

Effluent Quality Assessment

Hilliard Wastewater Treatment Facility

Nassau County

NPDES #FL0043079

Sampled December 16, 2013

January 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 Freshwater Criteria, chemical and microbiological data, and qualifiers

Appendices

Appendix A Facility Summary

Appendix B Explanation of measurements

Appendix C Chemical Analyses of Effluent

EPA End Sheet

Hilliard Wastewater Treatment Facility (WWTF), 2756 Ruby Drive, Hilliard, Nassau County, Florida, 32046. NPDES #FL0043079.

Facility Overview

Hilliard WWTF is a domestic wastewater treatment facility which discharges into 7 acres of constructed wetlands then through a post cascade aerator (Outfall D-001) to the receiving wetlands of the Little Saint Mary's River. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for biological and chemical analyses for this facility were collected on December 16, 2013. All samples were collected from the EFA-2 NPDES sampling point for Outfall D-001 by Jeremy Parrish, Kyle Watson, and Sharon Piltz (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 96-hour acute definitive toxicity tests were performed following internal DEP SOPs TA07_01 and TA07_02 (see Appendix B).

Results

Chemistry Results (See Table 1 and Appendix C)

- The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.013 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.
- Nickel, fluoride, sulfate, total ammonia, total nitrogen, total phosphorus and fecal coliforms 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. Aluminum, arsenic, iron, zinc, total suspended solids (TSS), and carbonaceous biological oxygen demand (CBOD) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Toxicity Test Results (See Appendix C)

- Tests were performed December 17 - 21, 2013.

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

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

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

Conclusion

The effluent sample collected from the EFA-2 NPDES sampling point for this facility on December 16, 2013, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. Effluent water quality samples collected on December 16, 2013, did not exceed any applicable water quality standards or violate any permit conditions.

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

Literature Cited

None

Table 1. Effluent limits, Class III Freshwater Criteria, chemical and microbiological data, and qualifiers.

Hilliard WWTF	Class III Criteria	Effluent Limits	Effluent
Metals (µg/L unless otherwise noted)			
Aluminum	-	-	9.0 I
Arsenic	≤ 50	-	0.29 I
Cadmium	≤ 0.507 b	Report	0.050 U
Calcium (mg/L)	-	-	55.9
Chromium, total ψ	≤ 173 b	-	0.30 U
Copper	≤ 19.3 b	Report	0.50 U
Iron	≤ 1,000	Report	56 I
Lead	≤ 9.36 b	Report	0.20 U
Magnesium (mg/L)	-	-	22.8
Nickel	≤ 107 b	Report	1.05
Potassium (mg/L)	-	-	12.3
Selenium	≤ 5.0	-	0.20 U
Silver	≤ 0.07	Report	0.025 U
Sodium	-	-	82.0
Zinc	≤ 246 b	Report	7.7 I
Nutrients (mg/L)			
Ortho-phosphate	-	Report	0.048
Total Phosphorus	-	≤ 0.4	0.062
Total Ammonia	-	≤ 4.0	0.013
Un-ionized Ammonia	≤ 0.02 s	< 0.02	< 0.02 c
Nitrate and Nitrite	-	Report	0.006 I
Total Kjeldahl Nitrogen	-	Report	0.52
Organic Nitrogen	-	-	0.507 c
Total Nitrogen	-	≤ 6.0	0.526 c
Total Organic Carbon	-	-	8.0 A
General Physical and Chemical Parameters			
Dissolved Oxygen (mg/L)	≥ 5.0	Report	10.37
pH (SU)	6.0 - 8.5	Report	7.2 J
Specific Conductance (µmhos/cm)	≤ 1,275	Report	837
Temperature (°C)	-	Report	12.5
Salinity	-	-	≤ 0.55 c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	< 0.03 QU£
Chlorophyll *a* (µg/L) - Corrected	-	Report	1.4 I
Phaeophytin (µg/L)	-	-	0.61 I
Total Suspended Solids (mg/L)	-	≤ 10.0	8 I
Color (true, PCU)	-	Report	23
Alkalinity (mg CaCO3/L)	-	-	112 A
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10.0	1.6 I
Chloride (mg/L)	-	-	110 A
Fluoride (mg/L)	≤ 10.0	-	0.25
Sulfate (mg/L)	-	Report	130 A
Flow (MGD)	-	0.480 a	0.229 a*
Hardness (mg $CaCO_3$)	-	Report	233.47 c
Microbiology (Number of colony forming units/100ml)			
Fecal Coliforms ¥	≤ 400 s#	Report	140 B

