

**AMENDMENT TO THE FACT SHEET
FOR
STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT**

1) GENERAL INFORMATION:

PERMITTEE: JEA
21 West Church Street, T-8
Jacksonville, Florida 32202-3139

RESPONSIBLE AUTHORITY: Mr. Paul Steinbrecher, P.E.
Director, Permitting & Regulatory Conformance
Telephone Number: (904) 665-5653

FACILITY NAME: Mandarin Water Reclamation Facility (WRF)

FACILITY LOCATION: 10828 Hampton Road
Jacksonville, Florida 32257
Duval County

PERMIT NUMBER: FL0023493-012-DW1P

PERMIT PREPARED BY: Florida Department of Environmental Protection – Northeast District Office
Wastewater – Permitting Section/Water Resources Facilities

PERMIT WRITER: D. Anh Vo, P.E. / Amul Mehta

PERMIT REVIEWER: Jeff S. Martin, P.E.

2) SUMMARY OF APPLICATION

a) Chronology of Application

Application Date: June 16, 2004 (Application for a Substantial Permit Revision to modify and increase capacity of the wastewater treatment plant)
December 4, 2006 the Application was converted from a substantial revision to renewal

Additional Information: September 18, 2006 and October 2007

Fact Sheet Revision - Draft permit was sent 11/4/2008

JEA comments received on 11/19/2008 and also on 12/10/2008. Based on a review of the comments, major changes to the draft permit and draft AO were required to incorporate changes to the time schedule for additional time to conduct sampling and study the results to meet mercury and cyanide standards and pursue administrative relief if required. Other minor changes and corrections were made to the draft permit. Therefore, the draft permit is noticed again.

Public Notice Requirements

The Notice of Draft Permit was published on March 14, 2009 in the Florida Times Union and the Notice of Intent to issue was published on April 17, 2009 in the Florida Times Union. One comment from the public was received on March 17, 2009.

b) Type of Facility

Domestic Wastewater Treatment Plant
Publicly-owned treatment works
Standard Industrial Classification Code: 4952

c) Facility Capacity

i) Treatment Capacity:

	Design Capacity	Permitted Capacity
Existing	8.75 MGD AADF	8.75 MGD AADF
Proposed Increase	1.25 MGD AADF	1.25 MGD AADF
Proposed Total	10.00 MGD AADF	10.00 MGD AADF

ii) Disposal and Reuse of Effluent:

	Surface Water Discharge		Reuse of Reclaimed Water	
	Design Capacity	Permitted Capacity	Design Capacity	Permitted Capacity
Existing	8.75 MGD	8.75 MGD	5.70 MGD	5.70 MGD
Proposed Increase	1.25 MGD	1.25 MGD	0.00 MGD	0.00 MGD
Proposed Total	10.00 MGD	10.00 MGD	5.70 MGD	5.70 MGD

d) Description of the Facility:

A. Current Facility:

To operate an existing 8.75 MGD annual average daily flow (AADF) permitted capacity advanced secondary domestic wastewater treatment facility consisting of the following components:

- One influent pump station equipped with five submersible pumps each with a capacity of 6.0 MGD;
- One influent screening structure consists of two mechanical bar screens which are AquaGuard Stepscreens, with a capacity of 12.5 MGD each. One manual bar screen, which has 1¼ inches spacing between bars and has a capacity of 12.5 MGD, is available for back-up;
- Four vortex grit removal units, which have a diameter of 7.83 ft with a capacity of 20 MGD each;
- One parshall flume influent flow meter;

- Four activated sludge trains and associated blowers, internal recycle, and return activated sludge using the Modified Ludzak-Ettinger (MLE) process. Each baffled train includes one anoxic zone with mechanical mixers followed by three aerobic fine bubble diffused air stages along with automated nitrogen monitoring and supplemental DO control management. The aeration basins have a total volume of 3.91 MGAL;
- Two peripheral feed clarifiers, each of which is 130 ft diameter, 283 gpd/ft² overflow rate, and a side water depth of 14 ft;
- Twelve up-flow continuous backwash sand filter cells with four units per cell; each filter unit has a filtration area of 50 ft² which provides a over flow rate of 2.17 gpm/ft²;
- An ultraviolet basic-level disinfection system consist of two UV disinfection channels; each channel is utilized with 8 modules with a UV dosage of 28.6 mW-s/cm² at UV transmittance of 65% and treatment capacity of 11.25 MGD (annual average daily flow);
- An ultraviolet high-level disinfection system consist of one UV disinfection channel which is utilized with 4 modules with a UV dosage of 120 mW-s/cm² at UV transmittance of 55% and treatment capacity of 5.7 MGD (annual average daily flow). The reuse system includes the optional use of a hypochlorination system for preventive maintenance on the reclaimed water transmission line;
- Rotary drum sludge thickeners, sludge holding & storage tanks and a sludge truck pumping and loading station along with associated pumps, piping, and appurtenances.
- Bio-filter odor control and treatment system.

