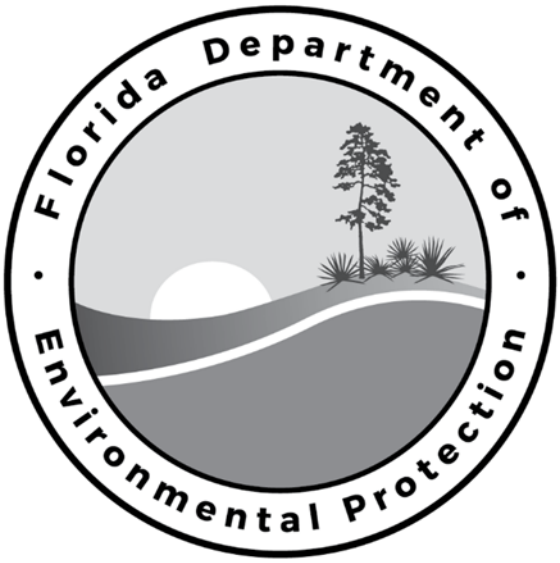


Effluent Quality Assessment of

ECUA Central Water Reclamation Facility

Escambia County

NPDES # FL0559351

Sampled October 24, 26 and 28, 2016

February 2017

Biology Program

DEP Laboratory

Division of Environmental Assessment and Restoration

DEP Laboratory Quality Manual

NELAC Certification No. E31780

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ECUA Central Water Reclamation Facility (WRF), 2980 Old Chemstrand Road, Cantonment, Escambia County, Florida, 32533. NPDES #FL0559351.

Facility Overview

ECUA Central WRF is an advanced wastewater treatment facility that treats domestic wastewater. 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 24, 26 and 28, 2016. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on October 24, 2016. All samples were collected from the EFF-01 NPDES sampling point for Outfall D-001 by Dana Vestal (DEP Northwest Regional Operation Center) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 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).

All field and laboratory methods followed DEP Standard Operating Procedures (see http://www.dep.state.fl.us/labs/library/lab_sops.htm and http://www.dep.state.fl.us/water/sas/sop/sops.htm for details) and met DEP quality assurance/quality control standards (see http://www.dep.state.fl.us/water/sas/qa/index.htm). Explanations of specific methods and measurements can be found in Appendix C.

Results

Chemistry Results (See Table 1, Table 2, Table 3 and Appendix C)

- Receiving waters for this facility fall within the Panhandle West Nutrient Watershed Region for Numeric Nutrient Criteria (NNC). This FYI event can only provide single sample results; therefore, compliance should be determined with additional sampling events.
  http://ca.dep.state.fl.us/mapdirect/?focus=nutrientcriteria
- The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.029 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.
- Chromium, copper, lead, nickel, total nitrogen, total phosphorus, turbidity, and zinc were detected in the effluent at levels that comply with Class III Freshwater Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Arsenic and iron were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

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

- The effluent AGP was 27.7 A mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum.* This effluent AGP result is greater than the AGP range (6.10 to 20.0 mg dry wt/L) suggested to be representative of high productivity for freshwater (Miller et al. 1978). The analytical chemistry suggests that the effluent is co-limited by both nitrogen and phosphorus (Miller et al. 1978, USEPA 2000).

Toxicity Test Results (See Table 2 and Appendix C)

- Tests were performed October 25 through November 1, 2016.

  Chronic test results are reported as the 25% Inhibition Concentration (IC25) and the No Observed Effect Concentration (NOEC).

  Ceriodaphnia dubia 7-day chronic screening bioassay – IC25 is < 100% effluent; NOEC is < 100% effluent (There was 100% mortality in 100% sample within 3 hours of test initiation)

  (Dechlorinated sample)
  Ceriodaphnia dubia 7-day chronic definitive bioassay – IC25 is >100% effluent; NOEC is 100% effluent

Pimephales promelas 7-day chronic screening bioassay – IC25 is < 100% effluent; NOEC is < 100% effluent (There was 100% mortality in 100% effluent within 2 hours of test initiation)

(Dechlorinated sample)
Pimephales promelas 7-day chronic definitive bioassay – IC25 is > 100% effluent; NOEC is 100% effluent