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

b - Value is calculated based on hardness

c - Value is calculated

s - Single sample

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

B - Results based on colony counts outside the acceptance range

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

J - Estimated value

Q - Sample held beyond normal holding time

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

¥ - Fecal coliform analysis performed by Columbia Analytical Services laboratory

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

£ - measurement taken in the FDEP laboratory

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

* - Monitored from 12/31/2012 - 11/30/2013

Appendix A
Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kyle Watson	Contact Number: 904-256-1624
Facility Name (as it appears on permit): Hilliard WWTF	Former Names:
NPDES Permit Number: FL0043079	Permit Expiration Date: August 16, 2014
Physical Address: 2756 Ruby Drive Hilliard, Florida 32046	
District: Northeast	County: Nassau
Function of Facility: Treat domestic wastewater	
Facility Type: Domestic	Permitted Capacity (MGD): 0.48
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit: 0.25 MGD. August 2012-September 2013	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A	
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): **EFA-1** - Sample point immediately after disinfection and prior to discharge to the constructed wetlands **EFA-2** - Sample point after the constructed wetlands and prior to discharge to the receiving wetlands (D-001)
Description of Permitted Outfall(s): **Surface Water Discharge:** An existing 7.0 acres of constructed wetlands (R-001) which will have a permitted capacity of 0.480 MGD AADF. Treated effluent is discharged from the 7.0 acres of constructed wetlands through a post cascade aerator (Outfall D-001) to the receiving wetlands of the Little Saint Mary's River (Class III fresh waters; WBID 2119, Lower Saint Mary's River Basin). The point of discharge D-001 is located approximately at latitude 30 °42' 00" N, longitude 81 °55' 23" W.
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): To operate an existing 0.480 million gallons per day (MGD) average annual daily flow (AADF) permitted capacity domestic wastewater treatment facility (WWTF), which consists of the following treatment units: two influent static screens (1,000 gallon per minute each) with 0.10 inch openings, a 161,600-gallon trash/grit trap with a surface loading rate (at peak hourly flow) of 1,000 gallons per day, a 185,500-gallon surge/anoxic tank with a jet mixing system (nine jet nozzles total each), two sequencing batch reactor tanks with a combined volume of approximately 373,000 gallons (186,500 gallons each), an effluent equalization tank with an effective volume of 63,440 gallons, a cloth-media tertiary filtration unit, a chlorine contact chamber with a volume of approximately 20,000 gallons, dechlorination equipment, a 1.0 acre reject storage pond, a 7.0-acre constructed wetland, and a cascade post aerator. Biosolids are treated in an aerobic digester with a volume of approximately 164,500 gallons, dewatered on either a 50-gallon per minute sludge belt filter press or a sludge drying bed with a surface area of 500 square feet, and then transported to a biosolids application site for final disposal.

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)

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/ Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
BOD, Carbonaceous 5-day, 20°C	**MG/L**	**Maximum**	**20.0**	**30.0**	**45.0**	**60.0**	**Every two weeks**	**8-hour flow proportioned composite**	**EFA-1**	
Solids, Total Suspended	**MG/L**	**Maximum**	**20.0**	**30.0**	**45.0**	**60.0**	**Every two weeks**	**8-hour flow proportioned composite**	**EFA-1**	
Nitrogen, Total (as N)	**MG/L**	**Maximum**	**Report**	**5.0**	-	**10.0**	**Every two weeks**	**8-hour flow proportioned composite**	**EFA-1**	
Phosphorus, Total (as P)	**MG/L**	**Maximum**	**Report**	**Report**	-	**Report**	**Every two weeks**	**8-hour flow proportioned composite**	**EFA-1**	
Coliform, Fecal	**#/100ML**	**Maximum**	**See Permit Condition I.A.3.**				**Every two weeks**	**Grab**	**EFA-1**	
Total Residual Chlorine (For Disinfection)	**MG/L**	**Minimum**	-	-	-	**0.5**	**5 days/week**	**Grab**	**EFA-1**	**See Cond. I.A.4**
pH	**SU**	**Range**	-	-	-	**6.0-8.5**	**5 days/week**	**Grab**	**EFA-1**	

