

Effluent Quality Assessment

Ormond Beach Wastewater Treatment Facility

Volusia County

NPDES #FL0020532

Sampled January 27, 2014

April 2014

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

CONTENTS

Facility Overview

Methods

Results

Conclusion

Literature Cited

Tables

Table 1	Effluent limits, Class III Marine Criteria and chemical and microbiological data and qualifiers
Table 2	Effluent limits, Class III Marine Criteria and metal data and qualifiers
Table 3	Measured and predicted freshwater algal growth potential (AGP) and measured marine algal growth potential (AGP)
Table 4	Effluent limits, Class III Marine Criteria and field parameters and qualifiers

Appendices

Appendix A	Facility Summary
Appendix B	Explanation of measurements
Appendix C	Chemical Analyses of Effluent

EPA End Sheet

Ormond Beach Wastewater Treatment Facility (WWTF), 550 North Orchard Street, Ormond Beach, Volusia County, Florida, 32174. NPDES #FL0020532.

Facility Overview

Ormond Beach WWTF is a Type 1 advanced domestic wastewater treatment facility which uses the Bardenpho Process to treat domestic wastewater. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO), Consent Order (CO and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for toxicity testing, biological and chemical analyses were collected on January 27, 2014. All samples were collected from the EFA-1 NPDES sampling point for Outfall D-001 by Phil Kane, Jenny Farrell and Dave Scharr (FDEP Central 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 1 and Appendix C)

- Total residual chlorine (TRC; 0.02 mg/L) was detected in the effluent (measured by facility personnel with a chlorine kit – after dechlorination) during the inspection, which constitutes an exceedance of Class III Marine Water Quality Criterion (62-305.530(18), F.A.C) and may represent a violation of permit limits. Total residual chlorine (0.65 mg/L) was detected in the bioassay sample in the laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.25 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.
- Aluminum, fluoride, iron, total nitrogen, total phosphorus, turbidity, and zinc 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. The effluent's bromodichloromethane concentration complied with the facility's permitted limit but was slightly greater than the Class III Marine Water Quality Criterion (62-302.530(35)(b)5, F.A.C.). Since the measured value was from a single grab sample and the Class III limit is an annual average, it could not be determined if this concentration constitutes an exceedance of the criterion. It should be noted that the effluent's annual average concentration (28.3 µg/L) of bromodichloromethane from January 1, 2013 – December 31, 2013, exceeded the Class III Marine Criterion (≤22 µg/L annual average).
- Arsenic, total chromium, carbonaceous biochemical oxygen demand (CBOD), copper, lead, nickel and total suspended solids (TSS) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Algal Growth Potential (See Table 2a and 2b and Appendix C)

- The effluent Algal Growth Potential (AGP) was 72.5 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 co-limited by both nitrogen and phosphorus (Miller et al. 1978).
- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.6 parts per thousand (ppth) to a salinity of approximately 7 ppth by the addition of artificial sea salts to meet the salinity requirements of the test species.

- The salinity adjusted effluent algal growth potential (AGP) was 60.1 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP with Ron Raschke USEPA Region 4 1987).

Toxicity Test Results (See Appendix C)

- Tests were performed January 28 – February 1, 2014.

Ceriodaphnia dubia 96-hour acute screening bioassay – (Terminated at 24 hours)	LC_{50} < 100%, 100%* mortality in 100% sample at 24 hours
Ceriodaphnia dubia 96-hour acute definitive bioassay – (Dechlorinated sample)	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute screening bioassay – (Terminated at 24 hours)	LC_{50} < 100%, 100%* mortality in 100% sample at 24 hours
Pimephales promelas 96-hour acute definitive bioassay – (Dechlorinated sample)	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

*NOTE: In a 96-hour acute screening or 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 original bioassay samples containing total residual chlorine were acutely toxic to the test organisms. The dechlorinated aliquots of sample were not acutely toxic to the test organisms. The cause of toxicity was attributed to the residual chlorine in the sample.
- An aliquot of this sample was dechlorinated by the addition of sodium thiosulfate (0.025 N) at a rate of 0.7 mL per liter 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 5% mortality in the dechlorinated controls of the *Ceriodaphnia dubia* test but no mortality in the dechlorinated controls of the *Pimephales promelas* test.