The final treated effluent is either discharged to the St. Johns River or reused via public access spray irrigation after receiving high-level disinfection.

The domestic wastewater residuals are transported to the Buckman RMF for final treatment and disposal.

B. Proposed Modifications and Expansion to the Facility

- Install one (1) additional 130- ft diameter secondary clarifier with a overflow rate 283 gpd/ft² and a side water depth of 14 ft prior to reaching 8.75 MGD, monthly average daily flow (design: SVI of 80mg/L);
- Install a fourth ultraviolet basic-level disinfection system channel for in-plant reuse and surface water discharge. The channel will have 8 modules with a UV dosage of 28.6 mW-s/cm² at UV transmittance of 65% and treatment capacity of 15 MGD AADF.

Upon completion and placing into service the modification facility, the permitted capacity of the wastewater treatment facility will be 10.0 MGD AADF. This facility may also receive diverted flows (some or all flows) from the San Jose WWTF, when it is phased-out.

e) Description of Effluent: (as reported by the applicant)

i) Surface Water Discharge:

- (1) Outfall Serial Number D-001 (St. Johns River – Class III Predominantly Marine Water – WBID 2213G)

Annual Average Daily Flow (MGD): 6.28 (2006)

pH Range (Standard Units): 6.6 – 8.1

☐ Effluent Testing Information. (Items 12 and 13, pages 13 and 14):

Reported Data		
Parameters	Maximum Daily Discharge	Average Daily Discharge
Flow (MGD)	7.32	6.28
pH (s.u.)	8.10	-
Fecal Coliform (no./100 ml)	1,400	-
CBOD5 (mg/L)	8.00	1.96
Total Kjeldahl Nitrogen (mg/L)	11.30	-
Total Nitrogen as N (mg/L)	14.04	4.31
Nitrate plus Nitrite (mg/L)	6.21	
Ammonia as N	0.26	0.09
Phosphorous, Total (mg/L)	4.28	2.67

* reported by the applicant in the Application Form 2A (Item 13, Section 3.A.)

- ☐ Results of three sets of expanded effluent testing data were provided. (Item 14, page 15, 16 and 17 of Form 2A):

Application Form 2A shows that maximum concentrations of mercury and cyanide in the effluent sample exceeded the Florida Water Quality Criteria defined by Rules 62-302.530(24) & (41), FAC. Other parameters were either in compliance with the Florida Water Quality Criteria or had concentration values which were non-detectable with the MDLs values.

3) **FACILITY PERFORMANCE - FILE REVIEW:**

a) Compliance History of the Facility:

- i) The Department record (From September 1999 through April 2008) indicates that the facility has been in compliance with one minor out-of compliance (Office File Inspection dated December 24, 2007).
- ii) The Third-Year inspection was conducted on June 23 and 24, 2006, for the effluent discharge through Outfall D-001; the result is summarized following:

(1) Results of the Water Chemistry:

Total residual chlorine was detected in bioassay sample # 3 at a concentration of 0.03 mg/L but was not detected in the other bioassay samples. This detection was thought to be due to interferences within the sample rather than residual chlorine. Total ammonia was not detected in any of the bioassay samples in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.037 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

Iron and zinc were detected in the effluent at levels that comply with Class III marine water quality criteria (62-302.530, F.A.C.). Aluminum, copper, lead, and nickel were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL) and complied with Class III marine water quality criteria.

(2) Toxicity Test Result:

The effluent sample collected from D-001 on July 23 and 24, 2006, was not acutely toxic to either test species during the acute screen 96-hour bioassays.

- + *Americamysis bahia* 96-hour acute screening bioassay 1 – LC50 > 100%, 5% mortality in 100% sample at 96 hours
- + *Menidia beryllina* 96-hour acute screening bioassay 1 – LC50 > 100%, 0% mortality in 100% sample at 96 hours
- + *Americamysis bahia* 96-hour acute screening bioassay 2 – LC50 > 100%, 0% mortality in 100% sample at 96 hours
- + *Menidia beryllina* 96-hour acute screening bioassay 2 – LC50 > 100%, 0% mortality in 100% sample at 96 hours
- + *Americamysis bahia* 96-hour acute screening bioassay 3 – LC50 > 100%, 0% mortality in 100% sample at 96 hours
- + *Menidia beryllina* 96-hour acute screening bioassay 3 – LC50 > 100%, 10% mortality in 100% sample at 96 hours
- + *Americamysis bahia* 96-hour acute screening bioassay 4 – LC50 > 100%, 5% mortality in 100% sample at 96 hours

(3) Algal Growth Potential:

The effluent AGP result exceeded the "problem" threshold for marine receiving waters.

The effluent Algal Growth Potential (AGP) was 86.4 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters. The predicted AGP based on inorganic nitrogen concentrations was 77.41 ($\pm 20\%$) mg dry wt/L.

The effluent salinity-adjusted Algal Growth Potential (AGP) was 35.5 mg dry wt/L of the saltwater species, *Dunaliella tertiolecta*. Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment.

b) Effluent Characteristics:

- i) The concentration of pollutants in the discharge was reported in the discharge monitoring reported (DMR) (01/01/2003 to 07/30/2008).