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Quarterly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	**MGD**	**Maximum**	**0.480**	**Report**	**Report**	-	**Continuous**	**Recording flow meters and totalizers**	**EFA-2**	**See Cond.I.B.1 2**
Percent Capacity, (TMADF/Permitted Capacity) x 100	**%**	**Maximum**	-	**Report**	-	-	**Monthly**	**Calculated**	**CAL-4**	
BOD, Carbonaceous 5-day, 20°C	**MG/L**	**Maximum**	**5.0**	**6.25**	-	**10.0**	**Monthly**	**Grab**	**EFA-2**	
Solids, Total Suspended	**MG/L**	**Maximum**	**5.0**	**6.25**	-	**10.0**	**Monthly**	**Grab**	**EFA-2**	

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Quarterly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Nitrogen, Total (as N)	**MG/L**	**Maximum**	**3.0**	**3.75**	-	**6.0**	**Monthly**	**Calculated**	**CAL-1**	
Nitrogen, Kjeldahl, Total (as N)	**MG/L**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Nitrite plus Nitrate, Total 1 det. (as N)	**MG/L**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Nitrogen, Ammonia, Total (as N)	**MG/L**	**Maximum**	**2.0**	**2.0**	-	**4.0**	**Monthly**	**Grab**	**EFA-2**	
Ammonia, Unionized	**MG/L**	**Maximum**	-	-	-	**0.02**	**Monthly**	**Calculated**	**CAL-2**	**See Cond. I.B.6**
Phosphorus, Total (as P)	**MG/L**	**Maximum**	**0.20**	**0.25**	-	**0.40**	**Monthly**	**Grab**	**EFA-2**	
Phosphate, Ortho (as P)	**MG/L**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab and Filter**	**EFA-2**	
Coliform, Fecal	**#/100ML**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Temperature (°C), Water	**DEG.C**	**Maximum**	-	-	-	**Report**	**Monthly**	**48 hour dawn-dusk, max 4-hr intervals**	**EFA-2**	
Oxygen, Dissolved (DO)	**MG/L**	**Minimum**	-	-	-	**Report**	**Monthly**	**48 hour dawn-dusk, max 4-hr intervals**	**EFA-2**	**See Cond. I.B.7**
Total Residual Chlorine (For Dechlorination)	**mg/L**	**Maximum**	-	-	-	**0.01**	**Every two weeks**	**Grab**	**EFD-1**	
pH	**SU**	**Range**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Specific Conductance	**UMHO/CM**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Color	**NO UNITS**	**Maximum**	-	-	-	**Report**	**Monthly**	**Grab**	**EFA-2**	
Sulfate, Total	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**Grab**	**EFA-2**	
Chlorophyll a	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**Grab**	**EFA-2**	
Mercury, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**Grab**	**EFA-2**	**See Conds. I.B.8 & I.B.9**
Lead, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Cadmium, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Copper, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Quarterly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Zinc, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Iron, Total Recoverable	**MG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Nickel, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Silver, Total Recoverable	**UG/L**	**Maximum**	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Total Hardness, $CaCO_3$	**MG/L**	-	-	-	-	**Report**	**Semiannually**	**Grab**	**EFA-2**	
Acute Whole Effluent Toxicity, 96-Hour LC50 (*Ceriodaphnia dubia* & *Cyprinella leedsi*)	**percent**	**Minimum**	**See Permit Condition I.B.11**						**EFA-2**	
Non-metallic priority pollutants	**MG/L or UG/L**	**Maximum**	-	-	-	**Report**	**Annually**	**Grab**	**EFA-2**	

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Lower St. Mary's River Basin	Class III fresh waters

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

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

   a) Effluent Limitation
      1. In any routine or additional follow-up test for acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent. [Rules 62-302.200(1), 62-302.500(1)(a)4., 62-4.244(3)(a), and 62-4.241(1)(a) or (2)(a), F.A.C.]

