OPERATIONS AND MAINTENANCE

PERFORMANCE

REPORT

FOR

Hontoon Island State Park

Wastewater Treatment Plant

Volusia County, Florida

ID: FLA011276
Permit No.: FLA011276 Expires:2/28/2015
Date of Field Visit: 2/18/2015

Prepared For:

FDEP Division of Recreation and Parks
1800 Wekiwa Circle
Apopka, FL 32712

February 16, 2015

Prepared By:

McDonald Group International, Inc.
9030 S. Brittany Path
Inverness, Florida 34452
c.a.-7580

OPERATIONS AND MAINTENANCE PERFORMANCE REPORT FOR Hontoon Island State Park WASTEWATER TREATMENT PLANT

Volusia County, Florida

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 and the lead operator and agrees that if the recommended schedules for corrective action are met, the facilities, when properly operated and maintained, will comply with all applicable statutes of the State of Florida and rules of the Department

Date: _____

George J. McDonald, P.E.,
FL PROFESSIONAL ENGINEER NO. 44740
McDonald Group International, Inc. CA-0007580
9030 S. Brittany Path, Inverness Florida 34452, (352)-637-1652

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

Date: _____

Larry Fooks, Dist 3 Bureau Chief
FDEP Division of Recreation and Parks
1800 Wekiwa Circle
Apopka, FL 32712
407-884-2006

OPERATIONS AND MAINTENANCE PERFORMANCE REPORT FOR Hontoon Island State Park WASTEWATER TREATMENT PLANT

Volusia County, Florida

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

Date: _____

Biometric Utility
1525 Langley Ave
Deland, FL 32724
386-860-3148

OPERATIONS AND MAINTENANCE PERFORMANCE REPORT
Hontoon Island State Park WWTP

Operations and Performance Report For
Hontoon Island State Park WWTP

1.0. General

In accordance with Florida Department of Environmental Protection (FDEP) Rule 62-600.732, Owners of wastewater plants requesting a renewal of their wastewater permit allowing operation must have an evaluation made of the plant operations and performance history. This evaluation must be made by a professional engineer registered in the State of Florida and presented in the form of an Operations and Maintenance Performance Report (OMPR).

At the request of the Florida Parks, a site visit was made to the Hontoon Island State Park Wastewater Treatment plant by George J. McDonald, P.E., of McDonald Group International Inc. in conjunction with preparing the evaluation.

Information contained in this report is based on information collected during that site visit as well as information furnished by the owner and operator.

The facility is located on 2309 River Ridge Rd, Deland, Volusia County, Florida. A location map and USGS quad map are provided in Figures 1.1 and 1.2 respectively.

1.1 Authorization

The FDEP Division of Recreation and Parks has retained George J. McDonald, P.E. to study the performance history at the Hontoon Island State Park Wastewater Treatment Plant in order to provide the necessary operations and maintenance performance report in support of the wastewater plant permit application.

1.2 Related Reports and Information

Additional information concerning the capacity of the wastewater plant, process analysis, treatment performance, unit process capacity, monthly operating reports and other data is contained in the companion report, "Capacity Analysis Report For Hontoon Island State Park WWTP".

Also refer to FDEP Forms 1 and 2A which accompany this application.

1.3 Facility Information

This Wastewater Treatment Plant is presently permitted for the flow capacity and discharge limitation standards in the following table:

Hontoon Island State Park
Wastewater Treatment Plant

1. Maximum flow capacity - 0.005 MGD
2. BOD maximum concentrations -
   20 mg/L annual average
   30 mg/L monthly average
   45 mg/L weekly average
   60 mg/L any one sample

2a. TSS max 10 mg/L

3. pH range - 6.00 to 8.50
4. Fecal Coliform -
   200 #/100 annual average
   800 #/100 maximum allowable
5. Minimum Cl_2 conc. - 0.5 mg/L
6. Nitrate 12 mg/L max

The Hontoon Island State Park Wastewater Treatment Plant has been permitted for operation since the 1970s.

Process

It is an activated sludge waste treatment facility operating in the extended aeration mode. The treatment process comprises the following: flow equalization, aeration, final settling; sludge digestion, and disinfection. Treated effluent is discharged to a drainfield. A process plan follows the USGS map in the following pages.

Modifications

Within the last 5 years, the effluent disposal drainfield was replaced with a new dual zone drainfield

Notices of violation

According to the Owner and the Operator, no recent notices of violation have been received or consent orders have been recently entered into.

1.6 Information Sources

This report is prepared based on information supplied by the permittee, information that may be found in FDEP public databases, the current permit, and information supplied by the operator. The report relies on the accuracy of this information for all analysis and opinions.