Conclusion

The effluent sample collected from the EFA-1 NPDES sampling point for this facility on January 27, 2014, was acutely toxic to both test species during the 96-hour acute screening bioassays. The dechlorinated aliquot of sample was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The toxicity was attributed to the total residual chlorine in the sample. The effluent AGP results were greater than the "problem" thresholds for fresh and marine receiving waters suggesting that nutrient enrichment may be an issue. It cannot be determined if the bromodichloromethane detected in the effluent constitutes an exceedance of water quality criterion since that criterion is expressed as an annual average. Total residual chlorine as measured by facility personnel exceeded Class III Marine Water Quality Criterion (62-305.530(18), F.A.C) and may represent a violation of permit limits.

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.

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.

Table 1. Effluent limits, Class III Marine Criteria and analytical water chemistry data

Ormond Beach WWTF	Units	Class III Criteria	Effluent Permit Limits	Effluent	Field Blank	Trip Blank
Ortho-phosphate	mg P/L	-	-	0.14	0.004 U	-
Total Phosphorus	mg P/L	-	≤ 2.0 p	0.23	0.002 U	-
Total Ammonia	mg N/L	-	-	0.25	0.007	-
Un-ionized Ammonia (calculated salinity)	-	-	-	< 0.02 c	-	-
Nitrate and Nitrite	mg N/L	-	-	2.2	0.004 U	-
Total Kjeldahl Nitrogen	mg N/L	-	-	1.4	0.080 U	-
Organic Nitrogen	mg N/L	-	-	1.5 c	0.033 c	-
Total Nitrogen	mg N/L	-	≤ 6.0 p	3.6 c	0.042 c	-
Total Organic Carbon	mg C/L	-	-	13	0.73 I	-
Total Residual Chlorine	mg/L		≤ 0.1 p	0.65 AQ£		
Chlorophyll *a* - Corrected	ug/L	-	-	0.55 U	-	-
Phaeophytin	ug/L	-	-	0.40 U	-	-
CBOD, 5 day, N - inhibited	mg/L	-	≤ 10.0 p	0.40 IJ	-	-
Hardness	mg/L as $CaCO_3$	-	-	288 c	0.35 c	-
Total Suspended Solids	mg/L	-	≤ 10.0 p	2 I	-	-
Turbidity	NTU	≤ 29 t	-	1.2 A	0.10 U	-
Color (true)	PCU	-	-	19 A	2.5 U	-
Alkalinity	mg/L as $CaCO_3$	-	-	227 A	0.65 U	-
Chloride	mg Cl/L	-	-	200	0.20 U	-
Cyanide	mg/L	≤ 1.0	-	-	-	-
Fluoride	mg F/L	≤ 5.0	-	0.70	0.035 U	-
Sulfate	mg SO4/L	-	-	41	0.20 U	-
Bromodichloromethane	ug/L	≤ 22 a	≤ 100 ap	23	0.20 U	-

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

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

p - 24 hour flow proportioned composite

s - Single sample

t - Shall not exceed 29 NTUs above background

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

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

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

Q - Sample held beyond normal holding time

£ - Measurement performed in bioassay laboratory

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

Ormond Beach WWTF	Units	Class III Criteria	Effluent Permit Limits	Effluent	Field Blank
Aluminum	ug/L	≤ 1500	-	86	5.0 U
Arsenic	ug/L	-	-	0.56 I	0.25 U
Cadmium	ug/L	≤ 8.8	-	0.050 U	0.050 U
Calcium	mg/L	-	-	92.4	0.075 U
Chromium, Total [2]	ug/L	≤ 50	-	0.52 I	0.30 U
Copper	ug/L	≤ 3.7	Report	0.97 I	0.50 U
Iron	ug/L	≤ 300	-	130	30 U
Lead	ug/L	≤ 8.5	-	0.29 I	0.20 U
Magnesium	mg/L	-	-	13.9	0.040 U
Mercury	ug/L	≤ 0.025	-	-	-
Nickel	ug/L	≤ 8.3	≤ 8.3 p	0.98 I	0.46 I
Potassium	mg/L	-	-	12.9	0.30 U
Selenium	ug/L	≤ 71	-	0.20 U	0.20 U
Silver	ug/L	≤ 2.3	-	0.025 U	0.025 U
Sodium	mg/L	-	-	127	0.50 U
Zinc	ug/L	≤ 86	≤ 86 p	32	5.0 U

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
1 -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
s - Single sample
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 3. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total souble inorganic nitrogen (TSIN), total nitrogen (TN), ortho- phosphate (OP) and total phosphorus (TP) limitation for the freshwater species, *P. subcapitata,* and measured AGP for the marine species, *D. tertiolecta*.