   b) Monitoring Frequency

      1. Routine toxicity tests shall be conducted semi-annually, starting within six months of permit issuance, and lasting for the duration of the permit.
      2. Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in 11.a.(1) above, the permittee may submit a written request to the Department for a reduction in monitoring frequency to annually. The request shall include a summary of the data and the complete bioassay laboratory reports for each test used to demonstrate compliance. The Department shall act on the request within 45 days of receipt. Reductions in monitoring shall only become effective upon the Department's written confirmation that the facility has completed four consecutive valid routine tests that demonstrate compliance with the effluent limitation in 11.a.(1) above.
      3. If a test within the sequence of the four is deemed invalid based on the acceptance criteria in EPA-821-R-02-013, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive valid tests for the purpose of evaluating the reduction of monitoring frequency

   c) Sampling Requirements
      1. All tests shall be conducted on a single grab sample of final effluent.

   c) Test Requirements
      1. Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 75%, 50%, 25%, and 12.5% effluent.
      2. The permittee shall conduct 96-hour acute static renewal toxicity tests using the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi,* concurrently.

All test species, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, EPA-821-R-02-012. 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 acute toxicity testing in accordance with the revised method

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
CO 06-0012 closed 2/13/2013.

Facility Mixing Zone Details (if applicable):
N/A

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

Date	Parameter and Units	Limit	Result

3/19/2013 1/2013 3/2013	SBR Valve Failure Total Nitrogen Total Nitrogen	 5.0 mg/L 5.0 mg/L	 5.8 mg/L 5.1 mg/L

Describe previous FYI and WQBEL study:
None found

Describe previous or current Enforcement Actions (including WLs):
CO 06-0012 was installed to resolve nitrogen problems

Describe any violations or problems noted in previous inspection:
Missing Annual Reuse Report, Annual Capacity Analysis Report, Treatment Facility Biosolids Plan, Biennial Wetlands Monitoring Plan

Discuss whether DMR trends within previous five years are improving or declining:
DMR trends are improving especially with regards to nitrogen after the wetlands were installed.

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.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm.

(2) Chemical Analyses of the Effluent

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

(3) Toxicity Bioassays

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

(4) Bacteriological Testing

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

(5) 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	Components	Result	Remark	Units	MDL	PQL
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.4	I	ug/L	0.55	1.7
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.6	I	mg/L	0.2	2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.61	I	ug/L	0.4	1.2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Overflow	Fecal Coliforms-Membrane Filter	140	B	cfu/100 mL	1.6	
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Selenium	0.20	U	ug/L	0.2	0.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Potassium	12.3		mg/L	0.3	1.2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Hardness	233		mg/L	0.4	1.6
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Copper	0.50	U	ug/L	0.5	1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Calcium	55.9		mg/L	0.075	0.3
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Iron	56	I	ug/L	30	120
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Chromium	0.30	U	ug/L	0.3	1.2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Nickel	1.05		ug/L	0.25	1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Magnesium	22.8		mg/L	0.04	0.16
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Sodium	82.0		mg/L	0.5	2
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Aluminum	9.0	I	ug/L	5	20
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Arsenic	0.29	I	ug/L	0.25	1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Zinc	7.7	I	ug/L	5	20
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Metals	Lead	0.20	U	ug/L	0.2	0.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Fluoride	0.25		mg F/L	0.035	0.1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	NO2NO3-N	0.006	I	mg N/L	0.004	0.01
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Color (true)	23		PCU	2.5	6
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Organic Carbon	8.0	A	mg C/L	0.5	1
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Sulfate	130	A	mg SO4/L	2	5
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Alkalinity	112	A	mg CaCO3/L	0.65	2.5
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Kjeldahl Nitrogen	0.52		mg N/L	0.16	0.4
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	O-Phosphate-P	0.048		mg P/L	0.004	0.01
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Chloride	110	A	mg Cl/L	2	5
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	TSS	8	I	mg/L	2	10
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Ammonia-N	0.013		mg N/L	0.002	0.005
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Nutrients	Total-P	0.062		mg P/L	0.005	0.05
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Metalaxyl	0.040	U	ug/L	0.04	0.16
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Metolachlor	0.060	U	ug/L	0.06	0.24
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Hexazinone	0.030	U	ug/L	0.03	0.12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Chlorpyrifos Methyl	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Atrazine Desisopropyl	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Naled	0.040	UJ	ug/L	0.04	0.16
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Parathion Methyl	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Bromacil	0.040	U	ug/L	0.04	0.16

