

**FACT SHEET
FOR
STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT**

I. GENERAL INFORMATION:

FACILITY NAME: JEA - Arlington East WRF

PERMIT NUMBER: FL0026441 – 010

FACILITY LOCATION: 1555 Millcoe Road
 Jacksonville, Florida 32225
 Duval County

NAME OF PERMITTEE: JEA

FACILITY CONTACT: Mr. Paul K. Steinbrecher, P.E., Director
 Permitting and Regulatory Conformance
 Telephone Number: (904) 665-5653

FACILITY MAILING ADDRESS: 21 West Church Street, T-8
 Jacksonville, Florida 32202

PERMIT WRITER: D. Anh Vo, P.E.

PERMIT REVIEWERS Jeff S. Martin, P.E., Wastewater Section – NED FDEP
 Domestic Wastewater Section – Tallahassee Office – FDEP

II. SYNOPSIS OF APPLICATION

1. Chronology of Application.

Application Date: March 22, 2004

Additional Information Date: April 19, 2004; August 18, 2004; September
 29, 2004; November 10, 2004; November
 23, 2004; December 8, 2004; January 13,
 2005; and May 28, 2008

**Fact Sheet Revision - Draft permit was
sent 6/4/2008**

EPA comments were received on 7/11/2008
and 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 for the copper mixing zone 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.

2. Type of Facility

Domestic Wastewater Treatment Plant.

Municipal-owned treatment works.

Standard Industrial Classification Code: 4952.

3. Facility Capacity

a. Treatment Capacity of the WWTF:

	Design Capacity (MGD AADF)	<i>Permitted Capacity</i> (MGD AADF)
Existing	20.0	20.0
Proposed Incremental	5.0	5.0
Proposed Total	25.0	25.0

b. Disposal and reuse capacity:

	Surface Water Discharge (St. Johns River)		Reuse of Reclaimed Water (Public Access Reuse System)	
	Design (MGD AADF)	Permit (MGD AADF)	Design (MGD AADF)	Permit (MGD AADF)
Existing	20.0	20.0	2.0	2.0
Proposed Incremental	5.0	5.0	2.0	2.0
Proposed Total	25.0	25.0	2.0	2.0

4. Facility Description:

- A. An existing 20.0 MGD annual average daily flow (AADF) permitted capacity complete mix activated sludge wastewater treatment facility consisting of bar screens, an aerated grit chamber, two primary clarifiers (68 feet in diameter, 3,632 square feet in surface area, 12 feet in side water depth, and 0.33 Mgal. each), two aeration trains (first aeration train contains four aeration basins with total volume of 2.32 Mgal; second aeration train contains two aeration basins with total volume of 1.44 Mgal.), four secondary clarifiers (4.28 Mgal. total), one Aqua Disk filter, two chlorine contact chambers (0.98 Mgal. total), and two covered sludge holding tanks (1.7 Mgal. each). Primary and secondary residuals are collected in a holding tank and pumped to the Buckman residuals treatment facility for further treatment and disposal or sale as Class AA residuals.

- B. **Modification and Expansion:** To construct and operate the following improvements to the existing WWTF: Add an automatic bypass to the manual bar screen by motorizing existing slide gates. Construct a new 105-foot diameter primary clarifier when AADF reaches 19 MGD. Construct a new splitter box between splitter box 1 and 2. Construct a new 48-inch diameter pipe between the primary clarifiers and splitter box 2. Modify splitter box 2 to split flows to the aeration basins. Modify aeration basins and aeration equipment to allow a step feed process with anoxic zones. Upgrade the four existing RAS pumps for higher flow and head conditions. Modify splitter box 3 to reduce head loss during PHF events. Install three electrically actuated slide gates in CCC number 2. Other unit process improvements with other minor new or modified equipment will be provided throughout the process train. The final treated effluent is either discharged to the St. Johns River or reused as reclaimed water via public access spray irrigation that meets high-level disinfection requirements.

