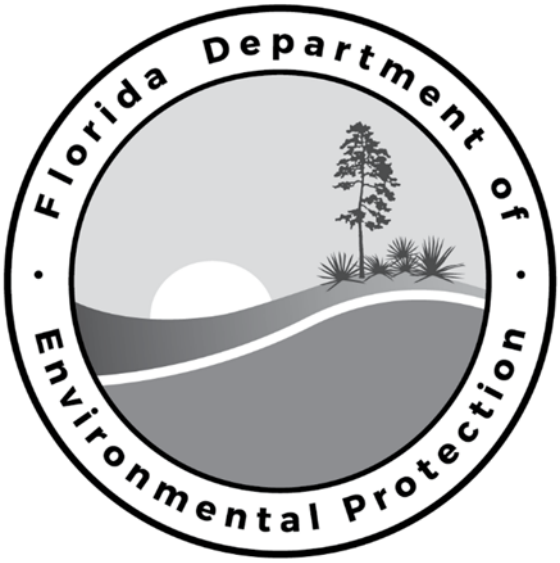



Effluent Quality Assessment of

# City of Clearwater East WRF
# City of Clearwater Northeast WRF

Pinellas County

Clearwater East NPDES # FL0021865
Clearwater Northeast NPDES # FL0128937

Sampled May 2, 3, 4 and 6, 2016

December 2016

**Biology Program**

**DEP Laboratory**

**Division of Environmental Assessment and Restoration**

DEP Laboratory Quality Manual

NELAC Certification No. E31780

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City of Clearwater East Water Reclamation Facility (WRF), 3141 Gulf to Bay Boulevard, Clearwater, Pinellas County, Florida, 33759. NPDES #FL0021865.

City of Clearwater Northeast WRF, 3290 State Road 580, Safety Harbor, Pinellas County, Florida, 34695. NPDES #FL0128937.

## Facility Overview

City of Clearwater East WRF and City of Clearwater Northeast WRF are both Type 1 advanced wastewater treatment facilities which use the Bardenpho Process to treat domestic wastewater. See Appendix A for a description of the facilities, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

## Methods

Effluent composite samples for toxicity testing were collected on May 2, May 4 and May 6, 2016. Effluent grab samples and effluent composite samples for biological and chemical analyses for this facility were collected on May 2 and May 3, 2016. All samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Peter Wenner, Lance Kautz and Michele Duggan (FDEP Southwest District following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B). The 7-day chronic definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09 (see Appendix B).

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

## Results

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

- For informational purposes, the receiving waters of this facility fall within the Peninsular Nutrient Watershed Region for Numeric Nutrient Criteria (NNC). For this region, NNC thresholds, expressed as annual load, are 0.23 tons/million cubic meters of water (~0.21 mg/L) for total phosphorus and 1.08 tons/million cubic meters of water (~1 mg/L) for total nitrogen. Receiving waters were not sampled in this event. This FYI event only provides a single data point to be used in the calculation, therefore, additional sampling events and nutrient data will be needed to determine compliance.
- Total residual chlorine detected in the effluent on May 2, 2016, exceeded both the permitted limit and Class II Marine Surface Water Quality criteria (Table 1). The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.039 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, arsenic, chromium, copper, nickel, zinc. carbonaceous biochemical oxygen demand (CBOD) and turbidity were detected in the effluent at levels that comply with Class II Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Iron and selenium were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

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

- The effluent Algal Growth Potential (AGP) was 15.7 A mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. The analytical chemistry suggests that the effluent is nitrogen limited (Miller et al. 1978).
- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.41 parts per thousand (ppth) to a salinity of approximately 7.00 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 10.9 A mg dry wt/L of the saltwater species *Dunaliella tertiolecta.*

Toxicity Test Results (See Appendix C)

- Tests were performed May 3–10, 2016.

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

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

*NOTE: A 25% inhibition concentration (IC25) is the effluent concentration causing a 25% reduction in a biological response such as biomass or reproduction when compared to a control population. An IC25 of less than 100% in a chronic test may constitute exceedances of 62-302.530(20), 62-302.530(61) and/or facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of 62-302.530(61) and/or facility permit limits.

- The bioassay samples were not chronically toxic to the test organisms.
- Bioassay samples were aerated prior to use in test initiation and daily renewals for ~ 15 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from > 9 mg/L to < 9 mg/L.

**Conclusion**

The effluent samples collected from the EFD-01 NPDES sampling point for this facility on May 2, 4 and 6, 2016 were not chronically toxic to either test species during the 7-day chronic definitive bioassays. Total residual chlorine detected in the effluent sample collected on May 2, 2016 exceeded both the Class II Marine Surface Water Quality Criteria and the permitted limit for total residual chlorine. Additional effluent water quality samples collected on May 2 and 3, 2016, did not exceed any applicable water quality standards or any permit conditions.

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

**Literature Cited**

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

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

Manahan, S. E. 1994. Environmental Chemistry, 6th edition. Lewis Publishers, USA. 811 pp

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

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

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

| City of Clearwater East and Northeast WRF | Units | Class II Criteria | Effluent Permit Limits | EFD-01 Grab |
|---|---|---|---|---|
| Sample Depth | m | - | - | 0.2 |
| Temperature | C | - | - | 27.3 |
| pH | SU | 6.0 - 8.5 | - | 7.2 |
| Specific Conductance | µmhos/cm | - | - | 1,105 |
| Salinity | ppth | - | - | 0.5 c |
| Dissolved Oxygen | % saturation | ≥ 42* | - | 87.8 c |
| Dissolved Oxygen | mg/L | - | ≥ 5.0 s | 6.9 |
| Total Residual Chlorine | mg/L | - | ≤ 0.01 s | 0.13 e |

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
e - Value exceeds the Class III Water Quality Criteria or permit limits
s - Single sample
*- Daily average percent DO saturation not less than 42% in more than 10% of the values