- The original bioassay samples were acutely toxic to the test organisms in the screening test. The cause of toxicity was attributed to the total residual chlorine in the effluent.
- The dechlorinated bioassay samples were not chronically toxic to the test organisms in the definitive test.
    - *NOTE: In a chronic screening test of 100% effluent, 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.).
    - 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.
- Total residual chlorine (TRC) was detected in bioassay sample #1 (LIMS # 1844073) (TRC concentration 1.46 mg/L), bioassay sample #2 (LIMS # 1845157) (TRC concentration 1.88 mg/L), and bioassay sample #3 ((LIMS # 1845972) (TRC concentration 2.00 mg/L), in the laboratory. Aliquots of these samples were dechlorinated by the addition of sodium thiosulfate (0.025 N) at rates, respectively, of 1.7 mL/L, 2.0 ml/L and 2.1 ml/L of sample to neutralize the chlorine. Bioassays were performed on the dechlorinated aliquot in addition to the bioassays performed on the original sample. The same concentration of sodium thiosulfate was added to the dechlorinated test controls. The purpose of the dechlorinated test controls was to confirm that there was no adverse effect of adding sodium thiosulfate to the sample. There was no mortality in the dechlorinated control of *the C. dubia* chronic test. There was 5% mortality in the dechlorinated control of the *P. promelas* chronic test.

Conclusion

The effluent samples collected from the EFF-01 NPDES sampling point for this facility on October 24, 26 and 28, 2016, were acutely toxic to both test species, producing 100% mortality in 100% sample within 3 hours and 2 hours respectively in the *Ceriodaphnia dubia* and the *Pimephales promelas* screening tests. The cause of toxicity was attributed to the total residual chlorine in the effluent. The dechlorinated samples did not show chronic toxicity to either test species during the 7-day chronic definitive bioassays. This effluent AGP result is greater than the AGP range suggested to be representative of high productivity for freshwater. The analytical nutrient chemistry results suggest the effluent is co-limited by nitrogen and phosphorous. Effluent water quality samples collected on October 24, 26 and 28, 2016, did not exceed any applicable water quality criteria or any permit conditions.

For additional information concerning this sampling event, including bioassay bench sheets and SRT data, please contact Amelia.Rankin@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.

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.

USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. 4th edition. EPA-821-R-02-013.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

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

ECUA Central WRF	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite	Effluent Grab
Temperature	°C	-	Report	-	25.6
pH	SU	6.0 - 8.5	-	7.5[1]	7.56
Specific Conductance	µmhos/cm	≤ 1,275	-	449[1]	-
Salinity	ppth	-	-	0.15[1]	-
Dissolved Oxygen	% saturation	≥ 67	-	105.6c	100.4
Dissolved Oxygen	mg/L	≥ 5.0	-	8.8[1]	-
Total Residual Chlorine	mg/L	≤ 0.01	≥1.0	1.46[1]	>2.2

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

a - Annual average

c - Value is calculated using measurements taken in the DEP laboratory

1 - Measurement taken in the DEP laboratory

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

ECUA Central WRF	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite	Effluent Grab
Ortho-phosphate	mg P/L	-	-	0.023	0.022
Total Phosphorus	mg P/L	-	2.0	0.059	0.060
Total Ammonia	mg N/L	-	-	0.029	0.029
Un-ionized Ammonia (calculated salinity)	mg NH3/L	≤ 0.02 s	-	-	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	0.45	0.43
Total Kjeldahl Nitrogen	mg N/L	-	-	0.58	0.50
Organic Nitrogen	mg N/L	-	-	0.55 c	0.47 c
Total Nitrogen	mg N/L	-	6.0	1.03 c	0.93 c
Total Organic Carbon	mg C/L	-	-	5.4	5.2
Chlorophyll *a* - Corrected	µg/L	-	-	-	1.1 U
Phaeophytin	µg/L	-	-		0.80 U
CBOD, 5 day, N - inhibited	mg/L	-	10.0	0.96 IJ	-
Total Suspended Solids	mg/L	-	-	-	2 U
Turbidity	NTU	≤ 29 t	-	-	1.1 A
Color (true)	PCU	-	-	-	4.2 I
Alkalinity	mg CaCO3/L	≥ 20	-	-	89
Chloride	mg Cl/L	-	-	-	61 Q
Cyanide	µg/L	≤ 5.2	-	-	-
Fluoride	mg F/L	≤ 10.0	-	-	0.97
Sulfate	mg SO4/L	-	-	-	37 Q
Microbiology					
Fecal Coliforms [2]	cfu/100 mL	≤ 400s #	25	-	2 U
Toxicity (IC25, Chronic definitive, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*[3]	%effluent	≥ 100	≥ 100	100 K	-
Bioassay - Water flea dechlorinated	%effluent	≥ 100	≥ 100	> 100	-
Bioassay - Fish *(Pimephales promelas)*[3]	%effluent	≥ 100	≥ 100	100 K	-
Bioassay - Fish dechlorinated	%effluent	≥ 100	≥ 100	>100	-

