

Effluent Quality Assessment

Fleming Island Wastewater Treatment Facility

Clay County

NPDES #FL0043834

Sampled October 21, 23, and 25, 2013

December 2013

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration
2013 FDEP Bureau of Labs Quality Manual
NELAC Certification No. E31780

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Fleming Island Wastewater Treatment Facility (WWTF), 1770 Radar Road, Orange Park, Clay County, Florida, 32003. NPDES #FL0043834.

Facility Overview

Fleming Island WWTF is a domestic wastewater treatment facility which treats wastewater for reuse or discharge. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent composite samples for toxicity testing were collected on October 21, 23, and 25, 2013. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on October 21, 2013. All samples were collected from the EFA-1 NPDES sampling point after disinfection but prior to dechlorination by Jeremy Parrish, Sharon Piltz, Jake Mast, Kyle Watson, and Chuck Plank (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 7-day chronic definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09 (see Appendix B).

Results

Chemistry Results (See Table 1 and Appendix C)

- The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.022 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.
- Atrazine, simazine, copper, nickel, zinc, turbidity, and fluoride were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.). Di- n- butyl phthalate, arsenic, iron, and selenium, were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Algal Growth Potential (See Table 2 and Appendix C)

- The effluent Algal Growth Potential (AGP) was 38.7 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a “problem” threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen –limited (Miller et al. 1978).
- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.17 parts per thousand (ppth) to a salinity of approximately 6.87 ppth by the addition of artificial sea salts to meet the salinity requirements of the test species.
- The salinity adjusted effluent algal growth potential (AGP) was 27.2 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP with Ron Raschke USEPA Region 4 1987). The salinity-adjusted AGP was dechlorinated by the addition of sodium thiosulfate (0.025 N) at a rate of 2.0 ml/ per liter of sample to neutralize total residual chlorine in the sample.

Toxicity Test Results (See Appendix C)

- Tests were performed October 22 – 29, 2013.

Ceriodaphnia dubia 7-day chronic definitive bioassay – IC25: >100%
NOEC: 100%

Pimephales promelas 7-day chronic definitive bioassay – IC25: > 100%
NOEC: 100%

- The bioassay samples were not chronically toxic to the test organisms.
- Total residual chlorine (TRC) (1.87, 2.20, and 2.20 mg/L) was detected in bioassay samples #1545163, 1546985, and 1547649 respectively. The bioassay samples were dechlorinated by the addition of sodium thiosulfate (0.025 N) at a rate of 2.0, 2.2, and 2.2 mL, respectively, per liter of sample to neutralize the chlorine. Bioassays were performed only on the dechlorinated aliquots. Due to a laboratory error, test controls with added sodium thiosulfate were not included in the tests; however, this omission did not affect the test results.
- Bioassay samples #2 and #3 were aerated for 25 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 9.7 and 11.1 mg/L to 8.3 and 8.7 mg/L, respectively.

Conclusion

The dechlorinated effluent samples collected from the EFA-1 NPDES sampling point for this facility on October 21, 23, and 25, 2013, were not chronically toxic to either test species during the 7-day chronic definitive bioassays. The salinity-adjusted and freshwater AGP results were greater than the respective "problem" thresholds for marine and fresh receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on October 21, 2013, did not exceed any applicable water quality standards or violate any permit conditions.

For additional information concerning this sampling event, including bioassay bench sheets and SRT data, please contact Bruce.Alexander@dep.state.fl.us and/or Joseph.Faircloth@dep.state.fl.us.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

Table 1. Effluent limits, Class III Criteria for predominantly marine waters, chemical and microbiological data, and qualifiers

Fleming Island WWTF	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
Atrazine			0.12	
Di-n-butyl phthalate			1.9	I
Simazine			0.069	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500		5.0	U
Arsenic	≤ 50		0.27	I
Cadmium	≤ 8.8		0.050	U
Calcium (mg/L)			25.1	
Chromium, total	≤ 50 ψ		0.30	U
Copper	≤ 3.7		1.04	
Iron	≤ 300		99	I
Lead	≤ 8.5		0.20	U
Magnesium (mg/L)			11.5	
Nickel	≤ 8.3		2.23	
Potassium (mg/L)			13.1	
Selenium	≤ 71		0.24	I
Silver	≤ 2.3 see crit		0.025	U
Sodium			63.2	
Zinc	≤ 86		40	
Nutrients (mg/L)				
Ortho-phosphate			1.2	
Total Phosphorus		Report	1.2	
Total Ammonia			0.022	
Un-ionized Ammonia			< 0.02	c
Nitrate and Nitrite			1.4	
Total Kjeldahl Nitrogen			0.58	
Organic Nitrogen			0.558	
Total Nitrogen		Report	1.98	
Total Organic Carbon			5.0	
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	6.0	
pH (SU)	6.5 - 8.5	6.5 - 8.5	7.18	
Specific Conductance (µmhos/cm)			553	
Temperature (°C)			27.4	
Salinity			≤ 0.26	c
Total Residual Chlorine (mg/L)	≤ 0.01		1.87	Q£
Chlorophyll *a* (µg/L) - Corrected			0.55	U
Phaeophytin (µg/L)			0.40	U
Total Suspended Solids (mg/L)		Report	2	U
Turbidity (NTU)	< 29 t		0.65	
Color (true, PCU)			5.1	I
Alkalinity (mg CaCO3/L)			94	A
CBOD, 5 day (mg/L), N - inhibited		Report	0.2	UQ
Chloride (mg/L)			68	A
Fluoride (mg/L)	≤ 5.0		0.29	
Sulfate (mg/L)			57	A
Flow (MGD)		6.365 a	1.57	a*
Hardness (mg $CaCO_3$)			110.03	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #		2	U