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

| City of Clearwater East and Northeast WRF | Units | Class II Criteria | Effluent Permit Limits | EFD-01 Composite | EFD-01 Grab |
|---|---|---|---|---|---|
| Ortho-phosphate | mg P/L | - | - | - | 0.10 |
| Total Phosphorus | mg P/L | - | - | 0.19 F | 0.14 F |
| Total Ammonia | mg N/L | - | - | - | 0.039 |
| Un-ionized Ammonia (calculated salinity) | mg N/L | - | - | - | < 0.02 c |
| Nitrate and Nitrite | mg N/L | - | - | 0.26 F | 0.24 F |
| Total Kjeldahl Nitrogen | mg N/L | - | - | 0.80 | 0.79 |
| Organic Nitrogen | mg N/L | - | - | - | 0.75 c |
| Total Nitrogen | mg N/L | - | - | 1.06 c | 1.03 c |
| Total Organic Carbon | mg C/L | - | - | 6.4 F | 6.3 AF |
| Chlorophyll *a* - Corrected | µg/L | - | - | - | 0.61 I |
| Phaeophytin | µg/L | - | - | - | 0.52 I |
| Chlorophyll *a* - Uncorrected | µg/L | - | - | - | 0.98 I |
| CBOD, 5 day, N - inhibited | mg/L | - | - | 1.3 I | - |
| Total Suspended Solids | mg/L | - | - | 2 I | - |
| Turbidity | NTU | < 29 t | - | - | 0.35 |
| Color (true) | PCU | - | - | - | 7.0 |
| Alkalinity | mg CaCO3/L | - | - | - | 155 A |
| Chloride | mg Cl/L | - | - | - | 200 A |
| Fluoride | mg F/L | ≤ 1.5 | - | - | 0.29 |
| Sulfate | mg SO4/L | - | - | - | 65 A |
| **Microbiology** | | | | | |
| Fecal Coliforms[1] | cfu/100 mL | ≤ 400 s # | - | - | 1 U |
| Enterococci | MPN/100 mL | - | - | - | 1.0 UQ |
| **Toxicity (IC25% Effluent)** | | | | | |
| Bioassay - Water flea *(Ceriodaphnia dubia)* | % effluent | - | ≥ 100 p | ≥ 100 | - |
| Bioassay - Fish *(Pimephales promelas)* | % effluent | - | ≥ 100 p | ≥ 100 | - |

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
e - Value exceeds the Class III Water Quality Criteria or permit limits
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
F - Analyte was detected in both sample and field blank (Total P 0.008 mg/L; Nitrate -Nitrite 0.007 I mg/L; total organic carbon 0.71 I mg/L.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
1 - Fecal coliform analysis performed by Advanced Environmental Laboratory, Tampa
# - If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

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

| City of Clearwater East and Northeast WRF | Units | Effluent Permit Limits | EFD-01 Grab Class II Criteria | EFD-01 Grab |
|---|---|---|---|---|
| Hardness | mg/L | - | - | 189 c |
| Aluminum | µg/L | - | ≤ 1500 | 53.4 |
| Arsenic | µg/L | - | ≤ 50 | 2.02 |
| Cadmium | µg/L | - | ≤ 8.8 | 0.020 U |
| Calcium | mg/L | - | - | 62.8 |
| Chromium, Total [2] | µg/L | - | ≤ 50 | 0.19 I |
| Copper | µg/L | ≤ 3.7 s | ≤ 3.7 | 1.22 |
| Iron | µg/L | - | ≤ 300 | 33 I |
| Lead | µg/L | - | ≤ 8.5 | 0.20 U |
| Magnesium | mg/L | - | - | 7.71 |
| Nickel | µg/L | - | ≤ 8.3 | 0.98 |
| Potassium | mg/L | - | - | 12.7 |
| Selenium | µg/L | - | ≤ 71 | 0.21 I |
| Silver | µg/L | - | ≤ 2.3 | 0.0050 U |
| Sodium | mg/L | - | - | 148 |
| Zinc | µg/L | - | ≤ 86 | 38 |

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
2 - Class II Marine Quality Criterion (62-302.530(19)(a), F.A.C.) is for chromium-VI
c - Value is calculated
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 4. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus**

| City of Clearwater East and Northeast WRF | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Location** | **Test Species** | **AGP (measured)** | **Predicted AGP (TSIN) ± 20%** | **Predicted AGP (OP) ± 20%** | **Predicted AGP (TN) ± 20%** | **Predicted AGP (TP) ± 20%** | **Inorganic N:P ratio** | **Total N:P ratio** |
| EFF-01 Grab | *Pseudokirchneriella subcapitata* | 15.7 A | 10.6 ± 2.1 | 43 ± 8.6 | 39.1 ± 7.8 | 60.2 ± 12 | 2.8 | 7.4 |
| EFF-01 Grab | *Dunaliella terticolecta* | 10.9 A [3] | NA | NA | NA | NA | 2.8 | 7.4 |

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

3 - Salinity adjusted to 7 ppth

NA – Not applicable for marine AGP tests.

Appendix A

# State of Florida

## Department of Environmental Protection
## Facility Introduction & Summary

| PART I: Information gathered prior to sampling event | |
|---|---|
| **Prepared By: Erica Cooper** | **Contact Number: (813)470-5906** |
| **Facility Name (as it appears on permit):**<br>**1. City of Clearwater East WRF**<br>**2. City of Clearwater Northeast WRF** | **Former Names: N/A** |
| **NPDES Permit Number:**<br>**1. Clearwater East: FL0021865**<br>**2. Clearwater Northeast: FL0128937** | **Permit Expiration Date:**<br>**1. Clearwater East: June 21, 2017**<br>**2. Clearwater Northeast: July 1, 2017** |
| **Physical Address:**<br>**1. Clearwater East: 3141 Gulf to Bay Boulevard, Clearwater, FL 33759**<br>**2. Clearwater Northeast: 3290 State Road 580, Safety Harbor, FL 34695** | |
| **District: Southwest District** | **County: Pinellas** |
| **Function of Facility: Water Reclamation Facility** | |
| **Facility Type:**<br>**Type I domestic advanced wastewater treatment facility (AWWTF)** | **Permitted Capacity (MGD):**<br>**1. Clearwater East: 5.0 MGD (AADF)**<br>**2. Clearwater Northeast: 13.5 MGD (AADF)** |
| **Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months):**<br>**1. Clearwater East: 2.42 MGD (03/01/2015-03/01/2016)**<br>**2. Clearwater Northeast: 4.2 MGD (03/01/2015-03/01/2016)** | |
| **If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A** | |
| **Description of type of Discharge:**<br>☐ **Continuous** ☒ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent**<br>☐ **Other, please specify:** | |
| **Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):**<br>**1. Clearwater East: Monitoring Location Site Number Description of Monitoring Location**<br>EFA-01: After disinfection.<br>EFB-01: After filtration and prior to disinfection.<br>EFD-01: After dechlorination and prior to final discharge.<br>CAL-01: Calculated Total Nitrogen Loading for the discharges from the City of Clearwater Northeast WRF and City of Clearwater East WRF.<br>FLW-02: Flow to D-001= FLW-04 – FLW-03<br>FLW-03: Flow to R-001: Flow meter prior to discharge to the MRS.<br>FLW-04: Sum of flow meters at Chlorine Contact Chamber.<br>**2. Clearwater Northeast: Monitoring Location Site Number Description of Monitoring Location**<br>EFA-01: After disinfection.<br>EFB-01: After filtration and prior to disinfection.<br>FLW-02: Sum of three 12-inch magnetic meters.<br>FLW-03: Flow meter at East Plant prior to discharge to the MRS.<br>FLW-04: Total Plant flow at 24-inch magnetic meter.<br>FLW-05: Flow to R-001 = (FLW-04 – FLW-02 ) | |

