

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

1) GENERAL INFORMATION:

PERMIT NAME: Buckman WWTF

PERMIT NUMBER: FL0026000

LOCATION: 2221 Buckman Street
Jacksonville, FL 32206-3396
Duval County
Latitude: 30° 21' 10" N Longitude: 81° 37' 46" W

NAME OF PERMITTEE: JEA

FACILITY CONTACT: Mr. Paul K. Steinbrecher
Director, Permitting and regulatory Conformance

FACILITY MAILING ADDRESS: 21 West Church Street
Jacksonville, Florida 32202
Telephone Number: (904) 665-5653

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

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

2) SUMMARY OF APPLICATION

a) Chronology of Application

Application Date: October 20, 2004

Additional Information: 03/08/2005, 09/13/2004 and 09/23/2008 (Monthly Meeting)

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	52.50 MGD AADF	52.50 MGD AADF
Proposed Increase	0.00 MGD AADF	0.00 MGD AADF
Proposed Total	52.50 MGD AADF	52.50 MGD AADF

ii) Disposal and Reuse of Effluent:

	Surface Water Discharge		Reuse of Reclaimed Water	
	Design Capacity	Permitted Capacity	Design Capacity	Permitted Capacity
Existing	52.50 MGD	52.50 MGD	0.00 MGD	0.00 MGD
Proposed Increase	0.00 MGD	0.00 MGD	0.00 MGD	0.00 MGD
Proposed Total	52.50 MGD	52.50 MGD	0.00 MGD	0.00 MGD

d) Description of the Facility:

The Buckman WWTF is located in the Tallyrand area. It is an existing 52.50 million gallon per day (MGD) annual average daily flow (AADF) permitted capacity activated sludge wastewater treatment facility. The plant can operate in the plug flow or complete mix mode. The facility consists of the following process units:

- Two 60-MGD capacity mechanical bar screens with ½ inch opening;
- An influent wet well / dry well pump station with four pumps.
- A 0.151 million gallon (MG) aerated grit chamber consisting of three grit removal pumps each with a capacity of 200 gpm @ 34 ft total dynamic head (TDH);
- Eight primary clarifiers (225 ft long x 18 ft wide x 12 ft side water depth) with a surface water loading rate of 1,296 gpd/ft² at ADF and 2,593 gpd/ft² at PHF; and a weir loading rate of 20,195 gpd/ft at ADF and 40,384 gpd/ft;
- Four aeration tanks operated in series plug flow mode. The structure of basin is 310 ft long x 55 ft wide with a side water depth of 15 ft. Ceramic, fine bubble diffusers are used to aerate and mix each basin and are supplied five-drop pipes per tank. Three Roots centrifugal blowers, 1,250 hp each, provide the required air with a total volume of 7.652 mg.
- Four square center feed, radical weirs secondary clarifiers with a structure of 120 ft long x 120 ft wide with a side water depth of 12 ft and a hydraulic loading rate of 608 gpd/ft²;
- Two circular peripheral collection in serpentine with a diameter of 136 ft and a hydraulic loading rate of 602 gpd/ft²;
- Ultraviolet Disinfection System provides UV dosage of 29 mW-sec/cm² at 65% UV Transmittance, 157.5 mgd and 26.3 mW-sec/cm² at 49% UV Transmittance, 108 mgd.
- Two gravity sludge thickeners with a total volume of 0.728 mg.
- Two sludge holding tanks with a total volume of 5.438 mg.
- Three centrifuges for sludge dewatering.
- Two multiple-hearth incinerators for sludge incineration.
- Chlorination facility for the return activated sludge.

- A groundwater dewatering system with discharge into the aeration tanks.

The final treated effluent is discharged to St. Johns River discharges from the west bank (Class III marine water WBID 2213D). This reach of the river is the area from north of the Mathews Bridge to the mouth of the Trout River.

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

i) Surface Water Discharge:

See attached map for the location of effluent disposal.

