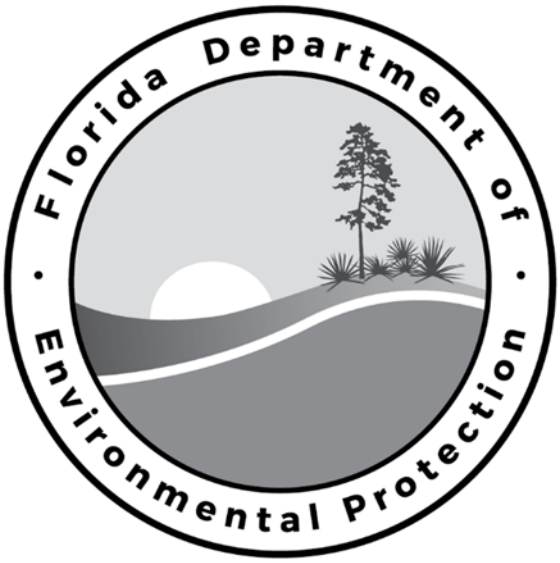


Effluent Quality Assessment of

St. Andrews Wastewater Treatment Facility

Bay County

NPDES # FL0020451

Sampled March 7, 9, 10, 11 and 17, 2016

November 2016

Biology Program

FDEP Laboratory

Division of Environmental Assessment and Restoration

FDEP Laboratory Quality Manual

NELAC Certification No. E31780

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EPA End Sheet

St. Andrews Wastewater Treatment Facility (WWTF), 2226 Michigan Ave., Panama City, Bay County, Florida, 32405. NPDES #FL0020451.

Facility Overview

St. Andrews WWTF is an advanced wastewater treatment facility which uses the Bardenpho process to treat domestic wastewater. See Appendix A for a description of the facility, summary of permit limits and Discharge Monitoring Report (DMR) information.

Methods

Effluent composite samples for toxicity testing were collected on March 7, March 9 and March 11, 2016. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on March 10 and March 17, 2016. All samples except those collected on March 17, 2016, were collected from the EFD-01 NPDES sampling point for 0utfall D-001. Samples collected on March 17, 2016, were collected from Outfall D-001, St. Andrews Bay at the Michigan Street Bridge and St. Andrews Bay Red Flasher #6. Samples were collected by C. Mark Sumner, Shelley Alexander (FDEP Northwest District) and Nathan Mulkey and Rick Abad (FDEP Northwest Regional Operation Center) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 7-day chronic definitive toxicity tests and the algal growth potential tests 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, Table 4 and Appendix C)

- The facility discharge falls within the St. Andrews Bay Estuary Region for Numeric Nutrient Criteria (NNC). For this region, the NNC thresholds, expressed as annual geometric means, are 0.019 mg/L total phosphorus, 0.34 mg/L total nitrogen and 3.7 for chlorophyll A. This FYI event can only provide single sample results; therefore, compliance should be determined with additional sampling events.
- Aluminum, arsenic, carbonaceous biochemical oxygen demand (CBOD), chromium, copper, fluoride, nickel, zinc, total nitrogen, total phosphorus and turbidity were detected in the effluent collected from the EFD-01 sampling point at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Iron, lead, silver and total suspended solids were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Algal Growth Potential (See Table 5 and Appendix C)

- The effluent Algal Growth Potential (AGP) for the EFD-01 grab sample collected on March 10, 2016, was 50.8 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 fresh water AGP sample was salinity adjusted from a salinity of 0.16 parts per thousand (ppth) to a salinity of approximately 7.08 ppth by the addition of artificial sea salts to meet the salinity requirements of the marine test species, *Dunaliella tertiolecta* (Maloney et al. 1974).
- The salinity adjusted effluent AGP was 28.0 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.*
- The algal growth potential of both the effluent sample and the salinity adjusted effluent sample were greater than the AGP values considered to be indicative of nutrient enrichment (Miller, et. al. 1978; Maloney, et. al. 1974).
- The AGP for the Outfall D-001 grab sample collected on March 17, 2016, was 3.00 UQ mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* The salinity of this sample was 30 ppth and thus did not require adjusting. The salinity

of this sample and the reduced nutrient concentrations in the nutrient chemistry samples (compared to effluent samples collected at EFD-01) suggest considerable dilution of effluent at the D-001 Outfall.

Toxicity Test Results (See Appendix C)

- Tests were performed March 8 - 15, 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.

- The bioassay samples were not chronically toxic to the test organisms.
- The initial bioassay sample was aerated for 10 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 9.8 mg/L to 8.8 mg/L. The second and third samples were not aerated.

