

Effluent Quality Assessment of

City of Mulberry Wastewater Treatment Facility

Polk County

NPDES # FL0020338

Sampled June 22, 2015

January 2016

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

2015 FDEP Bureau of Laboratories Quality Manual

NELAC Certification No. E31780

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EPA End Sheet

City of Mulberry Wastewater Treatment Facility (WWTF), 500 Southwest Second Street, Mulberry, Polk County, Florida, 33860. NPDES #FL0020338.

Facility Overview

City of Mulberry WWTF is a domestic wastewater treatment facility. 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 toxicity testing and biological and chemical analyses for this facility were collected on June 22, 2015. All samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Peter Wenner, Lance Kautz and Jackie Jordan (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

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

Results

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

- The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.054 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.
- Alkalinity, carbonaceous biochemical oxygen demand (CBOD), total nitrogen, total suspended solids, turbidity, arsenic, copper, iron, nickel and zinc were detected in the effluent at levels that comply with Class III Fresh Water Quality Criteria (62-302.530, F.A.C.) and / or permit limits. Aluminum and lead 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 18.0 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L, which represents a "problem" threshold for fresh receiving waters, imply nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen limited (Miller et al. 1978).

Toxicity Test Results (See Appendix C)

- Tests were performed June 23 - 27, 2015.

  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

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

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

Conclusion

The effluent sample collected from the EFD-01 NPDES sampling point for this facility on June 22, 2015, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on June 22, 2015, did not exceed any applicable water quality standards or violate any permit conditions.

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

Literature Cited

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

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

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. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 5th edition. EPA-821-R-02-012.

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

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

City of Mulberry	Units	Class III Criteria	Effluent Permit Limits	EFD-01 Grab 6/22/15
Sample Depth	m	-	-	0.5
Temperature	C	-	-	30.97
pH	SU	6.0 - 8.5	-	7.02
Specific Conductance	umhos/cm	≤ 1,275	-	795 d
Salinity	PPTh	-	-	0.40
Dissolved Oxygen	% saturation	≥ 38	-	> 100 c
Dissolved Oxygen	mg/L	≥ 5.0	≥ 5.0	7.67
Total Residual Chlorine	mg/L	≤ 0.01	≤ 0.01	< 0.03 d

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

c - Value is calculated

d - measurement taken in the FDEP laboratory

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

City of Mulberry	Units	Class III Criteria	Effluent Permit Limits	EFD-01 Grab 6/22/15
Ortho-phosphate	mg P/L	-	-	4.7
Total Phosphorus	mg P/L	-	Report	4.9
Total Ammonia	mg N/L	-	-	0.054
Un-ionized Ammonia (measured salinity)	mg N/L	≤ 0.02 s	-	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	0.29
Total Kjeldahl Nitrogen	mg N/L	-	-	1.1
Organic Nitrogen	mg N/L	-	-	1 c
Total Nitrogen	mg N/L	-	≤ 6.0 s	1.4 c
Total Organic Carbon	mg C/L	-	-	7.7 A
Chlorophyll *a* - Corrected	ug/L	-	-	0.64 I
Phaeophytin	ug/L	-	-	0.40 U
CBOD, 5 day, N - inhibited	mg/L	-	≤ 10.0 s	2.0
Total Suspended Solids	mg/L	-	≤ 10.0 s	2 U
Turbidity	NTU	< 29 t	-	1.6
Color (true)	PCU	-	-	8.3
Alkalinity	mg CaCO3/L	≥ 20	-	171 A
Chloride	mg Cl/L	-	-	120 A
Fluoride	mg F/L	≤ 10.0	-	0.20
Sulfate	mg SO4/L	-	-	42 A
Microbiology				
Fecal Coliforms [1]	cfu/100 mL	≤ 400s #	-	1
Toxicity (Acute Definitive, percent LC50)				
Bioassay - Water flea *(Ceriodaphnia dubia)*	%	≥ 100	≥ 100	≥ 100
Bioassay - Fish *(Pimephales promelas)*	%	≥ 100	≥ 100	≥ 100