Table 1: Flow to the outfall D-001 (St. Johns River)

Parameters	Reported Data - Annual Average				
	Average Values	Lowest Values	Highest Values		
Flow (MGD)	5.68	4.41	6.81		
Fecal Coliform (# / 100 mL)	8.50	4.00	11.00		
CBOD5 (mg/L)	2.07	1.95	2.22		
TSS (mg/L)	2.02	1.31	4.08		
Total Nitrogen (Lbs/day)	209.03	174.00	334.00		
Total Nitrogen (mg/L)	7.49	3.66	6.81		
	Monthly Value				
Parameters	Average	Median	Mode.	Max.	Min.
Ammonia (as N) (mg/L)	0.08	0.07	0.03	0.26	0.01
Total Nitrogen (as N) (mg/L)	4.49	4.28	5.00	8.04	3.31
Total Kjeldahl Nitrogen (mg/L)	2.35	1.70	1.23	11.30	0.86
Nitrate plus Nitrite (mg/L)	4.21	3.97	3.70	9.46	3.05
Total Organic Nitrogen (as N) (mg/L)	1.05	0.88	0.85	4.06	0.45

ii) Summary Toxicity Testing of Effluent at D-001

The toxicity summary showed no violation of the permit condition $LC50 < 100\%$ effluent in the facility history of semi-annual testing at D-001 during the current permit cycle. The facility has not only met the permit condition of $LC50 > 100\%$ effluent, but the effluent samples have historically caused little to no mortality at all test concentrations for either species tested.

c) Receiving Water Characteristics

The final treated effluent from the WWTF is discharged to the St. Johns River on the Lower St. Johns River Basin (Class III – Predominantly Marine Water), Water-body ID# 2213G (St. Johns River Above Doctor Lake). The point of discharge is located approximately at latitude: $30^{\circ} 11' 1.9''$ N longitude: $81^{\circ} 38' 42.6''$ W.

The segment 2213G has 303(d) listed impairments for cadmium, iron, and nutrients. The water segment is also TMDL-TN listed water (Group II) of Lower St. Johns River. This facility complies with the water quality standard for cadmium.

The basin upstream in the Lower St. Johns River (Class III – Predominantly Marine Water), is WBID 2363H (St. Johns River above Julington Creek) and is 303(d) list impaired for nutrients and specific conductance. The basin downstream is WBID 2213F was listed impaired for coliforms, mercury and nutrients. The facility effluent discharge limits for TN, coliform, cadmium, mercury and specific conductance standards are discussed below in section 5. Currently this WBID is listed as a marine waterbody, however, the DEP does not have criteria for specific conductivity for marine water bodies.

Enterococci: The Environmental Protection Agency (EPA) promulgated water quality criteria for enterococci for coastal recreation waters in Florida effective December 16, 2004. However, the Mandarin WRF discharges to WBID 2213G which is more than 20 miles away from coastal recreation waters of the U.S. therefore, the JEA is not required to monitor for enterococci in the effluent discharged from Outfall D-001. There are no public bathing or beach areas at this discharge point; therefore, enterococci limits and monitoring is not required.

4) BRIEF DISCUSSION OF CHANGES TO PERMIT LIMITATIONS

- a) The discharge has to meet the TMDL for total nitrogen; therefore, the annual total mass load of TN is added to the permit. However, the TMDL – WLA total nitrogen for the facility is addressed under the JEA - Aggregate Total Nitrogen permit (Permit ID: FL0620564).
- b) The whole effluent toxicity (WET) test is changed from acute and marine water test species to chronic and fresh water test species per Rule 62-620.620(3)(g)2.d. F.A.C.
- c) This facility has the option to receive all or a percentage of the flow from the San Jose WWTF, when it is phased out.

5) BASIS FOR EFFLUENT AND RECLAIMED WATER LIMITS AND MONITORING REQUIREMENTS (INCLUDING EFFLUENT MONITORING REQUIREMENTS)

a) Surface Water Disposal (D-001)

- i) Basis for Effluent and Monitoring Requirements - Outfall D-001(Class III- Marine water):

(1) The following table provides the basis for **Part I. A.1 and I.A.2** provisions.