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

Annual Average Daily Flow (MGD): 29.35 (2004)

pH Range (Standard Units): 7.5 – 8.2

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

Parameters	Reported Data	
	Maximum Daily Discharge	Average Daily Discharge
Flow (MGD)	65.91	32.29
pH (s.u.)	7.5	
Fecal Coliform (# per 100 ml)	-	8.6
CBOD5 (mg/L)	16.0	8.0
Total Kjeldahl Nitrogen (mg/L)	9.33	1.87
Total Nitrogen as N (mg/L)	24.81	9.07
Ammonia as N	7.50	0.26
Phosphorous, Total (mg/L)	17.70	6.64

* 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 concentration of cyanide in the effluent sample was undetectable at a MDL value which was greater than the Florida Water Quality Criterion defined by Rules 62-302.530(24), 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 February 2000 through June 2008) indicates that the facility has been in compliance with one minor out-of compliance (Office File Inspection dated December 2007).

- ii) The Third-Year inspection was conducted on June 14, 2004 for the effluent discharge through Outfall D-001; the result is summarized following:

(1) Results of the Water Chemistry:

Total residual chlorine and total ammonia were both detected in the bioassay sample in the laboratory at concentrations of 0.04 mg/L and 0.036 mg/L, respectively. The total residual chlorine was likely an artifact of the test procedure rather than actual TRC within the sample. A chlorine solution is used to clean the clarifier weirs and to control filamentous bacteria in the sludge return system; however, Buckman Street personnel stated that chlorine was not used immediately prior to nor during the sampling event. Total ammonia was detected in the sample preserved for chemical analyses at a concentration of 0.087 mg/L. Based on the pH, salinity and temperature of the effluent as collected, the calculated unionized ammonia of the effluent was $\leq$ 0.02 mg/L.

Cadmium, copper, and silver were detected in the effluent sample at levels between the laboratory method detection limit and the laboratory practical quantitation limit (Table 2).

The iron (407 mg/L) concentration of the effluent sample collected on June 14, 2004, exceeded the Class III Marine Water Quality Criterion of < 300 mg/L (62-302.530[39], F.A.C.; Table 2).

The concentration of nickel (10.9 mg/L) detected in the effluent exceeded the Class III Marine Water Quality Criteria (< 8.3 mg/L; 62-302.530[45], F.A.C.), but did not exceed the effluent limit of < 89.3 . The facility has mixing zones for nickel, lead, and copper.

(2) Toxicity Test Result:

The effluent sample collected from D-001 was not acutely toxic to test organisms during the acute screen 96-hour bioassays.

+ *Americamysis bahia* 48-hr acute screening bioassay – LC50 $> 100\%$, 5%* mortality in 100% sample at 48 hours

+ *Menidia beryllina* 48-hr acute screening bioassay – LC50 $> 100\%$, 5%* mortality in 100% sample at 48 hours

(3) Algal Growth Potential:

The effluent AGP result exceeded the "problem" threshold for fresh receiving waters and by inference the "problem" threshold for marine waters.

b) Effluent Characteristics:

- i) The concentration of pollutants in the discharge was reported in the discharge monitoring reported (DMR) (January 2005 to September 2008).

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

Parameters	Reported Data		
	Annual Avg.	Lowest Monthly Avg.	Highest Monthly Avg.
D-001			
Flow (MGD)	30.13	24.97	45.09

Parameters	Reported Data		
	Annual Avg.	Lowest Monthly Avg.	Highest Monthly Avg.
D-001 pH (S.U.)	-	6.50	7.90
Fecal Coliform (# / 100 mL)	6.04	2.00	16.00
CBOD5 (mg/L)	2.24	2.00	3.00
TSS (mg/L)	4.01	2.00	7.00

Table 2: Other Pollutants

Parameters	Monthly Value				
	Average	Median	Mode.	Max.	Min.
Ammonia (as N) (mg/L)	1.45	0.69	0.33	11.10	0.10
Total Nitrogen (as N) (mg/L)	11.88	11.67	11.67	28.80	3.05
Total Kjeldahl Nitrogen (mg/L)	3.84	3.38	2.55	12.95	1.49
Nitrate plus Nitrite (mg/L)	9.50	9.73	#N/A	27.40	0.17
Total Organic Nitrogen (as N) (mg/L)	3.09	2.65	1.81	15.51	1.49
Total Phosphorus (as P) (mg/L)	10.23	10.26	15.15	22.52	1.65
Othro-Phosphorus (as P) (mg/L)	6.99	7.12	6.36	11.85	0.55
Total Recoverable Copper (ug/L)	2.26	1.80	1.50	15.00	0.78
Total Recoverable Lead (ug/L)	0.68	0.50	0.50	7.40	0.05
Total Recoverable Nickel (ug/L)	7.89	7.74	7.30	14.00	3.20
Aldrin (ug/L)	0.01	0.01	0.01	0.02	0.00
Lindane (ug/L)	0.01	0.01	0.00	0.02	0.00
Percent CBOD removed (%)	99.14	99.20	99.20	99.50	98.60
Percent TSS removed (%)	99.12	99.20	99.30	99.60	97.90

