Type	Cent.	Cent.	
Make	Goulds	Goulds	
Model	*	*	
Capacity (gpm)			
Motor HP	3	3	
Date Installed	Unk.	Unk.	
Maintenance	Good	Good	

Comments * Model # 3BF23012H
Pumps appear in good condition

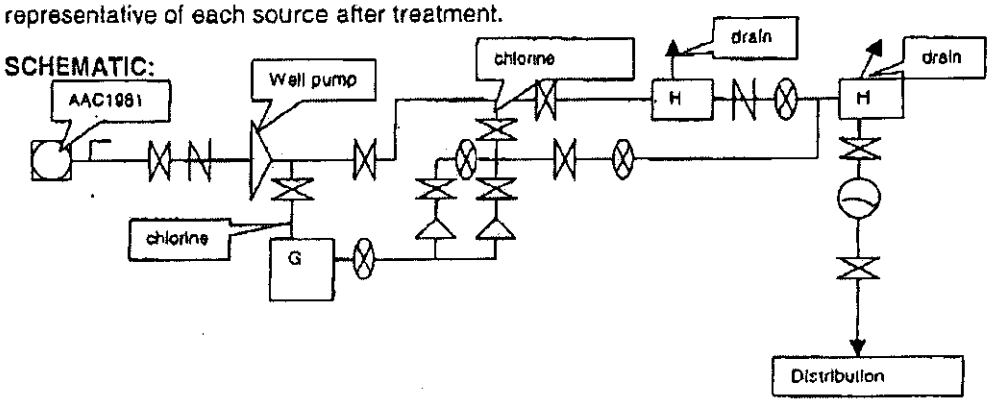
PWS ID # 2541280
Survey Date 3-Mar-04

COMPLIANCE MONITORING
COMMUNITY PUBLIC WATER SYSTEMS
serving < 3300 persons

CONTAMINANT	Last Sampled	Due Date	COMMENTS
Microbiological (Bacti)	xxxxxxxx	Monthly	2 distribution samples + 1 from each raw source (based upon population served)
Volatile Organic Contaminants	2003	2006	Samples due every 3 years
Synthetic Organic Contaminants	2003	2006	Samples due every 3 years
Nitrate & Nitrite (as N)	2003	2004	Nitrate/Nitrite due annually
Inorganic Contaminants	2003	2006	Inorganic Samples due every 3 years
Asbestos	Waiver	Waiver expires 12/31/2010	Samples taken from distribution. Waiver available if no asbestos pipe in the distribution system.
Secondary Standards	2003	2006	Secondaries due every 3 years
Radionuclides	2003	2006	Radionuclides due every 3 years
Disinfection Byproducts [i.e. Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s)]:	N/A	2004	Per sampling plan
Lead and Copper	2001	2004	Sample locations are from pre-approved sample plan

Unless otherwise noted, all samples shall be taken at each entry point to the distribution system, and representative of each source after treatment.

SCHEMATIC:



PWS ID # 2541280
Survey Date 3/3/04

MONITORING VIOLATIONS	MCL VIOLATIONS
None	None

DEFICIENCIES:

This facility appears to be well maintained and in good operating condition.

Inspector Annalise M. Stahlman Title Environmental Specialist II Date 3/4/04

Approved by Blanca R. Rodriguez Title Engineer IV Date 3/4/04

Rule 25-30.440(6), F.A.C., requires the utility to provide all health department and DEP construction and operating permits.

37. The applicant did not provide any permits for its Tomoka/Twin Rivers and Gibsonia systems.

SENT BY ELECTRONIC MAIL
bheath@aquaamerica.com
boydenv@att.net

PERMITTEE:	PROJECT: Tomoka View WTP Post Chlorination System
Aqua Utilities Florida, Inc.	P.W.S.I.D. Number: 3641373
Attn.: Brian E. Heath, Area Manager	Permit Number: 0190368-003-WC / M1
P.O. Box 490310	Date of Issue: February 14, 2007
Leesburg, Fl. 34749	Expiration Date: February 14, 2012

This permit is issued under the provisions of Chapter 403.861(9) Florida Statutes, and Florida Administrative Code Rule (s) 62-555. The above named permittee is hereby authorized to perform the work shown on the application and approved drawing, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Project:

Permanent installation of the previously approved pilot post-chlorination system where sodium hypochlorite is flow proportional injected into the existing 4-inch diameter High Service Pump discharge header as paced by a new magnetic flow meter. This includes the installation of a Walchem Corporation model EW-B10-Y-1-VC-C chemical metering pump, an Ultra Mag model UM06 magnetic flow meter, 3/8-inch polyethylene tubing and miscellaneous fittings.

