

Effluent Quality Assessment

City of Bradenton Wastewater Treatment Facility

Manatee County

NPDES #FL0021369

Sampled April 28, 2014

August 2014

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration
2014 FDEP Bureau of Labs Quality Manual
NELAC Certification No. E31780

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City of Bradenton Wastewater Treatment Facility (WWTF), 1810 First Street West, Bradenton, Manatee County, Florida, 34208. NPDES #FL0021369.

Facility Overview

City of Bradenton WWTF is an activated sludge advanced wastewater treatment facility designed to collect and treat domestic wastewater. Wastewater is treated and discharged to Robinson's Ditch and then to the Class II Marine Waters of the Manatee River. 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 April 28, 2014. Effluent grab and composite samples for biological and chemical analyses for this facility were also collected on April 28, 2014. All samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Ramandeep Kaur and Gitta Schmitt (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 96-hour acute definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09 (see Appendix B).

Results

Chemistry Results (See Table 2 and Appendix C)

- The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 1.7 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.04 mg/L.
- Total phosphorus, total nitrogen, carbonaceous biochemical oxygen, aluminum, iron, and nickel were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Arsenic, chromium, zinc and total suspended solids (TSS) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Algal Growth Potential (See Table 2 and 4 and Appendix C)

- The effluent Algal Growth Potential (AGP) was 67 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).
- Due to a communication error in the lab, a salinity adjusted AGP test was not performed.

Toxicity Test Results (See Appendix C)

- Tests were performed April 29 – May 03, 2014.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute definitive bioassay –	LC_{50} > 100%, 10%* mortality in 100% sample at 96 hours

*NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1) (a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

- The bioassay samples were not acutely toxic to the test organisms.

Conclusion

The effluent sample collected from the EFD-01 NPDES sampling point for this facility on April 28, 2014, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters. Although a marine AGP test was not performed, the results of the freshwater AGP test and the nutrient chemistry results (Maloney et al. 1974) are sufficient to infer that nutrient enrichment may be an issue. Effluent water quality samples collected on April 28, 2014, 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 Diane.Power@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.

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.

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.

Stevenson, R. J. and L. L. Bahls. 1999. Periphyton protocols. Pp. 6.1-6.22 in: Rapid bioassessment protocols for use in wadeable streams and rivers. 2nd edition. By: M. T. Barbour, J. Gerritsen, B. D. Snyder and J. B. Stribling. EPA 841-B-99-002. U. S. Environmental Protection Agency, Office of Water, Washington, D. C.

Table 1. Effluent limits, Class III Marine Criteria and field parameters

City of Bradenton WWTF	Units	Class III Criteria	Effluent Permit Limits	EFD-01 Grab
Temperature	°C	-	-	26.7
pH	SU	6.5 - 8.5	6.5 - 8.5	7.5
Specific Conductance	umhos/cm	-	-	1987
Salinity	ppth	-	-	1 c
Dissolved Oxygen	% saturation	42	-	165.86
Dissolved Oxygen	mg/L	≥ 5.0	≥ 5.0	13.2J
Flow	MGD	-	≤ 6.0 a	4.2 a
Total Residual Chlorine	mg/L	≤ 0.01	≤ 0.01	< 0.03 QU£

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

e - Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

J - Estimated value

c - Value is calculated

Q - Sample held beyond normal holding time

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

£ - measurement taken in the FDEP laboratory

Table 2. Effluent limits, Class III Marine Criteria and analytical water chemistry data