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

t - Shall not exceed 29 NTUs above background

A - Value reported is the mean of two or more determinations

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Q - Sample held beyond normal holding time

U - Material analyzed for but not detected; value reported is the method detection limit

¥ - Fecal coliform analysis performed by Columbia Analytical Services

- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

£ - measurement taken in the FDEP laboratory

ψ - Result is reported as Total Chromium, however, water quality criterion limits Chromium-III

* - Measured from 10/31/2012 - 9/30/2013

Table 2. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata,* measured salinity adjusted AGP for the saltwater species *Dunaliella tertiolecta,* and ratios of nitrogen to phosphorus

Fleming Island WWTF						
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (TN) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent*	Salt	27.2	54.0 ± 10.8	75.2 ± 15.0	1.2	1.7
Effluent	Fresh	38.7	54.0 ± 10.8	75.2 ± 15.0	1.2	1.7

* - sample salinity adjusted to 6.87 ppth

Appendix A
Facility Summary

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Ed Jamro	Contact Number: (904) 256-1617
Facility Name (as it appears on permit): Fleming Island Wastewater Treatment Facility	Former Names:
NPDES Permit Number: FL0043834	Permit Expiration Date: 6/7/2014
Physical Address: 1770 Radar Road Orange Park, Florida 32003	
District: NED	County: Clay
Function of Facility: Treat wastewater for reuse in Clay County or discharge treated effluent to St John's River.	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD): 4.0
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 1.66 MGD from 06/2012 – 05/2013.	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): 1.30 MGD from 06/2012 – 05/2013.	
Description of type of Discharge: Continuous operation, effluent mostly reused ☒Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):
EFA-1 - Effluent sample point immediately after disinfection but before dechlorination (Effluent from Fleming Island WWTF and Fleming Oaks WWTF)

EFD-1 - Effluent point after dechlorination (Combined effluent of Fleming Island WWTF, Fleming Oaks WWTF and Ridaught Landing WWTF), and immediately prior discharge to the St. Johns River.

Description of Permitted Outfall(s):
Surface Water Discharge: A 6.365 MGD annual average daily flow (AADF) permitted capacity discharge to St. Johns River (Class III predominantly marine water – WBID 2213H) at discharge location (D-001) which is approximately 550 feet in length and discharges at a depth of approximately 4 feet. The point of discharge is located approximately at latitude 30° 05' 46" N, longitude 81° 41' 25" W.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

- **An influent headworks utilizing with an aerated a grit chamber; a stainless steel, self-cleaning mechanical screens with 6 mm openings, installed in a 3.0 ft wide channel, capable of handling 6.0 MGD (peak flow); and an influent flow splitter,**
- **This facility has a vacuum truck receiving station consisting of a receiving platform, inline grit collector system, dewatering simplex pump station, grit collection dumpster, and piping connections to the head works,**
- **Two 200-ft elliptical carrousel 2-stage design oxidation ditches each of which is equipped with a 0.18-million gallons (MG) and 1.16-MG anoxic and aerobic zones, respectively; the aeration zone is aerated by three 75-hp turbine, low speed, fixed mechanical surface aerators; the anoxic zone is equipped with two 7.5-hp submerged turbine mixers;**
- **Three secondary clarifiers (named as clarifiers No 1, 2 and 3). Clarifiers No 1 and 2 are 70-ft diameter peripheral feed, 14-ft side water depth, 3,847-ft^2 surface area, 403,304 gallons volume; and equipped with sludge removal scraper arms, hinged race skimmers and scum trough assembly, inlet troughs and an effluent weir trough. Clarifier No 3 is 54-ft diameter peripheral feed, 15-ft side water depth, 256,000-gallon volume; and equipped with a scum removal device and sludge collection;**
- **Four automatic backwash traveling bridge filters each of which has a filtration area of 350 ft2; provides a filtration rate of 3.5 GPM per square foot;**
- **Four chlorine contact chambers (named CCC No 1, 2, 3, and 4). CCC No 1 consists of two 23,500-gallon chambers having dimensions of 31.33 ft x 21.33 ft x 7 ft deep. CCC No 2 consists two 45,000-gallon tanks having dimensions of 30 ft x 40 ft x 7.5 ft deep. CCCs No 3 and 4 each have dimensions of 36 ft x 36 ft x 10 ft deep, with a volume of 64,8000 gallons each;**
- **A reclaimed water distribution box to direct reclaimed water flow from the Ridaught Landing WWTF;**
- **An effluent pumping station which utilizes with four above ground 30-hp self-priming centrifugal pumps;**
- **An 0.85-MG aerobic digester with a side water depth of 14 ft, a 0.25-MG thickened sludge holding tank, five 40-hp blowers capable of supplying 550 ft^3 of air each, and a 200-GPM rotary drum thickener;**
- **Also at the site is a BioChem Neutralizer System consisting of two 160-gallon per minute rotary disk thickeners, two polymer feed system, two 10,000-gallon process tanks, and one Huber screw presses (two 1/2 horsepower thickeners and one 2 horsepower press). The system can produce Class A biosolids and is designed to accommodate the permitted capacity of the wastewater treatment facility (WWTF).**

The primary method of disposal is reuse of reclaimed water via spray irrigation to public access reuse sites. Surface water discharge is the alternative (backup) disposal method. The wastewater residuals are treated to meet Class B / Class A stabilization requirements and are land applied at approved sites.