**Description of Permitted Outfall(s):**

DISPOSAL:

Surface Water Discharge: An existing 13.5 MGD annual average daily flow (AADF) permitted discharge to Old Tampa Bay (Class II marine waters and Outstanding Florida Water, WBID No. 1558H) at Discharge Location D-001, which is approximately 1,400 feet in length and discharges at a depth of approximately 10 feet. The point of discharge is located approximately at latitude 27° 57' 19"N and longitude 82 ° 42' 24"W

Mixing Zone: The permittee is granted a mixing zone for Dichlorobromomethane consisting of a distance of two meters in radius from the centerline of the outfall.

REUSE:

Land Application: An existing 13.5 MGD AADF permitted capacity slow-rate public access system R-001. The City of Clearwater East and Northeast AWWTFs serve as source plants for the City of Clearwater Master Reuse System, FL0186261.

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

**1. Clearwater East:**

This facility uses a biological treatment process consisting of a five-stage Bardenpho BNR process that includes four 83,425-gallon fermentation basins, eight 83,425-gallon first-stage anoxic reactors, a screw-lift pumping station comprised of three 60-inch Archimedes screws, one 1.55 MG Carrousel oxidation ditch aeration basin, seven 85,614-gallon second-stage anoxic basins, and one 85,600-gallon re-aeration basin; two 100-foot diameter secondary clarifiers (total surface area of 15,700 SF), flow measurement via a 24-inch Parshall flume with an ultrasonic flow meter, polishing filtration consisting of a four unit filter pumping station and six rapid, single-media, gravity-type, automatic backwash filters with a total surface area of 2,160 square feet; an effluent disinfection system using liquid sodium hypochlorite consisting of a 19,678 gallon chlorine dosing chamber /clearwell, and a 111,288-gallon, dual channel chlorine contact basin.

Chlorinated effluent from the chlorine contact basin is directed to the Master Reuse System (R-001), or to a mixing basin and mixed with chlorinated effluent that is piped from Clearwater's Northeast WRF.

The combined chlorinated effluent streams then flow through 113,616 gallon blending/dechlorination basins that uses flow-paced sodium bisulfite to eliminate the remaining chlorine residual, then through a 137,840-gallon dissolved oxygen boost re-aeration basin, to an outfall junction/sampling box and finally through a 1,400-foot long, 48-inch diameter outfall pipe that discharges to Old Tampa Bay (D-001).

**2. Clearwater Northeast:**

This facility uses a biological treatment process consisting of a convertible four (current operation) or five-stage Bardenpho BNR process that includes two 550,000 gallon fermentation basins, two 880,000 gallon first-stage anoxic reactors, a screw lift pumping station with three 84-inch diameter Archimedes screw lifts rated for 22,150 gpm each, an eight unit submersible pump station currently configured with three submersible pumps each rated for 10,000 gpm, two 1,700,000-gallon Carrousel oxidation ditch aeration basins, ten 190,740-gallon second anoxic basins, and ten 30,800-gallon reaeration basins; eight 75-foot diameter secondary clarifiers (total surface area of 35,325 square feet); polishing filtration consisting of 12 rapid sand, pulsed filtration gravity-type, automatic backwash filters with a total surface area of 4,320 square feet; an effluent disinfection system using liquid sodium hypochlorite and a 402,000-gallon, dual channel chlorine contact basin. Also on-site are a 5 MG reclaimed water storage tank and a 3.5 MG reject water storage tank.

Chlorinated effluent from the chlorine contact basin is directed to the on-site 5 MG reclaimed water storage tank and the Master Reuse System (R-001) and/or to the Pinellas County Reuse System under bulk agreement (R-002) or piped to Clearwater's East WRF and directed to a mixing basin and combined with chlorinated effluent from the East WRF. The combined chlorinated effluent streams then flow through a 113,616-gallon blending/dechlorination basins that uses flow-paced sodium bisulfite to eliminate the remaining chlorine residual, then through a 137,840-gallon dissolved oxygen boost re-aeration basin, to an outfall junction/sampling box and finally through a 1,400-foot long, 48-inch diameter outfall pipe that discharges to Old Tampa Bay (D-001).