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

1 - Fecal coliform analysis performed by Advanced Environmental Laboratory, Tampa

c - Value is calculated

s - Single sample

t - Shall not exceed 29 NTUs above background

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

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

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

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

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

City of Mulberry	Units	EFD-01 Grab 6/22/15 Class III Criteria	Effluent Permit Limits	EFD-01 Grab 6/22/15
Hardness	mg/L	-	-	168 c
Aluminum	ug/L	-	-	14 I
Arsenic	ug/L	≤ 50	-	1.10
Cadmium	ug/L	≤ 0.397 b	-	0.050 U
Calcium	mg/L	-	-	46.2
Chromium, Total [2]	ug/L	≤ 132 b	-	0.30 U
Copper	ug/L	≤ 14.5 b	-	2.00
Iron	ug/L	≤ 1,000	-	120
Lead	ug/L	≤ 6.14 b	-	0.23 I
Magnesium	mg/L	-	-	12.7
Nickel	ug/L	≤ 80.8 b	-	1.60
Potassium	mg/L	-	-	13.3
Selenium	ug/L	≤ 5.0	-	0.20 U
Silver	ug/L	≤ 0.07	-	0.025 U
Sodium	mg/L	-	-	94.0
Zinc	ug/L	≤ 186 b	-	84

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

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

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

c - Value is calculated

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

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

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

City of Mulberry								
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (OP) ± 20%**	**Predicted AGP (TN) ± 20%**	**Predicted AGP (TP) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
EFD-01 Grab 6/22/15	*Pseudokirchneriella subcapitata*	18.0	13.1 ± 2.6	2021 ± 404.2	52.8 ± 10.6	2107 ± 421.4	0.1	0.3

Appendix A

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event

Prepared By: Lance Kautz	**Contact Number:** (813) 470-5903
Facility Name (as it appears on permit): City of Mulberry WWTF	**Former Names:** N/A
NPDES Permit Number: FL0020338	**Permit Expiration Date:** March 23, 2016
Physical Address: 500 Southwest Second Street, Mulberry, FL 33860	
District: Southwest	**County:** Polk
Function of Facility: Domestic Wastewater Treatment Facility	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD):** 0.750 mgd
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): D-001: .263 mgd; 05/31/2014 - 05/31/2015	
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):

Monitoring Location	Description of Monitoring Location
FLW-01	Flow meter at the Chlorine Contact Chamber.
EFA-01	After disinfection and prior to discharge.
EFB-01	After filtration and prior to disinfection.
EFD-01	Effluent before discharge to receiving stream.

Description of Permitted Outfall(s):

Surface Water Discharge: An existing 0.750 MGD AADF permitted discharge to the North Prong of the Alafia River (Class III fresh waters, WBID No. 1621E) at Discharge Location (D-001) which is approximately 3 feet in length and discharges at a depth of approximately 2 feet. The point of discharge is located approximately at latitude 27° 53' 35" N, longitude 81° 58' 42" W.

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

An existing 0.750 million gallons per day (MGD) Annual Average Daily Flow (AADF) Type I Sequencing Batch Reactor domestic wastewater treatment plant, consisting of: one fine screen with manual bar screen bypass and a velocity-controlled grit chamber with a mechanical grit removal system, one equalization basin of 300,000 gallons, three batch reactors of 0.900 million gallons total, one traveling bridge filter with a total of 280 square feet of filter surface area, two chlorine contact chambers of 30,997 total gallons, a dechlorination system, one sludge holding tank of 3,700 gallons, one sludge digester of 137,000 gallons, one rotary drum thickener, three sludge drying beds with a total of 1,624 square feet of bed area, and one post aeration tank of 3,830 gallons. This facility is operated to achieve advanced wastewater treatment with high-level disinfection provided by sodium hypochlorite with dechlorination provided by a sodium bisulfate system.

PART I: Continued

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

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow, to D-001	MGD	Maximum	0.75	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.3
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	-	10.0	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	-	10.0	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	-	-	-	5.0	Weekly	Grab	EFB-01	
Nitrogen, Total (as N)	MG/L	Maximum	3.0	3.75	-	6.0	Weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	MG/L	Maximum	Report	Report	-	Report	Weekly	16-hr FPC	EFD-01	
pH	SU	Range	-	-	-	6.0 to 8.5	Continuous	Meter	EFA-01	
Coliform, Fecal, % less than detection	PERCENT	Minimum	-	75	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.4
Coliform, Fecal	#/100ML	Maximum	-	-	-	25	Weekly	Grab	EFA-01	See Cond.I.A.4
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	5 Days/Week	Grab	EFA-01	See Cond.I.A.5
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	5 Days/Week	Grab	EFD-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	5.0	5 Days/Week	Grab	EFD-01	
Nitrogen, Total (as N)	Tons/Year	Maximum	3.6 (Ann. Total)	Report (Mo Total)	-	-	Monthly	Calculation	EFD-01	See Cond. I.A.6
Nitrogen, Total (as N)	Tons/Year	Maximum	2.4 (5Yr Avg.)	-	-	-	Monthly	Calculation	EFD-01	See Cond. I.A.6
Whole Effluent Toxicity (Chronic)	%	Min	-	-	-	100	Every Six Months	24-hr FPC	EFD-01	See Cond. I.A. 7