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

PART I: Continued

List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to St. Johns River (WBID 2213H). Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.C.8:

a. Effluent limitations and monitoring requirements for Fleming Island WWTF and Fleming Oak WWTF: *(Secondary wastewater effluent from the Fleming Oaks WWTF is introduced into the Fleming Island WWTF treatment train prior to the filter bed for further treatment which includes filtration, disinfection and/or dechlorination)*:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
BOD, Carbonaceous 5-day, 20°C	mg/L	Maximum	Report	Report	-	Report	Weekly	24-hour flow proportioned composite (FPC)	EFA-1	
Solids, Total Suspended	mg/L	Maximum	Report	Report	-	Report	Weekly	24-hour FPC	EFA-1	
pH	s.u.	Range	-	-	-	6.0 to 8.5	Continuous	Meter	EFA-1	See Cond. I. A.3
Coliform, Fecal	#/100mL	Maximum	See Permit Condition I.A.6.	Weekly	Grab	EFA-1				
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	0.5	Continuous	Meter	EFA-1	See Cond. I. A.3 & 7
Nitrogen, Total (as N)	mg/L	Maximum	Report	Report	-	Report	Weekly	24-hour FPC	EFA-1	
Phosphorus, Total (as P)	mg/L	Maximum	Report	Report	-	Report	Weekly	24-hour FPC	EFA-1	

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

PART I: Continued

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			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow , Total Surface Discharge from Outfall D-001	MGD	Maximum	6.365	Report	-	-	Continuous (During Discharge)	Recording flow meters totalizers	EFD-1	See Cond. I.A.4 & 5
BOD, Carbonaceous 5-day, 20°C	mg/L	Maximum	20.0	25.0	30.0	40.0	Weekly (During Discharge)	24-hour FPC	EFD-1	
Percent Removal – CBOD5	%	Maximum		85.0			Weekly (During Discharge)	Calculated	CAL-1	See Cond. I.A.8
Solids, Total Suspended	mg/L	Maximum	20.0	30.0	45.0	60.0	Weekly (During Discharge)	24-hour FPC	EFD-1	
Percent Removal - TSS	%	Maximum		85.0			Weekly (During Discharge)	Calculated	CAL-1	See Cond. I.A.8
pH	S.U.	Range	-	-	-	6.5 to 8.5	Continuous, (During Discharge)	Meter	EFD-1	See Cond. I. A.3

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a. Effluent limitations and monitoring requirements for Fleming Island WWTF and Fleming Oak WWTF: *(Secondary wastewater effluent from the Fleming Oaks WWTF is introduced into the Fleming Island WWTF treatment train prior to the filter bed for further treatment which includes filtration, disinfection and/or dechlorination)*:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Total Residual Chlorine (For Dechlorination)	mg/L	Maximum	-	-	-	0.01	7 Days/Week (During Discharge)	Grab	EFD-1	See Cond. I. A.12
Total ammonia (NH3 + NH4) as N	mg/L	Maximum	-	-	-	Report	Weekly (During Discharge)	Grab	EFD-1	See Cond. I. A. 10
Ammonia, Unionized	mg/L	Maximum	-	-	-	Report	Weekly (During Discharge)	Calculated	CAL-2	See Cond. I.A.10
Temperature (°C), Water	deg.C	Maximum	-	-	-	Report	Weekly (During Discharge)	Grab	EFD-1	See Cond. I.A.10
Oxygen, Dissolved (DO)	mg/L	Minimum	-	-	-	4.0	7 Days/Week (During Discharge)	Grab	EFD-1	See Cond. I.A.9
Nitrogen, Total (as N)	mg/L	Maximum	10.0	12.5	15.0	20.0	Weekly (During Discharge)	24-hour FPC	EFD-1	

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

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a. Effluent limitations and monitoring requirements for Fleming Island WWTF and Fleming Oak WWTF: *(Secondary wastewater effluent from the Fleming Oaks WWTF is introduced into the Fleming Island WWTF treatment train prior to the filter bed for further treatment which includes filtration, disinfection and/or dechlorination)*:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Phosphorus, Total (as P)	mg/L	Maximum	2.0	2.5	3.0	4.0	Weekly (During Discharge)	24-hour FPC	EFD-1	
Nitrogen, Total (as N)	-	Maximum	Report (Total Ann Mass Load) (Lbs/Yr)	Report (Monthly Mass Load) (Lbs/mo.)	-	-	Monthly	Calculated	CAL-3	See Cond. I.A 11
Phosphorous, Total (as P)	-	Maximum	20,103 † (Total Ann Mass Load) (Lbs/Yr)	Report (Monthly Mass Load) (Lbs/mo.)	-	-	Monthly	Calculated	CAL-3	See Cond. I.A.16
Nitrate plus Nitrite, Nitrogen, as N	mg/L	Maximum	Report	-	-	Report	Quarterly	24-hour FPC	EFD-1	See Cond. I.A 13
Nitrogen, Total Kjeldahl (TKN), as N	mg/L	Maximum	Report	-	-	Report	Quarterly	24-hour FPC	EFD-1	See Cond. I.A 13
	† = temporary voluntary reduction in TP mass load									