The existing permitted capacity of 20.0 MGD AADF will be increased to 25.0 MGD AADF. The permit limitations will be offset to account for no mass loading increase for CBOD₅, and TN in accordance with the BMAP process for the LSJR TMDL.

In the previous permit, administrative relief was granted for total recoverable copper. The area of mixing was a circular shape with the origin centered at the outfall terminus. The size of the zone was described as follows:

The administrative relief area was for a flow of 25.0 MGD and was approximately 22 square meters with a radius of 5.3 m at effluent limitation of 16.8 ug/L

5. Description of Effluent or Reclaimed Water Discharges (as reported by the Applicant (2004 Application))

a. **Surface Water Discharge:**

See attached map(s) for the location(s) of effluent disposal and land application sites.

Outfall Serial Number D-001

Annual Average Daily Flow (mgd): 13.80

pH Range (Standard Units): 6.50 to 7.70

Parameters	Reported Data		
	Annual Avg.	Lowest Monthly Avg.	Highest Monthly Avg.
Flow (mgd)	12.5	10.8	13.8
CBOD5 (mg/L)	3.5	3.0	10.0
TSS (mg/L)	5.0	3.0	10.0
Coliform, Fecal General (#/100ml)	15.0	4.0	19.0
Parameters	Mon. Avg.	Lowest Monthly Avg.	Highest Monthly Avg.

Parameters	Reported Data		
TRC (Disinfection) (mg/L)	0.5	0.9	-
TRC (Dechlorination) (mg/L)	<0.01	-	-
Copper (Total Removal, ug/L)	2.49	1.4	4.1
Mercury (Total Removal, ug/L)	0.0064	0.004	0.012
Oxygen, Dissolved (DO, mg/L)	4.86	6.10	3.50

- b. Reuse Reclaimed Water: A 2.0 MGD annual average daily flow (AADF) permitted capacity slow-rate public access (R-001) irrigation system.

III. FILE REVIEW:

1. Compliance History of the Facility: The facility was rated “Significant Out-of-Compliance” due to reports required in the current permit was overdue by more than 30 days (Office-File Review Inspection (OFI) on July 30, 2007). Compliance Evaluation Inspections (CEIs) were conducted by Department personnel on June 8, 2008 indicated that the facility has been back in compliance.
2. Summary of the Effluent: Data was pulled from the PCS DMR database for the time frame of January 1, 2003 through April 30, 2008 and reviewed.

Parameter	Annual			Monthly		
	Avg.	Min.	Max.	Avg.	Min.	Max.
Flow (mgd)	13.99	13.40	14.70	14.30	12.50	16.80
CBOD5 (mg/L)	2.68	2.00	4.00	2.71	2.00	4.90
TSS (mg/L)	3.90	3.00	6.00	4.54	2.00	9.00
Fecal Coliform (#/100 mL)	3.64	3.00	5.00	11.80	2.00	44.00
	Monthly					
	Average			Maximum	Minimum	
NH3, As N (mg/L)	4.70			13.60	1.22	
Organic, as N (mg/L)	5.66			4.08	1.08	
TKN (mg/L)	6.25			14.62	2.32	
NO2 + NO3 (mg/L)	9.50			26.1	0.50	
Total Nitrogen (mg/L)	12.83			27.7	7.76	
Ortho-Phosphorous (mg/L)	0.89			2.28	0.04	
Total Phosphorous	2.22			4.50	0.54	
DO (mg/L)	4.98			5.90	4.00	
Copper (ug/L)	2.82			22.00	1.10	

3. Toxicity: Current permit (issued 10/07/02) requires semi-annual 96-hr acute screen testing for 4 grab samples with marine species at 20 ppt. The toxicity reports indicate the facility has been in-compliance with toxicity requirement. No acute toxicity to either test species during the 48-hour acute screen bioassays was reported since 2003.