Ormond Beach 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**
Effluent	*Dunaliella tertiolecta*	60.1 *	not applicable [1]	not applicable [1]	not applicable [1]	not applicable [1]	not applicable [1]	not applicable [1]
Effluent	*Pseudokirchneriella subcapitata*	72.5	93.1 ± 18.6	60.2 ± 12	136.8 ± 27.4.6	98.9 ± 19.8	17.5	15.7

* - sample salinity adjusted to ~ 7 ppth

1 - predictions not applicable to marine matrix

Table 4. Effluent limits, Class III Marine Criteria and field parameters

Ormond Beach WWTF	Units	Class III Criteria	Effluent Permit Limits	Effluent
Temperature	°C	-	-	20.1
pH	SU	6.5 - 8.5	6.5 - 8.5	7.2
Specific Conductance	umhos/cm	-	-	1150
Salinity	ppth	-	-	0.6 c
Dissolved Oxygen	mg/L	3.28	≥ 2.0 s	6.2
Flow (measured from 11/12 to 11/13)	mgd	-	8.0 a	1.8 a
Total Residual Chlorine	mg/L	-	≤ 0.01 s	0.02

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

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

s - Single sample

Appendix A
Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Jenny E. Farrell	**Contact Number:** (407) 897-4173
Facility Name (as it appears on permit): Ormond Beach Wastewater Treatment Facility (WWTF)	**Former Names:**
NPDES Permit Number: FL0020532	**Permit Expiration Date:** October 26, 2014
Physical Address: 550 North Orchard Street, Ormond Beach, FL 32174	
District: Central	**County:** Volusia
Function of Facility: Domestic Wastewater Treatment Plant	
Facility Type: Municipal	**Permitted Capacity (MGD):** 8.0
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): D-001 outfall flow: 1.8 MGD AADF, as reported on the November 2013 DMR (December 2012 through November 2013 reporting period).	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): R-001 outfall flow: 2.76 MGD AADF, as reported on the November 2013 DMR (December 2012 through November 2013 reporting period).	
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):
The sampling location of D-001 is EFD-1, located at the sample point after dechlorination. All parameters are collected here except for fecal coliform and total residual chlorine (TRC). EFA-1 is the sampling point after chlorination. The fecal coliform and TRC samples are collected at EFA-1. Sampling points for R-001 are listed as EFA-1, EFB-1, and OTH-1. The EFA-1 sampling point is for all parameters required to be taken after disinfection. EFB-1 is located after the filters but prior to chlorination for R-001's turbidity and TSS samples. OTH-1 is the sample point following the flow equalization basin after disinfection and after the blend of concentrate is added.

Description of Permitted Outfall(s):
Outfall D001 is to the Halifax River. The discharge pipe is approximately 1000 feet in length from shore and discharges at a depth of approximately 5 feet. The point of discharge is located approximately at latitude 29°17' 50" N, longitude 81°3' 26" W.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):
Ormond Beach WRF is an Advanced Domestic Wastewater Treatment (AWT) facility with an odor control system, influent screening, grit removal, biological nutrient removal (carousel type, 5-stage Bardenpho & #61668; Process), re-aeration, chemical feed facilities, secondary clarification, tertiary filtration, high level disinfection, postaeration and dechlorination for the river discharge, with thickening and dewatering of residuals. Demineralization concentrate (1.0 MGD) is blended with reclaimed water for eventual discharge to reuse storage and/or surface water.