City of Bradenton WWTF	Units	Class III Criteria	Effluent Permit Limits	EFD-01 Grab	EFD-01 Composite
Ortho-phosphate	mg P/L	-	-	0.56	-
Total Phosphorus	mg P/L	-	≤ 2.0 s	0.66	0.31
Total Ammonia	mg N/L	-	-	1.7	-
Un-ionized Ammonia (calculated salinity)	mg N/L	-	-	0.04 c	-
Nitrate and Nitrite	mg N/L	-	-	0.099	0.12
Total Kjeldahl Nitrogen	mg N/L	-	-	2.6	2.4
Organic Nitrogen	mg N/L	-	-	0.9 c	-
Total Nitrogen	mg N/L	-	≤ 6.0 s	2.7 c	2.5 c
Total Organic Carbon	mg C/L	-	-	-	11
Chlorophyll *a* - Corrected	ug/L	-	-	4.9	-
Phaeophytin	ug/L	-	-	0.40 U	-
CBOD, 5 day, N - inhibited	mg/L	-	≤ 10.0 s	-	2.2 AJ
Hardness	mg/L	-	-	-	510 c
Total Residual Chlorine	mg/L	-	≤ 0.01 s	< 0.03 QU£	-
Total Suspended Solids	mg/L	-	≤ 10.0 s	-	2 I
Turbidity	NTU	< 29 t	-	2	-
Color (true)	PCU	-	-	21	-
Alkalinity	mg CaCO3/L	-	-	258	-
Chloride	mg Cl/L	-	-	330	-
Cyanide	mg CN/L	≤ 0.001	≤ 0.001	0.005 U	-
Fluoride	mg F/L	≤ 5.0	-	0.39	-
Sulfate	mg SO4/L	-	-	320	-
Microbiology					
Fecal Coliforms ¥	cfu/100 mL	≤ 800 s#	≤ 25 s	1 U	-
Enterococci	#/100ML	-	≤ 276 s	1.0 U	-
Toxicity (Acute Definitive)					
Bioassay - Water flea *(Ceriodaphnia dubia)* LC50	%	≥ 100	-	> 100	-
Bioassay - Fish *(Pimephales promelas)* LC50	%	≥ 100	-	> 100	-

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

e - Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated

s - Single sample

t - Shall not exceed 29 NTUs above background

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

Q - Sample held beyond normal holding time

Table 2. Continued

U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Fecal coliform analysis performed by Advanced Environmental Laboratory (AEL), E84589
£ - measurement taken in the FDEP laboratory
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

Table 3. Effluent limits, Class III Marine Criteria and analytical metals data

City of Bradenton WWTF	Units	Class III Criteria	Effluent Permit Limits	EFD-01 Composite
Aluminum	ug/L	≤ 1500	-	28
Arsenic	ug/L	≤ 50	-	0.66 I
Cadmium	ug/L	≤ 8.8	-	0.050 U
Calcium	mg/L	-	-	95.7
Chromium, Total [2]	ug/L	≤ 50	-	0.34 I
Copper	ug/L	≤ 3.7	Report	0.50 U
Iron	ug/L	≤ 300	-	160
Lead	ug/L	≤ 8.5	≤ 8.5 p	0.20 U
Magnesium	mg/L	-	-	66
Nickel	ug/L	≤ 8.3	≤ 8.3 p	4.95
Potassium	mg/L	-	-	17.7
Selenium	ug/L	≤ 71	-	0.20 U
Silver	ug/L	≤ 2.3	-	0.025 U
Sodium	mg/L	-	-	224
Zinc	ug/L	≤ 86	-	10 I

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

e -Value exceeds the Class III Water Quality Criteria or permit limits

2 - Class III Marine Water Quality Criterion (62-302.530(19)(b), F.A.C.) is for chromium-VI

p - 24 hour flow proportioned composite

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

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

Table 4. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus

City of Bradenton WWTF								
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (OP) ± 20%**	**Predicted AGP (TN) ± 20%**	**Predicted AGP (TP) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
EFD-01 Grab	*Pseudokirchneriella subcapitata*	67	68.4 ± 13.7	240.8 ± 48.2	102.6 ± 20.5	283.8 ± 56.8	3.2	4.1

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Ramandeep Kaur	**Contact Number: (813)-470-5771**
Facility Name (as it appears on permit): ***City of Bradenton WWTF***	**Former Names:**
NPDES Permit Number: FL0021369	**Permit Expiration Date: January 28, 2015**
Physical Address: 1810 First St. W, Bradenton FL 34208	
District: SWD	**County: Manatee**
Function of Facility: Domestic Wastewater Treatment Facility	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD): 6.0 MGD (AADF for Surface water discharge)**
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): **4.2 MGD (February 2013- February 2014)**	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

Monitoring Location Site Number	Description of Monitoring Location
EFA-01	Inlet from Reuse Pumping Basin, prior to de-chlorination and prior to discharge to R-001.
EFB-01	Filter clearwell discharge and prior to disinfection.
EFD-01	At outlet from dechlorination basin, prior outfall D-001.
FLW-04	Flow to D-001 (ultrasonic meter).