Conclusion

The effluent sample collected from the EFD-01 NPDES sampling point for this facility on March 7, March 9 and March 11, 2016, was not chronically toxic to either test species during the 7-day chronic definitive bioassays. The AGP result and the AGP salinity adjusted result were both greater than the results considered to be indicative of nutrient enrichment. The salinity of this sample and the reduced nutrient concentrations in the nutrient chemistry samples suggest considerable dilution of effluent at the D-001 outfall. Effluent samples did not exceed any applicable Class III Marine Surface Water criteria or permitted limits.

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

Literature Cited

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

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.

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

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

St. Andrews WWTF	Units	Class III Criteria	EFD-01 Effluent Permit Limits	EFD-01 03/11 Composite	D-001 3/17 Grab	Hwy 98 Grab	Red Flasher Grab
Sample Depth	m	-	-	-	0.2	0.2	0.2
Temperature	°C	-	-	1.0*	22.5	22.7	22.6
pH	SU	6.5 - 8.5	6.5 - 8.5	6.98	8.0	8.0	8.1
Specific Conductance	µmhos/cm	-	-	485 d	38,460	36,876	41,017
Salinity	ppth	-	-	0.23 c	30 c	20 c	30 c
Dissolved Oxygen	% saturation	≥ 42	-	70.8	103	102	109
Dissolved Oxygen	mg/L	-	≥ 6.0 s	10.03	7.7	7.6	8.0
Flow	MGD	-	Report	-	2.4	-	-

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

c - Value is calculated

d- Measured in bioassay laboratory

s - Single sample

* - Composite chilled in sampler as collected.

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

St. Andrews WWTF	Units	Class III Criteria	EFD-01 Effluent Permit Limits	EFD-01 03/10 Comp	EFD-01 03/10 Grab	D-001 3/17 Grab	Hwy 98 Grab	Red Flasher Grab
Ortho-phosphate	mg P/L	-	-	-	0.77	0.004 U	0.004 U	0.004 U
Total Phosphorus	mg P/L	≤ 0.019	< 4.0 s	0.62	0.95	0.011	0.010	0.010
Total Ammonia	mg N/L	-	-	-	0.041	0.004 I	0.004 I	0.004 I
Un-ionized Ammonia (calculated salinity)	mg N/L	-	-	-	-	< 0.02 c	< 0.02 c	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	0.68	0.62	0.004 U	0.004 U	0.004 U
Total Kjeldahl Nitrogen	mg N/L	-	-	1.4	1.1	0.32 I	0.42	0.33 I
Organic Nitrogen	mg N/L	-			1.1 c	0.32 c	0.42 c	0.33 c
Total Nitrogen	mg N/L	≤ 0.34	< 20.0 s	2.1 c	1.7 c	0.32 c	0.42 c	0.33 c
Total Organic Carbon	mg C/L	-	-	7.5	7.6	3.3	3.6	3.1
Chlorophyll *a* - Corrected	ug/L	≤ 3.7	-	-	0.90 I	2.8	2.8 A	2.7
Phaeophytin	ug/L	-	-	-	0.40 U	0.40 U	0.40 U	0.40 U
CBOD, 5 day, N - inhibited	mg/L	-	< 20.0 s	3.2 A	-	1.1 IJ	-	-
Total Residual Chlorine	mg/L	-	< 0.01 s	-	0	-	-	-
Total Suspended Solids	mg/L	-	< 20.0 s	4 I	3 I	3 I	-	-
Turbidity	NTU	< 29 t	-	-	2.4	0.70	-	-
Color (true)	PCU	-	-	-	16	7.7	-	-
Alkalinity	mg CaCO3/L	-	-	-	40	90	-	-
Chloride	mg Cl/L	-	-	-	81	14000	-	-
Fluoride	mg F/L	≤ 5.0	-	-	0.41	0.90	-	-
Sulfate	mg SO4/L	-	-	-	50	1900	-	-
Microbiology [1]								
Fecal Coliforms	cfu/100 mL	-	< 86 s	-	28	-	-	-
Enterococci	cfu/100 mL	-	< 104 s	-	6 B	-	-	-
Toxicity (IC25 Chronic Definitive)								
Bioassay - Water flea *(Ceriodaphnia dubia)*	% effluent	-	≥ 100	> 100	-	-	-	-
Bioassay - Fish *(Pimephales promelas)*	% effluent	-	≥ 100	> 100	-	-	-	-

Table 2 Qualifiers

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit
1 - Analyses performed by The Water Spigot, Panama City