PART I: Continued

Receiving Waters:	**Classification (indicate whether fresh or marine):**
Alafia River	Class III Fresh Water

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

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.

a. Effluent Limitation
(1) Whole effluent chronic toxicity shall not exceed a 25 percent inhibition concentration (IC25) of less than 100% effluent in any test and Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.
(2) In the chronic toxicity test, the effluent cannot be acutely toxic, in accordance with 62-302.200(1) and 62-302.500(1)(a)(4).

b. Monitoring Frequency
(1) The "routine" toxicity tests specified shall be conducted once every six months, with the first starting within 60 days of the permit issuance and lasting for the duration of this permit.

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. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7 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.):
Consent order OGC File No. 10-0007; July 31, 2015. This consent order resulted in a Civil Penalty of $16,750.00. The facility implemented an in-kind project proposal valued at at least $25,125.00 resulting in the installation of a Sequencing batch reactor and an Autodialer replacement/upgrade.

Interim dates: May 17, 2010- October 31, 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
02/28/2015	**P-00530**	**5.0**	**8.2**
02/28/2015	**P-00600-MK**	**3.75**	**4.51**
02/28/2015	**P 00600-MB**	**6.0**	**7.19**
01/31/2015	**P 50050**	**0.75**	**2.6(DE error)**
12/31/2015	**P 50050**	**0.75**	**2.57(DE error)**
09/30/2014	**P 50050**	**0.75**	**2.47(DE error)**
05/31/2014	**1C25 (*C. dubia)***	**25%**	**73.9%**

Describe previous FYI and WQBEL study:

The only exceedance/failure during the last FYI(02-22-2010) was the *C.dubia* 96hr acute mortality Bioassay. The result of this Bioasssay was 65% mortality.

Describe previous or current Enforcement Actions (including WLs):

N/A

Describe any violations or problems noted in previous inspection:

From CEI Dated 09/09/2013:

1.The completion of the construction of the modifications to the Facility was to be completed by December 1, 2012. Within 30 days of this completion of construction, *Notification of Completion of Construction for Wastewater Facilities or Activities*, DEP Form 62-620.910(12), Florida Administrative Code (F.A.C), was to be submitted. To date the facility has not submitted the required certification on the aforementioned form.

2.Current copy of the reduced pressure zone backflow prevention device certification could not be located onsite.

3.The flow meter was not calibrated

Discuss whether DMR trends within previous five years are improving or declining:
DMR trends appear to be improving over the past five years. A review of DMRs from 05/31/2010 to 05/31/2015 revealed a general improving trend with a three apparent data enty/calculation errors in 9/2014 - 1/2015.