Description of Permitted Outfall(s):

Surface Water Discharge:
An existing 6.0 MGD annual average daily flow (AADF) permitted discharge to Robinson's Ditch to the Manatee River (Class III, marine waters, WBID No. 1848A) at Discharge Location (D-001). The point of discharge is located approximately at latitude 27 º 29' 52" N, longitude 82 º 33' 40" W.

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

Operation of an existing 9.0 mgd annual average daily flow (AADF) daily flow Type I activated sludge advanced wastewater treatment facility consisting of: headworks with bar screens, grit removal system, biofilter odor control system, two Carrousel-type aeration basins of 2.26 mg each for a total of 4.52 million gallons, three clarifiers of 705,000 gallons each, for a total of 2.115 MG, two below-grade filter lift stations, six single media gravity de-nitrification filters with air scour and water backwash providing a total of 3,000 square foot filtration surface area, one split compartment chlorine contact chamber of 500,000 gallons, one reclaimed storage basin of 280,000 gallons, and a de-chlorination chamber and post-aeration basin of 200,000 gallons. The plant capacity is limited to 7.5 MGD based on the disposal capacity of D-001 and R-001 as described below.

The solids handling stream consists of one Dissolved Air Flotation residuals thickening unit of 400 square foot surface area, three aerobic digesters, two with capacities of 570,000 gallons each, and one of 1,260,000 gallons providing a total digestion volume of 2,400,000 gallons, and two mechanical belt filter presses. The plant is a dual train facility with the exception of the headworks. Polymer coagulant feed is available on a standby status for solids control and methanol is directed to the de-nitrification filters for nitrate/nitrite control. Iron salts are added during secondary treatment for phosphorus control. The effluent and reclaimed water systems on-site and off are controlled, sequenced and operated according to procedures set forth in the plant Operating Protocol in order to assure maximum reliability and safeguards on the quality of the reclaimed water. Plant alarm systems are annunciated throughout the plant site and also are remoted to the plant.

Receiving Waters: Manatee River Classification (indicate whether fresh or marine): Class III Marine water body

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

Facility ID	Monitoring Date	Outfall Indicator	Parameter Description	Data	Limit	Statistical Base	Units
FL0021369	6/30/2013	001-1	COLIFORM, FECAL, % LESS THAN DETECTION	65	75	MINIMUM	%
FL0021369	10/31/2013	001-1	COLIFORM, FECAL, % LESS THAN DETECTION	74	75	MINIMUM	%

Describe previous FYI and WQBEL study:
2007 FYI report submitted as separate email attachment.

Describe previous or current Enforcement Actions (including WLs): N/A

A line break and failure to maintain equipment at the facility occurred and a consent order- OGC File No. 11-1763 was executed in January 2012 to resolve the matter and performed an in-kind penalty project. This case was closed in June 2013.

Describe any violations or problems noted in previous inspection: N/A

Discuss whether DMR trends within previous five years are improving or declining: N/A

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

List <u>current</u> Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

A. Surface Water Discharges:

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. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.C.8:

			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, To D-001	MGD	Maximum	6.0	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-04	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	7.5	10.0	5 Days/Week	24-hour FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	5 Days/Week	24-hour FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	-	-	-	5.0	4 Days/Week	Grab	EFB-01	
Nitrogen, Total (as N)	MG/L	Maximum	3.0	3.75	4.5	6.0	5 Days/Week	24-hour FPC	EFD-01	
Phosphorus, Total (as P)	MG/L	Maximum	1.0	1.25	1.5	2.0	5 Days/Week	24-hour FPC	EFD-01	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-01	See Cond.I.A.3
Coliform, Fecal, % less than detection	PERCENT	Minimum		75			Monthly	Calculation	EFA-01	See Cond.I.A.5
Coliform, Fecal	#/100ML	Maximum				25	4 Days/Week	Grab	EFA-01	See Cond.I.A.5
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	Continuous	Meter	EFA-01	See Cond.I.A.3, 6
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	7 Days/Week	Grab	EFD-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	5.0	7 Days/Week	Grab	EFD-01	
Enterococci	#/100ML	Maximum	-	35 (Geo Mean)	-	276	5 Days/Month	Grab	EFA-01	See Cond.I.A.7
Nickel, Total Recoverable	UG/L	Maximum	-	-	-	8.3	Monthly	24-hour FPC	EFD-01	
Lead, Total Recoverable	UG/L	Maximum	-	-	-	8.5	Monthly	24-hour FPC	EFD-01	
Cyanide, Total (as CN)	UG/L	Maximum	-	-	-	1.0	Monthly	Grab	EFD-01	
Copper, Total Recoverable	UG/L	Maximum	-	-	-	Report	Semiannually	24-hour FPC	EFD-01	
Nitrogen, Total (as N)	Tons/Year	Maximum	23.1 (Ann. Total)	Report (Mo Total)	-	-	Monthly	Calculation	EFD-01	See Cond.I.A.8
Nitrogen, Total (as N)	Tons/Year	Maximum	18.9 (5Yr Avg.)	Report (Avg.)	-	-	Monthly	Calculation	EFD-01	See Cond.I.A.8
Whole Effluent Toxicity (Chronic)	Percent	Minimum	-	-	-	100	Every Three Months	24-hour FPC	EFD-01	See Cond.I.A.10

Chronic Toxicity Test Requirements:

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 exceed a 25 percent inhibition concentration (IC25) of less than 100% effluent in any test and Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.

(2) In the chronic toxicity test, the effluent cannot be acutely toxic, in accordance with Rules 62-4.241(1)(a),

62-302.200(1) and 62-302.500(1)(a)(4) F.A.C.

b. Monitoring Frequency

(1) The "routine" toxicity tests specified shall be conducted *once every three months.*

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three *flow proportional 24-hour 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, or the most current edition.

(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.

(4) If the duration of the discharge is less than 24-hours, the duration of discharge shall be documented on the chain of custody. Each sample shall be analyzed for total residual chlorine and pH at the time of sample collection. Should the discharge last less than 24 hours, the bioassay shall be run on the volume collected, however, three samples must be collected.

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%**, **50%**, **25%**, **12.5%**, and **6.25%** 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 or the most current edition. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.

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

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (**Ceriodaphnia dubia**) and Section 11.11 (**Pimephales promelas**) or the most current edition. The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6. or the most current edition, and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements

(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:

(a) Routine and Additional Follow-up Test Results: The calculated IC25 for each test species shall be entered on the DMR.

(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review or the most current edition, and mailed to the Department at the address below within 30 days after the last day of the test.

(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10 or the most current edition, and mailed within 30 days after the last day of the second valid additional follow-up test.

(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.

(5) The same bioassay data shall not be reported as the results of more than one test.

(6) All bioassay laboratory reports shall be sent to:

Department of Environmental Protection

Southwest District Office

g. Test Failures

(1) A test fails when the test results do not meet the limits in 10.a.(1) & (2).

(2) Additional Follow-up Tests:

(a) If a routine test does not meet the chronic toxicity limitation in 10.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 10.d.

(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.

(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013 or the most current edition.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.

(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.

(b) The Department shall review and approve the plan before initiation.

(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.

(d) Progress reports shall be submitted quarterly to the Department at the address above.

(e) During the period of time that the approved plan is ongoing, the permittee shall conduct routine whole effluent toxicity testing at the frequency of once every three months, but shall not be required to perform additional follow-up tests. If a routine test is invalid as established in EPA Methods, EPA-821-R-02-012, EPA-821-R-02-013, or EPA-821-R-02-014, a retest must be started within 21 days for a chronic test or 14 days for an acute test after the last day of the invalid test.

(f) Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up whole effluent toxicity tests shall return to the schedule established in the facility wastewater permit. The permittee may terminate the plan at any time upon written verification by the Department that the facility has passed at least four consecutive valid routine whole effluent toxicity tests.