General Conditions attached are to be distributed to the permittee only.

PERMITTEE:	PROJECT: Tomoka View WTP Post-Chlorination System
Aqua Utilities Florida, Inc.	P.W.S.I.D. Number: 3641373
Attn.: Brian E. Heath, Area Manager	Permit Number: 0190368-003-WC / M1
P.O. Box 490310	Date of Issue: February 14, 21007
Leesburg, Fl.	Expiration Date: February 14, 2012
34749	

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit conditions" by the permittee, its agents, employees, servants, or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

    a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with, or will be unable to comply with, any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. A description of and cause of non-compliance; and.

b. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.12 and 62-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

    ( ) Determination of Best Available Control Technology
    ( ) Determination of Prevention of Significant Deterioration (PSD)
    ( ) Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
    ( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

    b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample measurement, report or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:
    - the date, exact place, and time of sampling or measurements;
    - the person responsible for performing the sampling or measurements;
    - the date(s) analyses were performed;
    - the person responsible for performing the analyses;
    - the analytical techniques or methods used; and
    - the results of such analyses.

15. When requested by the Department, the permittee shall, within a reasonable period of time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

PERMITTEE:	PROJECT: Tomoka View WTP Post-Chlorination System
Aqua Utilities Florida, Inc.	P.W.S.I.D. Number: 3641373
Attn.: Brian E. Heath, Area Manager	Permit Number: 0190368-003-WC / M1
P.O. Box 490310	Date of Issue: February 14, 21007
Leesburg, Fl.	Expiration Date: February 14, 2012
34749	

1. The permittee shall retain a Florida licensed professional engineer in accordance with subsection 62-555.530(3), F.A.C. to take responsible charge of inspecting construction of the project for the purpose of determining in general if the construction proceeds in compliance with the Department permit, including the approved preliminary design report or drawings and specifications, for the project.

2. To obtain final clearance of the post-chlorination system, the engineer of record shall submit a "Certification of Construction and Request for a Letter of Clearance to Place a Public Drinking Water facility into Service" (DEP Form 62-555.900 (9), a copy of this permit, as-built drawings (only necessary to submit the portion of record drawings that show deviations from the permitted construction drawings). No bacteriological sample results are required for the clearance of this permanent post-chlorination system.

ISSUED: February 14, 2007
VOLUSIA COUNTY HEALTH DEPARTMENT

Ronald E. Freeman

Ronald E. Freeman, P.E.
Professional Engineer Administrator
Volusia County Health Department

CC: James C. Boyd, P.E., Boyd Environmental Engineering, Inc.,
1349 International Parkway South, Suite 2401, Lake Mary, Fl. 32746

FLORIDA DEPARTMENT OF HEALTH

STATE OF FLORIDA
DEPARTMENT OF HEALTH

070094

PERMIT TO OPERATE

Drinking Water
PWS Community

Permit Number: 64-58-00109
State ID/PWS: 3641373

Capacity:	1
Issued:	9/27/2007
Expiration Date:	9/30/2008
Amount Paid:	300.00
Date Paid:	9/27/2007

Business: Tomoka View Estates
339 Apache Trl
Ormond Beach FL 32174

PETER D. THORNTON, R.S., M.P.H.
ENVIRONMENTAL HEALTH ADMINISTRATOR

Billed To: Aqua Utilities Florida, Inc.
P.O. Box 490310

Leesburg, FL 34749

THOMAS R. COLEMAN, MD, MS
DIRECTOR OF VOLUSIA COUNTY HEALTH DEPARTMENT

FLORIDA DEPARTMENT OF HEALTH

STATE OF FLORIDA
DEPARTMENT OF HEALTH

070095

PERMIT TO OPERATE

Drinking Water-
PWS Community

Permit Number: 64-58-00110
State ID/PWS 3641399

Capacity:	1
Issued:	9/27/2007
Expiration Date:	9/30/2008
Amount Paid:	300.00
Date Paid:	9/27/2007

Business: Twin Rivers Estates
8 Riverdale Av
Ormond Beach FL 32174

PETER D. THORNTON, R.S. M.P.H.
ENVIRONMENTAL HEALTH ADMINISTRATOR

Billed To: Aqua Utilities Florida, Inc.
P.O. Box 490310

Leesburg, FL 34749

THOMAS R. COLEMAN, MD, MS
DIRECTOR OF VOLUSIA COUNTY HEALTH DEPARTMENT

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WATER USE
GENERAL
PERMIT NO. 209336.01

EXPIRATION DATE: January 14, 2009 **PERMIT ISSUE DATE: January 14, 1999**

THE PERMITTEE IS RESPONSIBLE FOR APPLYING FOR A RENEWAL OF THIS PERMIT PRIOR TO THE EXPIRATION DATE WHETHER OR NOT THE PERMITTEE RECEIVES PRIOR NOTIFICATION BY MAIL. FAILURE TO DO SO AND CONTINUED USE OF WATER AFTER EXPIRATION DATE IS A VIOLATION OF DISTRICT RULES AND MAY RESULT IN A MONETARY PENALTY AND/OR LOSS OF WATER. APPLICATION FOR RENEWAL PRIOR TO THE EXPIRATION DATE IS SUBJECT TO DISTRICT EVALUATION AND APPROVAL.