Parameter	Limit	Basis	Rationale
Flow, (Interim Limit), Prior to placing the Expansion into service	8.75 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC
Flow, (Final Limit), After placing the Expansion into service	10.00 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC

BOD, Carbonaceous 5 day, 20C (mg/l) Prior to placing the Expansion into service WQBEL	6.67 8.34 10.01 13.34	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(2) or 430 or 510 FAC, 62-650 FAC & /or 62-600.740(1)(b)2.a. FAC 62-600.420(2) or 430 or 510 FAC, 62-650 FAC &/or 62-600.740(1)(b)2.b. FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
BOD, Carbonaceous 5 day, 20C (mg/l) After completion and placing the Expansion into service WQBEL	5.0 6.25 7.50 10.00	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(2) or 430 or 510 FAC, 62-650 FAC & /or 62-600.740(1)(b)2.a. FAC 62-600.420(2) or 430 or 510 FAC, 62-650 FAC &/or 62-600.740(1)(b)2.b. FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Solids, Total Suspended (mg/l), Prior to placing the Expansion into service TBEL-Secondary Treatment	20.0 30.0 45.0 60.0	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(2) or 430 or 510 FAC, 62-650 FAC & 62-600.740(1)(b)2.a. FAC 62-650 FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Solids, Total Suspended (mg/l), After completion and placing into place the Expansion into service WQBEL-Secondary Treatment	15.00 22.50 33.75 45.00	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(2) or 430 or 510 FAC, 62-650 FAC & 62-600.740(1)(b)2.a. FAC 62-650 FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Percent Removal, CBOD ₅	85.0%	Monthly Average	62-620.620(1)(o) and 62-620.620(3) FAC
Percent Removal, TSS	85.0%	Monthly Average	62-620.620(1)(o) and 62-620.620(3) FAC
pH (s.u.)	6.5 to 8.5	Minimum and Maximum	62-302.530(51)(c) FAC
Temperature, water (°C)	Report	Maximum	62-4.240(1)(b) FAC 62-302.520(4) FAC

Coliform, Fecal (#/100ml)	200 200 400 800	Annual Average Monthly Geo. Mean 90th Percentile Single Sample Max.	62-600.440(4)(c)1. FAC 62-600.440(4)(c)2. FAC 62-600.440(4)(c)3. FAC 62-600.440(4)(c)4. FAC
Ultraviolet Light Dosage, (mW-s/cm ²)	Report	Minimum	62-600.440 FAC 62-302.530(18) FAC
Ultraviolet Light Transmittance (%)	Report	Minimum	62-600.440 FAC 62-302.530(18) FAC
Ultraviolet Light Intensity (MW/cm ²)	Report	Single Sample Max.	62-600.440 FAC 62-302.530(18) FAC
Nitrogen, Total (as N) (WQBEL) (mg/l) Prior to placing the expansion into service. WQBEL	5.34 6.68 8.01 10.68	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.430(1) & 62- 600.740(1)(b)2.a. FAC 62-600.740(1)(b)2.b. FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Nitrogen, Total (as N) (WQBEL) (mg/l) After placing the expansion into service. WQBEL	5.34 6.68 8.01 10.68	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.430(1) & 62- 600.740(1)(b)2.a. FAC 62-600.740(1)(b)2.b. FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Total Ammonia (NH ₃ +NH ₄), as N	Report	Single Sample	62-650 FAC
Total Nitrogen as N TMDL – TN – Current before San Jose is diverted	114,913 Report Report	Annual Total Monthly Total Weekly Total	62-304 FAC TMDL – Lower St. Johns River
Total Nitrogen as N TMDL – TN – Final when San Jose is diverted	151,848 Report Report	Annual Total Monthly Total Weekly Total	62-304 FAC TMDL – Lower St. Johns River

Phosphorus, Total (as P) (WQBEL) (mg/L)	Report Report Report	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.740(1)(b)2.a. FAC 62-600.740(1)(b)2.b. FAC 62-600.740(1)(b)2.c. FAC 62-600.740(1)(b)2.d. FAC
Oxygen, Dissolved (DO), mg/L	5.0	Annual Average Min.	62.302.530(31) FAC, Class III, fresh Water
Total Recoverable Mercury, µg/L	0.025	Single Sample Max	62-302.530(41), FAC
Total Cyanide , µg/L	1.0	Single Sample Max	62-302.530(24), FAC
Whole Effluent Toxicity Chronic	100	Single Sample Max.	62-302.200(4), 62-302.530(61), 62-4.241, & 62-620.620(3), FAC
Nutrient Monitoring (mg/L)	Report	Single Sample Max	62-302.530(47), FAC
Stream Monitoring (mg/L)	Report	Single Sample Max	62-4.240(3)(c), FAC

(2) Discussion on the limitations:

The limits in this permit are based in part on information received in the application, the wastewater characterization reported on the DMR, the results of Third-Year inspection and the receiving water body characterization. The limits necessary to meet the rules and regulations of the State of Florida were determined and included in this permit.