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

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	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:35	41186	AGP/LN	Algal Growth Potential	18.0	mg DryWt/L	0.3	0.9
6/22/2015 9:35	41186	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.0	mg/L	0.2	2
6/22/2015 9:35	41186	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.64 I	ug/L	0.55	1.7
6/22/2015 9:35	41186	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
6/22/2015 9:35	41186	Overflow	Fecal Coliforms-Membrane Filter	1	cfu/100 mL	1	1
6/22/2015 9:35	41186	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100 L	LC50		
6/22/2015 9:35	41186	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100 L	LC50		
6/22/2015 9:35	41186	Metals	Nickel	1.60	ug/L	0.25	1
6/22/2015 9:35	41186	Metals	Magnesium	12.7	mg/L	0.04	0.16
6/22/2015 9:35	41186	Metals	Sodium	94.0	mg/L	0.5	2
6/22/2015 9:35	41186	Metals	Calcium	46.2	mg/L	0.075	0.3
6/22/2015 9:35	41186	Metals	Zinc	84	ug/L	5	20
6/22/2015 9:35	41186	Metals	Arsenic	1.10	ug/L	0.25	1
6/22/2015 9:35	41186	Metals	Copper	2.00	ug/L	0.5	1
6/22/2015 9:35	41186	Metals	Chromium	0.30 U	ug/L	0.3	1.2
6/22/2015 9:35	41186	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
6/22/2015 9:35	41186	Metals	Silver	0.025 U	ug/L	0.025	0.1
6/22/2015 9:35	41186	Metals	Iron	120	ug/L	30	120
6/22/2015 9:35	41186	Metals	Aluminum	14 I	ug/L	5	20
6/22/2015 9:35	41186	Metals	Selenium	0.20 U	ug/L	0.2	0.8
6/22/2015 9:35	41186	Metals	Potassium	13.3	mg/L	0.3	1.2
6/22/2015 9:35	41186	Metals	Lead	0.23 I	ug/L	0.2	0.8
6/22/2015 9:35	41186	Nutrients	Alkalinity	171 A	mg CaCO3/L	0.65	2.5
6/22/2015 9:35	41186	Nutrients	Turbidity	1.6	NTU	0.1	0.1
6/22/2015 9:35	41186	Nutrients	Sulfate	42 A	mg SO4/L	2	5
6/22/2015 9:35	41186	Nutrients	Organic Carbon	7.7 A	mg C/L	0.5	1
6/22/2015 9:35	41186	Nutrients	Chloride	120 A	mg Cl/L	2	5
6/22/2015 9:35	41186	Nutrients	Ammonia-N	0.054	mg N/L	0.002	0.005
6/22/2015 9:35	41186	Nutrients	Kjeldahl Nitrogen	1.1	mg N/L	0.08	0.2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:35	41186	Nutrients	O-Phosphate-P	4.7	mg P/L	0.16	0.4
6/22/2015 9:35	41186	Nutrients	Fluoride	0.20	mg F/L	0.035	0.1
6/22/2015 9:35	41186	Nutrients	NO2NO3-N	0.29	mg N/L	0.004	0.01
6/22/2015 9:35	41186	Nutrients	Total-P	4.9	mg P/L	0.025	0.25
6/22/2015 9:35	41186	Nutrients	TSS	2 U	mg/L	2	10
6/22/2015 9:35	41186	Nutrients	Color (true)	8.3	PCU	2.5	6
6/22/2015 9:35	41186	Pesticides	Alachlor	0.057 U	ug/L	0.057	0.23
6/22/2015 9:35	41186	Pesticides	Atrazine	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Mevinphos	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Acetaminophen	0.0020 U	ug/L	0.002	0.01
6/22/2015 9:35	41186	Pesticides	Ametryn	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Malathion	0.0095 UJ	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Metolachlor	0.057 U	ug/L	0.057	0.23
6/22/2015 9:35	41186	Pesticides	Prometon	0.019 U	ug/L	0.019	0.076
6/22/2015 9:35	41186	Pesticides	Demeton	0.023 U	ug/L	0.023	0.092
6/22/2015 9:35	41186	Pesticides	Fenamiphos	0.029 U	ug/L	0.029	0.11
6/22/2015 9:35	41186	Pesticides	Phorate	0.0048 UJ	ug/L	0.0048	0.019
6/22/2015 9:35	41186	Pesticides	Ethion	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Hexazinone	0.029 U	ug/L	0.029	0.11
6/22/2015 9:35	41186	Pesticides	Norflurazon	0.029 U	ug/L	0.029	0.11
6/22/2015 9:35	41186	Pesticides	Parathion Methyl	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Atrazine Desethyl	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Disulfoton	0.0048 UJ	ug/L	0.0048	0.019
6/22/2015 9:35	41186	Pesticides	Naled	0.038 U	ug/L	0.038	0.15
6/22/2015 9:35	41186	Pesticides	Simazine	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Bromacil	0.038 U	ug/L	0.038	0.15
6/22/2015 9:35	41186	Pesticides	Ethoprop	0.0048 UJ	ug/L	0.0048	0.019
6/22/2015 9:35	41186	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.076
6/22/2015 9:35	41186	Pesticides	Butylate	0.019 U	ug/L	0.019	0.076
6/22/2015 9:35	41186	Pesticides	Chlorpyrifos Methyl	0.0095 UJ	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Diazinon	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Metalaxyl	0.038 U	ug/L	0.038	0.15
6/22/2015 9:35	41186	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.076
6/22/2015 9:35	41186	Pesticides	Atrazine Desisopropyl	0.0095 UJ	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Azinphos Methyl	0.019 U	ug/L	0.019	0.076