This permit, issued under the provision of Chapter 373, Florida Statutes and Florida Administrative Code 40D-2, authorizes the Permittee to withdraw the quantities outlined herein, and may require various activities to be performed by the Permittee as outlined by the Special Conditions. This permit, subject to all terms and conditions, meets all District permitting criteria.

TRANSFERRED ON: October 6, 2004
TO: *Aqua Utilities Florida, Inc.*
6960 Professional Parkway East
Suite 400
Sarasota, FL 34240

PROJECT NAME: *Gibsonia*

GRANTED TO: Florida Water Services Corporation
Post Office Box 609520
Orlando, FL 32860-9520

TOTAL QUANTITIES AUTHORIZED UNDER THIS PERMIT (in gpd)

AVERAGE: 60,400 PEAK MONTHLY: 117,200

Use	Average	Peak Monthly
Public Supply:	60,400 gpd	117,200 gpd

See Withdrawal Table for quantities permitted for each withdrawal point.

PROPERTY LOCATION: Polk County, approximately 2 miles north of the City of Lakeland on State Road 700.

TYPE OF APPLICATION: Renewal

WATER USE CAUTION AREA: N/A

APPLICATION FILED: December 18, 1998

ACRES: 0.25 Owned
120.00 Serviced
120.25 Total

APPLICATION AMENDED: N/A

WATER USE: PUBLIC SUPPLY

SERVICE AREA NAME

Gibsonia

USE TYPE	POPULATION SERVED	PER CAPITA RATE
Residential Single Family Personal Sanitary Use		
Total Public Supply:	410	Gross = 130 gpd/person

I.D. NO. PERMITTEE/ DISTRICT	DIAM. (IN.)	DEPTH TTL./CSD.	USE	GALLONS PER DAY AVERAGE	GALLONS PER DAY PEAK MONTHLY
1 / 1	8	200 / UNK	PS	60,400	117,200

PS = Public Supply

DISTRICT I.D. NO.	SECTION/TOWNSHIP/RANGE	LOCATION LAT./LONG.
1	23/27/23	280650.31/815828.20

SPECIAL CONDITIONS:

All conditions referring to approval by the Regulation Department Director, Resource Regulation, shall refer to the Director, Bartow Regulation Department, Resource Regulation.

1. All reports required by the permit shall be submitted to the District on or before the tenth day of the month following data collection and shall be addressed to:

   Permit Data Section, Records and Data Department
   Southwest Florida Water Management District
   2379 Broad Street
   Brooksville, Florida 34609-6899

   Unless otherwise indicated, three copies of each plan or report, with the exception of pumpage, rainfall, evapotranspiration, water level or water quality data which require one copy, are required by the permit.

2. Any wells not in use, and in which pumping equipment is not installed shall be capped or valved in a water tight manner in accordance with Chapter 62-532.500(3)(a)(4), F.A.C.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WATER USE
GENERAL
PERMIT NO. 209336.01

EXPIRATION DATE: January 14, 2009 **PERMIT ISSUE DATE: January 14, 1999**

THE PERMITTEE IS RESPONSIBLE FOR APPLYING FOR A RENEWAL OF THIS PERMIT PRIOR TO THE EXPIRATION DATE WHETHER OR NOT THE PERMITTEE RECEIVES PRIOR NOTIFICATION BY MAIL. FAILURE TO DO SO AND CONTINUED USE OF WATER AFTER EXPIRATION DATE IS A VIOLATION OF DISTRICT RULES AND MAY RESULT IN A MONETARY PENALTY AND/OR LOSS OF WATER. APPLICATION FOR RENEWAL PRIOR TO THE EXPIRATION DATE IS SUBJECT TO DISTRICT EVALUATION AND APPROVAL.

This permit, issued under the provision of Chapter 373, Florida Statutes and Florida Administrative Code 40D-2, authorizes the Permittee to withdraw the quantities outlined herein, and may require various activities to be performed by the Permittee as outlined by the Special Conditions. This permit, subject to all terms and conditions, meets all District permitting criteria.