## 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)**

| | | | Reclaimed Water Limitations | | Monitoring Requirements | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **Max/Min** | **Limit** | **Statistical Basis** | **Frequency of Monitoring** | **Sample Type** | **Monitoring Site Number** | **Notes** |
| Flow (D-001) | MGD | Max | 5.0<br>Report | Annual Average<br>Monthly Average | Continuous | Recording Flow Meter with Totalizer | FLW-02 | See Cond.I.A.4 |
| BOD, Carbonaceous 5 day, 20C | mg/L | Max | 5.0<br>6.25<br>7.5<br>10.0 | Annual Average<br>Monthly Average<br>Weekly Average<br>Single Sample | Monthly<br>Monthly<br>Weekly<br>5 Days/Week | Calculation<br>Calculation<br>Calculation<br>24-hr FPC | EFA-01 | |
| Solids, Total Suspended | mg/L | Max | 5.0<br>6.25<br>7.5<br>10.0 | Annual Average<br>Monthly Average<br>Weekly Average<br>Single Sample | Monthly<br>Monthly<br>Weekly<br>5 Days/Week | Calculation<br>Calculation<br>Calculation<br>24-hr FPC | EFA-01 | |
| Nitrogen, Total (as N) | mg/L | Max | 3.0<br>3.75<br>4.5<br>6.0 | Annual Average<br>Monthly Average<br>Weekly Average<br>Single Sample | Monthly<br>Monthly<br>Weekly<br>5 Days/Week | Calculation<br>Calculation<br>Calculation<br>24-hr FPC | EFA-01 | |
| Phosphorus, Total (as P) | mg/L | Max | Report<br>Report<br>Report<br>Report | Annual Average<br>Monthly Average<br>Weekly Average<br>Single Sample | Monthly<br>Monthly<br>Weekly<br>5 Days/Week | Calculation<br>Calculation<br>Calculation<br>24-hr FPC | EFA-01 | |
| Solids, Total Suspended | mg/L | Max | 5.0 | Single Sample | 5 Days/Week | Grab | EFB-01 | |
| pH | s.u. | Min<br>Max | 6.5<br>8.5 | Single Sample<br>Single Sample | Continuous | Meter | EFA-01 | See Cond.I.A.3 |
| Coliform, Fecal | Percent<br>#/100mL | Max | 75<br>25 | Monthly Minimum<br>Single Sample | Monthly<br>5 Days/Week | Calculation<br>Grab | EFA-01 | See Cond.I.A.5 |
| Chlorine, Total Residual (For Disinfection) | mg/L | Min | 1.0 | Single Sample | Continuous | Meter | EFA-01 | See Cond.I.A.6 |
| Total Residual Chlorine (For Dechlorination) | mg/L | Max | 0.01 | Single Sample | 7 Days/Week | Grab | EFD-01 | |
| Enterococci | #/100 ML | Max | 35<br>276 | Monthly Geometric Mean<br>Single Sample | Monthly<br>5/month | Calculation<br>Grab | EFA-01 | See Cond. I.A.7 |
| Copper, Total Recoverable | µg/l | Max | 3.7 | Single Sample | Monthly | Grab | EFD-01 | |
| Dichlorobromomethane | µg/l | Max | 43.0<br>Report | Annual Average<br>Single Sample | Monthly<br>Monthly | Calculation<br>Grab | EFD-01 | See Cond. I.A.9 |

| | | | Reclaimed Water Limitations | | Monitoring Requirements | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **Max/Min** | **Limit** | **Statistical Basis** | **Frequency of Monitoring** | **Sample Type** | **Monitoring Site Number** | **Notes** |
| **Oxygen, Dissolved (DO)** | **mg/L** | **Min** | **5.0** | **Single Sample** | **7 Days/Week** | **Grab** | **EFD-01** | |
| **Nitrogen, Total (as N) East** | **Tons/Year** | **Max** | **Report<br>Report<br>Report** | **Annual Total<br>Monthly Total<br>5-Year Average** | **Monthly** | **Calculation** | **EFA-01** | **See Cond.I.A.10** |
| **Nitrogen, Total (as N) East & NE** | **Tons/Year** | **Max** | **40.65<br>Report<br>27.1** | **Annual Total<br>Monthly Total<br>5-Year Average** | **Monthly** | **Calculation** | **CAL-01** | **See Cond.I.A.10** |
| **Chronic Whole Effluent Toxicity** | **Percent** | **Min** | **100** | **Single Sample** | **Every Three Months** | **24-hr FPC** | **EFD-01** | **See Cond. I.A.11** |

## PART I: Continued

| Receiving Waters: | Classification (indicate whether fresh or marine): |
|---|---|
| Old Tampa Bay | Class II marine waters and Outstanding Florida Water, WBID No. 1558H |

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

11. Chronic Whole Effluent Toxicity Testing

The permittee shall comply with the following whole effluent toxicity testing requirements and initiate the series of tests described below within 60 days of permit issuance, unless otherwise directed by the Department in writing, to evaluate chronic whole effluent toxicity of the discharge from outfall D-001 to Old Tampa Bay.

a. Effluent Limitation

(1) Whole effluent chronic toxicity shall not exceed a 25 percent inhibition concentration (IC25) of less than 100% effluent in any test. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]

(2) In the chronic toxicity test, the effluent cannot be acutely toxic, in accordance with Rules 62-302.200(1) and 62-302.500(1)(a)(4), F.A.C.

b. Monitoring Frequency

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

c. Sampling Requirements

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

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

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

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

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: 100%, 50%, 25%, 12.5%, and 6.25% final effluent.

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

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th ed., EPA-821-R-02-013 or the most current edition. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.

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

e. Quality Assurance Requirements

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

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

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

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

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

**Facility Mixing Zone Details (if applicable):**

The permittee is granted a mixing zone for Dichlorobromomethane consisting of a distance of two meters in radius from the centerline of the outfall.

**List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:**
1st set of data is Clearwater East-FL0021865, 2nd set of data is Clearwater Northeast-FL0128937