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:35	41186	Pesticides	Chlorpyrifos Ethyl	0.0095 UJ	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Fonofos	0.0095 U	ug/L	0.0095	0.038
6/22/2015 9:35	41186	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.076
6/22/2015 9:35	41186	Pesticides	Sucralose	40	ug/L	0.2	1
6/22/2015 9:35	41186	Pesticides	Carbamazepine	0.34	ug/L	0.0004	0.002
6/22/2015 9:35	41186	Priority Organic Pollutants	2,4-Dinitrotoluene	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Acenaphthene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Fluorene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Phenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Pyrene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	Pentachlorophenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2,6-Dinitrotoluene	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Chrysene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	ug/L	2	7.9
6/22/2015 9:35	41186	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	ug/L	2	7.9
6/22/2015 9:35	41186	Priority Organic Pollutants	Nitrobenzene	2.0 U	ug/L	2	7.9
6/22/2015 9:35	41186	Priority Organic Pollutants	2,4-Dinitrophenol	15 U	ug/L	15	59
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	ug/L	2	7.9
6/22/2015 9:35	41186	Priority Organic Pollutants	Butyl benzyl phthalate	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Naphthalene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	2-Chloronaphthalene	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40 U	ug/L	40	160
6/22/2015 9:35	41186	Priority Organic Pollutants	Anthracene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzidine	99 U	ug/L	99	400

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Di-n-butyl phthalate	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Di-n-octyl phthalate	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Dimethyl phthalate	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Hexachlorobutadiene	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	Isophorone	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2,4-Dichlorophenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2,4-Dimethylphenol	9.9 U	ug/L	9.9	40
6/22/2015 9:35	41186	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	ug/L	2	7.9
6/22/2015 9:35	41186	Priority Organic Pollutants	4-Nitrophenol	15 U	ug/L	15	59
6/22/2015 9:35	41186	Priority Organic Pollutants	Acenaphthylene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Diethyl phthalate	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Fluoranthene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	Hexachlorobenzene	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	Hexachloroethane	3.0 U	ug/L	3	12
6/22/2015 9:35	41186	Priority Organic Pollutants	Phenanthrene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	2-Chlorophenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	2-Nitrophenol	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	ug/L	0.2	0.79
6/22/2015 9:35	41186	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.99 U	ug/L	0.99	4
6/22/2015 9:35	41186	Nutrients	Salinity	0.40	PPTh		
6/22/2015 9:35	41186	Nutrients	Dissolved Oxygen	7.67	mg/L		
6/22/2015 9:35	41186	Nutrients	Temperature	30.97	C		
6/22/2015 9:35	41186	Nutrients	pH	7.02			
6/22/2015 9:35	41186	Nutrients	Sample Depth	0.5	m		
6/22/2015 9:55	FIELD BLANK	Metals	Sodium	0.50 U	mg/L	0.5	2
6/22/2015 9:55	FIELD BLANK	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
6/22/2015 9:55	FIELD BLANK	Metals	Zinc	5.0 U	ug/L	5	20
6/22/2015 9:55	FIELD BLANK	Metals	Potassium	0.30 U	mg/L	0.3	1.2
6/22/2015 9:55	FIELD BLANK	Metals	Iron	30 U	ug/L	30	120
6/22/2015 9:55	FIELD BLANK	Metals	Silver	0.025 U	ug/L	0.025	0.1
6/22/2015 9:55	FIELD BLANK	Metals	Aluminum	5.0 U	ug/L	5	20