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

St. Andrews WWTF	Units	Class III Criteria	Effluent Permit Limits	EFD-01 03/10 Grab	D-001 3/17 Grab
Hardness	mg $CaCO_3$/L	-	-	80.5 c	4500 c
Aluminum	ug/L	≤ 1500	-	39.7	37
Arsenic	ug/L	≤ 50	-	1.28	1.11
Cadmium	ug/L	≤ 8.8	-	0.020 U	0.060 U
Calcium	mg/L	-	-	23.0	278
Chromium, Total [h]	ug/L	≤ 50	-	1.68	0.15 U
Copper	ug/L	≤ 3.7	-	2.81	0.36 I
Iron	ug/L	≤ 300	-	120 I	90 U
Lead	ug/L	≤ 8.5	-	0.12 I	0.15 U
Magnesium	mg/L	-	-	5.61	924
Nickel	ug/L	≤ 8.3	-	1.89	0.18 I
Potassium	mg/L	-	-	8.7	271
Selenium	ug/L	≤ 71	-	0.20 U	0.60 U
Silver	ug/L	≤ 2.3 [2]	-	0.014 I	0.015 U
Sodium	mg/L	-	-	56.0	7450
Zinc	ug/L	≤ 86	-	37	12

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

c - Value is calculated

h - Class III Marine Water Quality Criterion (62-302.530(19)(b), F.A.C.) is for chromium-VI

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

2 – See Class III Marine Water Quality Criterion (62-302.500(1)(c), F.A.C.)

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

St. Andrews WWTF								
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (OP) ± 20%**	**Predicted AGP (TN) ± 20%**	**Predicted AGP (TP) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
EFD-01 03/10 Grab	*Pseudokirchneriella subcapitata*	50.8	25.1 ± 5	Not applicable [5]	65.4 ± 13.1	Not applicable [5]	0.9	1.8
EFD-01 03/10 Grab	*Dunaliella tertiolecta*	28.0 [g]	Not applicable [3]	Not applicable [3]	Not applicable [3]	Not applicable [3]	0.9	1.8
D-001 3/17 Grab	*Dunaliella tertiolecta*	3.00 UQ	Not applicable [3]	Not applicable [3]	Not applicable [3]	Not applicable [3]	Not applicable [4]	Not applicable [4]

g - Sample salinity adjusted to 7.08 ppth
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
3 - Predictions not applicable to marine matrix
4 - Non-detect in the analytical chemistry; predictions could not be made and N:P ratios could not be calculated

Appendix A

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Shelley Alexander	**Contact Number:** 850-595-0677
Facility Name (as it appears on permit): St. Andrews WWTF	**Former Names:** N/A
NPDES Permit Number: FL0020451	**Permit Expiration Date:** December 1, 2016
Physical Address: 2226 Michigan Ave.	
District: NWD-PBO	**County:** Bay
Function of Facility: Domestic Wastewater Treatment Facility	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD):** 5.0 MGD Existing, Construction Permitted to 10 MGD
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 2.4 MGD 12/01/2014-10/31/2015	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify:**	

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

Monitoring Site Number	Description of Monitoring Site
FLW-01	Effluent flowmeter and totalizer located after post aeration basin
EFD-01	Sampling point immediately after dechlorination
EFA-01	Sampling point immediately after disinfection

Description of Permitted Outfall(s):
D-001-Outfall effluent to St. Andrews Bay- a 30-inch gravity pipe approximately 2300 feet in length and discharges at a depth of approximately 16.2 feet (determined to be ~30 feet on1/8/16 –note by S. Alexander FDEP NW District) with diffusers.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): (Part 1)

The existing treatment facility consists of a 5.0 MGD annual average daily flow (AADF) advanced wastewater treatment plant utilizing biological nutrient removal by five stage Bardenpho process. The treatment plant components consists of influent pump station, two bar screens and degritters, two oxidation basins, two anoxic basins, two reaeration basins, two clarifiers, two chlorine contact chambers for intermediate disinfection, dechlorination basin, and a post aeration basin. Two primary and two secondary digesters for two stage aerobic digestion of biosolids that will be dewatering by a belt filter press with the option of using sludge drying beds as back up.

Construction upgrade of the existing wastewater treatment facility will increase the permitting capacity from the current 5.0 to 10 MGD upon completion of the three phases of construction. The proposed WWTF design is nearly a complete replacement of the existing WWTF. NOTE: **As of 12/14/15 no construction has begun.**

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): (PART 2)

Phase 1 will increase the permit capacity to 7.5 MGD AADF, 16 MGD peak hourly flow and involves construction the new headworks to include two fine screens with a capacity of 8 MGD each with manually operated course screens as back up, two 21 MGD peak hourly flow capacity grit removal units, three (3.5 million gallons) SBR tanks (Siemens' Omni Flo or Aqua-Aerobic systems, Inc.'s Aqua Excel SBR basins), two existing anoxic basins will be modified to 0.4 MG post-equalization basins, three Cloth Media Disk Filters with approximately 16 MGD peak load capacity, two reaeration basins with two submerged aerators per basin, UV disinfection system consisting of two channels with one reactor per channel, 2 banks per reactor, 2 modules per bank, 8 lamps per module for a total of 64 lamps, four tank system Aerobic Digestion with two primary digesters and two secondary digesters and a belt filter press.