PROJECT NAME: Gibsonia

GRANTED TO: Florida Water Services Corporation
Post Office Box 609520
Orlando, FL 32860-9520

TOTAL QUANTITIES AUTHORIZED UNDER THIS PERMIT (in gpd)

AVERAGE: 60,400 PEAK MONTHLY: 117,200

Use	Average	Peak Monthly
Public Supply:	60,400 gpd	117,200 gpd

See Withdrawal Table for quantities permitted for each withdrawal point.

PROPERTY LOCATION: Polk County, approximately 2 miles north of the City of Lakeland on State Road 700.

TYPE OF APPLICATION: Renewal

WATER USE CAUTION AREA: N/A

APPLICATION FILED: December 18, 1998

ACRES: 0.25 Owned
120.00 Serviced
120.25 Total

APPLICATION AMENDED: N/A

WATER USE: PUBLIC SUPPLY

SERVICE AREA NAME

Gibsonia

USE TYPE	POPULATION SERVED	PER CAPITA RATE
Residential Single Family Personal Sanitary Use		
Total Public Supply:	410	Gross = 130 gpd/person

I.D. NO. PERMITTEE/ DISTRICT	DIAM. (IN.)	DEPTH TTL./CSD.	USE	GALLONS PER DAY AVERAGE	GALLONS PER DAY PEAK MONTHLY
1 / 1	8	200 / UNK	PS	60,400	117,200

PS = Public Supply

DISTRICT I.D. NO.	SECTION/TOWNSHIP/RANGE	LOCATION LAT./LONG.
1	23/27/23	280650.31/815828.20

SPECIAL CONDITIONS:

All conditions referring to approval by the Regulation Department Director, Resource Regulation, shall refer to the Director, Bartow Regulation Department, Resource Regulation.

1. All reports required by the permit shall be submitted to the District on or before the tenth day of the month following data collection and shall be addressed to:

   Permit Data Section, Records and Data Department
   Southwest Florida Water Management District
   2379 Broad Street
   Brooksville, Florida 34609-6899

   Unless otherwise indicated, three copies of each plan or report, with the exception of pumpage, rainfall, evapotranspiration, water level or water quality data which require one copy, are required by the permit.

2. Any wells not in use, and in which pumping equipment is not installed shall be capped or valved in a water tight manner in accordance with Chapter 62-532.500(3)(a)(4), F.A.C.

3. The Permittee shall continue to maintain and operate the existing non-resettable, totalizing flow meter, or other flow measuring device as approved by the Director, Records and Data Department, for District I.D. No. 1, Permittee I.D. No. 1. Such device shall have and maintain an accuracy within five percent of the actual flow as installed. The Permittee shall record and report meter readings from each metered withdrawal twice a year. The meter reading for pumpage from January through June shall be submitted on or before the 10th day of July; and the meter reading from July through December shall be submitted on or before the 10th day of January of the following year. If a metered withdrawal is not utilized during a given six-month period, the meter reading must be submitted to the District, and it should match the one submitted for the previous six months.

STANDARD CONDITIONS:

1. The Permittee shall comply with the Standard Conditions attached hereto, incorporated herein by reference as Exhibit "A" and made a part hereof.

Authorized Signature
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

40D-2
Exhibit "A"

WATER USE PERMIT CONDITIONS

STANDARD CONDITIONS

1. If any of the statements in the application and in the supporting data are found to be untrue and inaccurate, or if the Permittee fails to comply with all of the provisions of Chapter 373, F.S., Chapter 40D, or the conditions set forth herein, the Governing Board shall revoke this permit in accordance with Rule 40D-2.341, following notice and hearing.

2. This permit is issued based on information provided by the Permittee demonstrating that the use of water is reasonable and beneficial, consistent with the public interest, and will not interfere with any existing legal use of water. If, during the term of the permit, it is determined by the District that the use is not reasonable and beneficial, in the public interest, or does impact an existing legal use of water, the Governing Board shall modify this permit or shall revoke this permit following notice and hearing.

3. The Permittee shall not deviate from any of the terms or conditions of this permit without written approval by the District.

4. In the event the District declares that a Water Shortage exists pursuant to Chapter 40D-21, the District shall alter, modify, or declare inactive all or parts of this permit as necessary to address the water shortage.

5. The District shall collect water samples from any withdrawal point listed in the permit or shall require the Permittee to submit water samples when the District determines there is a potential for adverse impacts to water quality.

6. The Permittee shall provide access to an authorized District representative to enter the property at any reasonable time to inspect the facility and make environmental or hydrologic assessments. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.