Figure 1.1 Location Map

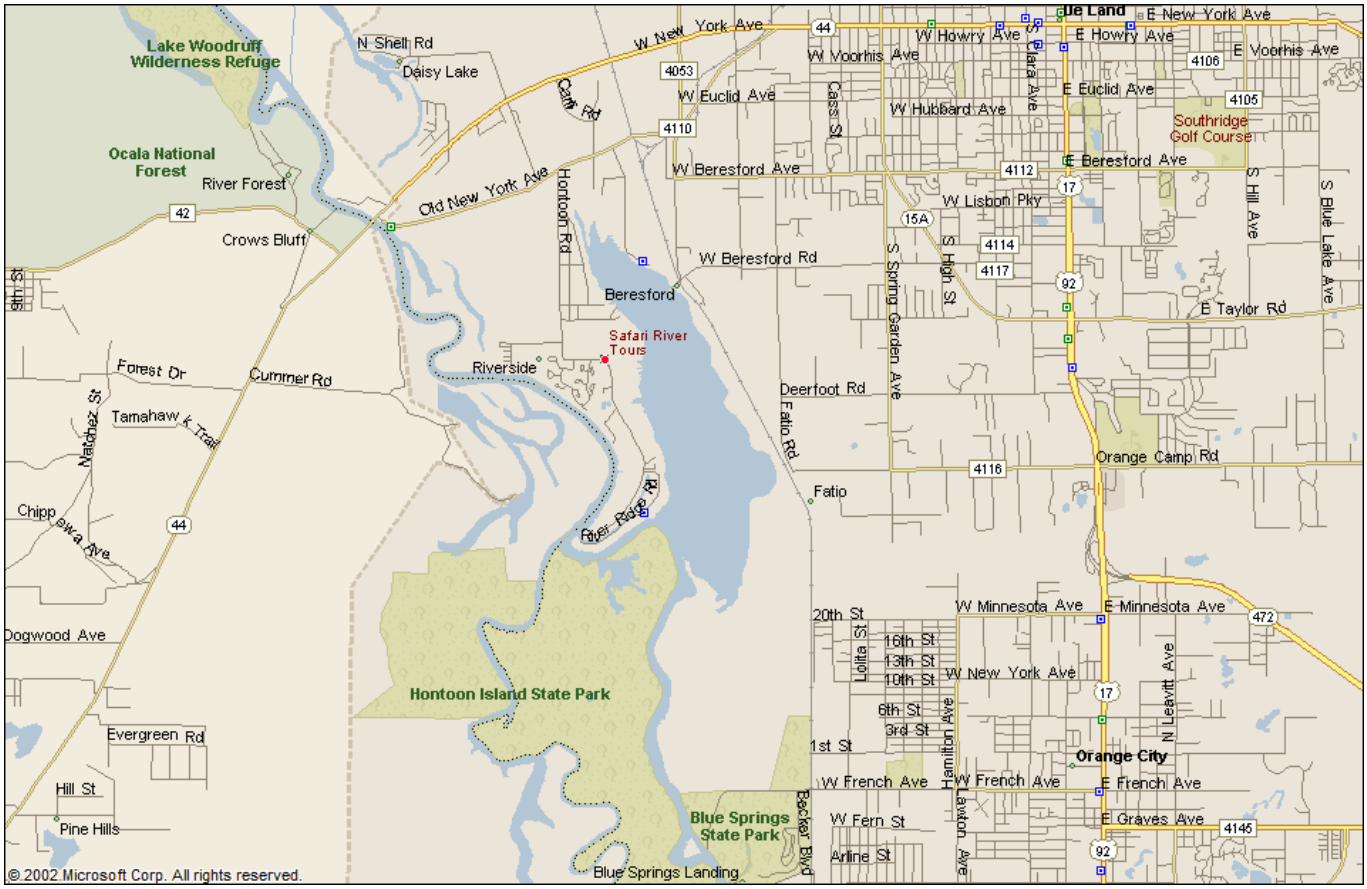


Figure 1.2 USGS Map

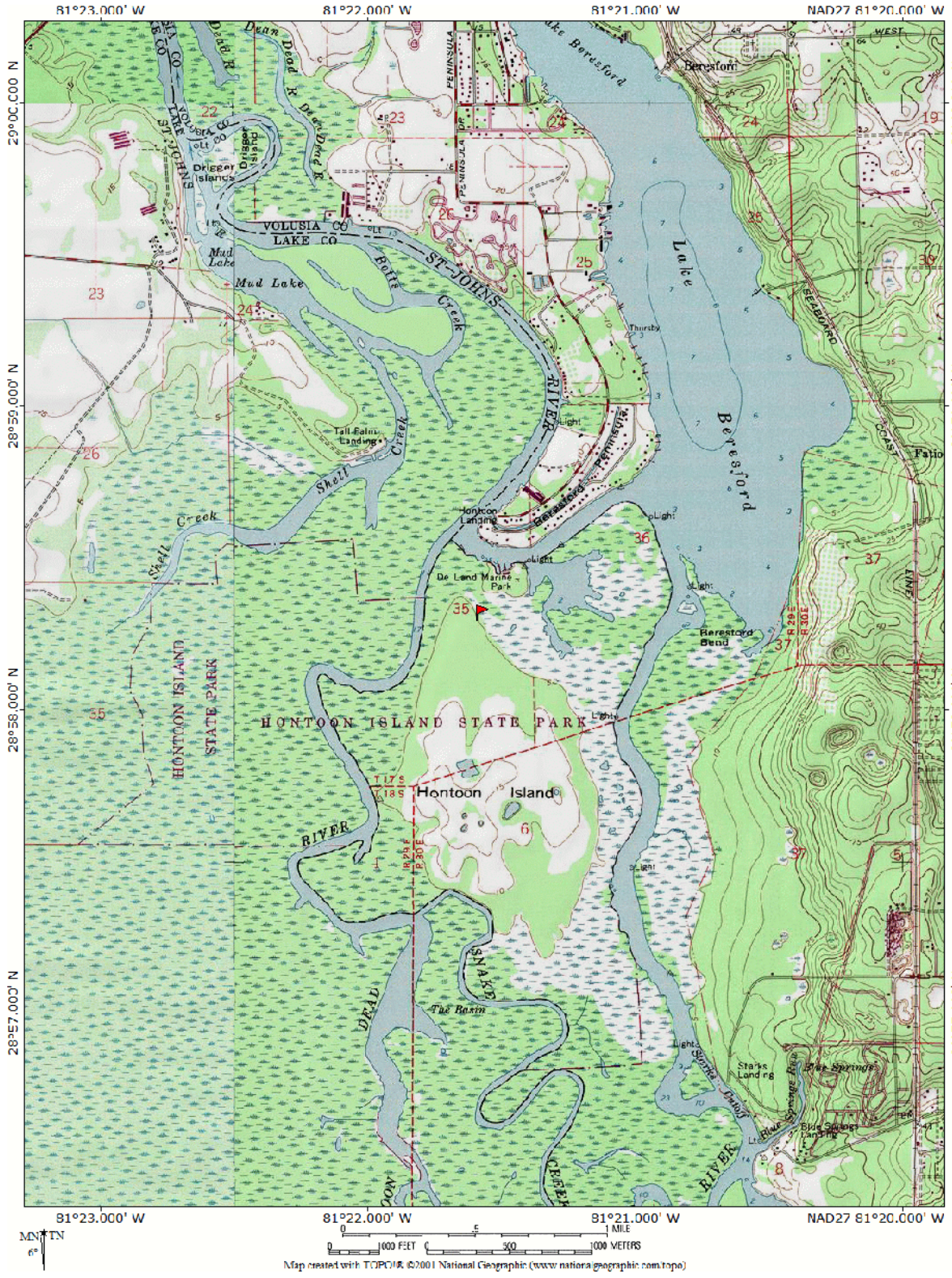
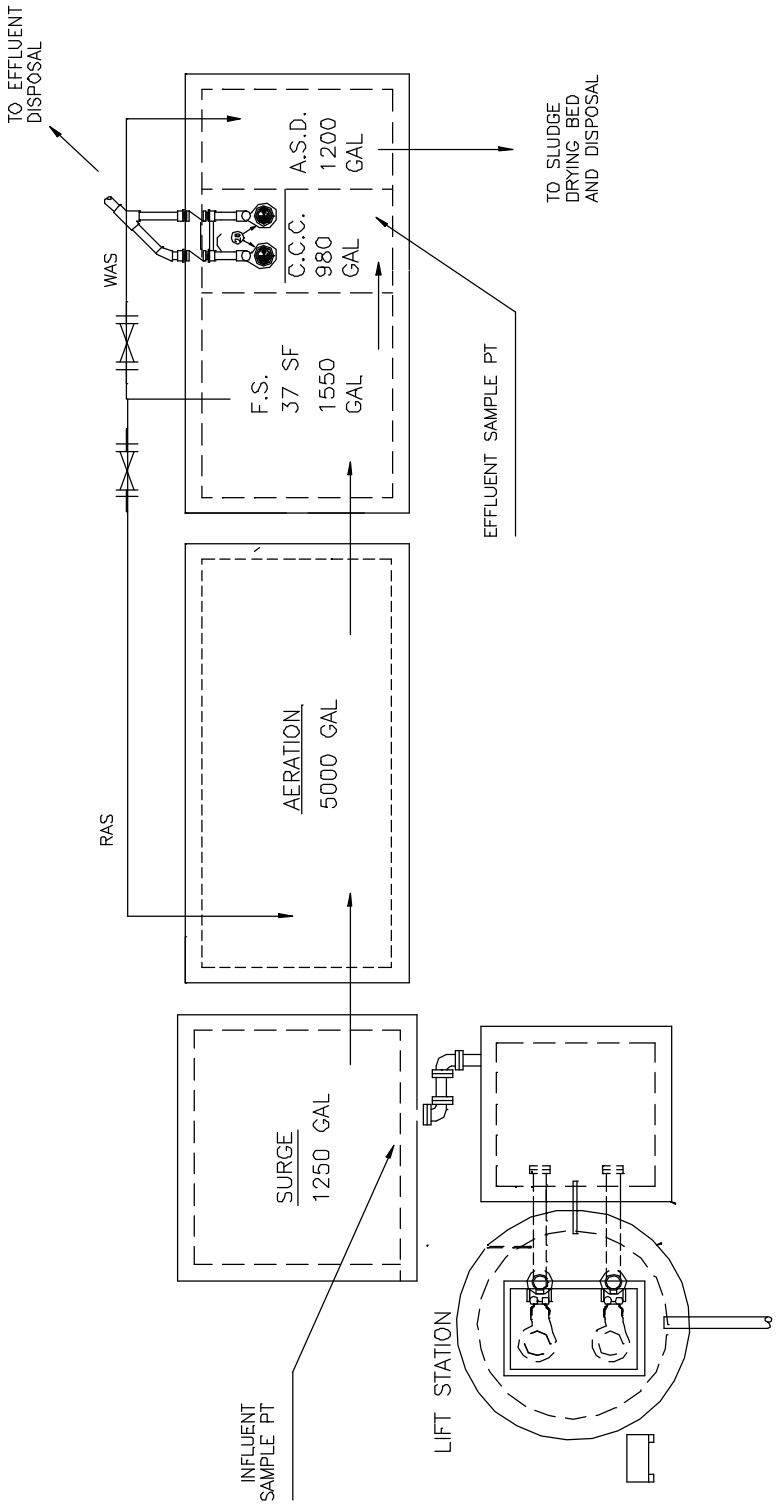


Figure 1.3 Process Plan



2.0 Physical Condition

The following information has concerning the physical condition of the treatment plant has been developed from our own checklist developed specifically to evaluate treatment plants of this size and type.