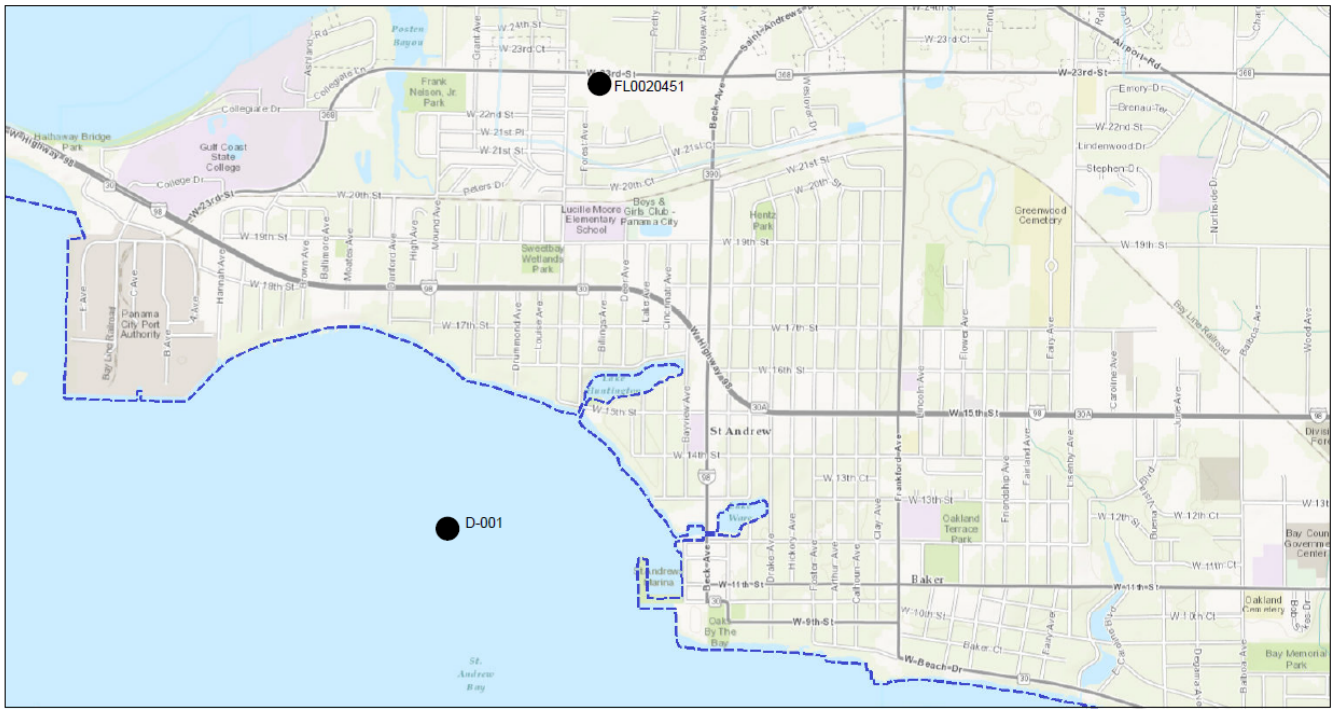
Phase 2 would increase the outfall capacity for the peak discharge capacity of a new effluent pump station of 21 MGD by construction of a new force main to supplement the existing gravity outfall pipe and a new effluent discharge diffuser system in St. Andrews Bay. This second phase of construction requires a permit application for these facility modifications.

Phase 3 will increase the treatment capacity from 7.5 to 10.0 MGD AADF and peak hydraulic capacity to 21 MGD and will include, construction of a fourth identical SBR basin, one additional fine screen with a capacity of 8 MGD, one additional Cloth Media Disk Filters with approximately 8 MGD peak load capacity, and one additional UV module for each of the four UV banks totaling 32 additional UV lamps. The location and staging of two 85-ft primary digesters and two 48-ft secondary digesters will be switched during Phase 3.

Surface Water Discharge D-001: A permitted 10 MGD AADF discharge to St. Andrews Bay, Class III Marine waters, (WBID# 1061C). The existing 5 MGD discharge will be expanded in phases to 7.5 then 10.0 MGD upon completion of modifications to the wastewater treatment facility. The existing outfall pipeline for up to 7.5 MGD is a 30-inch gravity pipe approximately 2300 feet in length and discharges at a depth of approximately 16.2 feet with a diffusers. The point of discharge is located approximately at latitude 30°10' 14" N, longitude 85°42' 51" W.

The outfall system for expansion above 7.5 MGD, construction Phase 2 requires a permit revision, see condition VI.