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 last 5 years (June 2004 to February 2009). 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 is discharged to the St. Johns River from the west bank (Class III marine water WBID 2213D). This reach of the river is the area from north of the Mathews Bridge to the mouth of the Trout River.

303 (d) Lists Impaired Water:

Basin	St. Johns River Above Dames Point (Basin North/Downstream of Outfall)		St. Johns River Above Trout River (Basin Immediate Outfall)		St. Johns River Above Trout River (Basin West/Upstream of Outfall)	
WBID	2213C		2213D		2213E	
303(d) List	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**
Impaired Parameter	Nutrients, Turbidity & Total Suspended Solids	Copper, Iron, & Nickel	Coliforms, Nutrients & Total Suspended Solids	Copper, Iron, & Nickel	Coliforms & Nutrients	Copper, Iron, & Nickel

* 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.

4) BRIEF DISCUSSION OF CHANGES TO PERMIT LIMITATIONS

- 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 ID: FL0620564).
- The whole effluent toxicity (WET) tests are changed from acute and marine test species to chronic and freshwater test species in accordance with Rule 62-620.620(3)(b) and (3)(g)2.d, FAC.
- The facility is required to monitor for total cyanide.
- Concentration of copper shall meet the limit of 3.7 µg/L, as required by Rule 62-610.530(23), FAC.
- Concentration of nickel shall meet the limit of 8.3 µg/L as required by Rule 62-610.530(44), FAC.
- Concentration of iron shall meet the limit of 300 µg/L as required by Rule 62-610.530(38), FAC.

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 2213D):

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

Parameter	Limit	Basis	Rationale
Flow (mgd)	52.50 Report	Annual Average Monthly Average	62-600.400(3)(b) FAC
BOD, 5-day, Carbonaceous 20°C (mg/L)	20.0 25.0 40.0 60.0	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(1)(a) &/or .740(1)(b)1.a. FAC 62-620.625(5) FAC & 40 CFR 133.102(a)(4)(i) 62-620.625(5) FAC & 40 CFR 133.102(a)(4)(ii) 62-600.740(1)(b)1.d. FAC
CBOD, 5-day, % Removal	85.0	Monthly Average	40 CFR 133.102(a)(4)(iii)
Solids, Total Suspended (mg/L)	20.0 30.0 45.0 60.0	Annual Average Monthly Average Weekly Average Single Sample Max.	62-600.420(1)(a) &/or .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, Suspended, % Removal	85.0	Monthly Average	40 CFR 133.102(b)(3)
pH (s.u.)	6.5 to 8.5	Minimum and Maximum	62-302.530(52)(c) FAC
Coliform, Fecal (#/100 mL)	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)	Monitor	Minimum	62-600.440(4)(b) FAC
Ultraviolet Light Transmittance (%)	Monitor	Minimum	62-600.440(4)(b) FAC
Ultraviolet Light Intensity (MW/cm ²)	Monitor	Minimum	62-600.440(4)(b) FAC
Dissolved Oxygen (mg/L)	4.0	Minimum	62-302.530(31), FAC
Copper, Total Recoverable (ug/L) (Interim Limit)	17.0	Single Sample Max.	62-4.244 FAC See discussion below
Copper, Total Recoverable (ug/L)	3.7	Single Sample Max	62-302.530.(23), FAC
Lead, Total Recoverable (ug/L)	16.7	Single Sample Max.	62-4.244 FAC See discussion below on mixing zone.
Nickel, Total Recoverable (ug/L) (Interim Limit)	20.0	Single Sample Max.	62-4.244 FAC See discussion below.
Nickel, Total Recoverable (ug/L)	8.3	Single Sample Max.	62-302.530(44), FAC