7. Issuance of this permit does not exempt the Permittee from any other District permitting requirements.

8. The Permittee shall cease or reduce surface water withdrawal as directed by the District if water levels in lakes fall below applicable minimum water level established in Chapter 40D-8 or rates of flow in streams fall below the minimum levels established in Chapter 40D-8.

9. The Permittee shall cease or reduce withdrawal as directed by the District if water levels in aquifers fall below the minimum levels established by the Governing Board.

10. The Permittee shall practice water conservation to increase the efficiency of transport, application, and use, as well as to decrease waste and to minimize runoff from the property. At such time as the Governing Board adopts specific conservation requirements for the Permittee's water use classification, this permit shall be subject to those requirements upon notice and after a reasonable period for compliance.

11. The District may establish special regulations for Water Use Caution Areas. At such time as the Governing Board adopts such provisions, this permit shall be subject to them upon notice and after a reasonable period for compliance.

12. The Permittee shall mitigate, to the satisfaction of the District, any adverse impact to existing legal uses caused by withdrawals. When adverse impacts occur or are imminent, the District shall require the Permittee to mitigate the impacts. Adverse impacts include:

    a. A reduction in water levels which impairs the ability of a well to produce water;
    b. Significant reduction in levels or flows in water bodies such as lakes, impoundments, wetlands, springs, streams or other watercourses; or
    c. Significant inducement of natural or manmade contaminants into a water supply or into a usable portion of any aquifer or water body.

13. The Permittee shall mitigate to the satisfaction of the District any adverse impact to environmental features or offsite land uses as a result of withdrawals. When adverse impacts occur or are imminent, the District shall require the Permittee to mitigate the impacts. Adverse impacts include the following:

    a. Significant reduction in levels or flows in water bodies such as lakes, impoundments, wetlands, springs, streams, or other watercourses;
    b. Sinkholes or subsidence caused by reduction in water levels;
    c. Damage to crops and other vegetation causing financial harm to the owner; and
    d. Damage to the habitat of endangered or threatened species.

14. When necessary to analyze impacts to the water resource or existing users, the District shall require the Permittee to install flow metering or other measuring devices to record withdrawal quantities and submit the data to the District.

15. A District identification tag shall be prominently displayed at each withdrawal point by permanently affixing the tag to the withdrawal facility.

16. The Permittee shall notify the District within 30 days of the sale or conveyance of permitted water withdrawal facilities or the land on which the facilities are located.

17. All permits issued pursuant to these Rules are contingent upon continued ownership or legal control of all property on which pumps, wells, diversions or other water withdrawal facilities are located.

S S U ENVIRONMENTAL SERVICES - PERMITTING

TO: BILL GOUCHER
FRANK SANDERSON
DENNIS FULLER

FROM: CHRISTINE ARCAND

RE: PERMIT NOTIFICATION

DATE: August 9, 1995

PERMIT: 5395-0079-A2
PROJECT: Gibsonia Estates Auxiliary Power
ISSUED: July 18, 1995

SPECIFIC CONDITION(S): 1, 2, 3, 4, 7 - OPERATIONS

SPECIFIC CONDITION(S): 1, 4, 5, 6 - ENGINEERING

cc: Rafael Terrero
Ron Smith
Sandy Joiner/~~Catherine Walker~~

STATE OF FLORIDA DISTRICT FOURTEEN
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
POLK COUNTY PUBLIC HEALTH UNIT
RONALD L. SUMNER, ADMINISTRATOR

PUBLIC WATER SYSTEM CONSTRUCTION PERMIT

PERMITTEE:

Southern States Utilities
Rafael Terrero, Manager
1000 Color Place
Apopka, Florida 32703

PERMIT DATA:

Project Name:	Gibsonia Estates Auxiliary Power
Approval Number:	5395-0079-A2
Water System Name:	Gibsonia Estates
PWS I.D. Number:	6530079
Permit Number-PATS:	273939
Date of Issue:	7/18/95
Date of Expiration:	7/17/96
County:	Polk
Section:	24
Township, Range:	27S, 23E

Received
AUG 2 1995
Environmental Services

This permit is issued under the provisions of *Chapter 403, Florida Statutes and Florida Administrative Code Rules 62-4, 62-602, 62-550, 62-555 and 62-560.* The above named permittee is hereby authorized to perform the work on the facility shown on the application and approved drawings, plans, and other documents, attached hereto or on file with the Department and made a part here of and described as follows: The project consist of installing a new standby power generator with automatic transfer switch and replacing well pump for well #2

General conditions are as required under *Chapter 62-4.160* of the *Florida Administrative Code.*

DRG/EJJ/tms

xc: William Goucher–Southern States Utilities, Inc.]
File Copy - Gibsonia Estates

92CW010

SPECIFIC CONDITIONS:

1. Construction of this project must be completed within one (1) year from the date of this approval. Re-approval of expired permits will be considered by this Department upon written request prior to the expiration date accompanied by the current application fee. The engineer of record in this application is responsible for supervision of the construction of this project and upon completion shall inspect for complete conformity to the plans and specifications as approved. A report of such inspection in writing and signed by the engineer shall be rendered to the HRS Polk County Public Health Unit. Major deviations from the original plan will require a complete resubmittal of the project to this Department.