Location Map of St. Andrews WWTP and 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)

			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 (D-001)	MGD	Max	5.0	Report			Continuous	Recording Flow Meter with Totalizer	FLW-01	See I.A.4
BOD, Carbonaceous 5 day, 20 C	mg/L	Max	10	12.5	15.0	20.0	5 Days/Week	24-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	10	12.5	15.0	20.0	5 Days/Week	24-hr FPC	EFD-01	
Nitrogen, Total (as N)	mg/L	Max	8.0	10.0	15.0	20.0	5 Days/Week	24-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	2.0	2.5	3.0	4.0	5 Days/Week	24-hr FPC	EFD-01	
Coliform, Fecal	#/100 mL	Max	14	14		86	5 Days/Week	Grab	EFD-01	See I.A.5
pH	s.u.	Min				6.5	Continuous	Meter	EFD-01	See I.A.3
pH	s.u.	Min				8.5	Continuous	Meter	EFD-01	See I.A.3
Chlorine, Total Residual (For Disinfection)	mg/L	Min				1.0	Continuous	Meter	EFA-01	See I.A.3 & 6
Chlorine, Total Residual (For Dechlorination)	mg/L	Max				0.01	Daily	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min				6.0	Daily	Grab	EFD-01	
Enterococci	#/100 ml	Max		35 (Mo. Geo. Mean)		104	5 Days/Month	Grab	EFD-01	See I.A.7
Chronic Whole Effluent Toxicity 7-Day IC25	percent	Min				100	Semi-Annually	24-hr FPC	EFD-01	See I.A.8

I.A.3 Hourly Measurement of pH and total residual chlorine for disinfection during the period of required operator attendance may be substituted for continuous measurement

I.A.4 A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months.

I.A.5 The effluent limitation for the monthly median for fecal coliform is only applicable if 10 or more values are reported. If fewer than 10 values are reported, the monthly median shall be calculated and reported on the DMR.

I.A.6 Total Residual Chlorine must be maintained for minimum contact time of 15 minutes based on peak hourly flow

I.A.7 The Enterococci Monthly Geo Mean value shall be based on a minimum of 5 samples of effluent each collected on nonconsecutive days during a period of 30 consecutive days (monthly). Effluent samples for enterococci shall be monitored using EPA Method 1600 or Enterolert.

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
St. Andrews Bay	**Class III Marine Waters**

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): I.A.8
The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.
a. Effluent Limitation
(1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. *[Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]*
(2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. *[Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]*
b. Monitoring Frequency
(1) Routine toxicity tests shall be conducted once every six months, the first starting six months from the date of the last testing 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-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
(2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
(3) Samples for routine and additional follow-up tests shall not be collected on the same day.
d. Test Requirements
(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: 100%, 50%, 25%, 12.5%, and 6.25% final effluent.
(2) The permittee shall conduct a daphnid, Ceriodaphnia dubia, Survival and Reproduction Test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Test, concurrently.
(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.
e. Quality Assurance Requirements
(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (Ceriodaphnia dubia) and Section 11.11 (Pimephales promelas). The repeat test shall begin within 21 days after the last day of the invalid test.
(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

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

Facility Mixing Zone Details (if applicable): None

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

Date	Parameter and Units	Limit	Result
February 2015	TSS mg/l	15 weekly average	20
February 2015	TSS mg/l	20 Max	86
April 2015	Fecal #/100 ml	86 Max	145
May 2015	Phosphorus mg/l	3.0 weekly average	3.9
May 2015	Phosphorus mg/l	4.0 Max	5.7
May 2015	Fecal #/100 ml	86 Max	89
June 2015	Phosphorus mg/l	2.0 annual average	2.7
June 2015	Phosphorus mg/l	2.5 monthly average	5.9
June 2015	Phosphorus mg/l	3.0 weekly average	8.4
June 2015	Phosphorus mg/l	4.0 Max	9.8
June 2015	Fecal #/100 ml	86 Max	201
June 2015	Enterococci #/100 ml	104 Max	201
July 2015	TSS mg/l	15 weekly average	26
July 2015	TSS mg/l	20 Max	120
July 2015	Nitrogen mg/l	16 Max	23
July 2015	Phosphorus mg/l	2.0 annual average	2.9
July 2015	Phosphorus mg/l	2.5 monthly average	3.7
July 2015	Phosphorus mg/l	3.0 weekly average	5.9
July 2015	Phosphorus mg/l	4.0 Max	16
July 2015	Fecal #/100 ml	14 annual average	800
July 2015	Fecal #/100 ml	86 Max	63700
July 2015	Enterococci #/100 ml	104 Max	19200
August 2015	Phosphorus mg/l	2.5 monthly average	2.8
August 2015	Phosphorus mg/l	3.0 weekly average	3.7
August 2015	Phosphorus mg/l	4.0 Max	4.4
August 2015	Fecal #/100 ml	14 annual average	400
August 2015	Chlorine (dechlor) mg/l	.01 Max	0.04
August 2015	Chlorine (disinfect) mg/l	1.0 Min	0.4
September 2015	Phosphorus mg/l	2.0 annual average	2.1
September 2015	Fecal #/100 ml	14 annual average	360
October 2015	Fecal #/100 ml	14 annual average	320
October 2015	Phosphorus mg/l	2.0 annual average	2.2
October 2015	Phosphorus mg/l	2.5 monthly average	3.1
October 2015	Phosphorus mg/l	3.0 weekly average	5.1
October 2015	Phosphorus mg/l	4.0 Max	7.0
October 2015	Chlorine (dechlor) mg/l	0.01 Max	0.06
October 2015	Chlorine (disinfect) mg/l	1.0 Min	0.04
November 2015	Phosphorus, Total (as P) mg/l	3.0 weekly average	3.1
November 2015	Phosphorus, Total (as P) mg/l	2.1 annual average	2.0
November 2015	Fecal #/100 ml	14.0 annual average	271.9
Describe previous FYI and WQBEL study:			
Describe previous or current Enforcement Actions (including WLs):			