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

PART I: Continued

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a. Effluent limitations and monitoring requirements for Fleming Island WWTF and Fleming Oak WWTF: *(Secondary wastewater effluent from the Fleming Oaks WWTF is introduced into the Fleming Island WWTF treatment train prior to the filter bed for further treatment which includes filtration, disinfection and/or dechlorination)*:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Nitrogen, Total Organic, (as N)	mg/L	Maximum	Report	-	-	Report	Quarterly	24-hour FPC	EFD-1	See Cond. I.A 13
Ortho-Phosphate, as P	mg/L	Maximum	Report	-	-	Report	Quarterly	Filtered Grab	EFD-1	See Cond. I.A 13
Chronic Whole Effluent Toxicity			See Permit Condition I.A.14				Semi-Annually	24-hour FPC	EFD-1	
Benthic Monitoring	See Permit Condition I.A.15									

I.A.

3. Hourly measurement of pH and total residual chlorine for disinfection during the period of required operator attendance may be substituted for continuous measurement. *[Chapter 62-601, Figure 2]*

4. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-601.200(17) and .500(6)]*

5. The backup discharge can be utilized from outfall D001 to the Lower St. Johns River. When the backup discharge is activated, the effluent limits and monitoring frequencies listed in Condition I.A.1 shall apply. For parameters that have a daily sampling frequency, samples shall be

taken as soon as the discharge occurred. For parameters that have a weekly or monthly sampling frequency, samples shall be taken on the first discharge day of the discharge week or month. If the discharge to the St. Johns River is for a period of less than a 24 hour day, flow proportioned composite samples for the time period of discharge may be used. When discharge does not occur continuously during this time, the sample shall be taken as a discrete flow composited sample that represents the actual effluent through outfall D-001. The permittee shall report the amount of time that sampling actually occurred along with the total flow during that monitoring period. When no discharge occurs, this fact shall be reported on the discharge monitoring report (DMR). *[62-610.860, FAC, 62-601.200(17) and .500(6)]*

6. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly) shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected (the 90th percentile value) during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. Note: To report the 90th percentile value, list the fecal coliform values obtained during the month in ascending order. Report the value of the sample that corresponds to the 90th percentile (multiply the number of samples by 0.9). For example, for 30 samples, report the corresponding fecal coliform number for the 27th value of ascending order. *[62-600.440(4)(c)]*

7. A minimum of 0.5 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(b) and 62-610.568(3)]*

8. The monthly average effluent carbonaceous biochemical oxygen demand 5-day (CBOD5) and total suspended solids concentrations shall not exceed 15% of the respective influent values (85% removal). *[62-620.620(1)(o) and (3)]*

9. The average of DO level shall not be less than 5.0 mg/L in a 24- hour period and shall never be less than 4.0 mg/L. Normal daily and seasonal fluctuations above these levels shall be maintained. The Lower St. Johns River has a site-specific alternative criteria (SSAC) for DO, in accordance with the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008. *[62-302.530(30)]*

10. Unionized ammonia shall be calculated based on a separate single grab sample for total ammonia. The pH and temperature at the time of the grab sample shall be used for the calculation and reported on the DMR. *[62-302.530(3)]*

11. The permittee, Clay County Utility Authority (CCUA), shall meet the aggregate cap through collectively managing the total nitrogen loads from each individual CCUA facility (Miller Street WWTF - FL0025151, Fleming Island WWTF-FL0043834, and Fleming Oaks WWTF - FL0032875), which are listed in the Clay County Utility Authority - Aggregate Total Nitrogen (Permit ID: FL0629006). The monthly mass load and annual mass loads of total nitrogen shall be calculated as follows:

- Monthly Mass Load (ML)

$$\text{ML (Lbs/month)} = \left(\text{Flow}\left(\frac{MG}{Month}\right) \text{x TN } \left(\frac{mg}{L}\right) \text{x } 8.34 \left(\frac{L}{MG}\right) \left(\frac{Lbs}{mg}\right)\right.$$

Where:

ML = Monthly mass load of total nitrogen; (Lbs/month)

Flow = Total volume effluent discharged from D-001 in a given month (million gallons (MG)

TN = Monthly average concentration of TN collected at EFD-1, (mg/L)

- Annual Mass Load

  The annual mass load is computed using a rolling twelve (12) month period. The calculation shall be the sum of the twelve most recent monthly mass loading of total nitrogen starting from the second month following permit issuance month.

12. **The Florida water quality criteria and standards shall not be violated as a result of the discharge.** ***[62-620.320(9)] & [62-302.530]***

13. **The Permittee shall conduct regular monitoring of the segments of the tributaries of St. Johns River near the outfall, D-001, for maintaining data on the impact of the discharge to the water quality of the surface water body. The monitoring locations and schedule are specified in the Clay County Utility Authority – Aggregate TMDL TN permit (Permit ID; FL0629006). The information provided is part of the on-going TMDL – BMAP study for the St. Johns River. Monitoring shall coincide with the nutrient monitoring of the facility's effluent discharge as described in I.A.1 above.**

14. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

    a. **Effluent Limitation**

    (1) Whole effluent chronic toxicity shall not result in an Inhibition Concentration 25% (IC_{25}) less than 100% effluent in any test. [Rule 62-302.530(61), as defined in 62-302.200(14) F.A.C.]