Parameter	Limit	Basis	Rationale
Iron, Total Recoverable (ug/L) (Interim Limit)	350.0	Single Sample Max.	62-4.244 FAC See discussion below.
Iron, Total Recoverable (ug/L)	300.0	Single Sample Max.	62-302.530(38), FAC
Aldrin (ug/L)	0.00014 1.3	Annual Average Single Sample Max.	62-302.530(50)(c) and 62-4.240(3)(c) FAC
Lindane (ug/L)	0.063 0.16	Annual Average Single Sample Max.	62-302.530(50)(m) and 62-4.240(3)(c) FAC
Total Nitrogen (mg/L) TMDL	Report Report Report	Annual Average Monthly Average Single Sample Max.	62-4.240(3)(c) FAC 62.303, FAC
Total Nitrogen (lb/yr or lb/mon) TMDL	Report Report	Annual Total Monthly Total	62-4.240(3)(c) FAC 62.303, FAC
Organic Nitrogen	Report	Single Sample Max.	62-4.240(3)(c) FAC
Nitrate + Nitrite Nitrogen	Report	Single Sample Max.	62-4.240(3)(c) FAC
Total Ammonia	Report	Single Sample Max.	62-4.240(3)(c) FAC
Total Kjeldahl Nitrogen	Report	Single Sample Max.	62-4.240(3)(c) FAC
Total Phosphorous	Report	Single Sample Max.	62-4.240(3)(c) FAC
Orthophosphorous	Report	Single Sample Max.	62-4.240(3)(c) 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 FAC and BPJ of permit writer

(2) Discussion of the Limitations:

The Buckman WWTF is located in the Tallyrand area and discharges to the St. Johns River from the west bank. This reach of the river is the area from north of the Mathews Bridge to the mouth of the Trout River. The discharge point (Outfall D-001) is located on WBID 2213 D.

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 (There are three ambient water quality sampling stations in this reach of the river. The sites are numbered B4, B1, and B2). The limits necessary to meet the rules and regulations of the State of Florida were determined and included in this permit.

- (a) **Technology-Based Effluent Limitations (TBELs):** The Buckman WWTF, a municipal wastewater treatment 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 and pH have been developed to comply with the technology-based standards of the Clean Water Act.

- (i) Carbonaceous BOD: DMR reports of the last five years show that the maximum, average, median, and mode concentration of CBOD₅ in the effluent samples were 3.0 mg/L, 2.24 mg/L, 2.0 mg/L and 2.1 mg/L. which were 10% of the annual average concentration limits for CBOD₅. The Ambient sampling report showed the maximum concentration of CBOD₅ was 2.0 mg/L. The median CBOD₅ was 1.1 mg/L. There is no sign of effect of CBOD₅ from the discharge to the waterbody. Monitoring frequency and limit for CBOD₅ remains as the previous permit.
- (ii) pH: DMR reports of the last five years show that the pH of the effluent samples were in the range limits. The Ambient sampling report showed the maximum pH of segment waterbody was 8.0 SU, and the minimum pH was 7.1 SU. There is no sign of effect of pH of the discharge to the waterbody. Monitoring frequency and limits for pH remain as the previous permit.

(b) **Water Quality Based Effluent Limitation (WQBEL)**

- (i) Dissolved Oxygen: The STORET data shows that average dissolved oxygen (DO) concentrations of the water body complies with the water quality criterion. The facility is required monitor the DO level in the effluent in accordance with Rule 62-302.530(30), FAC.
- (ii) Enterococci: The Environmental Protection Agency (EPA) promulgated water quality criteria for enterococci for coastal recreation waters in Florida effective December 16, 2004. However, the Buckman WWTF discharges to WBID 2213D which is more than 12 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. Therefore, enterococci limits and monitoring is not required
- (iii) Cyanide: The Expanded Effluent Testing Data shows that the maximum concentration of total cyanide was not detectable at the MDL of 2.7 µg/L. The MDL value was higher than the Florida Water Quality Criteria for total cyanide (< 1.0 µg/L). Therefore, it is impossible to determine if the cyanide in the sample exceeded the criterion. The permittee is required to sample for cyanide with a MDL of 1.0 µg/L or at a MDL approved by the Department. Limit for cyanide is established 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 parameter.