PART I: Continued

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

Parameter	Units	Min/Max	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site #
Flow (to Halifax River)	MGD	Maximum	6.0	Report	-	-	Continuous	Recording flow meters with Totalizer	FLW-1
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	7.5	10.0	5 days/week	24-hr FPC	EFD-1
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	5 days/week	24-hr FPC	EFD-1
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-1
Coliform, Fecal	#/100 ML	Maximum	200 fcc/100 mL	200 fcc/100 mL (Geometric Mean)	-	800 fcc/100 mL	5 days/week	Grab	EFA-1
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	0.5	Continuous	Meter	EFA-1
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Daily	Grab	EFD-1
Nitrogen, Total (as N)	MG/L	Maximum	3.0	3.0	4.5	6.0	5 days/week	24-hr FPC	EFD-1
Phosphorus, Total (as P)	MG/L	Maximum	1.0	1.0	1.5	2.0	5 days/week	24-hr FPC	EFD-1
Oxygen, Dissolved (DO)	MG/L	Minimum	2.0	-	-	-	Daily	Grab	EFD-1
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Minimum	-	-	-	100	Quarterly	24-hr TPC	EFD-1
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Minimum	-	-	-	100	Quarterly	24-hr TPC	EFD-1
Copper, Total Recoverable	ug/L	Maximum	-	-	-	Report	Monthly	24-hr FPC	EFD-1
Nickel, Total Recoverable	ug/L	Maximum	-	-	-	8.3	Monthly	24-hr FPC	EFD-1
Zinc, Total Recoverable	ug/L	Maximum	-	-	-	86	Monthly	24-hr FPC	EFD-1
Dichlorobromomethane	ug/L	Maximum	100	-	-	-	Monthly	24-hr FPC	EFD-1
BOD, Carbonaceous 5 day, 20C	Lbs/day	-	-	501	-	-	Monthly	-	EFD-1
Total Nitrogen	Lbs/day	-	-	150	-	-	Monthly	-	EFD-1
Total Phosphorus	Lbs/day	-	-	50	-	-	Monthly	-	EFD-1

PART I: Continued

Receiving Waters: Halifax River	Classification (indicate whether fresh or marine): Class III Marine Waters

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

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): None

Facility Mixing Zone Details (if applicable):
No Mixing Zone

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

Date	Parameter and Units	Limit	Result
March 2013	TSS (mg/L)	10 mg/L (Maximum)	20 mg/L
March 2013	TSS (mg/L)	7.5 mg/L (Maximum)	7.73 mg/L
July 2013	TSS (mg/L)	10 mg/L (Maximum)	<20.0 mg/L (lab error)
September 2013	CBOD (mg/L)	10 mg/L (Maximum)	12.8 mg/L

Describe previous FYI and WQBEL study:
A FYI was performed on December 8, 2008. No organic constituents were detected in the receiving waters and dichlorobromomethane was not sampled for. Iron, Nickel, and zinc in the effluent were detected at levels that complied with Class III Marine Water Quality Criteria. Iron and Aluminum concentrations at the control site were elevated versus the concentrations at the North and South test sites. The dechlorinated effluent was not toxic to the fish, *Cyprinella leedsi* or to the water flea, *Ceriodaphnia dubia*, during the 48-hour definitive bioassays and therefore expected to comply with permit limits. No issues noted with the physical, chemical, and microbiology parameters. There was no detectable nutrient enrichment at any of the sites.

Describe previous or current Enforcement Actions (including WLs):
Consent Order OGC File No. 12-0887 was executed on April 10, 2012 for CBOD and TN effluent exceedances. The interim limits in this consent order expired on August 31, 2013. This enforcement action was closed on July 26, 2013 by the Department.

Describe any violations or problems noted in previous inspection:
The last inspection of this facility was performed on March 20, 2013. Items that were out of compliance at the time of inspection were sampling and reporting deficiencies. Items that were significantly out of compliance were the multiple effluent exceedances.

Discuss whether DMR trends within previous five years are improving or declining: Over the last five years the flow to D001 has declined slightly from the beginning of the review period to the present. Over the last three years the flow has been steady. The effluent quality was improving in 2009-2010 but then declined in late 2011-2012. The past year (2013) has resulted in an improvement in effluent quality.

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):
Some of the effluent quality parameters had spiked due to major construction that occurred at this facility. Since that construction has completed the parameters (CBOD, Toxicity, and TN) have been trending down due to these recent improvements. The flow's to D001 have decreased slightly approximately three to four years ago, due to the public access reuse system being online and now have been steady for the past several years. The Drinking Water Plant concentrate was permitted to mix with this effluent stream in June 2012.