(a) Water Quality Based Effluent Limitation (WQBEL)

- (i) Prior to completion and placing into service the expansion, monitoring frequencies and limitations are retained from the previous permit for “conventional” pollutants parameters (CBOD₅, TSS, pH, Fecal Coliform, and TRC).
- (ii) In order to maintain the current mass loads of CBOD₅, TSS, and TN to the receiving waterbody after expansion from 7.50 MGD to 10.0 MGD AADF, limits and concentrations of CBOD₅ and TSS must be reduced at least 25 % from limits concentrations of the parameters before expansion:

	7.50 MGD AADF (Before Expansion)				10.00 MGD AADF (After Expansion)			
	AA	Mon	Wk	Single	AA	Mon	Wk	Single
CBOD ₅ , mg/L	6.67	8.34	10.01	13.34	5.00	6.25	7.50	10.00
TSS, mg/L	20.00	30.00	45.00	60.00	15.00	22.50	33.75	45.00
TN, mg/L	5.34	6.68	8.01	10.68	4.00	5.00	6.00	8.00

$$\text{Limit Concentration after Expansion} = \left(\frac{7.50 \text{ MGD}}{10.00 \text{ MGD}} \right) \times \text{Limit concentration before Expansion}$$

- (iii) In accordance with the river sampling report and the effluent sample results, there is no evidence to show that the effluent impacts the DO level of the waterbody. Therefore, the facility is not required to increase DO level in the effluent. The DO limit in the permit is established in accordance with Rule 62-302.530(31), FAC.
- (iv) The Expanded Effluent Testing Data shows that the maximum concentrations of total cyanide and mercury were 5.00 µg/L and 0.0403 µg/L, respectively. These

values were exceeded the Florida Water Quality Criteria for total cyanide and mercury. Pursuant with Section 403.088(2)(d), F.S., and Rule 62-620.320(1), F.A.C, to provide a reasonable assurance of the permit, the permittee is required to monitor for total recoverable mercury and total cyanide. Limits and monitoring frequencies of the two parameters are based on Rules 62-302.530(24) & (41) and 62-601, FAC.

The monitoring requirements and limitation of total cyanide and total recoverable mercury are new and more stringent than the previous permit requirements. Therefore, in accordance with Sections 403.088(2)(e) and (f) of the FS, the permit shall be issued, accompanied by an administrative order which contains interim limits and establishes a schedule for achieving compliance with the final limits for the two parameters.

- (v) Cadmium is listed as an impaired parameter of the segment (WBID 2213G). However, the results of Expanded Effluent Testing Data show that maximum and average concentrations of cadmium from 12 samples were 0.343 µg/L and 0.093 µg/L, respectively. The both data are below the Florida Water Quality Criteria for Cadmium. Also the Department's 3rd Year Sampling Inspection reported shows concentration of Cadmium in the effluent sample was not detected at a MDL of 0.05 µg/L. There is no evidence to show that the cadmium concentration in the effluent would impact to the cadmium level of waterbody. Therefore, the permittee is not required to monitor for this parameter.

- (vi) Iron is listed as an impaired parameter of the segment (WBID 2213G).

The Department's 3rd Year Sampling Inspection reported shows concentration of iron in the effluent sample was not detected at a MDL of 0.05 µg/L. There is no evidence to show that the iron concentration in the effluent would impact to the iron level of waterbody. Therefore, the permittee is not required to monitor for this parameter.

- (vii) Specific Conductance. Effluent sample value was 1128 mhos/cm and stream value was 1880 mhos/cm on July 24, 2006. For fresh waters the specific conductance shall not be increased more than 50% above background or to 1275, whichever is greater. However, the WBID is a marine water body and no standard has been established.
- (viii) The Permittee shall conduct regular monitoring of the segment of the St. Johns River for maintaining data on the impact of the discharge to the water quality of the surface water body. The monitoring schedule is specified in the JEA – Aggregate TMDL TN permit (Permit ID: FL0620564).
- (ix) In order to provide reasonable assurance that the discharge will not adversely affect the designated use of the receiving water, chronic whole effluent toxicity testing is required.
- (x) The Department reserves the right to request the permittee to monitor for macroinvertebrate communities near the WWTF outfall for data on the impact of the discharge to the water body.

(b) **Total Maximum Daily Load of Total Nitrogen:**

Discharge from Mandarin WRF is subject to the effluent limitation for annual mass load of the total nitrogen (i.e., the sum of monthly mass loading of total for each month starting from the first day of the second month following permit issuance

through the last day of the 12th month period (rolling 12 month period)) discharge to Johns River Basin (WBID 2213G). TMDL – BMAP allows total waste allocation of total nitrogen for this WWTF is 52,233 kg/year (114,912.6 Lbs/yr).

The permittee, JEA, shall meet the aggregate cap through collectively managing the total nitrogen loads from each individual JEA facility (Arlington East WRF - FL0026441; Beacon Hills WWTF - FL0026778; Buckman WWTF - FL0026000; District II WWTF - FL0026450; Jacksonville Heights WWTF-FL0023671; Julington Creek WRF -FL0043591; Mandarin WRF- FL0023493; Monterey WRF-FL0023604; Royal Lakes WWTF - FL0026751; San Jose WWTF -FL0023663; San Pablo WWTF-FL0024767; Southwest District WWTF-FL0026468; WoodmereWWTF-FL0026786; and JEA Power Plant-FL), which are listed in the JEA - Aggregate Total Nitrogen permit (Permit ID: FL0620564).