Describe any violations or problems noted in previous inspection:
This facility was inspected on August 12, 2015. As part of the physical inspection and subsequent file review, the following violations were noted:

The Phase 1 final design was due April 2015. As described by the operator, the facility's engineer is still working on this project. Phase 1 will increase the permit capacity to 7.5 MGD AADF, 16 MGD peak hourly flow and involves construction of the new headworks to include two fine screens with a capacity of 8 MGD each with manually operated course screens as back up; two 21 MGD peak hourly flow capacity grit removal units; three (3.5 million gallons) SBR tanks (Siemens' Omni Flo or Aqua-Aerobic systems, Inc.'s Aqua Excel SBR basins); two existing anoxic basins will be modified to 0.4 MG post-equalization basins; three Cloth Media Disk Filters with approximately 16 MGD peak load capacity; two reaeration basins with two submerged aerators per basin; UV disinfection system consisting of two channels with one reactor per channel, two banks per reactor, two modules per bank, eight lamps per module for a total of 64 lamps; and four tank system Aerobic Digestion with two primary digesters and two secondary digesters and a belt filter press

At the time of this inspection, the chlorine tank scale was not functioning.

A review of the DMRs for the period from January 2014 through June 2015 indicated effluent quality limit violations.

Note: Facility responded on 9/28/2015 to the non-compliance issues. Rain events caused the fecal issues. Ordered new chlorine scale to be installed in January 2016. Currently the facility since the inspection continues to experience violations as noted above since last inspection.

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

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

PART II: Sampling Event Information

Date(s) sample collected:	**Sampler(s):**
Temperature (Deg C):	**pH (SU):**
Dissolved Oxygen (mg/L):	**Conductivity (umhos/cm):**
Total Residual Chlorine (mg/L):	**Total Residual Chlorine - after Disinfection (mg/L):**
Method of Chlorination:	**Method of De-chlorination:**

Flow During Sample Collection for each outfall(MGD):

Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):

Describe Discharge during Sampling Event:
☐ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent**
☐ **Other, please specify:**

Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:

Appendix B

Explanation of Measurements

(1) Quality Assurance and Quality Control

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

(2) Chemical Analyses of the Effluent

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

(3) Toxicity Bioassays

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

(4) Bacteriological Testing

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

(5) Chlorophyll *a* Content

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

(6) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. 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
03/07/16 7:55	EFD-01 3/7 Comp	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100	NOEC		
03/07/16 7:55	EFD-01 3/7 Comp	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100	NOEC		
03/07/16 7:55	EFD-01 3/7 Comp	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100 L	IC25		
03/07/16 7:55	EFD-01 3/7 Comp	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100 L	IC25		
03/07/16 7:55	EFD-01 3/7 Comp	Nutrients	Temperature	1.0	C		
03/07/16 7:55	EFD-01 3/7 Comp	Nutrients	pH	6.8			
03/07/16 7:55	EFD-01 3/7 Comp	Nutrients	Dissolved Oxygen	11.7	mg/L		
03/10/16 8:23	EFD-01 03/10 Comp	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	3.2 A	mg/L	0.2	2
03/10/16 8:23	EFD-01 03/10 Comp	Nutrients	Kjeldahl Nitrogen	1.4	mg N/L	0.08	0.2
03/10/16 8:23	EFD-01 03/10 Comp	Nutrients	TSS	4 I	mg/L	2	10
03/10/16 8:23	EFD-01 03/10 Comp	Nutrients	Total-P	0.62	mg P/L	0.005	0.05
03/10/16 8:23	EFD-01 03/10 Comp	Nutrients	Organic Carbon	7.5	mg C/L	0.5	1
03/10/16 8:23	EFD-01 03/10 Comp	Nutrients	NO2NO3-N	0.68	mg N/L	0.004	0.01
03/10/16 12:32	EFD-01 03/10 Grab	AGP/LN	Algal Growth Potential-Salinity Adjusted	28.0	mg DryWt/L	3	3
03/10/16 12:32	EFD-01 03/10 Grab	AGP/LN	Algal Growth Potential	50.8	mg DryWt/L	0.3	0.9
03/10/16 12:32	EFD-01 03/10 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.90 I	ug/L	0.55	1.7
03/10/16 12:32	EFD-01 03/10 Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
03/10/16 12:32	EFD-01 03/10 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	1.8		0	0
03/10/16 12:32	EFD-01 03/10 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.87 I	ug/L	0.4	1.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Chromium	1.68	ug/L	0.05	0.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Potassium	8.7	mg/L	0.3	1.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Sodium	56.0	mg/L	0.5	2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Magnesium	5.61	mg/L	0.04	0.16
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Silver	0.014 I	ug/L	0.005	0.02
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Calcium	23.0	mg/L	0.075	0.3
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Iron	120 I	ug/L	30	120
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Aluminum	39.7	ug/L	2	8
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Lead	0.12 I	ug/L	0.05	0.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Arsenic	1.28	ug/L	0.05	0.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Nickel	1.89	ug/L	0.05	0.2
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Copper	2.81	ug/L	0.1	0.4
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Cadmium	0.020 U	ug/L	0.02	0.08