General Information

This facility was visited by George McDonald, P.E. of McDonald Group International, Inc, on 2/18/2015.

The Hontoon Island State Park wastewater treatment plant is of the following type of construction: modular precast concrete. The manufacturer of the components is the Marolf company.

The facility operator is Biometric Utility Consultants, a contract operations services provider.

Access Control to the facility is controlled as follows: the treatment plant is enclosed with a chain link fence.

Water to the plant for washdown and utility purposes is obtained from the piped potable supply.

An RPZ backflow preventer was observed installed on the washdown line; a maintenance/test certificate was found on site indicating it was last tested March 3, 2014.

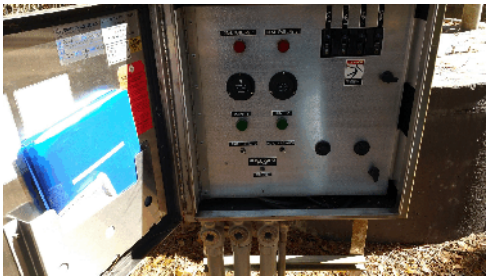
A portable propane gas powered generator was found on site to operate equipment during a power failure. According to the park manager it is periodically exercised to maintain readiness.

Owing to the facility being on an island there are no services available to pump out the plant; aside from removing solids from the digester and drying them in the on site drying bed, the plant aeration tankage probably has not been pumped out. That said, the plant dates from the late 1990s, the limited service area , low flow and with a surge tank, observation of the aerated mixed liquid in aeration dos not indicate an issue with excessive solids deposition in the aeration tankage.

Flow Measurement

Flows to this treatment plant are measured by elapsed time meters on the effluent pumps. Date of the last pump calibration based on records found on site was 3/3/2014, and was performed by the operator.

Influent Pumping



Influent arrives to this plant by pumping from a lift station. The lift station has two pumps installed. Pumps are controlled by level floats.

The control panel was a stainless steel enclosure in good condition.

The status and condition of the pumps in the lift station are as follows:

Pump #1 operating at time of visit
Pump #2 operating at time of visit

Flow Equalization

This facility is equipped with a flow equalization system, comprising a flow equalization compartment, surge pumps and a flow splitter box.

The following describes the features observed on the flow equalization system:

Surge Tank Aeration aeration is provided to the surge tank
Surge Tank Pumps surge pumps were operational
Surge Tank Splitter Box splitter box was in good serviceable condition

Pretreatment

This facility has limited pretreatment equipment; a coarse bar rack is incorporated into the flow splitter box. Rack appears to be effective at capturing solids and was due to be cleaned next operator visit.

Aeration System

Aeration is supplied to this facility using diffused aeration. It is equipped with three blowers.

The following was noted with respect to the equipment observed:

Blower Mfr./Model three Sutorbilt (1) model 2LL, (1) model 2LF, (1) type unknown, appears to be either 2LL or 2LF

Motor Mfr. Leeson

Horsepower 3

Intake Filters in place

Other Comments (2) blowers were working normally, one was shut off due to a reported issue with periodically tripping the circuit breaker.

The control panel was observed and is a fibreglass panel in good condition.

Piping from the blowers was observed and found to be a steel main air header, with PVC laterals . The diffusers were observed and all were observed operating.

Activated Sludge Process

The following was noted with respect to the condition of the tankage and biological process. The process mode is extended aeration. The mixed liquor was medium brown, adequately rolled and mixed in appearance.

Final Settling

MLSS from aeration flows to a single final settling tank, which is gravity operated system with a single sludge collection hopper. Effluent from the final settling tank appeared clear. The sludge blanket was deep, not visible during the site visit.

The skimmer was observed to be operational during this visit.

The sludge collector is an air eductor and found to be working normally.

Inlet and outlet baffles appeared to be working properly.

Disinfection

The disinfection system consists of chlorination and contact in a detention tank. Observations concerning this system are as follows:

Number of Chlorine Contact Tanks single tank

General Condition CCC overall, fair and service

able condition

Method of Disinfection hypochlorination
Equipment Mfr. Heyward Tablet chlorinator
Equipment Evaluation: disinfection system seems to work properly

Sludge Digestion & Disposal

This treatment plant has a holding compartment for waste sludge. Comments are as follows:

Sludge Digester Aeration sludge digester tank is aerated
Solids in Digester From digester, sludge flows to a small drying bed
Supernatant gravity overflow from digester to surge tank

Dried sludge is transported over to Blue Spring State Park and placed in the sludge digester there at the wastewater plant at that park.

The sludge drying beds were no longer draining properly, and the media was due to be renovated. Park is reported to be authorizing the operator to have this work done.

Effluent Disposal and Reuse

From the treatment plant, effluent is pumped to a new drainfield. (The original drainfield still exists, next to the plant, but is not in use). Both effluent pumps appeared to be operational during the site visit.

Drainfield is a mounded system, with dry, grassed side slopes and tops, no sign of seepage observed. Drainfields are not required to be fenced and there was no fence around this one.

3.0 Treatment Efficiency

Treatment efficiency is considered from two points of view, first the loading on each unit process and second in terms of final effluent quality.

3.1 Treatment Units

The Hontoon Island State Park wastewater treatment plant is an activated sludge wastewater treatment plant operating in the extended aeration mode. Table 3.1 lists each unit process along with the associated loading rate with pertinent dimensional or volumetric data, as well as process control data. (Volumetric, areas and dimensional data is estimated from information in the record drawings).

Table 3.1 Unit Process Summary

			Current Flow	*Design Flow*
Influent Characteristics:				
	BOD	mg/L	209	225
	TSS	mg/L	235	300
	TKN	mg/L	45	45
	AADF	MGD	0.002	0.005
Effluent Targets				
	BOD	mg/L	<20	<20
	TSS	mg/L	<10	<10
	Nitrate	mg/L	<12	<12
	Disinfection		basic	basic
Process Design:				
	Process Mode		ExtAer	ExtAer
	Temp		20	20
	MLSS mg/L		3651	3661
	SRT days		80	24
	Yield Coefficient		0.55	0.68
	anoxic		0	0
	aeration		0.005	0.005
	Total Volume MGAL		0.005	0.005
	V/Q, hrs.		60.0	24.0
	BOD Loading, #/1000 cf		5.2	14.0
	Solids, Oxic, Lbs		152	153
	Solids, Anoxic, Lbs		0	0

		Current Flow	*Design Flow*
	MLSS Recirculation, %	0	0
	RAS Recycle, %	100	100
	RAS mg/L (stabiliz MLSS)	7303	7323
	WAS, lb/day	2	6
	WAS, gpd	31	104
	Tank Configuration	series	series
Aeration System:			
	Process O2, lb/day	12	27
	Diffuser Efficiency, %	6	6
	Air Rqd., SCFM	8	18
	lb O2/#BOD	3.3	2.9
	Air supply, CF/# BOD	3191	2821
	Type Aeration	Diffused	Diffused
	Air Rqd. RAS:	10	11
	Air Rqd. Process:	8	18
	Air Rqd.Digester	5	5
	Volume Surge	1250	1250
	Air Rqd.Surge	5	5
	Total Air Rqd.:	27	39
	HP Required	1.1	1.6
	HP Provided:	(3) 3 Hp	(3) 3 Hp
Final Settling:			
	No. of Clarifiers	1	1
	Surface Area, EA., sf	37	37
	Side Depth	3.8	3.8
	Total Depth to Hopper Bottom	8.9	8.9
	Volume	1796	1796
	V/Q, hrs.	21.5	8.6
	Design Peak Factor	2.5	2.5
	Hydraulic Overflow:		
	Avg., gpd/sf	54	135
	Peak, gpd/sf	135	338
	Solids Loading Rate:		
	Avg., lb/d-sf	3	8
	Peak, lb/d-sf	6	14
Disinfection:			
	Method	hypochlor	hypochlor
	No. of CCCs	1	1
	Volume EA, gallons	980	980
	Total CCC volume	980	980
	Cl2 Residual, mg/L	0.5	0.5
	Cl2 Dose, mg/L	8	8
	Consumption, lb/day	0.13	0.33
	Hydraulic Detention:		