| Date | Parameter and Units | Limit | Result |
|---|---|---|---|
| 2/29/2016 | BOD, Carbonaceous 5 day, 20C (mg/L) MB-Maximum | 10.0 | 27.8 |
| 12/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) WA-Weekly Average | 7.5 | 12.6 |
| 12/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) MB-Maximum | 10.0 | 27.8 |
| 11/30/2015 | Nitrogen, Total (mg/L) WA-Weekly Average | 6.0 | 6.9 |
| 11/30/2015 | Nitrogen, Total (mg/L) MB-Maximum | 3.75 | 3.76 |
| 11/30/2015 | Nitrogen, Total (mg/L) MK-Monthly Average | 4.5 | 5 |
| 10/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) MB-Maximum | 7.5 | 12.2 |
| 10/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) WA-Weekly Average | 6.25 | 6.68 |
| 10/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) MK-Monthly Average | 10.0 | 37.3 |
| 10/31/2015 | Nitrogen, Total (mg/L) MB-Maximum | 6.0 | 9.9 |
| 10/31/2015 | Nitrogen, Total (mg/L) WA-Weekly Average | 4.5 | 5.7 |
| 9/30/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) MB-Maximum | 10.0 | 16 |
| 8/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) WA-Weekly Average | 7.5 | 11.64 |
| 8/31/2015 | BOD, Carbonaceous 5 day, 20C (mg/L) MB-Maximum | 10.0 | 22 |
| 6/30/2015 | IC25 Statre 7day Chr Mendia (percent) ME-Minimum | 100.0 | <100 |
| 2/29/2016 | BOD, Carbonaceous 5 day, 20C (mg/L) MB- Max | 10.0 | 10.2 |
| 11/30/2015 | Nitrogen, Total (mg/L) MB- Max | 6.0 | 6.1 |
| 11/30/2015 | Nitrogen, Total (mg/L) WA-Weekly Average | 4.5 | 5.2 |
| 10/31/2015 | Nitrogen, Total (mg/L) MB-Max | 6.0 | 6.8 |
| 6/30/2015 | IC25 Statre 7day Chr Mendia (percent) ME-Minimum | 100.0 | <100 |

**Describe previous FYI and WQBEL study:**
**N/A – Grizzle-Figg**

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

**Describe any violations or problems noted in previous inspection:**
**Clearwater Northeast-FL0128937 03/13/2015 CEI-Facility In Compliance**

**Clearwater East-FL0021865 08/22/2014 CEI w/SSOP-Out of Compliance, CWOE by 10/06/2014**

- Deficiency Description: A review of the DMRs from August 2013 through June 2014 indicated that total suspended solids, as a measure of high level disinfection, was reported as NOD on Part A of the August 2013 DMR. Actual values were 6.8 mg/L, on October 2, and 8.3 mg/L, on October 24, 2013. [See also Effluent Quality.]

- Deficiency Description: A review of the DMRs from August 2013 through June 2014 indicated that the total suspended solids limit, as a measure of high level disinfection, was exceeded twice in August 2013.

- Deficiency Description: A review of the incident reports from August 2013 through August 2014 indicated that there were 19 reported sanitary sewer overflows during that time. Of the approximately 1,922 total gallons reported, 500 gallons were discharged to surface waters of the state. Eight of the sanitary sewer overflows were due to storm events, seven were due to grease, one was due to a line break, one was due to a mechanical failure, one was due to debris and one was due to a broken cleanout cap.

**Discuss whether DMR trends within previous five years are improving or declining:**
DMR trends are neither improving nor declining for both facilities.

**Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):**
Chronic toxicity testing for the City of Clearwater's East and Northeast WRFs indicated that the combined D001 effluent samples from the facilities were chronically toxic to *Ceriodaphnia dubia* (an IC25 of <100% effluent) in November 2014 and in February and June 2015. Pursuant to Rule 62-620.620(3)(i), Florida Administrative Code, the City submitted a toxicity correction plan (TCP) in August 2015 to address the observed toxicity exceedances at the referenced facilities.

## PART II: Sampling Event Information

| | |
|---|---|
| **Date(s) sample collected:**<br>05/02/2016 | **Sampler(s):** Lance Kautz, Peter Wenner, Erica Cooper, Michele Duggan, Michelle Holton |
| **Temperature (Deg C):**<br>27.31 | **pH (SU):**<br>7.2 |
| **Dissolved Oxygen (mg/L):**<br>6.92 | **Conductivity (umhos/cm):**<br>1,105 |
| **Total Residual Chlorine (mg/L):**<br>0.01 | **Total Residual Chlorine - after Disinfection (mg/L):**<br>2.93 |
| **Method of Chlorination:**<br>hypochlorite | **Method of De-chlorination:**<br>Sodium Bisulfite |

**Flow During Sample Collection for each outfall(MGD):**
D-001: 2.0 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):**
D-001: 1. Clearwater East: 2.42 MGD (03/01/2015-03/01/2016)
2. Clearwater Northeast: 4.2 MGD (03/01/2015-03/01/2016)

**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:** N/A

## Appendix B

## Explanation of Measurements

**(1) Quality Assurance and Quality Control**

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

**(2) Chemical Analyses of the Effluent**

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

**(3) Toxicity Bioassays**

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

**(4) Bacteriological Testing**

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

**(5) Chlorophyll *a* Content**

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

**(6) Algal Growth Potential (AGP)**

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 10.0 mg dry weight/L represents a “problem” threshold for marine receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP in a low salinity sample under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of $\pm$ 20%. When the ratio of nitrogen to phosphorus (N:P) is less than 10:1, nitrogen limitation of algal production is likely. When the N:P ratio is 20:1 or greater, phosphorus limitation is likely (EPA-822-B-00-002). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of 62-302.530(61) F.A.C. Expected AGP is not calculated for marine samples incubated with *Dunaliella*.