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Selenium	0.20 U	ug/L	0.2	0.8
03/10/16 12:32	EFD-01 03/10 Grab	Metals	Zinc	37	ug/L	5	20
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Organic Carbon	7.6	mg C/L	0.5	1
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	O-Phosphate-P	0.77	mg P/L	0.012	0.03
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Fluoride	0.41	mg F/L	0.035	0.1
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Color (true)	16	PCU	2.5	6
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Chloride	81	mg Cl/L	0.2	0.5
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Turbidity	2.4	NTU	0.1	0.1
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Total-P	0.95	mg P/L	0.005	0.05
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Total Alkalinity	40	mg CaCO3/L	0.65	2.5
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Sulfate	50	mg SO4/L	0.2	0.5
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Kjeldahl Nitrogen	1.1	mg N/L	0.08	0.2
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Ammonia-N	0.041	mg N/L	0.002	0.005
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	TSS	3 I	mg/L	2	10
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	NO2NO3-N	0.62	mg N/L	0.004	0.01
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Malathion	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Simazine	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Alachlor	0.060 U	ug/L	0.06	0.24
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Atrazine	0.016 I	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Ethoprop	0.0050 U	ug/L	0.005	0.02
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Metalaxyl	0.040 U	ug/L	0.04	0.16
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Fonofos	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Imidacloprid	0.16	ug/L	0.004	0.016
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Ametryn	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Bromacil	0.040 U	ug/L	0.04	0.16
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Diazinon	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Naled	0.040 U	ug/L	0.04	0.16
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Norflurazon	0.030 U	ug/L	0.03	0.12
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Prometon	0.020 U	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Fluridone	4.0E-04 U	ug/L	0.0004	0.0016
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Acetaminophen	0.0040 U	ug/L	0.004	0.016
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Sucralose	33	ug/L	0.5	2
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Carbamazepine	0.14	ug/L	0.0004	0.0016
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Diuron	0.020	ug/L	0.002	0.008

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Fenuron	0.0080 U	ug/L	0.008	0.032
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Atrazine Desethyl	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Butylate	0.020 U	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Phorate	0.0050 U	ug/L	0.005	0.02
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Prometryn	0.020 U	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Primidone	0.22	ug/L	0.008	0.032
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Chlorpyrifos Ethyl	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Chlorpyrifos Methyl	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Hexazinone	0.030 UJ	ug/L	0.03	0.12
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Metolachlor	0.060 U	ug/L	0.06	0.24
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Linuron	0.0040 U	ug/L	0.004	0.016
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Atrazine Desisopropyl	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Azinphos Methyl	0.020 UJ	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Disulfoton	0.0050 U	ug/L	0.005	0.02
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Metribuzin	0.020 U	ug/L	0.02	0.08
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Mevinphos	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Parathion Methyl	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Demeton	0.024 U	ug/L	0.024	0.096
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Ethion	0.010 U	ug/L	0.01	0.04
03/10/16 12:32	EFD-01 03/10 Grab	Pesticides	Fenamiphos	0.030 U	ug/L	0.03	0.12
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2-Nitrophenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	4-Nitrophenol	14 U	ug/L	14	57
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,4-Dinitrophenol	14 U	ug/L	14	57
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Butyl benzyl phthalate	0.95 U	ug/L	0.95	3.8

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Dimethyl phthalate	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Hexachlorobenzene	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Pentachlorophenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2-Chlorophenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Di-n-butyl phthalate	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Diethyl phthalate	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Hexachloroethane	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	2,4-Dimethylphenol	9.5 U	ug/L	9.5	38
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzidine	95 U	ug/L	95	380
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.6
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.76
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.76