PART II: Sampling Event Information

Date(s) sample collected: 1/27/2014	**Sampler(s): Phil Kane & David Scharr**
Temperature (Deg C): 20.1°C	**pH (SU): 7.2 SU**
Dissolved Oxygen (mg/L): 6.2 mg/L	**Conductivity (umhos/cm): 1150 umhos/cm**
Total Residual Chlorine (mg/L): 2.16 mg/L	**Total Residual Chlorine - after Disinfection (mg/L): 0.02 mg/L* (According to the facility this was interference from the DPD powder pillow addition)**
Method of Chlorination: Sodium Hypochlorite	**Method of De-chlorination: Sodium Bisulfite**

Flow During Sample Collection for each outfall(MGD):
Approximately - 4.36 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):

The mean flow for D001 in January 2014 was approximately – 1.75 MGD.

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:

A boil was noted in the water by the sampling crew at the outfall in the Halifax River on the day of inspection. The facility is currently working on a solution to this issue.

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/qa/index.htm.

(2) Chemical Analyses of the Effluent

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

(3) Toxicity Bioassays

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

(4) Algal Growth Potential (AGP)

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

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

(5) Chlorophyll *a* Content

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

(6) Definition of Qualifiers

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

Appendix C
Chemical Analyses of Effluent

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 09:34	ORMOB	AGP/LN	Algal Growth Potential	72.5	mg DryWt/L	0.300	0.900
01/27/2014 09:34	ORMOB	AGP/LN	Algal Growth Potential-Salinity Adjusted	60.1	mg DryWt/L	3.00	3.00
01/27/2014 09:34	ORMOB	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.40 IJ	mg/L	0.20	2.0
01/27/2014 09:34	ORMOB	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55 U	ug/L	0.55	1.7
01/27/2014 09:34	ORMOB	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.40	1.2
01/27/2014 09:34	ORMOB	Metals	Zinc	32	ug/L	5.0	20
01/27/2014 09:34	ORMOB	Metals	Cadmium	0.050 U	ug/L	0.050	0.20
01/27/2014 09:34	ORMOB	Metals	Calcium	92.4	mg/L	0.075	0.30
01/27/2014 09:34	ORMOB	Metals	Copper	0.97 I	ug/L	0.50	1.0
01/27/2014 09:34	ORMOB	Metals	Nickel	0.98 I	ug/L	0.25	1.0
01/27/2014 09:34	ORMOB	Metals	Lead	0.29 I	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Metals	Sodium	127	mg/L	0.50	2.0
01/27/2014 09:34	ORMOB	Metals	Aluminum	86	ug/L	5.0	20
01/27/2014 09:34	ORMOB	Metals	Silver	0.025 U	ug/L	0.025	0.10
01/27/2014 09:34	ORMOB	Metals	Magnesium	13.9	mg/L	0.040	0.16
01/27/2014 09:34	ORMOB	Metals	Selenium	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Metals	Arsenic	0.56 I	ug/L	0.25	1.0
01/27/2014 09:34	ORMOB	Metals	Chromium	0.52 I	ug/L	0.30	1.2
01/27/2014 09:34	ORMOB	Metals	Iron	130	ug/L	30	120
01/27/2014 09:34	ORMOB	Metals	Potassium	12.9	mg/L	0.30	1.2
01/27/2014 09:34	ORMOB	Nutrients	Chloride	200	mg Cl/L	2.0	5.0
01/27/2014 09:34	ORMOB	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
01/27/2014 09:34	ORMOB	Nutrients	Alkalinity	227 A	mg CaCO3/L	0.65	2.5
01/27/2014 09:34	ORMOB	Nutrients	Ammonia-N	0.25	mg N/L	0.010	0.025
01/27/2014 09:34	ORMOB	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
01/27/2014 09:34	ORMOB	Nutrients	Organic Carbon	13	mg C/L	0.50	1.0
01/27/2014 09:34	ORMOB	Nutrients	NO2NO3-N	2.2	mg N/L	0.040	0.10
01/27/2014 09:34	ORMOB	Nutrients	Fluoride	0.70	mg F/L	0.035	0.10
01/27/2014 09:34	ORMOB	Nutrients	Sulfate	41	mg SO4/L	2.0	5.0
01/27/2014 09:34	ORMOB	Nutrients	Turbidity	1.2 A	NTU	0.10	0.10
01/27/2014 09:34	ORMOB	Nutrients	O-Phosphate-P	0.14	mg P/L	0.0040	0.010