    (2) Whole effluent acute toxicity shall not result in a 96-hour LC50 less than 100% effluent in any test. [Rule 62-302.500(1)(a)4., F.A.C.]

    b. **Monitoring Frequency**

    (1) Routine toxicity tests shall be conducted semi-annually, once every 6 months, starting within 6 months of the most recent test and lasting for the duration of the permit.

    c. **Sampling Requirements**

    (1) For each routine test or additional follow-up test conducted, a total of three *24-hour flow proportioned composite* samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.

    (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

    (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements

(1) **Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions:** 100%, 75%, 50%, 25%, **and** 12.5% **final effluent.**

(2) The permittee shall conduct a daphnid, *Ceriodaphnia dubia*, **Survival and Reproduction Test and a fathead minnow,** *Pimephales promelas*, **Larval Survival and Growth Test, concurrently.**

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, **4th ed., EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.**

(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.

15. The permittee shall initiate regular monitoring of the segment of the St. Johns River near the outfall for maintaining data on the impact of the discharge to the river sediments and associated benthic communities near the outfall to the surface water body. Monitoring shall be on a bi-yearly (one every two years) basis and shall coincide with the 2nd quarterly nutrient and stream monitoring events for the facility effluent discharge.

The test sites in the Fifth Year Inspection bracketed the outfall approximately 100 meters north and south and were parallel with the end of the pipe, approximately 900 to 1000 feet from the western shoreline of the St. Johns River. The reference site chosen during the Fifth Year Inspection is located across the river off Mandarin Point, between the Northwest point of Mandarin Point and Marker number "11", approximately 900 to 1000 feet from the shoreline. The monitoring sites are described as follows:

SAMPLE SITE	STORET SITE	LOCATION
Site No. 1	20030566	North (100 m, downstream) of POD
Site No. 2	20030567	South (100 m, upstream) of POD
Reference Site	20030504	Mandarin Point, St. Johns River

Three replicate sediment samples will be collected at each site noted above using a Ponar dredge and combined to form one composite sample.

The sample shall be screened using a U.S. Standard No. 30 sieve and benthic Macroinvertebrates shall be identified. The composite sample shall be analyzed for total solids, volatile solids and particle size distribution. An annual report of the analyses shall be submitted to the Department along with the 1st quarter nutrient and stream monitoring results. The laboratory analyses shall also include field notes describing the color, texture, or any other qualitative description of the sediments, and other pertinent information. The results of the benthic monitoring shall be submitted to the Northeast District Office.

[62-302.530(11), 04/04/01]

16. CCUA has voluntarily reduced the total annual mass load for TP from 23,360 lb/yr to 20,103 lb/yr (from 10,595 kg/yr to 9,119 kg/yr).

- Monthly Mass Load (ML)

ML (Lbs/month) = (Flow($\frac{MG}{Month}$)x TP ($\frac{mg}{L}$) x 8.34 $\left(\frac{L}{MG}\right)$ $\left(\frac{Lbs}{mg}\right)$

Where:

ML = Monthly mass load of total phosphorus; (Lbs/month)

Flow = Total volume effluent discharged from D-001 in a given month (million gallons (MG)

TN =

- Monthly average concentration of TP collected at EFD-1, (mg/L)_

Annual Mass Load

The annual mass load is computed using a rolling twelve (12) month period. The calculation shall be the sum of the twelve most recent monthly mass loading of total nitrogen starting from the second month following permit issuance month.

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
St. John's River	Class III marine waters (WBID 2213H)

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

IC25 CHRONIC & ACUTE 96-HR LC-50 Whole Effluent Toxicity (WET) .:
See I.A.14. on page 9 of this report.

Ceriodaphnia dubia (Routine)
Pimephales promelas (Routine)

Ceriodaphnia dubia (Additional)
Pimephales promelas (Additional)

WWTP is under an approved Toxicity Plan of Study – 06/04/2013.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):

No Consent Orders for effluent parameters or operations. CO-11-0951 included many SSO's in the CCUA system and a reclaimed water spill at Fleming island in November 2010.

No AO's.

Facility Mixing Zone Details (if applicable): None currently.

Permittee is actively working with NED permitting staff on a mixing zone for toxicity. Permittee is doing a mixing zone study.

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:

Date	Parameter and Units	Limit	Result
March-2013	**IC25 Statre 7-day CHR Ceriodaphnia**	**100% (MIN) ****	**93.45 / 53.91%**
Feb.-2013	**IC25 Statre 7-day CHR Ceriodaphnia**	**100% (MIN) ****	**97.78%**

Facility had low TRC in its reclaimed water effluent R001 – July-2012.

**** Facility is operating under an approved WET Correction Plan and submits status reports on a quarterly basis. The plan was approved 6/4/2013.**

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

Describe previous FYI and WQBEL study:

i) **The Third-Year inspection was conducted on July 11, 2005 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 not detected in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.04 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 fresh water quality criteria. Atrazine, aluminum, cadmium, copper, lead, and nickel were detected between the laboratory minimum detection limits (MDL) and practical quantitation limits (PQL).**

(2) Toxicity Test Result:

The effluent sample collected from D-001 on July 11, 2005, was not acutely toxic to either test species during the acute screen 48-hour bioassays.

+ Ceriodaphnia dubia 48-hr acute screening bioassay – LC50 > 100%, 0% mortality in 100% sample at 48 hours

+ Cyprinella leedsi 48-hr acute screening bioassay – LC50 > 100%, 0% mortality* in 100% sample at 48 hours

(3) Algal Growth Potential:

The effluent Algal Growth Potential (AGP) was 5.69 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 wt/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment..