2. This approval is given with the understanding that upon the installation of such works, its operations shall be placed under the care of a competent person, whose qualifications are approved by the Department and the operation shall be carried out according to best accepted practice and in accordance with the requirements of the rules and regulations of the Department. This includes not only the provision of continuing essential funds for operation and maintenance of chemical supplies for plant operation; but also the funds for maintenance of this water treatment facility and distribution system.

3. Water supply facilities including mains shall be installed, cleaned, disinfected, and bacteriologically cleared for service, in accordance with the latest applicable AWWA Standards and Department rules and regulations.

4. Copy of the pressure test conducted on the water system to be cleared or statement of the engineer that the test was done and met the AWWA requirements.

5. An as-built review fee of $50.00 made payable to Polk County Public Health Unit must be included with this package before a clearance can be issued.

6. Where water and sewer mains cross with less than 18" vertical clearance, the sewer will be 20' of either cast iron pipe or concrete encased vitrified clay pipe, centered on the point of crossing. When a watermain parallels a sewer main, a separation of at least 10' should be maintained where practical.

7. Satisfactory bacteriological main clearance samples must be submitted for two (2) consecutive days from the distribution side of the hydropneumatic tank.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to *Section 120.68, Florida Statutes*, by the filing of a Notice of Appeal pursuant to *Rule 9.110, Florida Rules* of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This approval pertains only to the water utilities serving this development and is not to be construed as approval of any other utility aspects. All concerned are reminded that sewerage facilities must be cleared separately through the appropriate Department of Environmental Regulation District/Subdistrict office.

By copy of this letter to the owner we are advising that approval is given to functional aspects of this project on the basis of representations to and data furnished this department.

The engineer's certification as to construction of this project in accordance with approved plans together with satisfactory bacteriological analyses for two (2) consecutive days from the locations listed on the permit, shall be provided and a letter of clearance obtained from this Agency before placing these facilities in service. Enclosed please find our form for certification of project construction to be completed and returned upon project completion.

There may be county, municipal or other local regulations or restrictions to be complied with by the owner prior to construction of the facilities presented by the plans referred to above, and we, therefore, recommend that appropriate local agencies be consulted before starting construction.

Sincerely,

Eugene J. Jeffers, P.E.
Assistant Engineering Director

EJJ/tms

xc: William Goucher–Southern States Utilities, Inc.
File Copy – Gibsonia Estates

PALM BEACH COUNTY

Lake Osborne

Docket No. 080121-WS

Application to Increase Rates and Charges
For a "Class A" Utility
In

Florida

Volume 5
Book 2
Set 9 of 16

Containing:
Monthly Operating Reports
NOTE: THE ORIGINAL FILING DID NOT INCLUDE THE SIGNED MONTHLY OPERATING REPORTS

Aqua Utilities Florida, Inc.

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: January 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: January 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	2.5		17	2.0	
2	2.5		18		
3	3.0		19	2.5	
4	2.8		20	2.5	
5	2.6		21		
6	2.5		22	2.5	
7	2.6		23	2.5	
8	2.4		24	2.2	
9	3.0	Collected 2 Compliance Bac-T samples	25	2.8	
10	2.8		26	2.3	
11	2.5		27	2.5	
12	2.6		28		
13	2.6		29	2.5	
14			30		
15	2.0		31	3.0	
16	2.3				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 2/10/06	Phil Donovan	Water Plant Operator #3207
Signature and Date	Printed or Typed Name	License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: February 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490			Total Population Served at End of Month: 1225
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley			Contact Person's Title: Office Manager
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532			Contact Person's Fax Number: 561-649-0836
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: February 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	3.0		17	2.8	
2	2.8		18		
3	2.8		19	2.8	
4	2.5		20	3.0	
5			21	2.8	
6	2.5		22	2.5	
7			23		
8	2.6		24	2.3	
9	2.5		25	2.3	
10	2.6		26	2.0	
11			27	2.3	
12	2.6		28	2.3	
13	2.8	Collected 2 Compliance Bac-T samples	29		
14	2.6		30		
15	2.5		31		
16	2.8				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 3/10/06