4. Summary of the Department Sampling Inspection (December 04, 2006):

A 3rd-Year sampling inspection was conducted by the Department on December 04, 2006 for the effluent discharge through Outfall D-001; the result is summarized following:

- Results of the Water Chemistry:
 - ✱ Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia was detected in the bioassay sample in the laboratory at a concentration of 1.94 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 2.3 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.
 - ✱ Aluminum, copper, iron, nickel and zinc were detected in the effluent at levels that comply with Class III Marine water quality criteria. Atrazine, lead and silver were detected between the laboratory method detection limits (MDL) and practical quantitative limits (PQL).
- Toxicity Test Result:

The effluent sample collected from D-001 for this facility on December 04, 2006, was not acutely toxic to either test species during the 48-hour acute screen bioassays.
- Algal Growth Potential:

The effluent AGP results exceeded the "problem" threshold for both fresh and marine receiving waters, suggesting nutrient enrichment may be an issue.

5. Receiving Water Body:

Surface Water Discharge: An existing 20.0 MGD annual average daily flow (AADF) permitted discharge to St. Johns River (Class III marine waters, water body 2213B) at Discharge Location (D-001) which is approximately 450 feet in length from the shore and discharges at a depth of approximately 31 feet. The point of discharge is located approximately at latitude 30° 23' 05" N, longitude 81° 33' 05" W.

A proposal to expand the discharge capacity from 20.00 MGD AADF to 25.00 MGD AADF

The final treated effluent from the WWTF is discharged to the St. Johns River on the Lower St. Johns River Basin (Class III – Predominately Marine Water), Water-body ID# **2213B** (St. Johns River) . The point of discharge is located approximately at latitude: 30° 11' 1.9" N longitude: 81° 38' 42.6" W.

303 (d) Lists Impaired Water:

Basin	St. Johns River Above Mouth (Basin East/Downstream of Outfall)		St. Johns River Above Intracoastal Waterway (Basin Immediate Outfall)		St. Johns River Above Dames Point (Basin West/Upstream of Outfall)	
WBID	2213A		2213B		2213C	
303(d) List	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**
Impaired Parameter	Fluoride, Total Suspended	Copper, Iron, & Nickel	Coliforms, Turbidity & Total Suspended	Copper, Iron, Lead & Nickel	Nutrients, Turbidity & Total Suspended	Copper, Iron, & Nickel

	Solids		Solids		Solids	
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* EPA 303 (d) List (June 11, 2003 Version)

** FDEP 303 (d) List (Secretarial Order dated May 27, 2004)

The TMDL for the LSJR was adopted by the Department on June 3, 2008, and the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008.

IV. DISCUSSION OF CHANGES TO PERMIT LIMITATIONS

1. The permit limitations will be offset to account for no mass loading increase for CBOD₅ and TSS.
2. Chronic whole effluent toxicity (WET) testing is required in the new permit instead of acute WET testing as required in the existing permit.
3. 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 address under the JEA - Aggregated Total Nitrogen (Permit ID: FL0620564).
4. Monitoring requirement and limit for Enterococci is added to the permit
5. The facility has a copper mixing zone; however, since the basin is listed as impaired for copper, the copper mixing zone limit is no longer valid. Limit 3.7 µg/L for total recoverable copper has to be met before discharge to the river.

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

1. Surface Water Discharge - Outfall D-001 (Class III Marine Water)

a. The following table provides the basis for Part I. A.1 and I.A.2 provisions:

Parameter	Limit	Basis	Rationale
Flow, Surface Water Discharge from D-001 (Before Expansion)	20.0 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC
Flow, Surface Water Discharge from D-001 (After Expansion)	25.0 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC
BOD, Carbonaceous 5 day, 20C (mg/L) (Before Expansion) TBEL	20.0 25.0 40.0 60.0	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 Expansion) WQBEL	16.0 20.0 24.0 32.0	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)	20.0	Annual Average	62-600.420(2) or 430 or 510 FAC, 62-650 FAC & 62-600.740(1)(b)2.a. FAC