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.

Technology-based Effluent Limitations (TBEL's) & Water Quality Based Effluent Limitation (WQBEL)

See excerpt from the permit fact sheet at the end the end of this report – Pages 14 & 15.

Describe previous or current Enforcement Actions (including WLs):

None in last two years directly associated with this WWTP's effluent or operation. There was a SFCO regarding the sewer collection system serving the Fleming Island WWTP and an overflow from the Reclaimed Water storage tank.

Describe any violations or problems noted in previous inspection:
Inspection conducted on 05/16/2012. Facility rated as being in-compliance.

Discuss whether DMR trends within previous five years are improving or declining:
From graphs on PCS from 01/2008 to 05/2013 the following comments can be made:
TN and TP concentrations in effluent are trending down in the past year.
TN and TP mass loading is trending up in the past two years.

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):
Fleming Island WWTF's effluent combines with the effluents from Fleming Oaks WWTF and Ridaught Landing WWTF prior to discharging to the st. Johns River.

Technology-based Effluent Limitations (TBEL's) & Water Quality Based Effluent Limitation (WQBEL)

(a) Technology-Based Effluent Limitations (TBELs)

The Fleming Island 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, TSS, and pH have been developed to comply with the technology-based standards of the Clean Water Act.

(b) Water Quality Based Effluent Limitation (WQBEL – Level I)

(i) Monitoring frequencies and limitations are retained from the previous permit for "conventional" pollutants parameters (CBOD5, TSS, pH, Fecal Coliform, and TRC).

(ii) Due to the discharge from outfall D001 to the Lower St. Johns River is a backup discharge, flow proportioned composite samples may be use in lieu a 24-hours FPC samples for discharges less than 24 hours. When discharge does not occur continuously during this time the sample shall be taken as a discrete flow composited sample that represents the actual effluent through outfall D-001. The permittee shall report the amount of time that sampling actually occurred along with the total flow during that monitoring period. For parameters that have a daily sampling frequency, samples shall be taken as soon as the discharge occurred. For parameters that have a weekly or monthly sampling frequency, samples shall be taken on the first discharge day of the discharge week or month.

(iii) There is no evidence to show that the effluent impacts the DO level of the water body. 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) Due to the reclassification of the receiving water body (from fresh water to predominated marine water), limit of unionized ammonia concentration of 0.2 mg/L is deleted. The un-ionized ammonia fraction shall be calculated based on the total ammonia, pH, and temperature and reported on the DMR.

(v) The total phosphorous mass load limit of 64 Lbs/day (23,360 Lbs/yr) or 29.1 Kg/day (10,118 Kg/yr) is remained in the permit.

(vi) The Expanded Effluent Testing Data shows that the total cyanide was not detectable. The analyzed method was used with a MDL (method detection limit) higher the water quality criterion of 1.0 µg/L (Rule 62-302.530(24). In accordance with Florida Administrative Code Rule 62-4.246(7), cyanide is deemed in compliance with the water quality criterion.

(vii) The Permittee shall conduct regular monitoring of the segment of the St. Johns River near the outfall, D-001 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 Clay County Utility Authority – Aggregate TMDL TN (Permit ID; FL0629006).

(viii) 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.

(ix) The permittee continues to monitor for macroinvertebrate communities near the WWTF outfall as defined in the existing permit for maintaining data on the impact of the discharge to the water body.

(c) Total Maximum Daily Load of Total Nitrogen:

(i) Discharge from Fleming WWTF is subject the effluent limitation for annual mass load of the total nitrogen (i.e., the sum of monthly mass loading of total for each month started 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 2213H). The existing waste load allocation (WLA) (Existing permit Condition I.A.1) for total nitrogen is 28,536.4 Kg/yr (62,780 Lbs/yr) or 78.2 Kg/day (172 Lbs/day). TMDL – BMAP allows total waste allocation of total nitrogen for WWTF is 43,838 kg/year (96,443.6 Lbs/yr) or 120 Kg/day (264.2 Lbs/day). Thus, the WWT gains 15,302 Kg/yr (33,664.4 Lbs/yr) or 53.62 % of WLA for total nitrogen discharge to St. Johns River.

The permittee, CCUA, may not need to meet the waste allocation limit of TMDL – BMAP for TN, but shall meet the aggregate cap through collectively managing the total nitrogen loads of each individual CCUA's facilities listed the Clay County Utility Authority - Aggregated Total Nitrogen (Permit ID: FL0626009) which will be issued in simultaneously or prior to issuance of this permit.

(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.

FLEMING ISLAND WWTP –FACILITY SUMMARY – FL0043834 – SEPT - 2013

PART II: Sampling Event Information	
Date(s) sample collected: October 21, 2013 - planned	Sampler(s): Eesa Ali, Sharon Piltz
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix B
Explanation of measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm.

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedance of 62-302.500(1)a and/or a violation of facility permit limits. A 25% inhibition concentration (IC25) is the effluent concentration causing a 25% reduction in a biological response such as biomass or reproduction when compared to a control population. An IC25 of less than 100% in a chronic test may constitute exceedances of 62-302.530(20), 62-302.530(61) and/or a violation of facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of 62-302.530(61) and/or a violation of facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedance of 62-302.530(6) and/or a violation of facility permit limits. Fecal coliform and enterococci results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20-60 colony forming units per plate. The B-qualifier does not affect data quality.