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 09:34	ORMOB	Nutrients	TSS	2 I	mg/L	2.0	10
01/27/2014 09:34	ORMOB	Nutrients	Color (true)	19 A	PCU	2.5	6.0
01/27/2014 09:34	ORMOB	Nutrients	Kjeldahl Nitrogen	1.4	mg N/L	0.080	0.20
01/27/2014 09:34	ORMOB	Nutrients	Total-P	0.23	mg P/L	0.0050	0.050
01/27/2014 09:34	ORMOB	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
01/27/2014 09:34	ORMOB	Pesticides	Azinphos Methyl	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Phorate	0.0050 U	ug/L	0.0050	0.020
01/27/2014 09:34	ORMOB	Pesticides	Fenamiphos	0.030 U	ug/L	0.030	0.12
01/27/2014 09:34	ORMOB	Pesticides	Ametryn	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Chlorpyrifos Ethyl	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Hexazinone	0.030 U	ug/L	0.030	0.12
01/27/2014 09:34	ORMOB	Pesticides	Metolachlor	0.060 U	ug/L	0.060	0.24
01/27/2014 09:34	ORMOB	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Prometon	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Atrazine	0.053 U	ug/L	0.053	0.21
01/27/2014 09:34	ORMOB	Pesticides	Malathion	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Naled	0.040 U	ug/L	0.040	0.16
01/27/2014 09:34	ORMOB	Pesticides	Simazine	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Alachlor	0.060 U	ug/L	0.060	0.24
01/27/2014 09:34	ORMOB	Pesticides	Metalaxyl	0.040 U	ug/L	0.040	0.16
01/27/2014 09:34	ORMOB	Pesticides	Norflurazon	0.030 U	ug/L	0.030	0.12
01/27/2014 09:34	ORMOB	Pesticides	Parathion Methyl	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Prometryn	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Atrazine Desethyl	0.061 UJ	ug/L	0.061	0.24
01/27/2014 09:34	ORMOB	Pesticides	Atrazine Desisopropyl	0.021 UJ	ug/L	0.021	0.084
01/27/2014 09:34	ORMOB	Pesticides	Butylate	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Ethion	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Bromacil	0.040 U	ug/L	0.040	0.16
01/27/2014 09:34	ORMOB	Pesticides	Demeton	0.024 U	ug/L	0.024	0.096
01/27/2014 09:34	ORMOB	Pesticides	Fonofos	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Chlorpyrifos Methyl	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Disulfoton	0.0050 UJ	ug/L	0.0050	0.020
01/27/2014 09:34	ORMOB	Pesticides	Metribuzin	0.020 U	ug/L	0.020	0.080
01/27/2014 09:34	ORMOB	Pesticides	Diazinon	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Mevinphos	0.010 U	ug/L	0.010	0.040
01/27/2014 09:34	ORMOB	Pesticides	Ethoprop	0.0050 U	ug/L	0.0050	0.020

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Di-n-octyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Diethyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40 U	ug/L	40	160
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	ug/L	2.0	8.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Acenaphthene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	ug/L	2.0	8.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Anthracene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Chrysene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Hexachlorobutadiene	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Phenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Fluorene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	ug/L	2.0	8.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,4-Dinitrophenol	15 UJ	ug/L	15	60
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Di-n-butyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Hexachlorobenzene	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,6-Dinitrotoluene	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0 UJ	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Pentachlorophenol	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Phenanthrene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,4-Dichlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,4-Dimethylphenol	10 U	ug/L	10	40