**(7) Definition of Qualifiers**

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

## Appendix C

## Chemical analysis of effluent

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:00 | EFF-01 Composite | Toxicology | Bioassay-Chron-Def-FW-Fish, IC25 | 100 L | IC25 | | |
| 5/2/2016 9:00 | EFF-01 Composite | Toxicology | Bioassay-Chron-Def-FW-C.dubia, NOEC | 100 | NOEC | | |
| 5/2/2016 9:00 | EFF-01 Composite | Toxicology | Bioassay-Chron-Def-FW-Fish, NOEC | 100 | NOEC | | |
| 5/2/2016 9:00 | EFF-01 Composite | Toxicology | Bioassay-Chron-Def-FW-C.dubia, IC25 | 100 L | IC25 | | |
| 5/3/2016 9:22 | EFF-01 Composite | Chlorophyll/Grain Size/BOD | Biochemical Oxygen Demand-5 Day,N-Inhib | 1.3 I | mg/L | 0.2 | 2 |
| 5/3/2016 9:22 | EFF-01 Composite | Nutrients | Total-P | 0.19 | mg P/L | 0.005 | 0.05 |
| 5/3/2016 9:22 | EFF-01 Composite | Nutrients | Kjeldahl Nitrogen | 0.80 | mg N/L | 0.08 | 0.2 |
| 5/3/2016 9:22 | EFF-01 Composite | Nutrients | NO2NO3-N | 0.26 | mg N/L | 0.004 | 0.01 |
| 5/3/2016 9:22 | EFF-01 Composite | Nutrients | Organic Carbon | 6.4 | mg C/L | 0.5 | 1 |
| 5/3/2016 9:22 | EFF-01 Composite | Nutrients | TSS | 2 I | mg/L | 2 | 10 |
| 5/2/2016 9:55 | EFF-01 Grab | AGP/LN | Algal Growth Potential-Salinity Adj | 10.9 A | mg DryWt/L | 3 | 3 |
| 5/2/2016 9:55 | EFF-01 Grab | AGP/LN | Algal Growth Potential | 15.7 A | mg DryWt/L | 0.3 | 0.9 |
| 5/2/2016 9:55 | EFF-01 Grab | Chlorophyll/Grain Size/BOD | Chlorophyll-a, Corrected | 0.61 I | ug/L | 0.55 | 1.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Chlorophyll/Grain Size/BOD | Phaeophytin-a | 0.52 I | ug/L | 0.4 | 1.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Chlorophyll/Grain Size/BOD | Chlorophyll/Phaeophytin Ratio | 1.4 | | 0 | 0 |
| 5/2/2016 9:55 | EFF-01 Grab | Chlorophyll/Grain Size/BOD | Chlorophyll-a, Uncorrected | 0.98 I | ug/L | 0.4 | 1.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Microbiology | Enterococci-Quanti-Tray | 1.0 UQ | MPN/100 mL | 1 | 1 |
| 5/2/2016 9:55 | EFF-01 Grab | Overflow | Fecal Coliforms-Membrane Filter | 1 U | cfu/100 mL | 1 | 1 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Copper | 1.22 | ug/L | 0.1 | 0.4 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Lead | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Arsenic | 2.02 | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Nickel | 0.98 | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Silver | 0.0050 U | ug/L | 0.005 | 0.02 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Calcium | 62.8 | mg/L | 0.075 | 0.3 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Potassium | 12.7 | mg/L | 0.3 | 1.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Aluminum | 53.4 | ug/L | 2 | 8 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Chromium | 0.19 I | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Zinc | 38 | ug/L | 5 | 20 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Magnesium | 7.71 | mg/L | 0.04 | 0.16 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Selenium | 0.21 I | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Cadmium | 0.020 U | ug/L | 0.02 | 0.08 |
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Iron | 33 I | ug/L | 30 | 120 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:55 | EFF-01 Grab | Metals | Sodium | 148 | mg/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Fluoride | 0.29 | mg F/L | 0.035 | 0.1 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Kjeldahl Nitrogen | 0.79 | mg N/L | 0.08 | 0.2 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | NO2NO3-N | 0.24 | mg N/L | 0.004 | 0.01 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | O-Phosphate-P | 0.10 | mg P/L | 0.008 | 0.02 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Organic Carbon | 6.3 A | mg C/L | 1 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Total-P | 0.14 | mg P/L | 0.005 | 0.05 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Color (true) | 7.0 | PCU | 2.5 | 6 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Sulfate | 65 A | mg SO4/L | 2 | 5 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Total Alkalinity | 155 A | mg CaCO3/L | 0.65 | 2.5 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Chloride | 200 A | mg Cl/L | 2 | 5 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Ammonia-N | 0.039 | mg N/L | 0.002 | 0.005 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Turbidity | 0.35 | NTU | 0.1 | 0.1 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Ethoprop | 0.0048 U | ug/L | 0.0048 | 0.019 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Carbamazepine | 0.19 | ug/L | 0.0004 | 0.0016 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Chlorpyrifos Ethyl | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Fenamiphos | 0.029 UJ | ug/L | 0.029 | 0.12 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Malathion | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Acetaminophen | 0.0040 U | ug/L | 0.004 | 0.016 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Butylate | 0.019 U | ug/L | 0.019 | 0.077 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Metribuzin | 0.019 U | ug/L | 0.019 | 0.077 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Mevinphos | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Prometryn | 0.019 U | ug/L | 0.019 | 0.077 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Bromacil | 0.039 U | ug/L | 0.039 | 0.15 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Fonofos | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Prometon | 0.019 U | ug/L | 0.019 | 0.077 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Sucralose | 74 | ug/L | 1 | 4 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Atrazine Desethyl | 0.016 UJ | ug/L | 0.016 | 0.064 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Chlorpyrifos Methyl | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Ethion | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Hexazinone | 0.029 UJ | ug/L | 0.029 | 0.12 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Parathion Methyl | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Atrazine Desisopropyl | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Ametryn | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Azinphos Methyl | 0.019 U | ug/L | 0.019 | 0.077 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Disulfoton | 0.0048 U | ug/L | 0.0048 | 0.019 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Parathion Ethyl | 0.019 U | ug/L | 0.019 | 0.077 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Demeton | 0.023 U | ug/L | 0.023 | 0.093 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Diazinon | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Metalaxyl | 0.039 UJ | ug/L | 0.039 | 0.15 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Norflurazon | 0.029 U | ug/L | 0.029 | 0.12 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Simazine | 0.0097 U | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Alachlor | 0.058 U | ug/L | 0.058 | 0.23 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Atrazine | 0.033 I | ug/L | 0.0097 | 0.039 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Metolachlor | 0.058 U | ug/L | 0.058 | 0.23 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Phorate | 0.0048 U | ug/L | 0.0048 | 0.019 |
| 5/2/2016 9:55 | EFF-01 Grab | Pesticides | Naled | 0.039 U | ug/L | 0.039 | 0.15 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Di-n-octyl phthalate | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Hexachlorobutadiene | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Hexachlorocyclopentadiene | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | N-Nitrosodi-n-propylamine | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Pentachlorophenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,1,2,2-Tetrachloroethane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,1-Dichloroethane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,4-Dichlorobenzene | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bromoform | 3.5 | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Ethylbenzene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Toluene | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Trichloroethene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 4-Nitrophenol | 14 U | ug/L | 14 | 58 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzo(b)fluoranthene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzo(k)fluoranthene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bis(2-ethylhexyl)phthalate | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Dimethyl phthalate | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Naphthalene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Phenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,1,1-Trichloroethane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Chloroethane | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Dibromochloromethane | 27 | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Trichlorofluoromethane | 0.20 U | ug/L | 0.2 | 0.8 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzo(g,h,i)perylene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bis(2-chloroethyl)ether | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Diethyl phthalate | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Hexachlorobenzene | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,1-Dichloroethene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,3-Dichlorobenzene | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Carbon tetrachloride | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Chloroform | 52 | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Vinyl chloride | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,4,6-Trichlorophenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,4-Dinitrotoluene | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzo(a)pyrene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bis(2-chloroisopropyl)ether | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,1,2-Trichloroethane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Methylene chloride | 1.0 U | ug/L | 1 | 4 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,4-Dinitrophenol | 14 U | ug/L | 14 | 58 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 3,3'-Dichlorobenzidine | 38 U | ug/L | 38 | 150 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 4-Chlorophenyl phenyl ether | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Chrysene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Indeno(1,2,3-cd)pyrene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Nitrobenzene | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Pyrene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,2-Dichloropropane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | cis-1,3-Dichloropropene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,2,4-Trichlorobenzene | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2-Chloronaphthalene | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 4-Bromophenyl phenyl ether | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 4-Chloro-3-methylphenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Acenaphthylene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Butyl benzyl phthalate | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Fluorene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Isophorone | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bromodichloromethane | 43 | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bromomethane | 0.50 U | ug/L | 0.5 | 2 