Parameter	Limit	Basis	Rationale
(Before Expansion) TBEL	30.0 45.0 60.0	Monthly Average Weekly Average Single Sample Max.	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 Expansion) TBEL	16.0 20.0 24.0 32.0	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
Total Residual Chlorine (For Dechlorination) (mg/L)	0.01	Single Sample Max.	62-600.440(2) FAC & 62-302.530(19) FAC
Total Residual Chlorine (For Disinfection) (mg/L)	0.5	Minimum	62-600.440(4)(b) FAC
Nitrogen, Total (as N)	Report (lbs/yr) Report (lbs/mo)	Annual Load Monthly Load	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
Nitrogen, Total as N (mg/L)	Report Report Report Report	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, Suspended, % Removal	85	Monthly Average, calculated.	40 CFR 133.102(b)(3)
BOD, Carbonaceous 5 day, % Removal (PERCENT)	85	Monthly Average, calculated.	40 CFR 133.102(b)(3)
Coliform, Fecal (#/100ML)	200.0 200.0 400.0 800.0	Annual Average Monthly Geo.mean 90 th 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
Enterococci	Report	Monthly	403.0885(2), Florida Statutes
pH (s.u.)	6.5 to 8.5	Minimum and Maximum	62-650 FAC
Dissolved Oxygen, (D.O.), (mg/L)	4.0	Minimum and Report Average	62-302.530(30) FAC
Copper, Total Recoverable (µg/l)	3.7	Single Sample Max.	62-302.530(23) FAC
Total Cyanide (µg/l)	1.0	Single Sample Max.	62-302.530(24) FAC
Effluent, Nutrients (mg/L)	Report	Single Sample Max.	62-302.530(47) FAC
Chronic Whole Effluent Toxicity (IC ₂₅ , % effluent)	100	Single Sample Min.	62-302.200(4), 62-302.530(61), 62-4.241, and 62-620.620(3), F.A.C

b. 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 Code of Federal Regulations (CFR) 40 and State of Florida were determined and included in this permit.

(a) Technology-Based Effluent Limitations (TBELs)

The Arlington East WRF, a municipal wastewater treatment facility and water reclamation facility, is a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These regulations are performance standards that constitute all known available and reasonable assurance of prevention, control, and treatment for municipal wastewater.

The limitations and conditions of the CBOD₅, TSS, pH, and TRC (for both disinfection and dechlorination) have been developed to comply with the technology-based standards of the Clean Water Act.

(b) Discussion about the new limitation and Level I WQBEL:

- i. **CBOD₅ and TSS:** The permit limitations for the parameter are offset to account for no mass loading increase for CBOD₅ and TSS. New limits for CBOD₅ and TSS are calculated as following:

$$\text{New Annual Limit} = 20.0 \text{ mg/L} \frac{(20.0 \text{ MGD})}{(25.0 \text{ MGD})} = \mathbf{16.0 \text{ mg/L}}$$

Where:

20.0 mg/L	Existing annual average limit of CBOD ₅ or TSS
20.0 MGD	Existing permitted capacity
25.0 MGD	New permitted capacity

The new monthly average, weekly average, and maximum single sample then are calculated pursuant with Rule 62-600.740(1)(b).a,b,c,d, FAC.

$$\text{New Monthly Average} = (16.0 \text{ mg/L}) \times 125\% = 20.0 \text{ mg/L}$$

$$\text{New Weekly Average} = (16.0 \text{ mg/L}) \times 150\% = 24.0 \text{ mg/L}$$

$$\text{New Maximum Single Sample} = (16.0 \text{ mg/L}) \times 200\% = 32.0 \text{ mg/L}$$

- ii. **Total Cyanide:** The Expanded Effluent Testing Data shows that the maximum concentration of total cyanide was exceeded the Florida Water Quality Criterion. 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 total cyanide. Limits and monitoring frequencies of the parameters are based on Rules 62-302.530(24) and 62-601, FAC.

The monitoring requirements and limitation of total cyanide is 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.