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

c - Value is calculated

s - Single sample

t - Shall not exceed 29 NTUs above background

2 - Fecal coliform analysis performed by The University of West Florida lab

3 - Screening test with original effluent

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

J - Estimated value

K - Actual value is known to be less than value given

Q - Sample held beyond normal holding time

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

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

ECUA Central WRF	Units	Class III Criteria	Effluent Grab Class III Criteria	Effluent Grab
Hardness	mg CaCo3/L	-	-	78.4 c
Aluminum	µg/L	-	-	132
Arsenic	µg/L	≤ 50	-	0.19 I
Cadmium	µg/L	-	≤ 0.226 b	0.020 U
Calcium	mg/L	-	-	26.6
Chromium, Total [4]	µg/L	-	≤ 70.6 b	0.21
Copper	µg/L	-	≤ 7.58 b	1.42
Iron	µg/L	≤ 1,000	-	34 I
Lead	µg/L	-	≤ 2.34 b	0.40
Magnesium	mg/L	-	-	2.92
Nickel	µg/L	-	≤ 42.5 b	1.39
Potassium	mg/L	-	-	9.9
Selenium	µg/L	≤ 5.0	-	0.20 U
Silver	µg/L	≤ 0.07	-	0.0050 U
Sodium	mg/L	-	-	55.2
Zinc	µg/L	-	≤ 97.5 b	62

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

4 - Class III Freshwater Quality Criterion (62-302.530(19)(a), F.A.C.) is for chromium-III

b - Value is calculated based on hardness, (62-302.530(3))

c - Value is calculated

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.

ECUA Central WRF								
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**
Effluent Grab	*Pseudokirchneriella subcapitata*	27.7 A	17.4 ± 3.5	9.5 ± 1.9	35.3 ± 7.1	25.8 ± 5.2	20.9	15.5

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

Appendix A

Facility Summary

State of Florida

Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: **Shelley Alexander**	**Contact Number:** **8505950677**
Facility Name (as it appears on permit): **ECUA Central Water Reclamation Facility**	**Former Names:** **NA**
NPDES Permit Number: **FL0559351**	**Permit Expiration Date:** **11/5/2017**
Physical Address: **2980 Old Chemstrand Road Cantonment, Florida**	
District: **Northwest**	**County:** **Escambia**
Function of Facility: **Wastewater treatment**	
Facility Type: **Domestic Wastewater**	**Permitted Capacity (MGD):** **22.5 MGD**
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): D-001 3.583 MGD 08/31/2015-08/31/2016	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): R-001 35.265 MGD 08/31/2015-08/31/2016	
Description of type of Discharge: **☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent** **☐ Other, please specify:**	

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

Site Number	Description of Monitoring Site
FLW-02	Flow to D-001 (16 inch mag meter on 24-inch pipeline before mixing box to Receiving Wetlands.
EFF-01	Location for composite and grab samples of the reclaimed water from the CWRF after disinfection
EFB-01	TSS and turbidity sampling station after filtration before disinfection.
EFA-01	Flow from chlorine contact chamber
OTH-01	Un-ionized Ammonia monitoring point at EFF-01 (reclaimed water from CWRF after disinfection).
FLW-R001	Flow to R001 (Total) = [(FLW-GPPS)+(FLW-IPPS)+(FLW-Z01)+(FLW-CWRF)]
FLW-GPPS	Flow to Gulf Power Plant Crist - See Process Flow Diagram Overview. Flow Meter at Gulf Power Pump Station.
FLW-IP	Flow to International Paper Pensacola Mill = [(FLW-IPPS)-(FLW-Z19)] – FLW-02(D-001)
FLW-CWRF	Flow to CWRF – See Process Flow Diagram Overview. Flow Meter at In-plant Resuse Pump Station.
FLW-Z19	**Flow thru ECUA LAS Zone 19 – See Process Flow Diagram Overview. Flow Meter**
FLW-Z01	**Flow from ECUA LAS Zone 1 – See Process Flow Diagram Overview. Flow Meter**
FLW-IPPS	**Flow Meter at IP Pump Station. (used to calculate FLW-IP and FLW-R-001)**
FLW-04	**Flow from supplemental Ground Water supply.**

EFF-01 Location for composite and grab samples of the reclaimed water from the CWRF after disinfection
EFF-02 Tap on supplemental Ground Water supply.

EFB-01 TSS and turbidity sampling station after filtration before disinfection.
EFA-01 Flow from clorine contact chaimber
Monitoring Site Number Description of Monitoring Site
FLW-INF Flow thru CWRF at the Influent Sampling Point
FLW-BCWEIR Rectangular Broad-Crested Weir, between filters and CCC effluent flow
CAL-01 Calculated Values
INF-01 Influent Sampling Point prior to fine screen at headworks.