- (iv) Lead: DMR reports of the last five years show that the maximum, 95th percentile, average, median, and mode concentrations of total recoverable lead in the effluent samples were 7.4 µg/L, 1.98 µg/L, 0.80 µg/L, 0.5 µg/L and 0.5 µg/L. The facility receives a significant industrial wastewater; therefore, it is required to continue monitor for lead. Lead is not listed as an impaired parameter for the any segments of the river; therefore, the existing limit for lead is retained in the new permit.
- (v) Aldrin and Lindane: The permittee will continue to monitor for Aldrin and Lindane as required in the previous permit.
- (vi) Monitor requirements to protect waterbody in the 303(d) List:

303 (d) Lists Impaired Water:

Basin	St. Johns River Above Dames Point (Basin North/Downstream of Outfall)		St. Johns River Above Trout River (Basin Immediate Outfall)		St. Johns River Above Trout River (Basin West/Upstream of Outfall)	
WBID	2213C		2213D		2213E	
303(d) List	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**
Impaired Parameter	Nutrients, Turbidity & Total Suspended Solids	Copper, Iron, & Nickel	Coliforms, Nutrients & Total Suspended Solids	Copper, Iron, & Nickel	Coliforms & Nutrients	Copper, Iron, & Nickel

1. Total Suspended Solids: DMR reports of the last five years show that the maximum, average, median, and mode concentration of TSS in the effluent samples were 7.0 mg/L, 4.01 mg/L, 4.0 mg/L and 4.0 mg/L which were 10% of the annual average concentration limits for TSS. There is no sign of effect of TSS from the discharge to the waterbody. Monitoring frequency and limit for TSS remains as the previous permit.
2. Coliforms: Results of effluent samples (from 01/01/2003 through 12/31/2008) show average, mode and maximum of annual average of the fecal coliform were 6.4 #/100 mL, 5.0 #/100 mL, and 10.7 #/100 mL, respectively. The average, mode, and maximum monthly average (Geo mean) of fecal coliform were 6.4 #/100 mL, 3.0 #/100 mL and 18.6 #/100 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 and disinfection treatment level are retained as they were in the previous permit
3. Nickel: Results of the expanded effluent testing showed that the average and maximum concentrations of nickel were 12.0 µg /L and < 8.34µg /L, respectively. The chemical data included in third year sampling inspection report showed that nickel was 10.9 µg /L. The concentration of nickel from sampling events exceeded the water quality criterion for nickel of 8.3 µg /L, although they complied with the permit limit based on the mixing zone for nickel.

Due to the fact that all three segments of the river: WBID 2213D (outfall location), WBID 2213C (upstream/north of the outfall location), and WBID 2213E

(downstream/south of the outfall location) has listed impairment for nickel, the existing mixing zone limit for the parameter is no longer acceptable; it needs to be fully evaluated.

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 nickel 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 nickel back to compliance with Department rules. The interim limit was been established by using "Reasonable Assurance Verification Workbook" and data reported in the DMRs in the last 2 years. The interim limit for nickel will be 20.0 µg/ in the area of 1,711 square meters with a radius of approximately 33 meters. The boundary was established in the previously permit.

4. Copper: The chemical data included in the third year sampling inspection report showed that the effluent copper concentration (2.2 µg/L) was below the Class III marine criterion for copper. A review, of the expanded effluent testing data showed that the average and maximum concentrations of copper were also at levels that were below the Class III marine criterion for copper (3.7 µg/L). DMR reports of the last five years show that the maximum, 95th percentile, average, median, and mode concentrations of total recoverable copper in the effluent samples were 15.0 µg/L, 3.93 µg/L, 2.5 µg/L, 1.9 µg/L and 2.1 µg/L. The maximum and 95th percentile concentrations of the total recoverable copper were exceeded the water quality criterion, although they complied with the permit limit based on the existing mixing zone limit for copper.

Due to the fact that all three segments of the river: WBID 2213D (outfall location), WBID 2213C (north of the outfall location), and WBID 2213E (south of the outfall location) has listed impaired for copper, the existing mixing zone is no longer acceptable and it needs to be fully evaluated. (Note: Based on the recently testing data, the facility may not need a mixing zone for copper.)