[62-4.241, 62-620.620(3)]

City of Bradenton WWTF, Permit #: FL0021369; FYI3 PART II: Sampling Event Information	
Date(s) sample collected: April 28, 2014	**Sampler(s):** Ramandeep Kaur, Gitta Schmitt
Temperature (Deg C): 26.69	**pH (SU):** 7.49
Dissolved Oxygen (mg/L): 13.24 (DO% 165.86) *(J Qualifier-Post Sampling Calibration for D.O failed*)	**Conductivity (umhos/cm):** Salinity: 1.01 PPTh
Total Residual Chlorine (mg/L):	**Total Residual Chlorine - after Disinfection (mg/L):**
Method of Chlorination: Liquid Chlorine- Sodium Hypochlorite	**Method of De-chlorination:** Sodium Bisulfite
Flow During Sample Collection for each outfall(MGD): 3.04	
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): 4.2 MGD (February 2013- February 2014)	
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: Grab samples were collected from EFD-01- Discharge sampling point.	





Discharge Sampling Point for EFD-01 and Composite Sampler

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.dep.state.fl.us/labs/library/lab_sops.htm and/or http://www.dep.state.fl.us/water/sas/sop/sops.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.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedance of 62-302.500(1)a and/or 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 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 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 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) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and 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..

(6) 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 10.0 mg dry weight/L represents a "problem" threshold for marine 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 in a low salinity sample 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 (EPA-822-B-00-002). 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. Expected AGP is not calculated for marine samples incubated with *Dunaliella*.

(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 Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 10:50	EFD-01 Grab	AGP/LN	Algal Growth Potential	67	mg DryWt/L	0.3	0.9
4/28/2014 10:50	EFD-01 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	4.9	ug/L	0.55	1.7
4/28/2014 10:50	EFD-01 Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
4/28/2014 10:50	EFD-01 Grab	Microbiology	Enterococci-Quanti-Tray	1.0 U	MPN/100 mL	1	1
4/28/2014 10:50	EFD-01 Grab	Overflow	Fecal Coliforms-Membrane Filter	1 U	cfu/100 mL	1	1
4/28/2014 10:50	EFD-01 Grab	Nutrients	Fluoride	0.39	mg F/L	0.035	0.1
4/28/2014 10:50	EFD-01 Grab	Nutrients	Turbidity	2	NTU	0.1	0.1
4/28/2014 10:50	EFD-01 Grab	Nutrients	Ammonia-N	1.7	mg N/L	0.05	0.12
4/28/2014 10:50	EFD-01 Grab	Nutrients	Kjeldahl Nitrogen	2.6	mg N/L	0.08	0.2
4/28/2014 10:50	EFD-01 Grab	Nutrients	Cyanide	0.005 U	mg CN/L	0.005	0.02
4/28/2014 10:50	EFD-01 Grab	Nutrients	Sulfate	320	mg SO4/L	2	5
4/28/2014 10:50	EFD-01 Grab	Nutrients	Color (true)	21	PCU	2.5	6
4/28/2014 10:50	EFD-01 Grab	Nutrients	Alkalinity	258	mg CaCO3/L	0.65	2.5
4/28/2014 10:50	EFD-01 Grab	Nutrients	NO2NO3-N	0.099	mg N/L	0.004	0.01
4/28/2014 10:50	EFD-01 Grab	Nutrients	O-Phosphate-P	0.56	mg P/L	0.04	0.1
4/28/2014 10:50	EFD-01 Grab	Nutrients	Total-P	0.66	mg P/L	0.005	0.05
4/28/2014 10:50	EFD-01 Grab	Nutrients	Chloride	330	mg Cl/L	2	5
4/28/2014 10:50	EFD-01 Grab	Pesticides	Malathion	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Norflurazon	0.028 U	ug/L	0.028	0.11
4/28/2014 10:50	EFD-01 Grab	Pesticides	Parathion Methyl	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Ametryn	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Atrazine Desethyl	0.043 U	ug/L	0.043	0.17
4/28/2014 10:50	EFD-01 Grab	Pesticides	Butylate	0.019 U	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Hexazinone	0.028 UJ	ug/L	0.028	0.11
4/28/2014 10:50	EFD-01 Grab	Pesticides	Naled	0.037 UJ	ug/L	0.037	0.15
4/28/2014 10:50	EFD-01 Grab	Pesticides	Simazine	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Atrazine	0.034 I	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Disulfoton	0.0047 U	ug/L	0.0047	0.019
4/28/2014 10:50	EFD-01 Grab	Pesticides	Mevinphos	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Chlorpyrifos Methyl	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Atrazine Desisopropyl	0.023 U	ug/L	0.023	0.091
4/28/2014 10:50	EFD-01 Grab	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Fonofos	0.013 U	ug/L	0.013	0.051