(5) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a “problem” threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C.

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of $\pm$ 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of 62-302.530(61), F.A.C.

(6) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate of algal biomass . High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

(7) Definition of Qualifiers

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC)

Appendix C
Chemical Analyses of Effluent

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.20	UQ	mg/L	0.2	2
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	LJQ	IC25		
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100	Q	NOEC		
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Nutrients	Total-P	1.2		mg P/L	0.025	0.25
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Nutrients	Kjeldahl Nitrogen	0.58		mg N/L	0.08	0.2
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Nutrients	TSS	2	U	mg/L	2	10
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Nutrients	NO2NO3-N	1.4		mg N/L	0.04	0.1
10/21/2013 1:10	Fleming Is. WWTF EFA-1 24 HFC	Field Parameter	Temperature	2.5		C		
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	AGP/LN	Algal Growth Potential-Salinity Adjusted	27.2		mg DryWt/L	3	3
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	AGP/LN	Algal Growth Potential	38.7		mg DryWt/L	0.3	0.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40	U	ug/L	0.4	1.2
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Overflow	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL	2	
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Copper	1.04		ug/L	0.5	1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Zinc	40		ug/L	5	20
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Arsenic	0.27	I	ug/L	0.25	1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Aluminum	5.0	U	ug/L	5	20
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Magnesium	11.5		mg/L	0.04	0.16
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Chromium	0.30	U	ug/L	0.3	1.2
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Selenium	0.24	I	ug/L	0.2	0.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Sodium	63.2		mg/L	0.5	2
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Iron	99	I	ug/L	30	120
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Potassium	13.1		mg/L	0.3	1.2
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Calcium	25.1		mg/L	0.075	0.3
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Lead	0.20	U	ug/L	0.2	0.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Metals	Nickel	2.23		ug/L	0.25	1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Color (true)	5.1	I	PCU	2.5	6

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Alkalinity	94	A	mg CaCO3/L	0.65	2.5
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Fluoride	0.29		mg F/L	0.035	0.1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Turbidity	0.65		NTU	0.1	0.1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Chloride	68	A	mg Cl/L	2	5
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Sulfate	57	A	mg SO4/L	2	5
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Ammonia-N	0.022		mg N/L	0.002	0.005
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	Organic Carbon	5.0		mg C/L	0.5	1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Nutrients	O-Phosphate-P	1.2		mg P/L	0.04	0.1
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Prometryn	0.020	U	ug/L	0.02	0.08
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Atrazine	0.12		ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Diazinon	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Malathion	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Metalaxyl	0.040	U	ug/L	0.04	0.16
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Metolachlor	0.060	U	ug/L	0.06	0.24
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Simazine	0.069		ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Bromacil	0.040	UJ	ug/L	0.04	0.16
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Chlorpyrifos Methyl	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Fonofos	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Norflurazon	0.043	U	ug/L	0.043	0.17
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Butylate	0.020	U	ug/L	0.02	0.08
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Chlorpyrifos Ethyl	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Parathion Ethyl	0.020	U	ug/L	0.02	0.08
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Phorate	0.0050	UJ	ug/L	0.005	0.02
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Azinphos Methyl	0.020	U	ug/L	0.02	0.08
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Ethoprop	0.0050	U	ug/L	0.005	0.02
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Alachlor	0.060	U	ug/L	0.06	0.24
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Ethion	0.010	UJ	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Fenamiphos	0.030	UJ	ug/L	0.03	0.12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Hexazinone	0.030	U	ug/L	0.03	0.12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Mevinphos	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Naled	0.040	U	ug/L	0.04	0.16
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Ametryn	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Metribuzin	0.020	U	ug/L	0.02	0.08

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Pesticides	Parathion Methyl	0.010	U	ug/L	0.01	0.04
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Di-n-butyl phthalate	1.9	I	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Dimethyl phthalate	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Butyl benzyl phthalate	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.78

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,4-Dinitrophenol	15	UJ	ug/L	15	58
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.78
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Specific Conductance	553		umhos/cm		
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Dissolved Oxygen	6.0		mg/L		
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	pH	7.18				
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Temperature	27.4		C		
10/21/2013 10:00	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Sample Depth	0.5		m		
10/21/2013 10:15	Field Blank	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
10/21/2013 10:15	Field Blank	Metals	Copper	0.50	U	ug/L	0.5	1
10/21/2013 10:15	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
10/21/2013 10:15	Field Blank	Metals	Magnesium	0.040	U	mg/L	0.04	0.16
10/21/2013 10:15	Field Blank	Metals	Zinc	5.0	U	ug/L	5	20
10/21/2013 10:15	Field Blank	Metals	Lead	0.20	U	ug/L	0.2	0.8
10/21/2013 10:15	Field Blank	Metals	Sodium	0.50	U	mg/L	0.5	2