For this facility:

8.75 MGD AADF

Concentration: TN = 5.34 mg/L

Mass: TN: 52,233 kg/yr (114,912.6 lb/yr)

10.0 MGD AADF

Concentration: TN = 5.34 mg/L

Mass: TN: 52,233 kg/yr + 16,789 kg/yr (100% diversion from San Jose WWTF) =
69,022 kg/ yr (151,848 lb/yr)

(c) New specific conditions include the following:

- (i) JEA will provide an initial report concerning the integrity of the outfall and will determine and propose an evaluation and analysis method. The initial report will be submitted to DEP within one year from permit issuance. Then, annual reports will be submitted to indicate the status of the outfall line.
- (ii) JEA will provide a back-up power load evaluation, as new units are placed on-line in order to determine and demonstrate that full backup power is adequate and available.
- (iii) JEA will review reuse of reclaimed water and capacity analysis for this facility. JEA will provide an annual report for reuse of reclaimed water, capacity analysis and review flow diversion impacts to reclaimed water distribution and on collection/transmission systems.

(d) Conclusion:

The review included in-stream monitoring data, discharge monitoring reports, the Department's year 2000 305(b) report, EPA 303(d) report, and the Department's compliance sampling inspection reports. A TMDL - Nutrients for this water-body has been developed; specific allocations for the point source discharger has been established. Considering the above, reasonable assurance of compliance has been provided with the effluent limits and applicable surface water quality standards for each parameter of concern (based upon rules referenced in the tables above).

b) Reuse of Reclaimed Water:

i) The following table provide the basis for Part I. B. provisions.

Parameter	Limit	Basis	Rationale
Flow (mgd)	5.70	Annual Average	62-600.400(3)(b) FAC
BOD, Carbonaceous 5 day, 20C (mg/L)	20.0	Annual Average	62-610.460 & 62-600.740(1)(b)1.a. FAC
	25.0	Monthly Average	62-600.740(1)(b)1.b. FAC
	30.0	Weekly Average	62-600.740(1)(b)1.c. FAC
	40.0	Single Sample Max.	62-600.740(1)(b)1.d. FAC
Solids, Total Suspended (mg/L)	5.0	Single Sample Max.	62-610.460(1) & 62-600.440(5)(f)3. FAC
Nitrate+Nitrite (as N) (mg/L)	10.0	Single Sample Max.	62-610.460(1) & 62-600.440(5)(f)3. FAC
	5.0	Annual Average	
pH (s.u.)	6.0 to 8.5	Minimum and Maximum	62-600.445 FAC
Coliform, Fecal (#/100ml)	non-det.	75th Percentile	62-600.440(5)(f)1. FAC
	25	Single Sample Max.	62-610.460 & 62-600.440(5)(f)2. FAC
Ultraviolet Light Dosage, (mW-s/cm ²)	100.0	Minimum	62-600.440(5) & 62-302.530(18) FAC
Ultraviolet Light Transmittance (%)	55.0	Minimum	62-600.440(5) & 62-302.530(18) FAC
Ultraviolet Light Intensity (MW/cm ²)	Report	Single Sample Max.	62-600.440(5) & 62-302.530(18) FAC
Total Suspended Solids (mg/L)	Report	Maximum	62-610.463 & 62-610.568(3) FAC
Giardia (CYSTS/100L)	Report	Maximum	62-610.568(11) FAC
Cryptosporidium (OOCYSTS/100L)	Report	Maximum	62-610.568(11) FAC
Primary Drinking Water Standards*	-	Maximum	62-610.560(2), 62-610.563(3), & 62- 550.310 FAC
Secondary Drinking Water Standards	-	Annual Average	62-610.560(2), 62-610.563(3), 62- 550.320, & 62-600.740(1)(b)2.a. FAC

ii) Discussion on the limitations:

The limitations and monitoring requirements are based on Chapter 62-610, Part III, FAC.

In accordance with Rules 62-601 and 62-522, F.A.C., the facility meets the nitrate+nitrite (N) limitation of 10 mg/L maximum. Submittal of a Ground Water Monitoring Plan for the residential reclaimed water service areas shall be held in abeyance until such time as requested by the Department.

c) Other Limitations and Monitoring Requirements

i) The following table provides the basis for Part I. C provisions:

Parameter	Limit	Basis	Rationale
Flow (mgd) Prior to place the Expansion into service	8.75 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC (Final Phase)
Flow (mgd) After placing the Expansion into service	10.00 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC (Final Phase)
Percent Capacity, (TMADF/Permitted Capacity) x 100 (PERCENT)	Report	Monthly Average	62-600.405(4) FAC
BOD, Carbonaceous 5 day, 20C (mg/L)	Report	Monthly Average	62-601.300(1)FAC
Solids, Total Suspended (mg/L)	Report	Monthly Average	62-601.300(1)FAC
Monitoring Frequency and Sample Type	-	All Parameters	62-601 FAC & 62-699 FAC and/or BPJ of permit writer
Sampling Location	-	All Parameters	62-601, 62-610.412, 62-610.463(1), 62-610.568, 62-610.613 FAC and/or BPJ of permit writer

6) RESIDUALS MANAGEMENT

The method of residuals use or disposal by this facility is transported to Buckman RMF, or disposal in a Class I or II solid waste landfill.