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2-Chloronaphthalene	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	4-Nitrophenol	15 U	ug/L	15	60
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Hexachloroethane	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Isophorone	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2-Chlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2-Nitrophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Benzidine	100 UJ	ug/L	100	400
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0 U	ug/L	3.0	12
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Dimethyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	ug/L	2.0	8.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Naphthalene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Nitrobenzene	2.0 U	ug/L	2.0	8.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Bromodichloromethane	23	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	2,4-Dinitrotoluene	1.0 U	ug/L	1.0	4.0
01/27/2014 09:34	ORMOB	Priority Organic Pollutants	Acenaphthylene	0.20 U	ug/L	0.20	0.80
01/27/2014 09:34	ORMOB	Nutrients	Temperature	20.1	C		
01/27/2014 09:34	ORMOB	Nutrients	Specific Conductance	1150	umhos/cm		
01/27/2014 09:34	ORMOB	Nutrients	Dissolved Oxygen	6.2	mg/L		
01/27/2014 09:34	ORMOB	Nutrients	pH	7.2			
01/27/2014 09:34	ORMOB	Nutrients	Temperature	20.1	C		
01/27/2014 09:34	ORMOB	Nutrients	Total Residual Chlorine	0.02	mg/L		
01/27/2014 09:34	ORMOB	Nutrients	Temperature	20.1	C		
01/27/2014 09:34	ORMOB	Nutrients	Dissolved Oxygen	6.2	mg/L		
01/27/2014 09:34	ORMOB	Nutrients	Specific Conductance	1150	umhos/cm		
01/27/2014 09:34	ORMOB	Nutrients	Dissolved Oxygen	6.2	mg/L		
01/27/2014 09:34	ORMOB	Nutrients	Specific Conductance	1150	umhos/cm		
01/27/2014 09:34	ORMOB	Nutrients	pH	7.2			
01/27/2014 09:34	ORMOB	Nutrients	pH	7.2			
01/27/2014 09:34	ORMOB	Nutrients	Total Residual Chlorine	0.02	mg/L		
01/27/2014 09:30	ORMOB BIOASSAY	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100 K	LC50		
01/27/2014 09:30	ORMOB BIOASSAY	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50-dechlor	100 L	LC50		
01/27/2014 09:30	ORMOB BIOASSAY	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100 K	LC50		
01/27/2014 09:30	ORMOB BIOASSAY	Toxicology	Bioassay-Acute-Df-FW-C.dubia,LC50-dechlr	100 L	LC50		

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 09:30	ORMOB BIOASSAY	Nutrients	Total Residual Chlorine	0.02	mg/L		
01/27/2014 09:30	ORMOB BIOASSAY	Nutrients	Specific Conductance	1150	umhos/cm		
01/27/2014 09:30	ORMOB BIOASSAY	Nutrients	pH	7.2			
01/27/2014 09:30	ORMOB BIOASSAY	Nutrients	Dissolved Oxygen	6.2	mg/L		
01/27/2014 09:30	ORMOB BIOASSAY	Nutrients	Temperature	20.1	C		
01/27/2014 10:05	ORMOB-BLANK	Metals	Silver	0.025 U	ug/L	0.025	0.10
01/27/2014 10:05	ORMOB-BLANK	Metals	Selenium	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Metals	Arsenic	0.25 U	ug/L	0.25	1.0
01/27/2014 10:05	ORMOB-BLANK	Metals	Sodium	0.50 U	mg/L	0.50	2.0
01/27/2014 10:05	ORMOB-BLANK	Metals	Iron	30 U	ug/L	30	120
01/27/2014 10:05	ORMOB-BLANK	Metals	Calcium	0.075 U	mg/L	0.075	0.30
01/27/2014 10:05	ORMOB-BLANK	Metals	Nickel	0.46 I	ug/L	0.25	1.0
01/27/2014 10:05	ORMOB-BLANK	Metals	Copper	0.50 U	ug/L	0.50	1.0
01/27/2014 10:05	ORMOB-BLANK	Metals	Cadmium	0.050 U	ug/L	0.050	0.20
01/27/2014 10:05	ORMOB-BLANK	Metals	Lead	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Metals	Chromium	0.30 U	ug/L	0.30	1.2
01/27/2014 10:05	ORMOB-BLANK	Metals	Zinc	5.0 U	ug/L	5.0	20
01/27/2014 10:05	ORMOB-BLANK	Metals	Aluminum	5.0 U	ug/L	5.0	20
01/27/2014 10:05	ORMOB-BLANK	Metals	Magnesium	0.040 U	mg/L	0.040	0.16
01/27/2014 10:05	ORMOB-BLANK	Metals	Potassium	0.30 U	mg/L	0.30	1.2
01/27/2014 10:05	ORMOB-BLANK	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
01/27/2014 10:05	ORMOB-BLANK	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.0040	0.010
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Turbidity	0.10 U	NTU	0.10	0.10
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Sulfate	0.20 U	mg SO4/L	0.20	0.50
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Organic Carbon	0.73 I	mg C/L	0.50	1.0
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Chloride	0.20 U	mg Cl/L	0.20	0.50
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Ammonia-N	0.007	mg N/L	0.0020	0.0050
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.10
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
01/27/2014 10:05	ORMOB-BLANK	Nutrients	Color (true)	2.5 U	PCU	2.5	6.0
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Bromacil	0.038 U	ug/L	0.038	0.15
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Fenamiphos	0.028 U	ug/L	0.028	0.11
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Simazine	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Atrazine Desethyl	0.0095 U	ug/L	0.0095	0.038