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Parathion Ethyl	0.020	UJ	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Metribuzin	0.020	U	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Ethoprop	0.0050	U	ug/L	0.005	0.02
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Ametryn	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Alachlor	0.060	U	ug/L	0.06	0.24
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Simazine	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Mevinphos	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Fonofos	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Ethion	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Chlorpyrifos Ethyl	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Prometryn	0.020	U	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Prometon	0.020	U	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Norflurazon	0.030	U	ug/L	0.03	0.12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Fenamiphos	0.030	U	ug/L	0.03	0.12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Butylate	0.020	U	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Diazinon	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Azinphos Methyl	0.020	UJ	ug/L	0.02	0.08
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Atrazine Desethyl	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Phorate	0.0050	U	ug/L	0.005	0.02
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Malathion	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Disulfoton	0.0050	U	ug/L	0.005	0.02
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Demeton	0.024	UJ	ug/L	0.024	0.096
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Pesticides	Atrazine	0.010	U	ug/L	0.01	0.04
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Di-n-butyl phthalate	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Butyl benzyl phthalate	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Dimethyl phthalate	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	2,4-Dinitrophenol	15	UJ	ug/L	15	58
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.78
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Field Parameter	Specific Conductance	837		umhos/cm		
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Field Parameter	Dissolved Oxygen	10.37		mg/L		
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Field Parameter	Sample Depth	0.2		m		
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Field Parameter	pH	7.20				
12/16/2013 10:15	Hilliard WWTF-final effl.-Grab	Field Parameter	Temperature	12.5		C		
12/16/2013 11:00	Field blank	Metals	Magnesium	0.040	U	mg/L	0.04	0.16
12/16/2013 11:00	Field blank	Metals	Potassium	0.30	U	mg/L	0.3	1.2
12/16/2013 11:00	Field blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/16/2013 11:00	Field blank	Metals	Iron	30	U	ug/L	30	120
12/16/2013 11:00	Field blank	Metals	Aluminum	5.0	U	ug/L	5	20
12/16/2013 11:00	Field blank	Metals	Hardness	0.40	U	mg/L	0.4	1.6
12/16/2013 11:00	Field blank	Metals	Selenium	0.20	U	ug/L	0.2	0.8
12/16/2013 11:00	Field blank	Metals	Lead	0.20	U	ug/L	0.2	0.8
12/16/2013 11:00	Field blank	Metals	Chromium	0.30	U	ug/L	0.3	1.2
12/16/2013 11:00	Field blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
12/16/2013 11:00	Field blank	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
12/16/2013 11:00	Field blank	Metals	Sodium	0.50	U	mg/L	0.5	2
12/16/2013 11:00	Field blank	Metals	Zinc	5.0	U	ug/L	5	20
12/16/2013 11:00	Field blank	Metals	Copper	0.50	U	ug/L	0.5	1
12/16/2013 11:00	Field blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
12/16/2013 11:00	Field blank	Metals	Nickel	0.25	U	ug/L	0.25	1
12/16/2013 11:00	Field blank	Nutrients	Sulfate	0.20	U	mg SO4/L	0.2	0.5
12/16/2013 11:00	Field blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
12/16/2013 11:00	Field blank	Nutrients	Ammonia-N	0.002	U	mg N/L	0.002	0.005
12/16/2013 11:00	Field blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
12/16/2013 11:00	Field blank	Nutrients	Chloride	0.20	U	mg Cl/L	0.2	0.5
12/16/2013 11:00	Field blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
12/16/2013 11:00	Field blank	Nutrients	Organic Carbon	0.50	U	mg C/L	0.5	1
12/16/2013 11:00	Field blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
12/16/2013 11:00	Field blank	Nutrients	Kjeldahl Nitrogen	0.080	U	mg N/L	0.08	0.2
12/16/2013 11:00	Field blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
12/16/2013 11:00	Field blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
12/16/2013 11:00	Field blank	Pesticides	Azinphos Methyl	0.020	UJ	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Atrazine Desethyl	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Ethion	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Fenamiphos	0.029	U	ug/L	0.029	0.12
12/16/2013 11:00	Field blank	Pesticides	Fonofos	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Hexazinone	0.029	U	ug/L	0.029	0.12
12/16/2013 11:00	Field blank	Pesticides	Metribuzin	0.020	U	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Phorate	0.0049	U	ug/L	0.0049	0.02
12/16/2013 11:00	Field blank	Pesticides	Prometon	0.020	U	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Malathion	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Prometryn	0.020	U	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Alachlor	0.059	U	ug/L	0.059	0.24
12/16/2013 11:00	Field blank	Pesticides	Chlorpyrifos Ethyl	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Metalaxyl	0.039	U	ug/L	0.039	0.16
12/16/2013 11:00	Field blank	Pesticides	Metolachlor	0.059	U	ug/L	0.059	0.24
12/16/2013 11:00	Field blank	Pesticides	Naled	0.039	UJ	ug/L	0.039	0.16
12/16/2013 11:00	Field blank	Pesticides	Parathion Ethyl	0.020	UJ	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Parathion Methyl	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Atrazine Desisopropyl	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Bromacil	0.039	U	ug/L	0.039	0.16
12/16/2013 11:00	Field blank	Pesticides	Butylate	0.020	U	ug/L	0.02	0.078
12/16/2013 11:00	Field blank	Pesticides	Chlorpyrifos Methyl	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Demeton	0.024	UJ	ug/L	0.024	0.094
12/16/2013 11:00	Field blank	Pesticides	Ethoprop	0.0049	U	ug/L	0.0049	0.02
12/16/2013 11:00	Field blank	Pesticides	Ametryn	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Atrazine	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Diazinon	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Norflurazon	0.029	U	ug/L	0.029	0.12
12/16/2013 11:00	Field blank	Pesticides	Simazine	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Pesticides	Disulfoton	0.0049	U	ug/L	0.0049	0.02
12/16/2013 11:00	Field blank	Pesticides	Mevinphos	0.0098	U	ug/L	0.0098	0.039
12/16/2013 11:00	Field blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Hexachlorobenzene	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.9	U	ug/L	9.9	40