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Tetrachloroethene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2-Chlorophenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Acenaphthene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Bis(2-chloroethoxy)methane | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Di-n-butyl phthalate | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Hexachloroethane | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | N-Nitrosodimethylamine | 1.9 U | ug/L | 1.9 | 7.7 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Phenanthrene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Chlorobenzene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | trans-1,3-Dichloropropene | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,4-Dichlorophenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,4-Dimethylphenol | 9.6 U | ug/L | 9.6 | 38 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2,6-Dinitrotoluene | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2-Methyl-4,6-dinitrophenol | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Dibenzo(a,h)anthracene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Fluoranthene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | N-Nitrosodiphenylamine/ Diphenylamine | 2.9 U | ug/L | 2.9 | 12 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,2-Dichlorobenzene | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 1,2-Dichloroethane | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Chloromethane | 0.50 U | ug/L | 0.5 | 2 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | 2-Nitrophenol | 0.96 U | ug/L | 0.96 | 3.8 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Anthracene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzidine | 96 U | ug/L | 96 | 380 |
| 5/2/2016 9:55 | EFF-01 Grab | Priority Organic Pollutants | Benzo(a)anthracene | 0.19 U | ug/L | 0.19 | 0.77 |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Temperature | 27.31 | C | | |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Dissolved Oxygen | 6.92 | mg/L | | |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | pH | 7.2 | | | |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Sample Depth | 0.2 | m | | |
| 5/2/2016 9:55 | EFF-01 Grab | Nutrients | Specific Conductance | 1105 | umhos/cm | | |
| 5/2/2016 9:30 | Equipment Blank | Metals | Magnesium | 0.040 U | mg/L | 0.04 | 0.16 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Silver | 0.0050 U | ug/L | 0.005 | 0.02 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Lead | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Zinc | 5.0 U | ug/L | 5 | 20 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Selenium | 0.20 U | ug/L | 0.2 | 0.8 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Potassium | 0.30 U | mg/L | 0.3 | 1.2 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:30 | Equipment Blank | Metals | Chromium | 0.050 U | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Cadmium | 0.020 U | ug/L | 0.02 | 0.08 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Copper | 0.10 U | ug/L | 0.1 | 0.4 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Aluminum | 2.0 U | ug/L | 2 | 8 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Sodium | 0.50 U | mg/L | 0.5 | 2 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Arsenic | 0.050 U | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Nickel | 0.050 U | ug/L | 0.05 | 0.2 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Iron | 30 U | ug/L | 30 | 120 |
| 5/2/2016 9:30 | Equipment Blank | Metals | Calcium | 0.075 U | mg/L | 0.075 | 0.3 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Sulfate | 0.20 U | mg SO4/L | 0.2 | 0.5 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Turbidity | 0.10 U | NTU | 0.1 | 0.1 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Fluoride | 0.035 U | mg F/L | 0.035 | 0.1 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Color (true) | 2.5 U | PCU | 2.5 | 6 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Total Alkalinity | 0.65 U | mg CaCO3/L | 0.65 | 2.5 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | O-Phosphate-P | 0.004 U | mg P/L | 0.004 | 0.01 |
| 5/2/2016 9:30 | Equipment Blank | Nutrients | Chloride | 0.20 U | mg Cl/L | 0.2 | 0.5 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Atrazine | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Butylate | 0.022 U | ug/L | 0.022 | 0.086 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Fonofos | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Ametryn | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Atrazine Desethyl | 0.011 UJ | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Atrazine Desisopropyl | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Demeton | 0.026 U | ug/L | 0.026 | 0.1 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Parathion Ethyl | 0.022 U | ug/L | 0.022 | 0.086 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Bromacil | 0.043 U | ug/L | 0.043 | 0.17 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Chlorpyrifos Methyl | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Mevinphos | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Norflurazon | 0.032 U | ug/L | 0.032 | 0.13 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Phorate | 0.0054 U | ug/L | 0.0054 | 0.022 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Prometon | 0.022 U | ug/L | 0.022 | 0.086 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Acetaminophen | 0.0040 U | ug/L | 0.004 | 0.016 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Carbamazepine | 4.0E-04 U | ug/L | 0.0004 | 0.0016 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Sucralose | 0.010 U | ug/L | 0.01 | 0.04 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Alachlor | 0.065 U | ug/L | 0.065 | 0.26 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Azinphos Methyl | 0.022 U | ug/L | 0.022 | 0.086 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Chlorpyrifos Ethyl | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Ethoprop | 0.0054 U | ug/L | 0.0054 | 0.022 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Malathion | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Disulfoton | 0.0054 U | ug/L | 0.0054 | 0.022 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Hexazinone | 0.032 UJ | ug/L | 0.032 | 0.13 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Metalaxyl | 0.043 UJ | ug/L | 0.043 | 0.17 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Metolachlor | 0.065 U | ug/L | 0.065 | 0.26 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Parathion Methyl | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Prometryn | 0.022 U | ug/L | 0.022 | 0.086 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Simazine | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Diazinon | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Ethion | 0.011 U | ug/L | 0.011 | 0.043 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Fenamiphos | 0.032 UJ | ug/L | 0.032 | 0.13 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Metribuzin | 0.022 U | ug/L | 0.022 | 0.086 |
| 5/2/2016 9:30 | Equipment Blank | Pesticides | Naled | 0.043 U | ug/L | 0.043 | 0.17 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,4-Dimethylphenol | 9.5 U | ug/L | 9.5 | 38 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,4-Dinitrophenol | 14 U | ug/L | 14 | 57 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzidine | 95 U | ug/L | 95 | 380 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Acenaphthylene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 4-Chlorophenyl phenyl ether | 1.9 U | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 4-Bromophenyl phenyl ether | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2-Chloronaphthalene | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,4-Dinitrotoluene | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,6-Dinitrotoluene | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzo(a)anthracene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzo(b)fluoranthene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzo(k)fluoranthene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Fluorene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Pentachlorophenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,4,6-Trichlorophenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 3,3'-Dichlorobenzidine | 38 U | ug/L | 38 | 150 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Anthracene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzo(g,h,i)perylene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Bis(2-chloroethyl)ether | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Bis(2-chloroisopropyl)ether | 2.9 U | ug/L | 2.9 | 11 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Di-n-butyl phthalate | 2.5 I | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Dimethyl phthalate | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Hexachlorobutadiene | 2.9 U | ug/L | 2.9 | 11 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | N-Nitrosodiphenylamine/ Diphenylamine | 2.9 U | ug/L | 2.9 | 11 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Phenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2-Methyl-4,6-dinitrophenol | 2.9 U | ug/L | 2.9 | 11 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Bis(2-chloroethoxy)methane | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Dibenzo(a,h)anthracene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Diethyl phthalate | 2.2 I | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Isophorone | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | N-Nitrosodi-n-propylamine | 1.9 U | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Pyrene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Acenaphthene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Benzo(a)pyrene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Chrysene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Fluoranthene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Hexachlorocyclopentadiene | 2.9 U | ug/L | 2.9 | 11 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 4-Nitrophenol | 14 U | ug/L | 14 | 57 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Bis(2-ethylhexyl)phthalate | 1.9 U | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Hexachlorobenzene | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Hexachloroethane | 2.9 U | ug/L | 2.9 | 11 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Indeno(1,2,3-cd)pyrene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | N-Nitrosodimethylamine | 1.9 U | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2,4-Dichlorophenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2-Chlorophenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 4-Chloro-3-methylphenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Naphthalene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 1,2,4-Trichlorobenzene | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | 2-Nitrophenol | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Butyl benzyl phthalate | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Di-n-octyl phthalate | 0.95 U | ug/L | 0.95 | 3.8 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Nitrobenzene | 1.9 U | ug/L | 1.9 | 7.6 |
| 5/2/2016 9:30 | Equipment Blank | Priority Organic Pollutants | Phenanthrene | 0.19 U | ug/L | 0.19 | 0.76 |
| 5/2/2016 8:05 | Equipment Blank | Nutrients | Ammonia-N | 0.014 | mg N/L | 0.002 | 0.005 |
| 5/2/2016 8:05 | Equipment Blank | Nutrients | Organic Carbon | 0.71 I | mg C/L | 0.5 | 1 |