7) GROUND WATER MONITORING REQUIREMENTS

In accordance with Rules 62-601 and 62-522, F.A.C., groundwater monitoring is not required at this time. The exemption from ground water monitoring will remain subject to revocation if subsequent effluent monitoring reveals that permit limits are not met, or if the Permittee fails to conduct monitoring as required to assess compliance.

8) INDUSTRIAL PRETREATMENT REQUIREMENTS

At this time, the facility is not required to develop an approved industrial pretreatment program. However, the Department reserves the right to require an approved program if future conditions warrant.

9) ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

This permit is accompanied by AO-112NE, effective on the permit issuance date, which include a schedule for achieving compliance with limits for total cyanide and total recoverable mercury. The AO is hereby incorporated by reference.

This facility does not have a consent order with the Department.

10) REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

No variances were requested for this facility.

11) COMPLIANCE SCHEDULE AND EFFECTIVE DATE OF PROPOSED EFFLUENT OR RECLAIMED WATER LIMITATIONS

- a) This permit is issued in conjunction with Administrative Order (AO) No. 122 NE. The AO contains the requirements and schedule for compliance with total cyanide and total recoverable mercury. [62-620.320(1) and (2)] [62-4.070(3)]
- b) The Permittee shall submit either a report of progress or, in the case of specific actions days following a date identified in the above schedule of compliance, unless otherwise specified in this permit. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

12) DISCUSSION OF PREVIOUS PERMIT EFFLUENT OR RECLAIMED WATER LIMITATIONS.

The NPDES wastewater permit for this facility (FL0023493), expiring on December 23, 2006 contains the following effluent or reclaimed water limits:

For Surface Water Serial Number D-001:

Parameters	Effluent or Reclaimed Water Limitations				
	Maximum/ Minimum	Annual Average	Monthly Average	Weekly Average	Single Sample
Flow (mgd)	Maximum	7.50	Report	Report	Report
CBOD5 (mg/L)	Maximum	6.67	8.34	10.01	13.34
TSS (mg/L)	Maximum	20.0	30.0	45.0	60.0
TSS % removal	Minimum	-	85.0	-	-
Total N (mg/L)	Maximum	5.34	6.68	8.01	10.68
Fecal Coliform (#/100 mL)	Maximum	200.0	-	-	800.0
pH std. units	Range	-	-	-	6.0 – 8.5
Acute Whole Effluent Toxicity (LC50 ≥ % effluent)	Minimum	-	-	-	100.0

For Public Access Serial Number R-001:

Parameters	Effluent or Reclaimed Water Limitations
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	Maximum/ Minimum	Annual Average	Monthly Average	Weekly Average	Single Sample
Flow, MGD	Maximum	5.70		--	--
CBOD ₅ , mg/L	Maximum	20	30	45	60
TSS, mg/L	Maximum				5.0
Fecal Coliform, #/100 ml	Maximum	< 1		--	25
TRC (for disinfection), mg/L	Minimum	--	--	--	1.0
pH, std. units	Range	6.0 to 8.5			
Groundwater Monitoring	Exemption				

13) NEW OR EXPANDED DISCHARGES TO SURFACE WATERS; ANTIDegradation REQUIREMENTS

An anti-degradation study was submitted for the expansion from 7.50 MGD to 10.00 MGD AADF. The study indicates that: the water quality standards will be met; “existing uses” will be maintained; and the proposed discharge “necessary” and under circumstances which are in the public interest.

14) EFFECTS OF SURFACE WATER DISCHARGE ON THREATENED OR ENDANGERED SPECIES

The Department does not anticipate adverse impacts on threatened or endangered species as a result of permit issuance.

15) APPLICABLE RULES

The following were used as the basis of the permit limitations/conditions:

a. FAC refers to various portions of the Florida Administrative Code.	
The effective dates of FAC Rule Chapters cited in the table are as follows:	
<u>Chapter</u>	<u>Effective Date</u>
62-4	04-02-08
62-160	06-08-04
62-302	04-02-08
62-520	12-09-96
62-522	08-27-01
62-550	01-17-05
62-600	04-13-06
62-601	12-24-96
62-602	10-15-07
62-610	11-19-07
62-620	04-02-08
62-625	01-08-97
62-640	03-30-98
62-650	12-26-96

62-699 10-15-07

- b. FS refers to various portions of the Florida Statutes
- c. CFR refers to various portions of the Code of Federal Regulations, Title 40
- d. BPJ refers to Best Professional Judgment

16) DEPARTMENT CONTACT

Additional information concerning the permit may be obtained during normal business hours from:

D. Anh Vo, P.E.
FDEP – Northeast District Office
7825 Baymeadows Way, Suite B-200,
Jacksonville, FL, FL 32256 - 7590
Telephone Number: 904-807-3300
Fax Number: 904-448-4366

17) THE ADMINISTRATIVE RECORD

The administrative record including application, draft permit, fact sheet, public notice (after release), comments received and additional information is available for public inspection during normal business hours at the location specified in item 16.