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:15	Field Blank	Metals	Chromium	0.30	U	ug/L	0.3	1.2
10/21/2013 10:15	Field Blank	Metals	Potassium	0.30	U	mg/L	0.3	1.2
10/21/2013 10:15	Field Blank	Metals	Aluminum	5.0	U	ug/L	5	20
10/21/2013 10:15	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
10/21/2013 10:15	Field Blank	Metals	Iron	30	U	ug/L	30	120
10/21/2013 10:15	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
10/21/2013 10:15	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/21/2013 10:15	Field Blank	Metals	Selenium	0.20	U	ug/L	0.2	0.8
10/21/2013 10:15	Field Blank	Nutrients	Turbidity	0.10	U	NTU	0.1	0.1
10/21/2013 10:15	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
10/21/2013 10:15	Field Blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
10/21/2013 10:15	Field Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
10/21/2013 10:15	Field Blank	Nutrients	Chloride	0.20	U	mg Cl/L	0.2	0.5
10/21/2013 10:15	Field Blank	Nutrients	Ammonia-N	0.003	I	mg N/L	0.002	0.005
10/21/2013 10:15	Field Blank	Nutrients	Organic Carbon	0.50	U	mg C/L	0.5	1
10/21/2013 10:15	Field Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
10/21/2013 10:15	Field Blank	Nutrients	Sulfate	0.20	U	mg SO4/L	0.2	0.5
10/21/2013 10:15	Field Blank	Pesticides	Fonofos	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Simazine	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Mevinphos	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Prometryn	0.019	U	ug/L	0.019	0.076
10/21/2013 10:15	Field Blank	Pesticides	Hexazinone	0.029	U	ug/L	0.029	0.11
10/21/2013 10:15	Field Blank	Pesticides	Naled	0.038	U	ug/L	0.038	0.15
10/21/2013 10:15	Field Blank	Pesticides	Parathion Ethyl	0.019	U	ug/L	0.019	0.076
10/21/2013 10:15	Field Blank	Pesticides	Alachlor	0.057	U	ug/L	0.057	0.23
10/21/2013 10:15	Field Blank	Pesticides	Azinphos Methyl	0.019	U	ug/L	0.019	0.076
10/21/2013 10:15	Field Blank	Pesticides	Butylate	0.019	U	ug/L	0.019	0.076
10/21/2013 10:15	Field Blank	Pesticides	Chlorpyrifos Methyl	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Norflurazon	0.029	U	ug/L	0.029	0.11
10/21/2013 10:15	Field Blank	Pesticides	Parathion Methyl	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Ametryn	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Bromacil	0.038	UJ	ug/L	0.038	0.15
10/21/2013 10:15	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.0095	U	ug/L	0.0095	0.038

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:15	Field Blank	Pesticides	Ethoprop	0.0048	U	ug/L	0.0048	0.019
10/21/2013 10:15	Field Blank	Pesticides	Phorate	0.0048	U	ug/L	0.0048	0.019
10/21/2013 10:15	Field Blank	Pesticides	Atrazine	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Malathion	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Metalaxyl	0.038	U	ug/L	0.038	0.15
10/21/2013 10:15	Field Blank	Pesticides	Diazinon	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Ethion	0.0095	U	ug/L	0.0095	0.038
10/21/2013 10:15	Field Blank	Pesticides	Fenamiphos	0.029	UJ	ug/L	0.029	0.11
10/21/2013 10:15	Field Blank	Pesticides	Metribuzin	0.019	U	ug/L	0.019	0.076
10/21/2013 10:15	Field Blank	Pesticides	Metolachlor	0.057	U	ug/L	0.057	0.23
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.6
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.76

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	57
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.76
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
10/21/2013 10:15	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.76
10/23/2013 8:00	Fleming Is. WWTF EFA-1 24 HFC	Field Parameter	Dissolved Oxygen	6.63		mg/L		
10/23/2013 8:00	Fleming Is. WWTF EFA-1 24 HFC	Field Parameter	Temperature	3.2		C		
10/23/2013 9:32	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	pH	7.08				

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
10/23/2013 9:32	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Sample Depth	1.6		m		
10/23/2013 9:32	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Specific Conductance	595		umhos/cm		
10/23/2013 9:32	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Temperature	27.4		C		
10/23/2013 9:32	Fleming Is. WWTF EFA-1 GRAB	Field Parameter	Dissolved Oxygen	6.63		mg/L		
10/24/2013 8:00	Fleming Is. WWTF EFA-1 24 HFC	Field Parameter	Temperature	2.9		C		
10/25/2013 11:15	Equipment Blanks	Nutrients	Kjeldahl Nitrogen	0.080	U	mg N/L	0.08	0.2
10/25/2013 11:15	Equipment Blanks	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
10/25/2013 11:15	Equipment Blanks	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01

EPA END SHEET

The Bioassay of Fleming Island WWTF effluent sampled on October 21, 23, and 25, 2013. NPDES #FL00043834.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code			NPDES NUMBER										YR/MO/DA						Insp Type		Inspector		Fac Type	
1	N	2 5	3	F	L	0	0	4	3	8	3	4	11 12	1	3	1	0	2	1	18	**B**	19	**S**	20	1

Remarks

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The Priority Pollutants Analysis of Fleming Island WWTF effluent sampled on October 21, 2013. NPDES #FL00043834.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code			NPDES NUMBER										YR/MO/DA						Insp Type		Inspector		Fac Type	
1	N	2 5	3	F	L	0	0	4	3	8	3	4	11 12	1	3	1	0	2	1	18	**X**	19	**S**	20	1

Remarks

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Biological Analyses of Fleming Island WWTF effluent sampled on October 21, 2013. NPDES #FL00043834.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code			NPDES NUMBER										YR/MO/DA						Insp Type		Inspector		Fac Type	
1	N	2 5	3	F	L	0	0	4	3	8	3	4	11 12	1	3	1	0	2	1	18	**S**	19	**S**	20	1

Remarks

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