- iii. **Enterococci:** The Environmental Protection Agency (EPA) promulgated water quality criteria for Enterococci for coastal recreation waters in Florida effective December 16, 2004. JEA Arlington East WWTF has been identified as discharging to coastal recreation waters. The permittee, JEA, is required to monitor for Enterococci in the effluent before discharge from Outfall D-001. The geometric mean of the Enterococci values for a minimum of 5 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly) shall not exceed 35 per 100 mL. EPA Methods 1106.1 and 1600 are the recommended methods for monitoring Enterococci in the effluent. [62-600, 62-621, 62-302.530, F.A.C.]

iv. **Monitor requirements to protect waterbody in the 303(d) List:**

Current Impaired Waters List:

Basin	St. Johns River Above Mouth (Basin East/Downstream of Outfall)		St. Johns River Above Intracoastal Waterway (Basin Immediate Outfall)		St. Johns River Above Dames Point (Basin West/Upstream of Outfall)	
WBID	2213A		2213B		2213C	
303(d) List	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**
Impaired Parameter	Fluoride, Total Suspended Solids	Copper, Iron, & Nickel	Coliforms, Turbidity & Total Suspended Solids	Copper, Iron, Lead & Nickel	Nutrients, Turbidity & Total Suspended Solids	Copper, Iron, & Nickel

1. **Copper:** The chemical data included in the third year sampling inspection report showed that the effluent copper concentration (1.76 µg/L) was not detected at MDL of 2.2 µg/L (it was reported at 2.2 U µg/L) which was below the Class III marine criterion for copper. DMRs data (from 01/01/2003 through 12/31/2008) showed that the average, mode, median and maximum concentrations of copper (2.5 µg /L 2.1 µg /L and 22.0 µg /L (the 22.0 µg /L was reported on December 2003), respectively). A mixing zone for copper had been established for this discharge. (The radius of the mixing zone at an effluent flow of 20.0 MGD annual average daily flow was 118.0 feet in radius for a total area of 43,830.0 square feet. The limit concentration of copper in the mixing zone was 16.8 µg/L). Due to the fact that all three segments of the river: WBID 2213B (outfall location), WBID 2213C (upstream of the outfall location), and WBID 2213A (downstream of the outfall location) has listed impaired for copper, the existing mixing zone is no longer accepted. The discharge shall meet limit for copper (total recoverable copper) of 3.7 µg/L as required by Rule 62-302.530(23), FAC. However, with the current treatment system as discussed above, the discharge does not consistently meet the copper limit.

Realizing the discharge is necessary and based on the fact that the permittee needs time to collect samples, conduct a study, and evaluate and consider options for meeting the surface water quality standard for total copper at the point of discharge, an administrative order will be issued in conjunction with the permit to allow time for the facility to conduct, evaluate and consider options to bring total copper back to

compliance with Department rules. The interim limit for the total recoverable copper is 16.8 µg/L within a dilution area of 43,830.0 square feet.

JEA has realized the problem (the discharge exceeds the water quality criterion for copper.). The permittee had implemented process control efforts to reduce copper levels in the effluent and had reviewed potential source of copper into the collection system. These efforts had resulted in lower copper concentrations; however, even with process control optimization the effluent in the discharge was above the water quality criterion. The permittee explored other treatment options of reduction for copper including a chemical treatment system was piloted and reviewed, but proved to not provide full reliability to meet the WQ standard. Generally, the discharge met the standard, but process control alone did not guarantee full compliance. Thus, the permittee had applied for the copper mixing zone.

2. **Iron and Nickel:** All three segments of the river have 303(d) listed impaired for iron and nickel.

In addition, results of the Department Sampling Inspection on December 4, 2006 show that concentrations of iron and nickel in the collected sample, respectively, were 56.0 µg/L and 1.75 µg/L, which were well below the water quality criteria for iron and nickel of 300.0 µg/L and 8.3 µg/L. [Rule 62-302.530(38) and (44) FAC].

The data shows that concentration of nickel in the effluent would not effect to the concentration level of nickel in the segments of the river. In addition, the facility receives 100% domestic wastewater (there are no known industrial wastewater connections to the facility). There is no evident show that the discharge would contribute to the iron level in the segments of the river.

The permittee is not required to monitor the parameters.