Signature and Date

Phil Donovan

Printed or Typed Name

Water Plant Operator #3207

License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: March 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: March 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1			17	2.4	
2	2.3		18	2.4	
3	2.5		19	2.4	
4	2.5		20		
5	2.0		21	2.0	
6	2.5		22	2.0	
7	2.5		23		
8	2.5		24		
9	2.4		25	2.0	
10	2.4		26	1.8	
11	2.4		27	2.3	
12	2.2		28	2.6	Collected 2 Compliance Bac-T samples
13			29	2.4	
14	2.5		30	2.4	
15			31	2.8	
16	2.5				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 4/10/06
Signature and Date

Phil Donovan
Printed or Typed Name

Water Plant Operator #3207
License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: April 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: April 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	2.4		17	2.4	Collected 2 Compliance Bac-T samples
2	2.0		18	2.4	
3	2.4		19	2.2	
4	2.4		20	2.2	
5	2.4		21	2.0	
6	2.0		22		
7	2.4		23	2.0	
8			24	2.2	
9	2.0		25	2.4	
10			26	1.8	
11	2.0		27		
12	2.2		28	2.0	
13	2.4		29	2.0	
14	2.3		30	1.4	
15	2.4		31		
16	2.0				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 5/10/06
Signature and Date

Phil Donovan
Printed or Typed Name

Water Plant Operator #3207
License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: May 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: May 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	2.0		17	1.4	
2	2.2		18	2.0	
3	2.6		19	1.6	
4	2.6		20		
5	2.4		21	1.5	
6	2.0		22	2.0	Collected 2 Compliance Bac-T samples
7	1.5		23	1.0	
8	1.6		24	1.0	
9	1.2		25	1.0	
10	1.0		26		
11	1.0		27	0.8	
12	1.2		28	0.8	
13			29	0.8	
14	1.2		30	1.0	
15	1.4		31	0.6	Flushed Hydrants
16	1.6				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Signature and Date	Printed or Typed Name	License Number or Title
Phil Donovan 5/13/06	Phil Donovan	Water Plant Operator #3207

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: June 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: June 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.1		17	2.6	
2	1.0		18	0.8	
3			19	1.6	Flushed Hydrants
4	1.0		20	2.0	
5	0.8		21	1.8	
6	2.0	Flushed Hydrants	22	2.0	
7	1.4		23	1.8	
8	1.0		24		
9	1.0		25	1.5	
10	1.0		26	2.0	
11	1.2		27	2.2	
12	1.0		28	1.8	
13	1.0		29	1.2	
14	1.0		30	1.0	
15	0.8	Collected 2 Compliance Bac-T samples	31		
16	1.0				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 7/10/06	Phil Donovan	Water Plant Operator #3207
Signature and Date	Printed or Typed Name	License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: July 2006			
Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: July 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1			17	2.4	
2			18	2.0	
3	2.4		19		
4	2.4		20	2.0	
5	2.0		21	2.0	
6			22	2.0	
7	2.0		23	2.2	Flushed Hydrants
8	2.4		24	1.6	
9	2.5		25	3.0	
10	2.2	Collected 2 Compliance Bac-T samples	26	2.2	
11	2.0		27	1.6	
12	3.0		28	2.0	
13	2.4		29		
14	2.5		30	2.5	Flushed Hydrants
15			31	2.0	
16					

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 5/10/06
Signature and Date

Phil Donovan
Printed or Typed Name

Water Plant Operator #3207
License Number or Title

Owner Copy

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: August 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: August 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions: Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions: Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.8		17	1.4	
2	1.6		18	1.8	
3	1.8		19		
4	1.8		20	2.0	
5	1.8		21	1.8	
6	1.5		22		
7			23	1.6	Collected Compliance Bac-T samples
8	1.2		24	1.8	Collected Compliance Bac-T samples
9	1.5		25	2.0	
10			26	1.6	
11	1.6		27	1.0	
12	1.6		28	1.4	
13	1.6		29		
14	1.6		30	1.0	
15	1.6		31	1.0	
16	0.8				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 8/8/06	Phil Donovan	Water Plant Operator #3207
Signature and Date	Printed or Typed Name	License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: August 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490			Total Population Served at End of Month: 1225
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley			Contact Person's Title: Office Manager
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532			Contact Person's Fax Number: 561-649-0836
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: August 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions: Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions: Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.8		17	1.4	
2	1.6		18	1.8	
3	1.8		19		
4	1.8		20	2.0	
5	1.8		21	1.8	
6	1.5		22		
7			23	1.6	Collected Compliance Bac-T samples
8	1.2		24	1.8	Collected Compliance Bac-T samples
9	1.5		25	2.0	
10			26	1.6	
11	1.6		27	1.0	
12	1.6		28	1.4	
13	1.6		29		
14	1.6		30	1.0	
15	1.6		31	1.0	
16	0.8				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Signature and Date	Printed or Typed Name	License Number or Title
Phil Donovan 9/5/06	Phil Donovan	Water Plant Operator #3207