| Date Sampled | UDL | SCH_Group | Component | Result | Units | MDL | PQL |
|---|---|---|---|---|---|---|---|
| 5/2/2016 8:05 | Equipment Blank | Nutrients | Kjeldahl Nitrogen | 0.080 U | mg N/L | 0.08 | 0.2 |
| 5/2/2016 8:05 | Equipment Blank | Nutrients | Total-P | 0.008 | mg P/L | 0.002 | 0.005 |
| 5/2/2016 8:05 | Equipment Blank | Nutrients | NO2NO3-N | 0.007 I | mg N/L | 0.004 | 0.01 |

**EPA End Sheet**

## The Bioassay of City of Clearwater East WRF effluent sampled on May 2, May 4 and May 6, 2016. NPDES #FL0021865.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 0 2 1 8 6 5 | 1 1 1 2 1 6 0 5 0 2 | 1 8 **B** | 1 9 **S** | 2 0 1 |

Remarks

6 6

## The Priority Pollutants Analysis of City of Clearwater East WRF effluent sampled on May 2, 2016. NPDES #FL0021865.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 0 2 1 8 6 5 | 1 1 1 2 1 6 0 5 0 2 | 1 8 **X** | 1 9 **S** | 2 0 1 |

Remarks

6 6

## Biological Analyses of City of Clearwater East WRF effluent sampled on May 2, 2016. NPDES #FL0021865.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 0 2 1 8 6 5 | 1 1 1 2 1 6 0 5 0 2 | 1 8 **S** | 1 9 **S** | 2 0 1 |

Remarks

6 6

**EPA End Sheet**

## The Bioassay of City of Clearwater Northeast WRF effluent sampled on May 2, May 4 and May 6, 2016. NPDES #FL0128937.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 1 2 8 9 3 7 | 11 12 16 05 02 | 18 **B** | 19 **S** | 20 01 |

Remarks

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## The Priority Pollutants Analysis of City of Clearwater Northeast WRF effluent sampled on May 2, 2016. NPDES #FL0128937.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 1 2 8 9 3 7 | 11 12 16 05 02 | 18 **X** | 19 **S** | 20 01 |

Remarks

66

## Biological Analyses of City of Clearwater Northeast WRF effluent sampled on May 2, 2016. NPDES #FL0128937.

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

| Transaction Code | NPDES NUMBER | YR/MO/DA | Insp Type | Inspector | Fac Type |
|---|---|---|---|---|---|
| 1 N 2 5 | 3 F L 0 1 2 8 9 3 7 | 11 12 16 05 02 | 18 **S** | 19 **S** | 20 01 |

Remarks

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