XV. PROPOSED SCHEDULE FOR PERMIT ISSUANCE - REVISED

Process Elements	Date of Completion
Effective Date of the Application:	December 24, 2006
Draft Permit to Applicant and EPA for review	November 4, 2008
Draft Permit (revised) to Applicant and EPA	March 11, 2009
EPA Draft Permit Review / Concurrence	November 12, 2008 / March 23, 2009
End Public Comment Period	April 13, 2009
Notice of Intent to Issue Permit	April 13, 2009
Publish Notice of Intent	April 17, 2009
Provide Proof of Publication	April 27, 2009
Final Department Action	May 9, 2009

XVI. PROCEDURES FOR THE FORMULATION OF FINAL DECISION ON PERMIT ISSUANCE

- a. Public Comment Period

The Department of Environmental Protection proposes to issue a wastewater facility permit to this applicant subject to the aforementioned reclaimed water or effluent limitations and conditions. This decision is tentative and open to comment from the public.

Interested persons are invited to submit written comments regarding permit issuance on the draft permit limitations and conditions to the following address:

Department of Environmental Protection, Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, FL 32256 - 7590
Attn: D. Anh Vo

All comments received within 30 days following the date of public notice, pursuant to Rule 62-620.550, F.A.C., will be considered in the formulation of the final decision with regard to permit issuance.

Any interested person may submit written comments on the Department's proposed permitting decision or may submit a written request for a public meeting to the address specified above, in accordance with Rule 62-620.555, F.A.C. The comments or request for a public meeting must contain the information set forth below and must be received in the above named District office of the Department within 30 days of receipt or publication of the public notice. Failure to submit comments or request a public meeting within this time period will constitute a waiver of any right such person may have to submit comments or request a public meeting under Rule 62-620.555, F.A.C.

The comments or request for a public meeting shall contain the following information:

- 1) The commenter's name, address and telephone number, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- 2) A statement of how and when notice of the draft permit was received;
- 3) A description of any changes the commenter proposes for the draft permit;
- 4) A full explanation of the factual and legal reasons for each proposed change to the draft permit; and

A request that a public meeting be scheduled (if applicable) including a statement of the nature of the issues proposed to be raised at the meeting.

b. Public Meeting

The Department will hold a public meeting if there is a significant degree of public interest in the draft permit or if it determines that useful information and data may be obtained thereby. Public notice of such a meeting shall be published by the applicant at least 30 days prior to the meeting.

If a public meeting is scheduled the public comment period is extended until the close of the public meeting. If a public meeting is held any person may submit oral or written statements and data at the meeting on the Department's proposed action.

c. Issuance of the Permit

The Department will make its decision regarding permit issuance after consideration of all written comments, including comments from the United States Environmental Protection Agency on surface water discharge aspects of the draft or a proposed permit; the requirements

of Chapter 403, F.S. and appropriate rules; and, if a public meeting is held, after consideration of all comments, statements and data presented at the public meeting. The Department will respond to all significant comments in writing. The Department's response to significant comments will be included in the administrative record of the permit and will be available for public inspection at the above named District office of the Department.

Unless a request for an administrative hearing, or an extension of time to file a petition for an administrative hearing, as indicated in d. below, is granted, the Department will take final agency action by issuing the permit or denying the permit application. If an administrative hearing is convened, final agency action will be based on the outcome of the hearing.

d. Administrative Hearing

A person whose substantial interests are affected by the Department's proposed permitting decision has the opportunity to petition for an administrative proceeding (hearing) to challenge the Department's decision in accordance with Section 120.57, F.S.

An administrative hearing is an evidentiary proceeding in which evidence is presented by testimony and exhibits before an independent hearing officer. The result of an administrative hearing is the issuance of the hearing officer's recommended order to the Department, including the hearing officer's findings of fact, based on the evidence presented at the hearing. The Department will issue a final order, granting or denying the permit, based on the hearing officer's recommended order.

The petition for an administrative hearing must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of notice of agency action or within 14 days of personal receipt of notice of agency action, whichever occurs first. The petitioner is to mail a copy of the petition to the applicant at the time of filing. Failure to file a petition within this time period will constitute a waiver of any right such person may have to request an administrative determination (hearing) under section 120.57, F.S. The petition is to contain the following information:

- 1) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- 2) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- 3) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- 4) A statement of the material facts which the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- 5) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- 6) A statement of the relief sought by the petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in the notice of agency action. Persons whose substantial interests will be affected by any decision of

the Department on the application have the right to petition to become a party to the proceeding, regardless of their agreement or disagreement with the Department's proposed action indicated in the notice of agency action.

Appendix A	Reasonable Assurance Verification (RAV) Workbook
Appendix B	Wastewater Treatment Facility Location
Appendix C	Process Flow Diagram
Appendix D	Outfall Location
Appendix E	Sampling Location