Description of Permitted Outfall(s):

Surface Water Discharge D-001: An existing; 5.0 MGD annual average daily flow (AADF) discharge of reclaimed water to the International Paper's (IP) Rainwater Tract wetlands (D-001). Reclaimed water from the ECUA Central Water Reclamation Facility will be conveyed via a reclaimed water transmission main and discharged to IP mixing box where it will mix with the IP effluent at the start of the 10-mile effluent transmission pipeline to the wetlands (D-001)(WBID #489). The point of discharge (D-001) is located approximately at latitude 30º 29' 06" N, longitude 87º 21' 57" W.

ECUA's reclaimed water transmission main to the IP's effluent transmission pipeline mixing box was authorized by permit revision FLA559351-008-DWF/MR (issued July 11, 2011). The mixing box (which is a part of IP's effluent transmission pipeline) is located on IP's property near the discharge of their Industrial Wastewater (IW) treatment facility. D-001 was first permitted on May 21, 2012 by permit revision FL0559351-009-DW1/SW. IP's Permit FL0002526-008-IW1S/NR (issued March 15, 2010) authorized the IP wetland project and provides the discharge nutrient wasteload allocation for the ECUA CWRF of 5.0 MGD AADF. ECUA certified construction complete on August 2, 2012 with discharge to start on August 15, 2012.

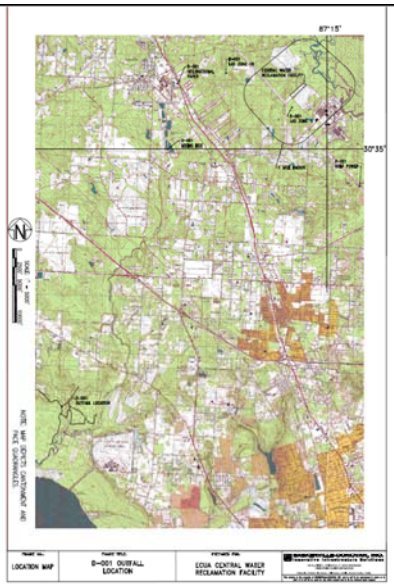
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

An existing 22.5 MGD annual average daily flow (AADF) permitted capacity activated sludge central water reclamation facility (CWRF). CWRF operates in the extended aeration mode. CWRF includes liquid and solid waste treatment streams.

The liquid waste stream processes for the 22.5 MGD AADF include: One (1) influent storage tank (3 MG), Pre-treatment facility including two (2) screens (capacity 40 MGD each), four (4) grit kings (10 MGD capacity, each), two (2) grit classifiers, and three (3)effluent equalization basins (2 MG, 2MG and 4.7 MG, respectively); four (4) 5-stage biological nutrient removal (BNR) basins (7.277 MG, each) including an anaerobic selector, pre-anoxic selector, aeration basin, post-anoxic selector, and re-aeration basin; four (4) secondary clarifiers (1.5 MG, each), two (2) return activated sludge pump station (6 pumps total), two (2) waste activated sludge pump stations (6 pumps total), seven (7) tertiary cloth disc filters (6.0 gpm/ft2, each); on-site hypochlorite generation, disinfection in six (6) chlorine contact chambers (735,350 gallons, total); reclaimed water wet weather storage basin (60 MG capacity); two (2)reject storage tanks (11.25 MG, each); and an in-plant pump station.

The solids waste stream includes: waste activated sludge pump station; scum pump station; two (2) aerobic sludge holding tanks (3 MG); solids dewatering; and solids drying. Residuals are piped to the residual treatment process at the CWRF plant site. The solids handling facility serves as a biosolids treatment facility which will produce Type AA residual or residuals less than Type AA will be disposed of in a landfill.

This permitting action is the issuance of a wastewater permit renewal to allow continued operation of the 22.5 MGD AADF advanced wastewater treatment facility for the Central Water Reclamation Facility (CWRF) 5 MGD effluent disposal to the International Paper (IP) Rainwater Tract wetlands (D-001) and a 35 MGD General Reuse Area (R-001) with three major users of Part III public access reclaimed water.


87°15'
30°35'
LOCATION MAP
D-001 OUTFALL LOCATION
LCUA CENTRAL WATER RECLAMATION FACILITY

PART I: Continued

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)