	Current Flow	*Design Flow*
@ ADF, minutes	706	282
@ PHF, minutes	282	113
Residual * Detention	141	56
Disinfection Level	Basic	Basic

Aerobic Sludge Digestion:

WAS Flow, gpd	31	104
Total Solids,#/day	1.90	6
WAS, mg/L	7303	7323
% Volatile	75	75
WASv, mg/L	5477	5492
Total VSS,#/d	1	5
VSS, #/Digester cf/day	0.01	0.03
Thick Solids,%	1	1
Digester Vol, gal	1200	1200
Initial Est.SRT, days	75	14
Temp, Degrees C	33	14
VSS Destroyed, %	66.30	20.05
Avg. Solids, mg/L	7000	7000
Supernatant Solids,mg/L	300	300
WAS Fraction Not Destroyed	0.50	0.85
WAS Fraction in Digester	0.37	0.62
Supernatant, gpd	20	39
TSS in Digester, #	70	70
Total SS Removed, #/d	1	6
Supernatant TSS,#/d	0.0	0.1
Sludge Discharge,#/d	1	5
Sludge Rem/year, DTR	0.2	1.0
Sludge Discharge,gpd	11	65
Digester SRT, days	69.6	12.7
Sludge Stabiliz. Class	B	<B
Digester HRT, days	38.4	11.5
O2 Rqd, VSS, #/d	2	2
Air, SCFM	2	2
Diffuser Effic.,%	5	5
Air Rqd. Mixing, SCFM	5	5
Design SCFM	5	5

Land Application System

drainfield	3435	3435
Land Application Area, ac	0.0789	0.0789
Type System	drainfield	drainfield
# SubCells	2	2
Load Rate, gpd/sf	0.58	1.46
Load Rate, in/wk	6.54	16.35

3.3 Overall Treatment Efficiency

The treated wastewater leaving the plant must meet limitations contained in the treatment plant's permit. Table 3.3 shows the current plant performance for the period reviewed versus the permitted requirements for effluent quality.

Table 3.3
Hontoon Island State Park
Wastewater Treatment Plant
Effluent Quality Analysis

Summary 12-11 to 12-14

Parameter	Result	Unit	Permit Limit
Max Annual Average Daily Flow	0.002	MGD	0.005
Max Month ADF	0.002	MGD	report
Max 3 Mos Flow	0.002	MGD	report
Max An Avg BOD	5.7	mg/L	20
Max Effluent TSS	10.0	mg/L	10
Max Month Effluent BOD	12.5	mg/L	30
Max Nitrate	9.9	mg/L	12
Max Coliform:	2	#/100	800
Max An Avg Coliform	8	#/100	200
Min Cl2:	0.5	mg/L	0.5
Min pH	7		6
Max pH	7.8		8.5

4.0 Performance Trends

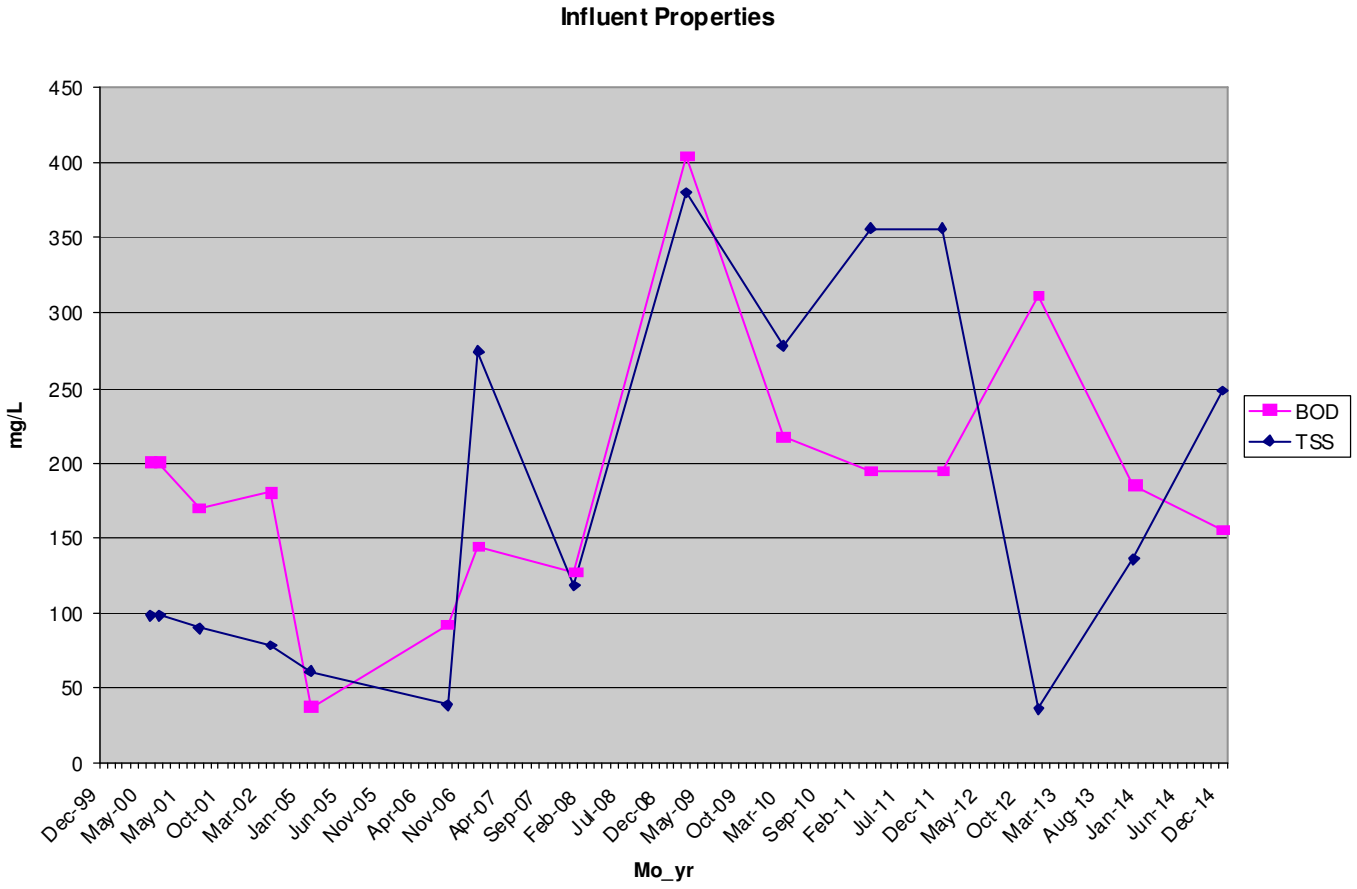
4.1 Influent

The major parameters used to evaluate influent strength are influent BOD and TSS. Based on available test data from the last 5 years, the influent strength is estimated to be as follows:

Table 4.1
Influent Strength

Parameter	Characterization
$CBOD_5$	209 mg/L
TSS	235 mg/L

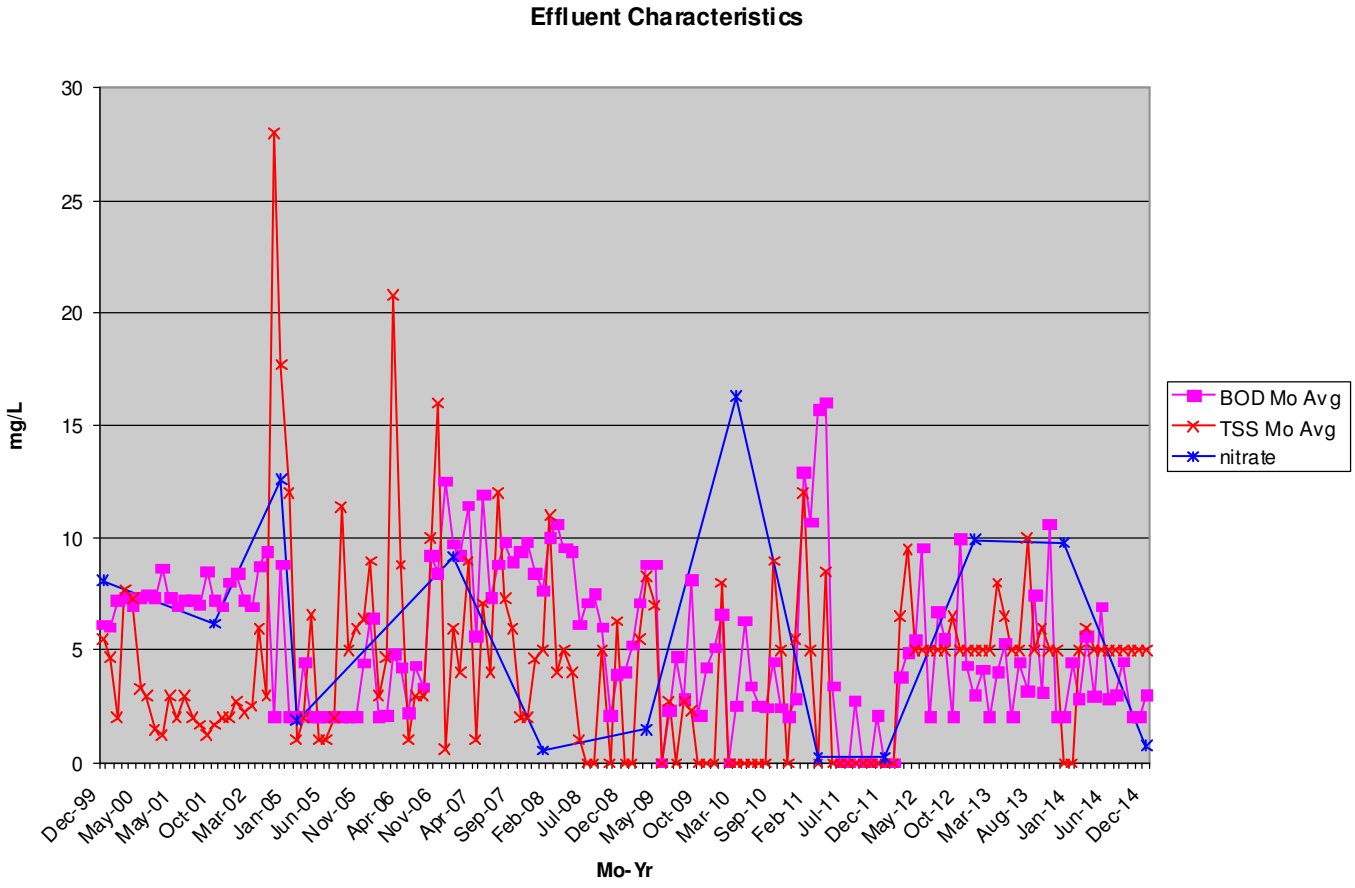
See also table 4.2 and the chart below. This is considered a normal domestic wastewater. No change is foreseen in the overall strength of the wastewater.



4.2 Effluent Quality

Data from Discharge Monitoring Reports (DMRs) were studied to review plant flow characteristics. See table 3.3 from the preceding section which summarizes the data taken from the DMRs for the current period.

Generally, the treatment plant effluent has been consistent with permitted discharge standards. The chart below illustrates the historical effluent BOD, TSS and nitrate performance:



4.3 Flow : Three Month Average Daily and Monthly Average

The chart below illustrates the annual average and rolling three month average flow for the period reviewed.

The plant permitted capacity is 0.005 MGD, based on an annual average daily flow basis. The annual average daily flow for this facility is 0.002 MGD. This facility appears therefore to be operating at 40 % capacity. See also the accompanying Capacity Analysis Report for further analysis.

Peak hour flows were estimated from giving consideration to the availability of a surge tank and the potential attenuation. Based on this, the peak hour factor is estimated to not exceed 2.5 times the average daily flow.

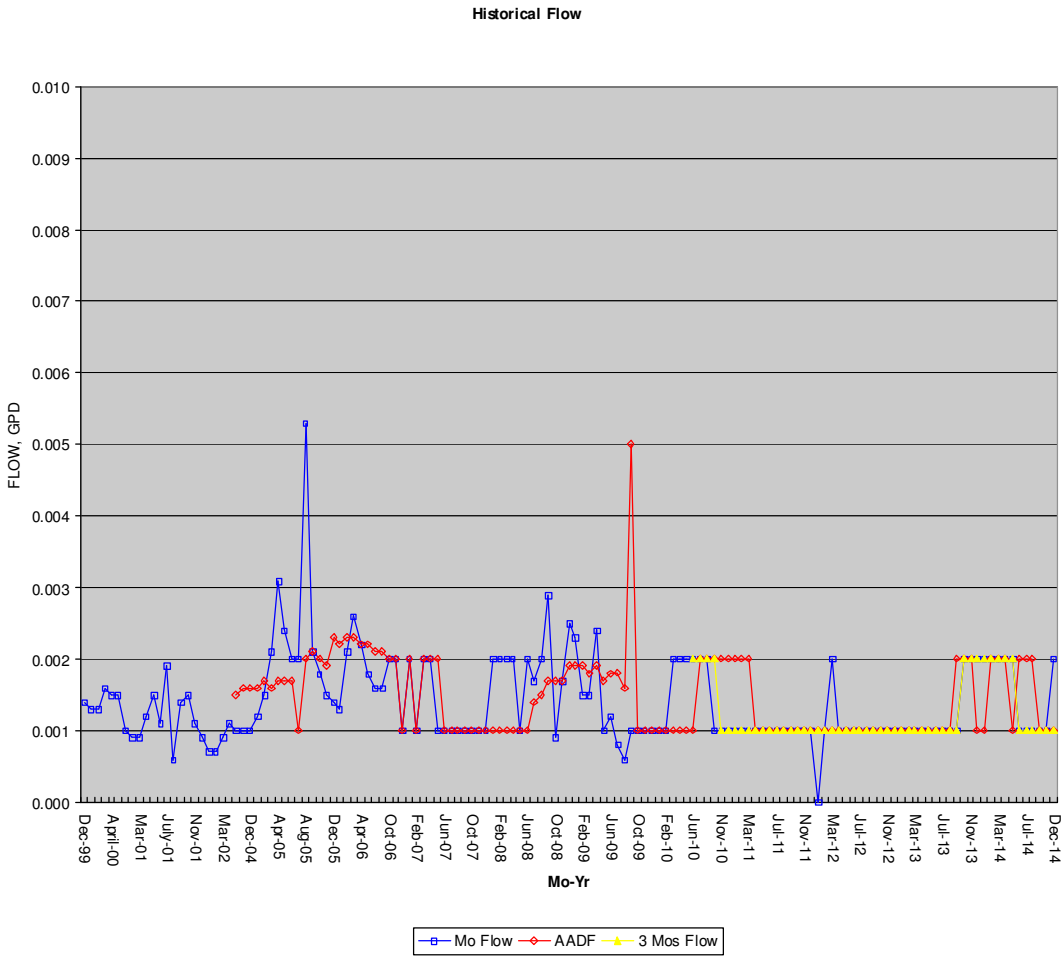


Figure 4.3 Flow Chart

4.4 Groundwater Quality

This facility is not required to have monitor wells; therefore, no monitor well data is available for comment.