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 was been established by using "Reasonable Assurance Verification Workbook" and data reported in the DMRs in the last 2 years. The interim limit for copper will be 17.0 µg/L, inside the boundary area 125,600 square meters with a radius of approximately 283 meters from the centered outfall.

5. Iron: results of the Department third year inspection show the concentration of iron in the effluent sample was 407 µg/L, which exceeds the water quality standard criterion for iron of 300.0 µg/L. In addition, iron is listed as an impaired parameter of the three segments of the river (WBIDs 2213 C, 2213 D and 2213 E). The permit is required to monitor for this parameter.

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 iron 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 iron back to compliance with Department rules. The interim limit for iron will be 350 µg/L which is based on the projection from the RAV analysis.

6. 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 discuss below.

- (vii) Ambient Sampling: 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.
- (viii) Toxicity Testing Requirements: 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 by Rule 62-620.620(3), FAC.
- (ix) Macroinvertebrate Communities: 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.

(c) Total Maximum Daily Load of Total Nitrogen:

FDEP's application of the EPA methodology to develop a SSAC for DO for the marine portion of the river between Julington Creek and the mouth of the river is detailed in the April 2006 report, Site Specific Alternative Dissolved Oxygen Criterion to Protect Aquatic Life in the Marine Portions of the Lower St. Johns River Technical Support Document. The SSAC for DO was adopted by the State and approved by EPA.

After the SSAC was approved by EPA, the Department worked with SJRWMD to remodel the river to determine the allowable nutrient load that would maintain dissolved oxygen levels above the levels established in the SSAC, and a revised TMDL was developed based on the results of that re-assessment. On September 30, 2007, EPA proposed a new TMDL based on the SSAC for DO in the marine portion of the Lower St. Johns River. After public review and comment, this TMDL was finalized

Discharge from Buckman WWTF 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 253,852 kg/year (558,474.4 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; Woodmere WWTF - FL0026786; and JEA Power Plant-FL), which are listed in the JEA - Aggregated Total Nitrogen (Permit ID: FL0620564).

(d) 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.

(3) 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 and specific allocations for the point source discharge have 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) Other Limitations and Monitoring Requirements

The following table provides the basis for Part I. B provisions:

Parameter	Limit	Basis	Rationale
BOD, 5-day, Carbonaceous 20°C (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

This section is not applicable to the facility.

8) INDUSTRIAL PRETREATMENT REQUIREMENTS

Industrial pretreatment program is established in accordance with 62-625 FAC.

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

This permit is accompanied by AO 130, effective (Issuance Date of the Permit) which includes a schedule of compliance. 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. 130 NE. The AO contains the requirements and schedule for compliance with total cyanide, total recoverable iron, total recoverable nickel, and total recoverable copper. [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 (FL0043834), 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	52.50	Report	Report	Report
CBOD5 (mg/L)	Maximum	20.0	25.0	45.0	60.0
TSS (mg/L)	Maximum	20.0	30.0	45.0	60.0
TSS % removal	Minimum	-	85.0	-	-
Total N (mg/L)	Maximum	Report			Report
Fecal Coliform (#/100 mL)	Maximum	200.0	-	-	800.0
pH std. units	Range	-	-	-	6.0 – 8.5
Total recoverable Copper (ug/L) (mixing zone)	Maximum	-	-	-	29.4
Lead total recoverable					16.7
Nickel, total recoverable					89.3
Aldrin (ug/L)					Report
Lindane (ug/L)					0.16
Stream Monitoring					Report
Acute, WET		-	-	-	100.0

Parameters	Effluent or Reclaimed Water Limitations				
Nutrients					Report

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

There is no new or expanded discharge to the Lower St. Johns River. An anti-degradation study was not required, “existing uses” will be maintained; and the proposed discharge is “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	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	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.
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

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

Process Elements	Projected Date of Completion
Effective Date of the Application:	December 24, 2006
Draft Permit to Applicant and EPA for review	December 18, 2008
Begin Public Comment Period	December 23, 2008
Provide Proof of Publication	January 15, 2009
End Public Comment Period	January 23, 2009
Notice of Intent to Issue Permit	February 6, 2009
Publish Notice of Intent	February 28, 2009
Provide Proof of Publication	March 9, 2009
Final Department Action	March 14, 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.