			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	Max	5.0	Report			Continuous	Recording Flow Meter with Totalizer	FLW-02	
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	6.25	7.5	10.0	Daily; 24 hours	24-hr FPC	EFF-01	
Solids, Total Suspended	mg/L	Max				5.0	Daily; 24 hours	Grab	EFB-01	
Nitrogen, Total	mg/L	Max	3.0	3.75	4.5	6.0	Daily; 24 hours	24-hr FPC	EFF-01	
Nitrogen, Total	lb/day	Max	Report	Report			Daily; 24 hours	Calculated	EFF-01	
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max	Report	Report			Daily; 24 hours	24-hr FPC	EFF-01	
Nitrite plus Nitrate, Total 1 det. (as N)	lb/day	Max	Report	Report			Daily; 24 hours	Calculated	EFF-01	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Report			Daily; 24 hours	24-hr FPC	EFF-01	
Nitrogen, Ammonia, Total (as N)	lb/day	Max	Report	Report			Daily; 24 hours	Calculated	EFF-01	
Phosphorus, Total (as P)	mg/L	Max	1.0	1.25	1.5	2.0	Daily; 24 hours	24-hr FPC	EFF-01	
Phosphorus, Total (as P)	lb/day	Max	Report	Report			Daily; 24 hours	Calculated	EFF-01	
Phosphate, Ortho (as P)	mg/L	Max	Report	Report			Daily; 24 hours	24-hr FPC	EFF-01	
Phosphate, Ortho (as P)	lb/day	Max	Report	Report			Daily; 24 hours	Calculated	EFF-01	

pH	s.u.	Min				6.0	Continuous	Meter	EFF-01	
pH	s.u.	Max				8.5	Continuous	Meter	EFF-01	
Coliform, Fecal	#/100mL	Max				25	Daily; 24 hours	Grab	EFF-01	
Coliform, Fecal, % less than detection	percent	Min		75			Daily; 24 hours	Calculated	EFF-01	Monthly Total
Chlorine, Total Residual (For Disinfection)	mg/L	Min				1.0	Continuous	Meter	EFA-01	
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min				100	Quarterly	24-hr FPC	EFF-01	
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min				100	Quarterly	24-hr FPC	EFF-01	
Nitrogen, Ammonia, Total (as N)	mg/L	Max				Report	Weekly	Grab	OTH-01	
Temperature (C), Water	Deg C	Max				Report	Weekly	Grab	OTH-01	
pH	s.u.	Max				Report	Weekly	Grab	OTH-01	
Ammonia, Unionized (as NH3)	mg/L	Max				0.02	Weekly	Calculated	OTH-01	

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
International Paper's Rainwater Tract Wetlands	**NA**

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

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr 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%**, **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 Edition, 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 7.2.3.

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**). 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 for either species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and 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., and the evaluation shall be included with the bioassay laboratory reports.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures. *[62-4.241, 62-620.620(3)]*

ON JANUARY 7, 2016 AN EFFLUENT TOXICITY CORRECTION PLAN WAS APPROVED. IF YOU HAVE ANY QUESTIONS PLEASE CONTACT KIM ALLEN AT 850-595-0553 OR KIM.ALLEN@DEP.STATE.FL.US.

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

There is one active Department enforcement case open for this facility involving unauthorized releases of wastewater; OGC File No. 11-0982-17-DW. Executed **June 6, 2012**

This is an ongoing - long term Consent Order ("CO") issued for continuous multiple sanitary sewer overflows. The CO requires active gravity sewer system rehabilitation evaluation plan and implementation. The final in compliance date is June 5, 2028.

Facility Mixing Zone Details (if applicable):

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

Date	Parameter and Units	Limit	Result
7/31/2014 D-001	**Coliform, Fecal, % less than detection**	**75.0**	**50**
7/31/2014 R-001	**Coliform, Fecal, % less than detection**	**75.0**	**61.3**
9/30/2014 D-001	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**71.9**
11/30/2014 D-001	**Coliform, Fecal, % less than detection**	**75.0**	**62**
6/30/2015 D-001	**Coliform, Fecal, % less than detection**	**75.0**	**50**
6/30/2015 R-001	**Coliform, Fecal, % less than detection**	**75.0**	**63.33**
8/31/2015 D-001 Q	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**48.3**
8/31/2015 D-001 P	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**53.7**
8/31/2015 D-001 R	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**54.3**
11/30/2015 D-001	**Coliform, Fecal, % less than detection**	**75.0**	**70**
11/30/2015 R-001	**Coliform, Fecal, % less than detection**	**75.0**	**70**
12/31/2015 D-001	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**53.0**
2/29/2016 D-001	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**51.6**
4/30/2016 R-001	**Solids, Total Suspended mg/l**	**5.0**	**7**
4/30/2016 D-001	**Solids, Total Suspended mg/l**	**5.0**	**7**
8/31/2016 D-001	**IC25 Statre 7day Chr Ceriodaphnia%**	**100**	**74.9**

Describe previous FYI and WQBEL study:

Describe previous or current Enforcement Actions (including WLs):

Describe any violations or problems noted in previous inspection:

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

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

PART II: Sampling Event Information	
Date(s) sample collected:	**Sampler(s):**
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.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. The AGP range of 6.10 to 20.0 mg dry wt/L is suggested to be representative of high productivity for freshwater (Miller et al. 1978). 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 analysis of effluent