3. **Lead:** Lead is listed for impaired parameter of the WBID 2213B. Expanded Effluent Testing Data shows that the maximum concentrations of lead were complied with the water quality criterion. In addition, result of the Department third year sampling inspection show that concentration of lead in the effluent sample was 0.25 µg/L. Both results indicated that concentration of lead in the effluent was below the water quality criterion for lead. In addition, the facility receives 100% domestic wastewater (there are no known industrial wastewater connections to the facility). There is no evidence to show that the lead concentration in the effluent is impacting the lead level of the water body upstream of the outfall. The facility will not be required to monitor for iron at this time.
4. **Total Suspend Solids:** TSS is one of parameters listed on 303(d) List of the all three waterbody segments: WBID 2213A, WBID 2213B and WBID 2213C. Therefore, the discharge needs to be evaluated for TSS.

Data (108 sample events) reported in the DMRs of the last five year (From 01/01/2003 to 12/31/2008) show that the maximum, average, mode of the monthly average concentrations of TSS, respectively, were 9.0 mg/L, 4.1 mg/L and 3.0 mg/L; and the maximum, average, and mode of the annual average concentrations of TSS were 6.0

mg/L, 4.1 and 3.0 mg/L, respectively. The reports also show that the percent removal of TSS of the facility were at an average of 97.9% and a minimum of 96.3%.

There is no evidence to show that the discharge has contributed or will enrich the total suspended solids levels of the segment of the river. Therefore, the monitoring frequency and limit for TSS is retained as the previous requirement (secondary treatment level). In addition, the new permit requests lower limit concentration for TSS in order to offset the expansion.

5. **Turbidity:** Turbidity is a parameter of concern in the WBID 2213A and WBID 2213B.

As discussed above, the discharge would not impact the TSS level of the receiving water. In addition, the outfall system is designed to minimize turbidity impacts associated velocity of the discharge. There is no evidence to show that the discharge would or will cause an increase in turbidity levels of the segments.

6. **Fluoride:** Fluoride is a concerned parameter in the WBID 2213A, but it is not listed as impaired parameter in the WBID 2213B and 2213C.

The facility receives 100.0% domestic wastewater. There is no evidence to show that the discharge has contributed or will enrich the fluoride levels of the segment of the river; therefore, monitor for the parameter is not recommended.

7. **Nutrients:** Concern of nutrient enrichment from the discharge is addressed by the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on November 24, 2008, which is discussed below.

8. **Coliforms:** Results of effluent samples show annual average and maximum monthly average (Geo mean) of fecal coliform were 11 #/100 mL and 44 #/mL, respectively. There is no sign of impact of discharge to the fecal coliform level of the receiving water. Therefore, monitoring frequency and limitation for fecal coliform are retained as they were in the previous permit.

- v. **Mercury:** Mercury is not in the 303 (d) potential impaired waters bodies list of the Lower St. Johns River near the outfall. The applicant reported data for mercury with the renewal application (Mercury has been monitored quarterly from January 1999). None of these analytical results exceeded the Class III marine water quality criterion of 0.025 ug/L. Using the Reasonable Assurance Verification (RAV) workbook with the data reported finds that mercury concentration will not likely be present in quantities, at the point of compliance, which exceed water quality standards (Class III marine water quality standard) (The theoretical maximum value of concentration of mercury is 0.010 µg/L, which is about 47 % percent of the limit of mercury in the Class III marine water standard). Therefore, a limit was not established for mercury. The facility has an approved SOP to use Method 245.1 on the CETAC M-60000A spectrophotometer at the JEA Lab. If this screening reveals a mercury result with a value greater than the MDL of 4.2 ng/L (but less than the PQL), then the same sample will be re-analyzed using Method 1631E (in accordance with the e-mail dated, January 13, 2005 from Bob Heilman, FDEP to Brad Russell, JEA. This will be a permit specific condition.