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	UJ	ug/L	15	59
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0	U	ug/L	2	7.9
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Fluoranthene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Hexachloroethane	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Isophorone	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Nitrobenzene	2.0	U	ug/L	2	7.9
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Phenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
12/16/2013 11:00	Field blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Pentachlorophenol	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Naphthalene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Diethyl phthalate	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Acenaphthene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzo(a)pyrene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Di-n-butyl phthalate	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Fluorene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Hexachlorobutadiene	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Pyrene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2-Chloronaphthalene	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2-Nitrophenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Anthracene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzo(a)anthracene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0	U	ug/L	2	7.9
12/16/2013 11:00	Field blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0	U	ug/L	2	7.9
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Phenanthrene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Acenaphthylene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzidine	99	U	ug/L	99	400
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Chrysene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20	U	ug/L	0.2	0.79
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Dimethyl phthalate	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0	U	ug/L	2	7.9
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2-Chlorophenol	0.99	U	ug/L	0.99	4
12/16/2013 11:00	Field blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0	U	ug/L	3	12
12/16/2013 11:00	Field blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.99	U	ug/L	0.99	4

EPA End Sheet

The Bioassay of Hilliard WWTF effluent sampled on December 16, 2013. NPDES #FL0043079.

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	25 3	FL0043079	11 12	131216	18 **B**	19 **S**	20 1

Remarks

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The Priority Pollutants Analysis of Hilliard WWTF effluent sampled on December 16, 2013. NPDES #FL0043079.

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	25 3	FL0043079	11 12	131216	18 **X**	19 **S**	20 1

Remarks

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Biological Analyses of Hilliard WWTF effluent sampled on December 16, 2013. NPDES #FL0043079.

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	25 3	FL0043079	11 12	131216	18 **S**	19 **S**	20 1

Remarks

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