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Effluent Composite	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.96 IJ	mg/L	0.2	2
10/24/16	Effluent Composite	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100 K	NOEC		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100 K	NOEC		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100 L	IC25		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100	NOEC		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, IC25	100 K	IC25		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100	NOEC		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, IC25	100 K	IC25		
10/24/16	Effluent Composite	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100 L	IC25		
10/24/16	Effluent Composite	Nutrients	O-Phosphate-P	0.023	mg P/L	0.004	0.01
10/24/16	Effluent Composite	Nutrients	Kjeldahl Nitrogen	0.58	mg N/L	0.08	0.2
10/24/16	Effluent Composite	Nutrients	Total-P	0.059	mg P/L	0.005	0.05
10/24/16	Effluent Composite	Nutrients	Ammonia-N	0.029	mg N/L	0.002	0.005
10/24/16	Effluent Composite	Nutrients	NO2NO3-N	0.45	mg N/L	0.004	0.01
10/24/16	Effluent Composite	Nutrients	Organic Carbon	5.4	mg C/L	0.5	1
10/24/16	Effluent Grab	AGP/LN	Algal Growth Potential	27.7 A	mg DryWt/L	0.3	0.9
10/24/16	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.1 U	µg/L	1.1	3.4
10/24/16	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	6.2		0	0
10/24/16	Effluent Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.80 U	µg/L	0.8	2.4
10/24/16	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.80 U	µg/L	0.8	2.4
10/24/16	Effluent Grab	Overflow	Fecal Coliforms-Membrane Filter	2 U	cfu/100 mL	2	2
10/24/16	Effluent Grab	Metals	Silver	0.0050 U	µg/L	0.005	0.02
10/24/16	Effluent Grab	Metals	Potassium	9.9	mg/L	0.3	1.2
10/24/16	Effluent Grab	Metals	Chromium	0.21	µg/L	0.05	0.2
10/24/16	Effluent Grab	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Metals	Lead	0.40	µg/L	0.05	0.2
10/24/16	Effluent Grab	Metals	Nickel	1.39	µg/L	0.05	0.2
10/24/16	Effluent Grab	Metals	Sodium	55.2	mg/L	0.5	2
10/24/16	Effluent Grab	Metals	Arsenic	0.19 I	µg/L	0.05	0.2
10/24/16	Effluent Grab	Metals	Calcium	26.6	mg/L	0.075	0.3
10/24/16	Effluent Grab	Metals	Aluminum	132	µg/L	2	8
10/24/16	Effluent Grab	Metals	Selenium	0.20 U	µg/L	0.2	0.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Effluent Grab	Metals	Copper	1.42	µg/L	0.1	0.4
10/24/16	Effluent Grab	Metals	Magnesium	2.92	mg/L	0.04	0.16
10/24/16	Effluent Grab	Metals	Iron	34 I	µg/L	30	120
10/24/16	Effluent Grab	Metals	Zinc	62	µg/L	5	20
10/24/16	Effluent Grab	Nutrients	Chloride	61 Q	mg Cl/L	0.2	0.5
10/24/16	Effluent Grab	Nutrients	Ammonia-N	0.029	mg N/L	0.002	0.005
10/24/16	Effluent Grab	Nutrients	Sulfate	37 Q	mg SO4/L	0.2	0.5
10/24/16	Effluent Grab	Nutrients	TSS	2 U	mg/L	2	10
10/24/16	Effluent Grab	Nutrients	Total Alkalinity	89	mg CaCO3/L	0.65	2.5
10/24/16	Effluent Grab	Nutrients	NO2NO3-N	0.43	mg N/L	0.004	0.01
10/24/16	Effluent Grab	Nutrients	Fluoride	0.97	mg F/L	0.035	0.1
10/24/16	Effluent Grab	Nutrients	Total-P	0.060	mg P/L	0.005	0.05
10/24/16	Effluent Grab	Nutrients	Turbidity	1.1 A	NTU	0.1	0.1
10/24/16	Effluent Grab	Nutrients	Kjeldahl Nitrogen	0.50	mg N/L	0.08	0.2
10/24/16	Effluent Grab	Nutrients	O-Phosphate-P	0.022	mg P/L	0.004	0.01
10/24/16	Effluent Grab	Nutrients	Color (true)	4.2 I	PCU	2.5	6
10/24/16	Effluent Grab	Nutrients	Organic Carbon	5.2	mg C/L	0.5	1
10/24/16	Effluent Grab	Nutrients	Dissolved Oxygen	100.4	%Sat		
10/24/16	Effluent Grab	Nutrients	pH	7.56			
10/24/16	Effluent Grab	Nutrients	Temperature	25.6	C		
10/24/16	Effluent Grab	Pesticides	Alachlor	0.060 U	µg/L	0.06	0.24
10/24/16	Effluent Grab	Pesticides	Atrazine Desethyl	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Disulfoton	0.0050 UJ	µg/L	0.005	0.02
10/24/16	Effluent Grab	Pesticides	Sucralose	34	µg/L	0.2	0.8
10/24/16	Effluent Grab	Pesticides	Carbamazepine	0.21	µg/L	0.0004	0.0016
10/24/16	Effluent Grab	Pesticides	Metribuzin	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Norflurazon	0.030 U	µg/L	0.03	0.12
10/24/16	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Ethion	0.010 UJ	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Mevinphos	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Ametryn	0.010 UJ	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Azinphos Methyl	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Butylate	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Demeton	0.024 U	µg/L	0.024	0.096
10/24/16	Effluent Grab	Pesticides	Diazinon	0.010 U	µg/L	0.01	0.04