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 10:50	EFD-01 Grab	Pesticides	Diazinon	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Demeton	0.022 U	ug/L	0.022	0.09
4/28/2014 10:50	EFD-01 Grab	Pesticides	Alachlor	0.056 U	ug/L	0.056	0.22
4/28/2014 10:50	EFD-01 Grab	Pesticides	Metolachlor	0.056 U	ug/L	0.056	0.22
4/28/2014 10:50	EFD-01 Grab	Pesticides	Fenamiphos	0.028 U	ug/L	0.028	0.11
4/28/2014 10:50	EFD-01 Grab	Pesticides	Ethoprop	0.0047 U	ug/L	0.0047	0.019
4/28/2014 10:50	EFD-01 Grab	Pesticides	Bromacil	0.037 U	ug/L	0.037	0.15
4/28/2014 10:50	EFD-01 Grab	Pesticides	Azinphos Methyl	0.019 UJ	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Prometon	0.019 U	ug/L	0.019	0.075
4/28/2014 10:50	EFD-01 Grab	Pesticides	Phorate	0.0047 U	ug/L	0.0047	0.019
4/28/2014 10:50	EFD-01 Grab	Pesticides	Chlorpyrifos Ethyl	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Ethion	0.0094 U	ug/L	0.0094	0.037
4/28/2014 10:50	EFD-01 Grab	Pesticides	Metalaxyl	0.037 U	ug/L	0.037	0.15
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.43 U	ug/L	0.43	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Anthracene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2-Chlorophenol	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Di-n-octyl phthalate	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Naphthalene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	43 U	ug/L	43	170
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Isophorone	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Phenol	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,4-Dimethylphenol	11 U	ug/L	11	43
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2-Nitrophenol	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Hexachloroethane	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,4-Dichlorophenol	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Acenaphthene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Acenaphthylene	0.22 U	ug/L	0.22	0.86

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.2 U	ug/L	2.2	8.6
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Dimethyl phthalate	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Hexachlorobenzene	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2 U	ug/L	2.2	8.6
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Pyrene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,4-Dinitrophenol	16 UJ	ug/L	16	65
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2-Chloronaphthalene	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.2 U	ug/L	2.2	8.6
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Chrysene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.2 U	ug/L	2.2	8.6
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Di-n-butyl phthalate	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Diethyl phthalate	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Fluoranthene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Fluorene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Hexachlorobutadiene	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Phenanthrene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	4-Nitrophenol	16 U	ug/L	16	65
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzidine	110 U	ug/L	110	430
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.22 U	ug/L	0.22	0.86
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	ug/L	1.1	4.3
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Nitrobenzene	2.2 U	ug/L	2.2	8.6
4/28/2014 10:50	EFD-01 Grab	Priority Organic Pollutants	Pentachlorophenol	3.2 U	ug/L	3.2	13
4/28/2014 10:50	EFD-01 Grab	Nutrients	pH	7.49			
4/28/2014 10:50	EFD-01 Grab	Nutrients	Dissolved Oxygen	13.24	mg/L		
4/28/2014 10:50	EFD-01 Grab	Nutrients	Temperature	26.69	C		
4/28/2014 10:50	EFD-01 Grab	Nutrients	Specific Conductance	1987	umhos/cm		
4/28/2014 9:45	EFD-01 Composite	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.2 AJ	mg/L	0.2	2
4/28/2014 9:45	EFD-01 Composite	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100 L	LC50		
4/28/2014 9:45	EFD-01 Composite	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100 L	LC50		
4/28/2014 9:45	EFD-01 Composite	Metals	Chromium	0.34 I	ug/L	0.3	1.2
4/28/2014 9:45	EFD-01 Composite	Metals	Sodium	224	mg/L	2.5	10
4/28/2014 9:45	EFD-01 Composite	Metals	Aluminum	28	ug/L	5	20