Table 4.4 Historical Flow and Performance Characteristics:

Date	AADF	Mo Flow	Flow 3 Mos Avg	BOD An Avg	BOD Mo Avg	TSS Max	pH Min	pH Max	Fecal An Avg	FC Max	TRC	Nitrate	BOD In	TSS In
Dec-99		0.0014			6.1	5.5	7	8		1	0.5	8.1		
Jan-00		0.0013			6	4.7	7	8		2	1			
Feb-00		0.0013			7.2	2	7	8		1	0.5			
Mar-00		0.0016			7.3	7.7	7	7.4		1	0.5			
April-00		0.0015			6.9	7.3	7	7.4		1	0.5			
May-00		0.0015			7.3	3.3	7	7.4		1	0.5			
Jan-01		0.001			7.4	3	7	7.2		1	0.5		200	98
Feb-01		0.0009			7.3	1.5	7	7.4		1	0.5		200	98
Mar-01		0.0009			8.6	1.2	7	7.2		1	0.5			
April-01		0.0012			7.3	3	7	7.2		1	0.5			
May-01		0.0015			6.9	2	7	7.6		1	0.5			
June-01		0.0011			7.2	3	7	7.6		1	0.5			
July-01		0.0019			7.2	2	7	7.2		1	0.5		170	90
Aug-01		0.0006			7	1.7	7	7.8		1	0.5			
Sept-01		0.0014			8.5	1.2	7	8		1	0.5			
Oct-01		0.0015			7.2	1.7	7	7.6		1	0.5	6.2		
Nov-01		0.0011			6.9	2	7	7.4		1	0.5			
Dec-01		0.0009			8	2	7	7.4		1	0.5			
Jan-02		0.0007			8.4	2.7	7	7.8		1	0.5			
Feb-02		0.0007			7.2	2.2	7	7.6		1	0.5			
Mar-02		0.0009			6.9	2.5	7	7.6		1	0.5			
April-02		0.0011			8.7	6	7	7.2		1	0.5		180	78
Sep-04	0.0015	0.001		8	9.4	3	7	8		1	0.5			
Nov-04	0.0016	0.001		6.3	2	28	7.2	8.2		1	2.2			
Dec-04	0.0016	0.001		6.6	8.8	17.7	7.2	8.3		1	1	12.6		
Jan-05	0.0016	0.0012		6.4	2	12	7.2	8.3		1	1			
Feb-05	0.0017	0.0015		6.7	2	1	7	8.1		1	0.9	1.9	36.9	61
Mar-05	0.0016	0.0021		6.8	4.4	2	7.3	7.9		33	0.6			
Apr-05	0.0017	0.0031		6.7	2	6.6	7.8	8.1		2	0.5			
May-05	0.0017	0.0024		6.6	2	1	6	8.1		1	0.7			

Date	AADF	Mo Flow	Flow 3 Mos Avg	BOD An Avg	BOD Mo Avg	TSS Max	pH Min	pH Max	Fecal An Avg	FC Max	TRC	Nitrate	BOD In	TSS In
Jun-05	0.0017	0.002		6.3	2	1	4.1	8.5		2	0.5			
Jul-05	0.001	0.002		6.2	2	2	7.3	9		1	0.3			
Aug-05	0.002	0.0053		6	2	11.4	7.5	8.6		1	0.8			
Sep-05	0.0021	0.0021		5.8	2	5	7.4	8.2		1	0.7			
Oct-05	0.002	0.0018		6.2	2	6	7.5	8.3		1	0.3			
Nov-05	0.0019	0.0015		6.1	4.38	6.4	6.7	8.1		1	0.7			
Dec-05	0.0023	0.0014		6.3	6.4	9	7	8		1	0.8			
Jan-06	0.0022	0.0013		6	2	3	6	7.6		1	0.6			
Feb-06	0.0023	0.0021		6.1	2.1	4.7	6.9	7.7		1	0.6			
Mar-06	0.0023	0.0026		4	4.8	20.8	6.9	7.8		1	0.7			
Apr-06	0.0022	0.0022		6.4	4.2	8.8	7	7.8		1	1			
May-06	0.0022	0.0018		6.5	2.2	1	6.9	8.1		1	0.5			
Jun-06	0.0021	0.0016		6.7	4.3	3	6.5	8.3		2	0.5			
Jul-06	0.0021	0.0016		6.5	3.32	3	6	7.4		1	0.5		91.5	38.5
Oct-06	0.002	0.002		9.2	9.2	10	7.6	8.5		1	0.5			
Nov-06	0.002	0.002		8.8	8.4	16	6.4	7.8		1	0.8			
Dec-06	0.001	0.001		10	12.5	0.6	6.9	8		1	0.6			
Jan-07	0.002	0.002		10	9.7	6	6.9	7.6		1	0.7	9.17	144	274
Feb-07	0.001	0.001		9.8	9.2	4	6.9	7.8		1	0.6			
Mar-07	0.002	0.002		10.1	11.4	9	7	8		4	0.5			
Apr-07	0.002	0.002		9.4	5.6	1	7.2	7.8		1	0.5			
May-07	0.002	0.001		9.7	11.9	7.1	7	7.5		1	1			
Jun-07	0.001	0.001		9.5	7.3	4	7	7.4		1	0.5			
Jul-07	0.001	0.001		9.4	8.8	12	7	7.4		1	0.5			
Aug-07	0.001	0.001		9.4	9.8	7.3	7	7		1	0.5			
Sep-07	0.001	0.001		9.4	8.9	6	7.3	8.4		1	0.5			
Oct-07	0.001	0.001		9.4	9.4	2	6.9	7.4		1	0.5			
Nov-07	0.001	0.001		9.5	9.8	2	7	7.4	<1	<1	0.5			
Dec-07	0.001	0.001		9.2	8.4	4.6	<1.0	<1.0	<1	<1	0.5			
Jan-08	0.001	0.002		9	7.6	5	6.7	7.5	<1	<1	0.6	0.54	126.7	118
Feb-08	0.001	0.002		9.1	10	11	6.9	7.5	<1	<1	0.5			
Mar-08	0.001	0.002		9	10.6	4	6.9	7.3	<1	<1	0.5			
Apr-08	0.001	0.002		9.3	9.5	5	7.4	7.8	<1	<1	0.5			

Date	AADF	Mo Flow	Flow 3 Mos Avg	BOD An Avg	BOD Mo Avg	TSS Max	pH Min	pH Max	Fecal An Avg	FC Max	TRC	Nitrate	BOD In	TSS In
May-08	0.001	0.001		9.1	9.4	4	6.9	7.8	<1	<1	0.5			
Jun-08	0.001	0.002		9	6.1	1	6.8	1	<1	<1	0.5			
Jul-08	0.0014	0.0017		9.1	7.1	<1	7.2	7.8	<1	<1	1			
Aug-08	0.0015	0.002		8.87	7.5	<1	7.2	7.8	<1	<1	0.5			
Sep-08	0.0017	0.0029		8.58	6	5	7.5	7.8	<1	1	0.5			
Oct-08	0.0017	0.0009		7.85	2.1	<1	7.4	7.6	<1	<1	1			
Nov-08	0.0017	0.0017		7.26	3.9	6.3	7.6	7.7	<1	<1	0.6			
Dec-08	0.0019	0.0025		6.82	4	<1	7.4	7.6	<1	<1	0.8			
Jan-09	0.0019	0.0023		6.58	5.2	<1	7.4	7.8	<1	<1	2.4			
Feb-09	0.0019	0.0015		6.29	7.1	5.5	7.4	7.8	<1	<1	2			
Mar-09	0.0018	0.0015		6.11	8.8	8.3	7.4	7.7	0.2	1	0.8	1.5	404	380
Apr-09	0.0019	0.0024		6.71	8.8	7	7.2	7.7	<1	<1	0.5			
May-09	0.0017	0.001		5.8	>9.05	<1	6.9	7.6	<1	<1	1			
Jun-09	0.0018	0.0012		6	2.3	2.7	<1	<1	<1	<1	1			
Jul-09	0.0018	0.0008		5.8	4.7	<1	6.8	7.3	<1	<1	0.7			
Aug-09	0.0016	0.0006		5.4	2.8	2.7	<1	<1	<1	<1	1			
Sep-09	0.005	0.001		5.6	8.1	2.3	7.4	7.7	< 1	< 1	0.6			
Oct-09	0.001	0.001		5.6	2.1	< 1	7	7.6	< 1	< 1	1			
Nov-09	0.001	0.001		5.6	4.2	< 1	7.2	7.5	5	60	0.7			
Dec-09	0.001	0.001		5.7	5.1	< 1	7	7.4	5.1	< 1	0.8			
Jan-10	0.001	0.001		5.8	6.6	8	6.9	7.4	5	< 1	0.9			
Feb-10	0.001	0.001		5.3	< 1	< 1	7	7.6	5	< 1	0.9			
Mar-10	0.001	0.002		4.7	2.5	< 1	6.7	7.2	5	< 1	0.6	16.3	217	278
Apr-10	0.001	0.002		4.5	6.3	< 1	6.9	7.1	5	< 1	1			
May-10	0.001	0.002		4	3.4	< 1	6.9	7.2	< 1	< 1	1			
Jun-10	0.001	0.002	0.002	4	2.5	< 1	6.8	7.6	5	< 1	1			
Aug-10	0.002	0.002	0.002	3.6	2.4	< 1	7.4	7.6	5	< 1	1.4			
Sep-10	0.002	0.002	0.002	3.3	4.5	9	7.5	7.6	5	< 1	1.9			
Oct-10	0.002	0.001	0.002	3.3	2.4	5	7.5	7.6	5	< 1	2			
Nov-10	0.002	0.001	0.001	3.1	2	< 1	7.5	7.6	< 1	< 1	1.8			
Dec-10	0.002	0.001	0.001	3	2.8	5.5	7.5	7.7	< 1	< 1	2			
Jan-11	0.002	0.001	0.001	3.5	12.9	12	7.4	7.7	< 1	< 1	2			
Feb-11	0.002	0.001	0.001	4.4	10.7	5	7.4	7.6	< 1	< 1	2			