- vi. **Toxicity:** In order to provide reasonable assurance that the discharge will not adversely affect the designated use of the receiving water, whole effluent toxicity (WET) testing is required. The WET tests were changed from acute and marine test species to chronic and freshwater test species in accordance with 62-620.620(3)(b) and (3)(g)2.d, FAC, and will include IC₂₅ as the compliance endpoint. Semi-annual WET testing frequency is retained due to passing results during current permit cycle.
- vii. **Ambient Sampling Program:** The Permittee is conducting regular ambient monitoring of the St. Johns River. Ambient Sampling Report shall be submitted to the Department by March 1 of each year.
- viii. **Benthic macroinvertebrates:** Due to the dominance of marine waters and the improvement of benthic macroinvertebrate communities near the Arlington East WWTF outfall, at the present time the facility is not required to monitor for benthics. The receiving water zone is a highly dredged channel. The Department personnel will collect samples in the segment of the body water near the outfall for the purpose of maintaining data on the impact of the discharge to the river sediments and associated benthic communities. Specific biological sampling, sampling techniques and analysis are necessary and are being developed.
- ix. **Total Maximum Daily Load of Total Nitrogen:**

Discharge from Arlington East 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 2213D). TMDL – BMAP allows total waste allocation of total nitrogen for this WWTF is 134,313 kg/year (295,488.6 Lbs/yr).

The permittee, JEA, shall meet the aggregate cap through collectively managing the total nitrogen loads from each individual JEA's facilities (Arlington East WRF -FL0026441; Beacon Hills WWTF - FL0026778; Buckman WWTF - FL0026000; District II WWTF - FL0026450; Jacksonville Heights WWTF-FL0023671; Julington Creek WWTF - FL0043591; Mandarin WRF- FL0023493; Monterey WWTF- 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 - Aggregated Total Nitrogen (Permit ID: FL0620564).

- x. **New specific conditions include the following:**
 - 1. 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.
 - 2. 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.
 - 3. 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.

- c. **Conclusion:** The review included in-stream monitoring data, discharge monitoring reports, the Department's year 2000 305(b) report, EPA 303(d) List, and the Department's compliance sampling inspection reports. 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).

2. Land Application System R-001 (slow-rate public access):

Parameter	Limit	Basis	Rationale
Flow, in conduit or thru treatment plant (mgd)	2.0	Annual Average	62-600.400(3)(b) FAC
BOD, Carbonaceous 5 day, 20C (mg/L)	20.0 30.0 45.0 60.0	Annual Average Monthly Average Weekly Average Single Sample Max.	62-610.460 & 62-600.740(1)(b)1.a. FAC 62-600.740(1)(b)1.b. FAC 62-600.740(1)(b)1.c. FAC 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
pH (s.u.)	6.0 to 8.5	Minimum and Maximum	62-600.445 FAC
Total Residual Chlorine (For Disinfection, mg/L)	1.0	Minimum	62-600.440(5)(b), 62-610.460(2), & 62-610.463(2) FAC

3. Other Limitations and Monitoring Requirements:

Parameter	Limit	Basis	Rationale
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
Flow, through the WWTF before expansion (mgd)	20.0	Annual Average	62-600.400(3)(b)FAC
Flow, through the WWTF after expansion (mgd)	25.0	Annual Average	62-600.400(3)(b)FAC
Percent Capacity, (TMADF/Permitted Capacity) x 100 (%)	Report	Monthly Average	62-600.405(4) 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-

Parameter	Limit	Basis	Rationale
			610.568, 62-610.613 FAC and/or BPJ of permit writer

VII. RESIDUALS MANAGEMENT

The method of disposal by this facility is further treatment or disposal at the Buckman Residuals Management Facility for further treatment and final disposal.

VIII. GROUND WATER MONITORING REQUIREMENTS

Ground water monitoring requirements have been established in accordance with Rule 62-601, F.A.C.

IX. INDUSTRIAL PRETREATMENT REQUIREMENTS

The industrial pretreatment requirements for this facility are covered by the Buckman WWTF, FL0026000 pretreatment program.

X. ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

In accordance with sections 403.088(2)(e) and (f), Florida Statutes, a compliance schedule for this facility is contained in Administrative Order AO 110. There is no a CO issued for this facility for evaluation of total recoverable copper.