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 9:45	EFD-01 Composite	Metals	Magnesium	66	mg/L	0.04	0.16
4/28/2014 9:45	EFD-01 Composite	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
4/28/2014 9:45	EFD-01 Composite	Metals	Copper	0.50 U	ug/L	0.5	1
4/28/2014 9:45	EFD-01 Composite	Metals	Potassium	17.7	mg/L	0.3	1.2
4/28/2014 9:45	EFD-01 Composite	Metals	Calcium	95.7	mg/L	0.075	0.3
4/28/2014 9:45	EFD-01 Composite	Metals	Nickel	4.95	ug/L	0.25	1
4/28/2014 9:45	EFD-01 Composite	Metals	Lead	0.20 U	ug/L	0.2	0.8
4/28/2014 9:45	EFD-01 Composite	Metals	Arsenic	0.66 I	ug/L	0.25	1
4/28/2014 9:45	EFD-01 Composite	Metals	Iron	160	ug/L	30	120
4/28/2014 9:45	EFD-01 Composite	Metals	Silver	0.025 U	ug/L	0.025	0.1
4/28/2014 9:45	EFD-01 Composite	Metals	Selenium	0.20 U	ug/L	0.2	0.8
4/28/2014 9:45	EFD-01 Composite	Metals	Zinc	10 I	ug/L	5	20
4/28/2014 9:45	EFD-01 Composite	Nutrients	Kjeldahl Nitrogen	2.4	mg N/L	0.08	0.2
4/28/2014 9:45	EFD-01 Composite	Nutrients	TSS	2 I	mg/L	2	10
4/28/2014 9:45	EFD-01 Composite	Nutrients	Total-P	0.31	mg P/L	0.005	0.05
4/28/2014 9:45	EFD-01 Composite	Nutrients	Organic Carbon	11	mg C/L	0.5	1
4/28/2014 9:45	EFD-01 Composite	Nutrients	NO2NO3-N	0.12	mg N/L	0.004	0.01
4/28/2014 11:20	Field Blank	Metals	Aluminum	5.0 U	ug/L	5	20
4/28/2014 11:20	Field Blank	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
4/28/2014 11:20	Field Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.3
4/28/2014 11:20	Field Blank	Metals	Potassium	0.30 U	mg/L	0.3	1.2
4/28/2014 11:20	Field Blank	Metals	Iron	30 U	ug/L	30	120
4/28/2014 11:20	Field Blank	Metals	Arsenic	0.25 U	ug/L	0.25	1
4/28/2014 11:20	Field Blank	Metals	Chromium	0.30 U	ug/L	0.3	1.2
4/28/2014 11:20	Field Blank	Metals	Lead	0.20 U	ug/L	0.2	0.8
4/28/2014 11:20	Field Blank	Metals	Copper	0.50 U	ug/L	0.5	1
4/28/2014 11:20	Field Blank	Metals	Silver	0.025 U	ug/L	0.025	0.1
4/28/2014 11:20	Field Blank	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
4/28/2014 11:20	Field Blank	Metals	Nickel	0.25 U	ug/L	0.25	1
4/28/2014 11:20	Field Blank	Metals	Sodium	0.50 U	mg/L	0.5	2
4/28/2014 11:20	Field Blank	Metals	Zinc	5.0 U	ug/L	5	20
4/28/2014 11:20	Field Blank	Metals	Selenium	0.20 U	ug/L	0.2	0.8
4/28/2014 11:20	Field Blank	Nutrients	Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
4/28/2014 11:20	Field Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
4/28/2014 11:20	Field Blank	Nutrients	Cyanide	0.005 U	mg CN/L	0.005	0.02
4/28/2014 11:20	Field Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
4/28/2014 11:20	Field Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
4/28/2014 11:20	Field Blank	Nutrients	Organic Carbon	0.65 I	mg C/L	0.5	1