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Effluent Grab	Pesticides	Ethoprop	0.0050 U	µg/L	0.005	0.02
10/24/16	Effluent Grab	Pesticides	Naled	0.040 U	µg/L	0.04	0.16
10/24/16	Effluent Grab	Pesticides	Prometon	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Simazine	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Metalaxyl	0.040 U	µg/L	0.04	0.16
10/24/16	Effluent Grab	Pesticides	Phorate	0.0050 UJ	µg/L	0.005	0.02
10/24/16	Effluent Grab	Pesticides	Prometryn	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Acetaminophen	0.0040 U	µg/L	0.004	0.016
10/24/16	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Fenamiphos	0.030 U	µg/L	0.03	0.12
10/24/16	Effluent Grab	Pesticides	Metolachlor	0.060 U	µg/L	0.06	0.24
10/24/16	Effluent Grab	Pesticides	Atrazine	0.031 I	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Atrazine Desisopropyl	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Bromacil	0.040 U	µg/L	0.04	0.16
10/24/16	Effluent Grab	Pesticides	Fonofos	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Hexazinone	0.030 U	µg/L	0.03	0.12
10/24/16	Effluent Grab	Pesticides	Malathion	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Pesticides	Parathion Ethyl	0.020 U	µg/L	0.02	0.08
10/24/16	Effluent Grab	Pesticides	Parathion Methyl	0.010 U	µg/L	0.01	0.04
10/24/16	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	15 U	µg/L	15	59
10/24/16	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	15 U	µg/L	15	59
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	µg/L	2	7.8
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Fluorene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	µg/L	2	7.8
10/24/16	Effluent Grab	Priority Organic Pollutants	Phenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Pyrene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	9.8 U	µg/L	9.8	39

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	2.0 U	µg/L	2	7.8
10/24/16	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	µg/L	2	7.8
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	µg/L	2	7.8
10/24/16	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39 UJ	µg/L	39	160
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Benzidine	98 UJ	µg/L	98	390
10/24/16	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	Chrysene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	2.9 U	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	Isophorone	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 UJ	µg/L	2.9	12
10/24/16	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.98 U	µg/L	0.98	3.9
10/24/16	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98 U	µg/L	0.98	3.9

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.20 U	µg/L	0.2	0.78
10/24/16	Effluent Grab	Priority Organic Pollutants	Anthracene	0.20 U	µg/L	0.2	0.78
10/24/16	Blank	Overflow	Fecal Coliforms-Membrane Filter	1 U	cfu/100 mL	1	1
10/24/16	Blank	Metals	Zinc	5.0 U	µg/L	5	20
10/24/16	Blank	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
10/24/16	Blank	Metals	Selenium	0.20 U	µg/L	0.2	0.8
10/24/16	Blank	Metals	Nickel	0.050 U	µg/L	0.05	0.2
10/24/16	Blank	Metals	Potassium	0.30 U	mg/L	0.3	1.2
10/24/16	Blank	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
10/24/16	Blank	Metals	Chromium	0.050 U	µg/L	0.05	0.2
10/24/16	Blank	Metals	Copper	0.45	µg/L	0.1	0.4
10/24/16	Blank	Metals	Arsenic	0.050 U	µg/L	0.05	0.2
10/24/16	Blank	Metals	Lead	0.20	µg/L	0.05	0.2
10/24/16	Blank	Metals	Silver	0.0050 U	µg/L	0.005	0.02
10/24/16	Blank	Metals	Iron	30 U	µg/L	30	120
10/24/16	Blank	Metals	Aluminum	2.0 U	µg/L	2	8
10/24/16	Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.3
10/24/16	Blank	Metals	Sodium	0.50 U	mg/L	0.5	2
10/24/16	Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
10/24/16	Blank	Nutrients	TSS	2 U	mg/L	2	10
10/24/16	Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
10/24/16	Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
10/24/16	Blank	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
10/24/16	Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6
10/24/16	Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
10/24/16	Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
10/24/16	Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
10/24/16	Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
10/24/16	Blank	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
10/24/16	Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
10/24/16	Blank	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005
10/24/16	Blank	Pesticides	Azinphos Methyl	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Sucralose	0.010 U	µg/L	0.01	0.04
10/24/16	Blank	Pesticides	Parathion Ethyl	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Phorate	0.0049 U	µg/L	0.0049	0.02