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:55	FIELD BLANK	Metals	Calcium	0.075 U	mg/L	0.075	0.3
6/22/2015 9:55	FIELD BLANK	Metals	Selenium	0.20 U	ug/L	0.2	0.8
6/22/2015 9:55	FIELD BLANK	Metals	Lead	0.20 U	ug/L	0.2	0.8
6/22/2015 9:55	FIELD BLANK	Metals	Chromium	0.30 U	ug/L	0.3	1.2
6/22/2015 9:55	FIELD BLANK	Metals	Arsenic	0.25 U	ug/L	0.25	1
6/22/2015 9:55	FIELD BLANK	Metals	Copper	0.50 U	ug/L	0.5	1
6/22/2015 9:55	FIELD BLANK	Metals	Nickel	0.25 U	ug/L	0.25	1
6/22/2015 9:55	FIELD BLANK	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
6/22/2015 9:55	FIELD BLANK	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
6/22/2015 9:55	FIELD BLANK	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
6/22/2015 9:55	FIELD BLANK	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
6/22/2015 9:55	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
6/22/2015 9:55	FIELD BLANK	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005
6/22/2015 9:55	FIELD BLANK	Nutrients	Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
6/22/2015 9:55	FIELD BLANK	Nutrients	Color (true)	2.5 U	PCU	2.5	6
6/22/2015 9:55	FIELD BLANK	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
6/22/2015 9:55	FIELD BLANK	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
6/22/2015 9:55	FIELD BLANK	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
6/22/2015 9:55	FIELD BLANK	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
6/22/2015 9:55	FIELD BLANK	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
6/22/2015 9:55	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.0093 UJ	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Mevinphos	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Naled	0.037 U	ug/L	0.037	0.15
6/22/2015 9:55	FIELD BLANK	Pesticides	Disulfoton	0.0046 UJ	ug/L	0.0046	0.019
6/22/2015 9:55	FIELD BLANK	Pesticides	Ethion	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Fenamiphos	0.028 U	ug/L	0.028	0.11
6/22/2015 9:55	FIELD BLANK	Pesticides	Metalaxyl	0.037 U	ug/L	0.037	0.15
6/22/2015 9:55	FIELD BLANK	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Pesticides	Phorate	0.0046 UJ	ug/L	0.0046	0.019
6/22/2015 9:55	FIELD BLANK	Pesticides	Acetaminophen	0.0020 U	ug/L	0.002	0.01
6/22/2015 9:55	FIELD BLANK	Pesticides	Azinphos Methyl	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Pesticides	Fonofos	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Parathion Methyl	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Simazine	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Ametryn	0.0093 U	ug/L	0.0093	0.037

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:55	FIELD BLANK	Pesticides	Butylate	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.0093 UJ	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Metolachlor	0.056 U	ug/L	0.056	0.22
6/22/2015 9:55	FIELD BLANK	Pesticides	Prometon	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Pesticides	Sucralose	0.010 U	ug/L	0.01	0.05
6/22/2015 9:55	FIELD BLANK	Pesticides	Carbamazepine	4.0E-04 U	ug/L	0.0004	0.002
6/22/2015 9:55	FIELD BLANK	Pesticides	Bromacil	0.037 U	ug/L	0.037	0.15
6/22/2015 9:55	FIELD BLANK	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Pesticides	Atrazine	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Alachlor	0.056 U	ug/L	0.056	0.22
6/22/2015 9:55	FIELD BLANK	Pesticides	Atrazine Desethyl	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Norflurazon	0.028 U	ug/L	0.028	0.11
6/22/2015 9:55	FIELD BLANK	Pesticides	Atrazine Desisopropyl	0.0093 UJ	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Demeton	0.022 U	ug/L	0.022	0.089
6/22/2015 9:55	FIELD BLANK	Pesticides	Diazinon	0.0093 U	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Ethoprop	0.0046 UJ	ug/L	0.0046	0.019
6/22/2015 9:55	FIELD BLANK	Pesticides	Hexazinone	0.028 U	ug/L	0.028	0.11
6/22/2015 9:55	FIELD BLANK	Pesticides	Malathion	0.0093 UJ	ug/L	0.0093	0.037
6/22/2015 9:55	FIELD BLANK	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.074
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Phenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	14 U	ug/L	14	57
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	2.9 U	ug/L	2.9	11
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 U	ug/L	1.9	7.6
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	ug/L	2.9	11
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95 U	ug/L	0.95	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.5 U	ug/L	9.5	38
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.6
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	14 U	ug/L	14	57
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzidine	95 U	ug/L	95	380
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.6
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	ug/L	2.9	11
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 U	ug/L	2.9	11
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.6
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Isophorone	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.6
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.76
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	ug/L	2.9	11

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.95 U	ug/L	0.95	3.8
6/22/2015 9:55	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	ug/L	2.9	11

EPA End Sheet

The Bioassay of City of Mulberry WWTF effluent sampled on June 22, 2015. NPDES #FL0020338.

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 0 3 3 8	11 12 15 06 22	18 B	19 S	20 01

Remarks

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The Priority Pollutants Analysis of City of Mulberry WWTF effluent sampled on June 22, 2015. NPDES #FL0020338.

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 0 3 3 8	11 12 15 06 22	18 X	19 S	20 01

Remarks

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Biological Analyses of City of Mulberry WWTF effluent sampled on June 22, 2015. NPDES #FL0020338.

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 0 3 3 8	11 12 15 06 22	18 S	19 S	20 01

Remarks

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