Date	AADF	Mo Flow	Flow 3 Mos Avg	BOD An Avg	BOD Mo Avg	TSS Max	pH Min	pH Max	Fecal An Avg	FC Max	TRC	Nitrate	BOD In	TSS In
Mar-11	0.002	0.001	0.001	5.6	15.7	< 5	7.2	7.6	< 1	< 1	1.5	0.23	194	356
Apr-11	0.001	0.001	0.001	6.4	16	8.5	7.3	7.7	< 1	< 1	1.9			
May-11	0.001	0.001	0.001	6.3	3.4	< 5	7.4	7.7	< 1	0	2.8			
Jun-11	0.001	0.001	0.001	6.2	< 2	< 5	7.2	7.7	< 1	< 1	1.9			
Jul-11	0.001	0.001	0.001	6.2	< 2	< 5	7.2	7.7	< 1	< 1	1.8			
Aug-11	0.001	0.001	0.001	6.3	2.7	< 5	7.3	7.7	< 1	< 1	1.5			
Sep-11	0.001	0.001	0.001	5.9	< 2	< 5	7.4	7.7	< 2	< 2	2			
Oct-11	0.001	0.001	0.001	5.9	< 2	< 5	7.4	7.7	< 2	< 2	2.1			
Nov-11	0.001	0.001	0.001	5.9	2.1	< 5	7.5	7.7	< 1	2	1.5			
Dec-11	0.001	0.001	0.001	5.7	< 2	< 5	7.5	7.7	< 1	< 1	1.8	0.23	194	356
Jan-12	0.001	.001	0.001	4.9	5.0	5.5	7.5	7.7	1	1	1.2			
Feb-12	0.001	0.001	0.001	4.5	3.8	6.5	7.5	7.7	1	1	1.8			
Mar-12	0.001	0.002	0.001	3.6	4.9	9.5	7.5	7.7	1	1	1.8			
Apr-12	0.001	0.001	0.001	2.7	5.4	5	7.5	7.7	1	2	1.6			
May-12	0.001	0.001	0.001	3.2	9.5	5	7.5	7.7	1	1	1.2			
Jun-12	0.001	0.001	0.001	3.2	2	5	7.5	7.7	1	2	1.2			
Jul-12	0.001	0.001	0.001	3.8	6.7	5	7.5	7.7	1	1	1.4			
Aug-12	0.001	0.001	0.001	4.1	5.5	5	7.5	7.8	1	1	1.1			
Sep-12	0.001	0.001	0.001	3.9	2	6.5	7.5	7.7	1	1	1.3			
Oct-12	0.001	0.001	0.001	4.7	9.9	5	7.5	7.7	1	1	2			
Nov-12	0.001	0.001	0.001	4.8	4.3	5	7.5	7.7	1	1	1.8			
Dec-12	0.001	0.001	0.001	5	3	5	7.5	7.7	1	1	0.5	9.9	311	36
Jan-13	0.001	0.001	0.001	4.9	4.1	5	7.5	7.7	1	1	0.8			
Feb-13	0.001	0.001	0.001	4.7	2	5	7.5	7.7	1	1	1			
Mar-13	0.001	0.001	0.001	4.6	4	8	7.5	7.7	8	1	0.7			
Apr-13	0.001	0.001	0.001	4.6	5.3	6.5	7.5	7.7	1	1	0.8			
May-13	0.001	0.001	0.001	3.9	2	5	7	7.7	1	1	0.5			
Jun-13	0.001	0.001	0.001	4.2	4.4	5	7.3	7.7	1	1	0.5			
Jul-13	0.001	0.001	0.001	3.9	3.2	10	7.5	7.7	1	1	0.5			
Aug-13	0.001	0.001	0.001	4.1	7.4	5	7.4	7.7	1	1	0.5			
Sep-13	0.002	0.001	0.001	4.2	3.1	6	7.5	7.7	1	1	0.7			
Oct-13	0.002	0.002	0.002	4.3	10.6	5	7.4	7.7	1	1	0.7			
Nov-13	0.002	0.002	0.002	4	2	5	7.4	7.8	1	1	0.5			

Date	AADF	Mo Flow	Flow 3 Mos Avg	BOD An Avg	BOD Mo Avg	TSS Max	pH Min	pH Max	Fecal An Avg	FC Max	TRC	Nitrate	BOD In	TSS In
Dec-13	0.001	0.002	0.002	3.8	2	0	7.5	7.7	1	1	0.6	9.8	185	136
Jan-14	0.001	0.002	0.002	3.9	4.4	0	7.5	7.7	1	1	0.5			
Feb-14	0.002	0.002	0.002	4	2.8	5	7.4	7.7	1	1	0.5			
Mar-14	0.002	0.002	0.002	4.2	5.6	6	7.4	7.7	1	1	0.5			
Apr-14	0.002	0.002	0.002	4	2.9	5	7.4	7.6	1	1	0.5			
May-14	0.001	0.002	0.002	4.3	6.9	5	7.4	7.7	1	1	0.5			
Jun-14	0.002	0.001	0.001	4.3	2.8	5	7.5	7.7	1	1	0.6			
Jul-14	0.002	0.001	0.001	4.3	3	5	7.4	7.7	1	1	0.5			
Aug-14	0.002	0.001	0.001	3.9	4.5	5	7.4	7.7	1	1	0.6			
Oct-14	0.001	0.001	0.001	3	2	5	7.4	7.6	1	1	0.6			
Nov-14	0.001	0.001	0.001	2.9	2	5	7.4	7.6	1	1	0.5			
Dec-14	0.001	0.002	0.001	3.2	3	5	7.4	7.6	1	1	0.6	0.76	155	248

5.0 Evaluation of Operation and Maintenance Program

5.1 Record Drawings

A copy of the record drawings of the WWTF and also of the more recent drainfield replacement was available for review from the Bureau of Design and Construction.

5.2 Operation and Maintenance Manual

A copy of an operations and maintenance manual was not found on site, however, a replacement copy has been provided.

5.3 Log Book

It was observed that the operator has a log book and appears to record appropriate information about O&M activities in the book.

5.4 General

Discharge Monitoring Reports

Copies of DMRs were not available on site, they were reportedly available at park District offices. DMR data used in this report was obtained from FDEP files.

Staffing

A contract facility operator, Biometric Utility Consultants, of Deland, is retained by the permittee to meet permit staffing requirements.

Permit

A copy of the current permit was available for review.

6.0 Collection System Evaluation

A reconnaissance of the collection system was performed.

The existing collection system serves domestic wastewater connections. There are no industrial wastewater dischargers.

Odors or other indicators of septicity were not noted.

An examination of inflow to a lift station as well as plant flow for the size population did not indicate that unusual level of infiltration was occurring.

7.0 **IDENTIFICATION OF PROBLEMS**

7.1 Capacity Related Problems

Please refer the accompanying Capacity Analysis Report. This facility does not appear to be suffering operational problems due to limiting capacity.

7.2 Equipment Related Problems

As noted in section 2 of this report, all equipment associated with the treatment plant was functional with the exception of the following:

- One blower had an issue with a circuit breaker popping and had been switched off (The other two blowers readily handle the air requirements of the plant).