XI. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

Not applicable.

XII. COMPLIANCE SCHEDULE AND EFFECTIVE DATE OF PROPOSED EFFLUENT OR RECLAIMED WATER LIMITATIONS

The following construction schedule for the Permit Revision shall be followed, unless a minor permit revision is issued to amend the schedule:

Implementation Step		Completion Date
1	Begin construction	June 1, 2009
2	End Construction and submit notification to the DEP.	December 1, 2010
3	Provide an initial report concerning the integrity of the outfall and 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.	May 1, 2011
4	Operation level attained.	May 1, 2012
5	Submit notification and availability of Operation and Maintenance Manuals to the DEP.	December 1, 2012

- Prior to placing any new individual unit into operation, for any purpose other than testing for leaks and equipment operation, the permittee shall complete and submit to the Department *DEP Form 62-*

620.910(12), *Notification of Completion of Construction for Domestic Wastewater Facilities*. [62-620.630(2), 06-01-01]

- Within 6 months of beginning operation of the new WWTF, the permittee shall complete and submit to the Department, DEP Form 62-620.910(12), *Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals (3) (Revised 10/23/00)* [62-620.630(2), 06-01-01]

XIII. DISCUSSION OF PREVIOUS PERMIT EFFLUENT OR RECLAIMED WATER LIMITATIONS.

The wastewater permit for this facility FL0026441, expiring on November 10, 2007 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	Maximum	20.0	Report	0.0	-
CBOD5	Maximum	20.0	25.0	40.0	60.0
TSS	Maximum	20.0	30.0	40.0	60.0
Fecal Coliform	Maximum	-	200.0	-	800.0
TRC (Disinfection)	Range	-	-	-	0.5
TRC (Dechlorination)	Minimum	-	-	-	0.01
Oxygen, Dissolved (DO)	Minimum	-	-	-	Report
pH	Range	-	-	-	6.5 to 8.5
Copper (Total Removal)	Maximum	-	-	-	16.8
Mercury	Maximum	-	-	-	Report.

XIV. NEW OR EXPANDED DISCHARGES TO SURFACE WATERS; ANTIDegradation REQUIREMENTS

The anti-degradation submittal was reviewed under the previous permit revision application, which allowed for a permitted capacity of 20 MGD AADF. The anti-degradation portion was for a proposed ultimate increase to 25 MGD AADF. The anti-degradation analysis provides for holding the nutrient and effluent limitations at current levels to offset the annual average daily flow increase.

XV. EFFECTS OF SURFACE WATER DISCHARGE ON THREATENED OR ENDANGERED SPECIES

This is not applicable.

XVI. APPLICABLE RULES

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

- | |
|---|
| <p>a. FAC refers to various portions of the Florida Administrative Code.</p> <p>The effective dates of FAC Rule Chapters cited in the table are as follows:</p> |
|---|

<u>Chapter</u>	<u>Effective Date</u>
62-4	04-02-08
62-160	12-03-08
62-302	04-02-08
62-520	12-09-96
62-522	08-27-01
62-550	09-18-07
62-600	04-13-06
62-601	12-24-96
62-602	10-15-07
62-610	11-19-07
62-620	02-17-09
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	

XVII. Department CONTACT

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

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

XVIII. 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 XVII.

XIX. PROPOSED SCHEDULE FOR PERMIT ISSUANCE

<u>Process Elements</u>	<u>Projected Date of Completion</u>
Effective Date of the Application:	May 28, 2008
Draft Permit to Applicant and EPA for review	June 23, 2008
2 nd draft to Applicant and EPA for review	March 9, 2009
Begin Public Comment Period	February 10, 2009
Provide Proof of Publication	February 15, 2009

End Public Comment Period	April 10 , 2009
Notice of Intent to Issue Permit	April 13, 2009
Publish Notice of Intent	April 20, 2009
Provide Proof of Publication	May 15, 2009
Final Department Action	May 29, 2009

XX. 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.

a. 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.

b. 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.

c. 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.