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 11:20	Field Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
4/28/2014 11:20	Field Blank	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005
4/28/2014 11:20	Field Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
4/28/2014 11:20	Field Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
4/28/2014 11:20	Field Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6
4/28/2014 11:20	Field Blank	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
4/28/2014 11:20	Field Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
4/28/2014 11:20	Field Blank	Pesticides	Fenamiphos	0.028 U	ug/L	0.028	0.11
4/28/2014 11:20	Field Blank	Pesticides	Malathion	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Diazinon	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Atrazine Desisopropyl	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Disulfoton	0.0047 U	ug/L	0.0047	0.019
4/28/2014 11:20	Field Blank	Pesticides	Butylate	0.019 U	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Ametryn	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Alachlor	0.056 U	ug/L	0.056	0.23
4/28/2014 11:20	Field Blank	Pesticides	Simazine	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Ethion	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Parathion Methyl	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Norflurazon	0.028 U	ug/L	0.028	0.11
4/28/2014 11:20	Field Blank	Pesticides	Mevinphos	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Ethoprop	0.0047 U	ug/L	0.0047	0.019
4/28/2014 11:20	Field Blank	Pesticides	Demeton	0.023 U	ug/L	0.023	0.09
4/28/2014 11:20	Field Blank	Pesticides	Naled	0.038 UJ	ug/L	0.038	0.15
4/28/2014 11:20	Field Blank	Pesticides	Metolachlor	0.056 U	ug/L	0.056	0.23
4/28/2014 11:20	Field Blank	Pesticides	Atrazine Desethyl	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Atrazine	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Metalaxyl	0.038 U	ug/L	0.038	0.15
4/28/2014 11:20	Field Blank	Pesticides	Hexazinone	0.028 UJ	ug/L	0.028	0.11
4/28/2014 11:20	Field Blank	Pesticides	Fonofos	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Chlorpyrifos Methyl	0.0094 U	ug/L	0.0094	0.038
4/28/2014 11:20	Field Blank	Pesticides	Bromacil	0.038 U	ug/L	0.038	0.15
4/28/2014 11:20	Field Blank	Pesticides	Prometon	0.019 U	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Phorate	0.0047 U	ug/L	0.0047	0.019
4/28/2014 11:20	Field Blank	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Azinphos Methyl	0.019 UJ	ug/L	0.019	0.075
4/28/2014 11:20	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.0094 U	ug/L	0.0094	0.038

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2-Chlorophenol	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzidine	110 U	ug/L	110	420
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	ug/L	2.1	8.4
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Pentachlorophenol	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Acenaphthene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Anthracene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Diethyl phthalate	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Fluoranthene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Fluorene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Hexachloroethane	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1 U	ug/L	2.1	8.4
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.42 U	ug/L	0.42	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	16 UJ	ug/L	16	63
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Chrysene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21 U	ug/L	0.21	0.84

Date Sampled	Field Sample ID	Analysis Group	Component	Result	Units	MDL	PQL
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Naphthalene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Nitrobenzene	2.1 U	ug/L	2.1	8.4
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	42 U	ug/L	42	170
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Isophorone	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Pyrene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	11 U	ug/L	11	42
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	2-Nitrophenol	1.1 U	ug/L	1.1	4.2
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1 U	ug/L	2.1	8.4
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	4-Nitrophenol	16 U	ug/L	16	63
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.2 U	ug/L	3.2	13
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.1 U	ug/L	2.1	8.4
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Phenanthrene	0.21 U	ug/L	0.21	0.84
4/28/2014 11:20	Field Blank	Priority Organic Pollutants	Phenol	1.1 U	ug/L	1.1	4.2

EPA End Sheet

The Bioassay of City of Bradenton WWTF effluent sampled on April 28, 2014. NPDES #FL0021369.

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 2 1 3 6 9 11	12	1 4 0 4 2 8	18	**B** 19 **S**	20 1

Remarks

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The Priority Pollutants Analysis of City of Bradenton WWTF effluent sampled on April 28, 2014. NPDES #FL0021369.

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 2 1 3 6 9 11	12	1 4 0 4 2 8	18	**X** 19 **S**	20 1

Remarks

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Biological Analyses of City of Bradenton WWTF effluent sampled on April 28, 2014. NPDES #FL0021369.

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 2 1 3 6 9 11	12	1 4 0 4 2 8	18	**S** 19 **S**	20 1

Remarks

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