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Atrazine Desisopropyl	0.0095 UJ	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Norflurazon	0.028 U	ug/L	0.028	0.11
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Azinphos Methyl	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Disulfoton	0.0047 U	ug/L	0.0047	0.019
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Phorate	0.0047 U	ug/L	0.0047	0.019
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Prometon	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Ametryn	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Atrazine	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Malathion	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Demeton	0.023 U	ug/L	0.023	0.091
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Mevinphos	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Naled	0.038 U	ug/L	0.038	0.15
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Parathion Methyl	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Chlorpyrifos Ethyl	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Fonofos	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Metolachlor	0.057 U	ug/L	0.057	0.23
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Alachlor	0.057 U	ug/L	0.057	0.23
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Diazinon	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Ethoprop	0.0047 U	ug/L	0.0047	0.019
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Hexazinone	0.028 U	ug/L	0.028	0.11
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Butylate	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Chlorpyrifos Methyl	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Ethion	0.0095 U	ug/L	0.0095	0.038
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Metalaxyl	0.038 U	ug/L	0.038	0.15
01/27/2014 10:05	ORMOB-BLANK	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.076
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2-Chlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	ug/L	2.0	8.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1.0 U	ug/L	1.0	4.0

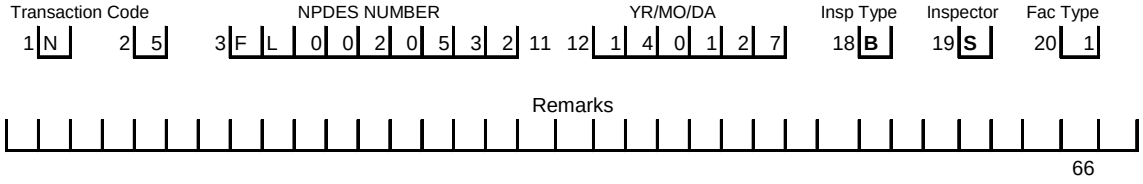
Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0 UJ	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Nitrobenzene	2.0 U	ug/L	2.0	8.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Phenanthrene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10 U	ug/L	10	40
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	ug/L	2.0	8.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzidine	100 U	ug/L	100	400
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Hexachloroethane	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Naphthalene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2-Nitrophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Dimethyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	ug/L	2.0	8.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	4-Nitrophenol	15 U	ug/L	15	60
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Acenaphthene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Fluorene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40 U	ug/L	40	160
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Anthracene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Diethyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	ug/L	2.0	8.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Pentachlorophenol	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Acenaphthylene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Chrysene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	ug/L	0.20	0.80

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Isophorone	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Phenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15 UJ	ug/L	15	60
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Hexachlorobenzene	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3.0 U	ug/L	3.0	12
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	ug/L	0.20	0.80
01/27/2014 10:05	ORMOB-BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1.0 U	ug/L	1.0	4.0
01/27/2014 10:05	TRIP BLANK	Priority Organic Pollutants	Bromodichloromethane	0.20 U	ug/L	0.20	0.80

EPA End Sheet

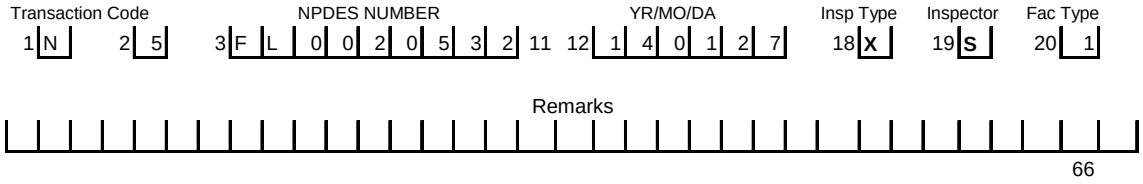
The Bioassay of Ormand Beach WWTF effluent sampled on January 27, 2014. NPDES #FL0020532.

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



The Priority Pollutants Analysis of Ormand Beach WWTF effluent sampled on January 27, 2014. NPDES #FL0020532.

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



Biological Analyses of Ormand Beach WWTF effluent sampled on January 27, 2014. NPDES #FL0020532

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