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: September 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)		PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community		
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225	
Consecutive System Owner: AquaSourse Utilities Inc.		
Contact Person: Nina Whatley	Contact Person's Title: Office Manager	
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836	
Contact Person's E-Mail Address: taphob2@aol.com		

II. Daily Data for the Month/Year of: September 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions, Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.0		17		
2			18	1.4	
3			19	1.0	
4	0.4	Flushed hydrants	20	1.2	
5	0.6		21	1.2	
6	006		22	1.0	
7	0.8		23		Collected Compliance Bac-T samples
8			24	1.0	
9			25	1.0	
10	0.8		26		
11	0.8	Collected 2 Compliance Bac-T samples	27	0.8	
12	0.6		28	0.8	
13	1.0		29	1.2	
14	1.1		30	0.8	
15			31		
16	0.8				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Signature and Date	Phil Donovan Printed or Typed Name	Water Plant Operator #3207 License Number or Title

owner

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: October 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: October 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.0		17	1.0	
2	1.0		18	0.6	Collected Compliance Bac-T samples
3	1.0		19	0.8	
4	0.8		20	1.0	
5			21		
6	0.8		22	0.8	
7			23	1.0	
8	0.8		24	0.8	
9	1.0		25	0.6	
10	0.8		26	0.8	
11	1.0		27		
12	0.8		28		
13	0.8		29	0.8	
14			30	0.8	
15	0.8		31	0.8	
16	0.8				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Signature and Date	Phil Donovan Printed or Typed Name	Water Plant Operator #3207 License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

See page 2 for instructions.

I. General Information for the Month/Year of: November 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: November 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	1.0		17	2.0	
2	1.2		18	2.0	
3			19	2.0	
4	2.8	Collected Boil Water Order Back-T samples	20	2.4	
5	3.0	Collected Boil Water Order Back-T samples	21	1.8	
6	1.6		22	3.0	
7	2.4		23		
8	1.0		24	2.6	
9	1.0		25	2.8	
10	1.4		26	2.5	
11			27	2.5	
12	1.2		28	2.5	
13	1.4		29		
14			30	2.5	
15	2.6	Collected Compliance Order Back-T samples	31		
16	2.2				

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 12-10-06
Signature and Date

Phil Donovan
Printed or Typed Name

Water Plant Operator #3207
License Number or Title

MONTHLY OPERATION REPORT FOR CONSECUTIVE SYSTEMS THAT DO NOT TREAT WATER

Owner

See page 2 for instructions.

I. General Information for the Month/Year of: December 2006

Consecutive System Name: AquaSourse Utilities (Lake Osborne Estates)			PWS Identification Number: 450-0768
Consecutive System Type: X Community ☐ Non-Transient Non-Community ☐ Transient Non-Community			
Number of Service Connections at End of Month: 490	Total Population Served at End of Month: 1225		
Consecutive System Owner: AquaSourse Utilities Inc.			
Contact Person: Nina Whatley	Contact Person's Title: Office Manager		
Contact Person's Mailing Address: PO Box 3885	City: Boynton Beach	State: FL	Zip Code: 33424
Contact Person's Telephone Number: 1-800-250-7532	Contact Person's Fax Number: 561-649-0836		
Contact Person's E-Mail Address: taphoh2@aol.com			

II. Daily Data for the Month/Year of: December 2006

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine X Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation	Day of the Month	Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
1	2.4		17	2.5	
2			18	3.0	
3	2.5		19	2.8	
4	3.0		20	2.2	
5	2.8		21	2.4	
6	2.8		22	2.4	
7	2.4	Collected Compliance Order Back-T samples	23	2.4	
8	2.6		24	2.0	
9			25	2.6	
10	2.0		26		
11	2.6		27	2.6	
12	3.3		28		
13	2.6		29	2.0	
14	2.4		30	2.4	
15	2.6		31	2.0	
16					

III. Certification by Authorized Representative

I am duly authorized to sign this report on behalf of the consecutive system identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief.

Phil Donovan 1-10-07	Phil Donovan	Water Plant Operator #3207
Signature and Date	Printed or Typed Name	License Number or Title