- The sludge drying bed media was clogged and no longer draining adequately

7.3 O&M Program Related Problems

As noted in various sections of this report, the treatment performance history of the plant suggests that overall the O&M program has been successful in meeting treatment standards.

7.4 Recommendations

The following recommendations are concluded based on this Capacity Analysis / Operations & Maintenance evaluation:

Within 90 days, repair as needed the blower that is out of service

Owner reports the operator has been contracted to clean and restore the sand sludge drying bed.

APPENDIX

FLOW CALIBRATION

Plant Name: Hontoon Island State Park Date: 3/2014

Lift Station Location: Chlorine Contact Chamber

Wet Well Capacity for Rectangular:

(IN FT) Length 2.9 X Width 1.5 X 7.48 = 34.416 gal/ft

GAL / FT ÷ 12 = 2.618 GAL / IN

Wet Well Capacity for Cylindrical Tanks:

3.14 x Radius _____ X Radius _____ X 7.48 = _____

GAL / FT ÷ 12 = _____ GAL / IN

PUMP #1

START	STOP	# In Pumped	Fill Rate / Min	G.P.M	
65.5	90.5	24.5		64.1	Average G.P.H
75.25	98.25	23		60.2	3809

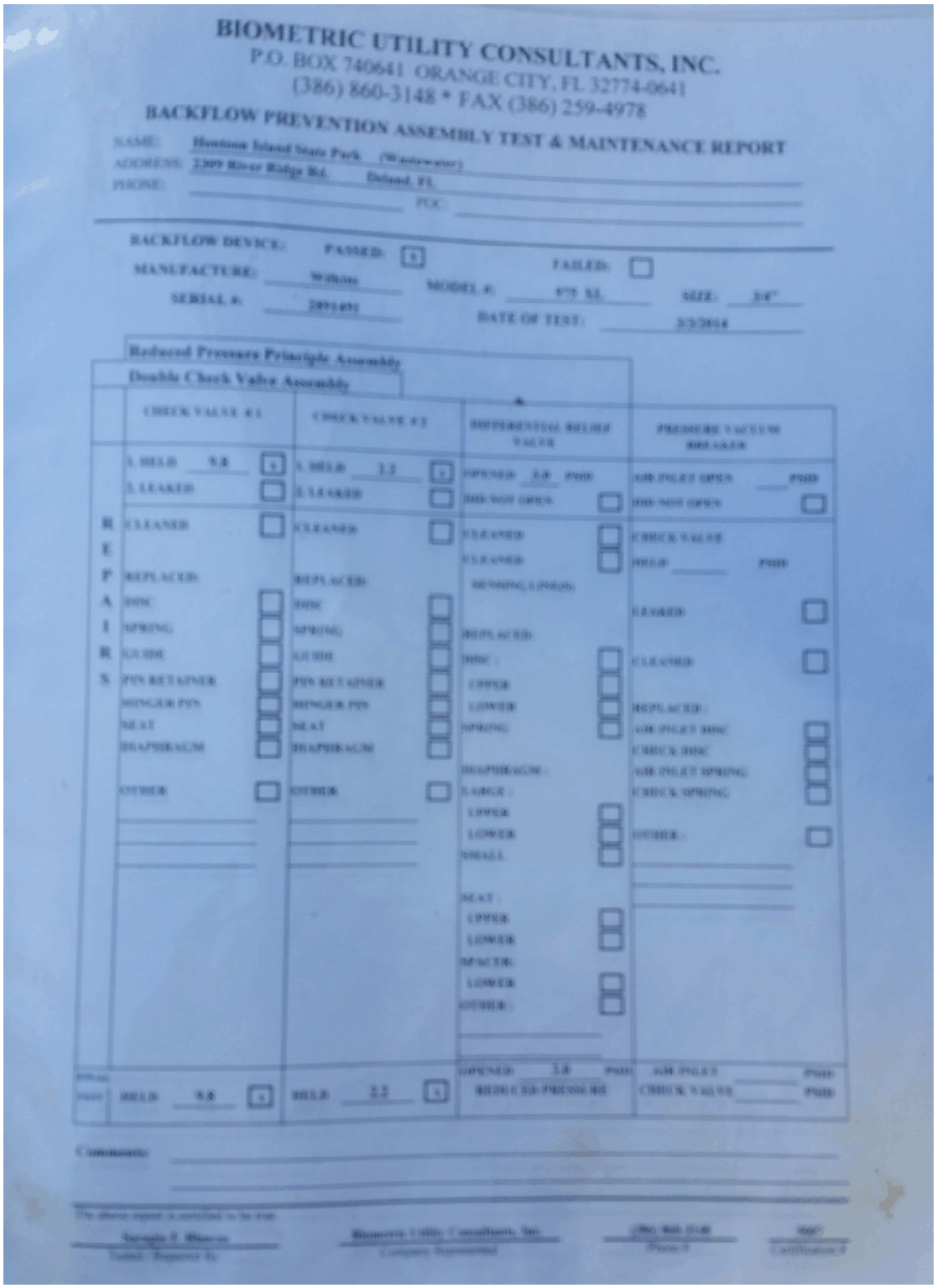
In Pumped + Fill Rate/Min x _____ Gal In x 60 = _____ G.P.H

PUMP #2

START	STOP	# In Pumped	Fill Rate / Min	G.P.M	
70.75	85.75	15		39.3	Average G.P.H
80.5	96.5	16		41.9	3122

In Pumped + Fill Rate/Min x _____ Gal In x 60 = _____ G.P.H

Measure distance to water & record (start). Pump down for a time interval & record (stop). Subtract & record difference (# inches pumped). Use same procedure to measure fill rate. Add fill rate to # inches pumped, then multiply by gal / inch and 60 and record (G.P.H). At least 3 draw-down are required. A greater draw down will give more accurate calculation. Ideally all incoming flow should be eliminated, so fill rate will not be needed; pumps should be alternated to equalize head pressure changes.



BIOMETRIC UTILITY CONSULTANTS, INC.
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(386) 860-3148 * FAX (386) 259-4978

BACKFLOW PREVENTION ASSEMBLY TEST & MAINTENANCE REPORT

NAME: Hontoon Island State Park (Maintenance)
ADDRESS: 2309 River Ridge Rd. Deland, FL
PHONE: POC:

BACKFLOW DEVICE: PASSED: FAILED:
MANUFACTURE: Wilkins MODEL #: 975 XL SIZE: 3/4"
SERIAL #: 2951491 DATE OF TEST: 3/3/2014

Reduced Pressure Principle Assembly
Double Check Valve Assembly

	CHECK VALVE #1	CHECK VALVE #2	DIFFERENTIAL RELIEF VALVE	PRESSURE VACUUM BREAKER
	1. HELD 9.0	1. HELD 2.2	OPENED 3.0 PSID	AIR INLET OPEN PSID
	2. LEAKED	2. LEAKED	2ND SHUT OFF	2ND SHUT OFF
REPAIRS	CLEANED	CLEANED	CLEANED	CHECK VALVE
			CLEANED	HELD PSID
	REPLACED:	REPLACED:	SPRING LOADED	
	DISC	DISC	REPLACED:	LEAKED
	SPRING	SPRING	DISC	CLEANED
	GUIDE	GUIDE	UPPER	
	PIN/RETAINER	PIN/RETAINER	LOWER	REPLACED:
	SPRING/PIN	SPRING/PIN	SPRING	AIR INLET DISC
	SEAT	SEAT		CHECK DISC
	DIAPHRAGM	DIAPHRAGM	DIAPHRAGM:	AIR INLET SPRING
			LARGE:	CHECK SPRING
	OTHER	OTHER	UPPER	
			LOWER	OTHER:
			SMALL	
			SEAT:	
			UPPER	
			LOWER	
			SPACER	
			LOWER	
			OTHER:	
FINAL TEST	HELD 9.0	HELD 2.2	OPENED 3.0 PSID REDUCED PRESSURE	AIR INLET PSID CHECK VALVE PSID

Comments:

The above report is certified to be true

Douglas P. Bloom — Biometric Utility Consultants, Inc. — (386) 860-3148 — 6447
Tester: Printed Name — Company Represented — Phone # — Certification #