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Blank	Pesticides	Acetaminophen	0.0040 U	µg/L	0.004	0.016
10/24/16	Blank	Pesticides	Alachlor	0.059 U	µg/L	0.059	0.24
10/24/16	Blank	Pesticides	Ametryn	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Atrazine Desethyl	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Ethion	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Fonofos	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Butylate	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Chlorpyrifos Ethyl	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Disulfoton	0.0049 U	µg/L	0.0049	0.02
10/24/16	Blank	Pesticides	Hexazinone	0.030 U	µg/L	0.03	0.12
10/24/16	Blank	Pesticides	Mevinphos	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Prometon	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Simazine	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Fenamiphos	0.030 U	µg/L	0.03	0.12
10/24/16	Blank	Pesticides	Malathion	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Metolachlor	0.059 U	µg/L	0.059	0.24
10/24/16	Blank	Pesticides	Parathion Methyl	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Prometryn	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Chlorpyrifos Methyl	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Diazinon	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Ethoprop	0.0049 U	µg/L	0.0049	0.02
10/24/16	Blank	Pesticides	Atrazine	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Bromacil	0.039 U	µg/L	0.039	0.16
10/24/16	Blank	Pesticides	Demeton	0.024 U	µg/L	0.024	0.095
10/24/16	Blank	Pesticides	Naled	0.039 U	µg/L	0.039	0.16
10/24/16	Blank	Pesticides	Carbamazepine	4.0E-04 U	µg/L	0.0004	0.0016
10/24/16	Blank	Pesticides	Atrazine Desisopropyl	0.0099 U	µg/L	0.0099	0.039
10/24/16	Blank	Pesticides	Metribuzin	0.020 U	µg/L	0.02	0.079
10/24/16	Blank	Pesticides	Norflurazon	0.030 U	µg/L	0.03	0.12
10/24/16	Blank	Pesticides	Metalaxyl	0.039 U	µg/L	0.039	0.16
10/24/16	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	2-Chlorophenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	µg/L	38	150
10/24/16	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96 U	µg/L	0.96	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Fluorene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Pentachlorophenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.6 U	µg/L	9.6	38
10/24/16	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Phenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Benzidine	96 U	µg/L	96	380
10/24/16	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Chrysene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Acenaphthene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	µg/L	1.9	7.7
10/24/16	Blank	Priority Organic Pollutants	Diethyl phthalate	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Dimethyl phthalate	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Fluoranthene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	µg/L	1.9	7.7
10/24/16	Blank	Priority Organic Pollutants	Phenanthrene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	2-Nitrophenol	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Acenaphthylene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 U	µg/L	1.9	7.7
10/24/16	Blank	Priority Organic Pollutants	Naphthalene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	Pyrene	0.19 U	µg/L	0.19	0.77

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
10/24/16	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14 U	µg/L	14	58
10/24/16	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	µg/L	1.9	7.7
10/24/16	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Isophorone	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Nitrobenzene	1.9 U	µg/L	1.9	7.7
10/24/16	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	4-Nitrophenol	14 U	µg/L	14	58
10/24/16	Blank	Priority Organic Pollutants	Anthracene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	µg/L	0.19	0.77
10/24/16	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.96 U	µg/L	0.96	3.8
10/24/16	Blank	Priority Organic Pollutants	Hexachloroethane	2.9 U	µg/L	2.9	12
10/24/16	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	µg/L	0.19	0.77

EPA End Sheet

The Bioassay of ECUA Central Water Reclamation Facility effluent sampled on October 24, 26 and 28, 2016. NPDES #FL0559351.

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 FL0559351	11 12 161024	18 **B**	19 **S**	20 01

Remarks

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The Priority Pollutants Analysis of ECUA Central Water Reclamation Facility effluent sampled on October 24, 2016. NPDES #FL0559351.

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 FL0559351	11 12 161024	18 **X**	19 **S**	20 01

Remarks

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Biological Analyses of ECUA Central Water Reclamation Facility effluent sampled on October 24, 2016. NPDES #FL0559351.

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 FL0559351	11 12 161024	18 **S**	19 **S**	20 01

Remarks

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