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Isophorone	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 U	ug/L	2.9	11
03/10/16 12:32	EFD-01 03/10 Grab	Priority Organic Pollutants	Phenol	0.95 U	ug/L	0.95	3.8
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	Total Residual Chlorine	0	mg/L		
03/10/16 12:32	EFD-01 03/10 Grab	Nutrients	pH	6.8			
03/10/16 12:58	EFD-01 03/10 Grab	Overflow	Enterococci-Membrane Filter	6 B	cfu/100 mL	2	2
03/10/16 12:58	EFD-01 03/10 Grab	Overflow	Fecal Coliforms-Membrane Filter	28	cfu/100 mL	1	1
03/10/16 12:06	Field Blank	Metals	Cadmium	0.020 U	ug/L	0.02	0.08
03/10/16 12:06	Field Blank	Metals	Chromium	0.050 U	ug/L	0.05	0.2
03/10/16 12:06	Field Blank	Metals	Sodium	0.50 U	mg/L	0.5	2
03/10/16 12:06	Field Blank	Metals	Potassium	0.30 U	mg/L	0.3	1.2
03/10/16 12:06	Field Blank	Metals	Selenium	0.20 U	ug/L	0.2	0.8
03/10/16 12:06	Field Blank	Metals	Zinc	5.0 U	ug/L	5	20
03/10/16 12:06	Field Blank	Metals	Silver	0.0050 U	ug/L	0.005	0.02
03/10/16 12:06	Field Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.3
03/10/16 12:06	Field Blank	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
03/10/16 12:06	Field Blank	Metals	Nickel	0.050 U	ug/L	0.05	0.2
03/10/16 12:06	Field Blank	Metals	Aluminum	2.0 U	ug/L	2	8
03/10/16 12:06	Field Blank	Metals	Lead	0.050 U	ug/L	0.05	0.2
03/10/16 12:06	Field Blank	Metals	Copper	0.10 U	ug/L	0.1	0.4
03/10/16 12:06	Field Blank	Metals	Iron	30 U	ug/L	30	120
03/10/16 12:06	Field Blank	Metals	Arsenic	0.050 U	ug/L	0.05	0.2
03/10/16 12:06	Field Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
03/10/16 12:06	Field Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
03/10/16 12:06	Field Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
03/10/16 12:06	Field Blank	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
03/10/16 12:06	Field Blank	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
03/10/16 12:06	Field Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
03/10/16 12:06	Field Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
03/10/16 12:06	Field Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
03/10/16 12:06	Field Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
03/10/16 12:06	Field Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6
03/10/16 12:06	Field Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
03/10/16 12:06	Field Blank	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005
03/10/16 12:06	Field Blank	Pesticides	Chlorpyrifos Methyl	0.010 U	ug/L	0.01	0.041

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:06	Field Blank	Pesticides	Parathion Methyl	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Fluridone	4.0E-04 U	ug/L	0.0004	0.0016
03/10/16 12:06	Field Blank	Pesticides	Linuron	0.0040 U	ug/L	0.004	0.016
03/10/16 12:06	Field Blank	Pesticides	Disulfoton	0.0052 U	ug/L	0.0052	0.021
03/10/16 12:06	Field Blank	Pesticides	Metolachlor	0.062 U	ug/L	0.062	0.25
03/10/16 12:06	Field Blank	Pesticides	Metribuzin	0.021 U	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Pesticides	Parathion Ethyl	0.021 U	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Pesticides	Ametryn	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Atrazine	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Azinphos Methyl	0.021 UJ	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Pesticides	Bromacil	0.041 U	ug/L	0.041	0.16
03/10/16 12:06	Field Blank	Pesticides	Fenamiphos	0.031 U	ug/L	0.031	0.12
03/10/16 12:06	Field Blank	Pesticides	Norflurazon	0.031 U	ug/L	0.031	0.12
03/10/16 12:06	Field Blank	Pesticides	Imidacloprid	0.0040 U	ug/L	0.004	0.016
03/10/16 12:06	Field Blank	Pesticides	Ethoprop	0.0052 U	ug/L	0.0052	0.021
03/10/16 12:06	Field Blank	Pesticides	Phorate	0.0052 U	ug/L	0.0052	0.021
03/10/16 12:06	Field Blank	Pesticides	Simazine	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Carbamazepine	4.0E-04 U	ug/L	0.0004	0.0016
03/10/16 12:06	Field Blank	Pesticides	Primidone	0.0080 U	ug/L	0.008	0.032
03/10/16 12:06	Field Blank	Pesticides	Butylate	0.021 U	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Pesticides	Malathion	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Metalaxyl	0.041 U	ug/L	0.041	0.16
03/10/16 12:06	Field Blank	Pesticides	Demeton	0.025 U	ug/L	0.025	0.099
03/10/16 12:06	Field Blank	Pesticides	Ethion	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Mevinphos	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Acetaminophen	0.0040 U	ug/L	0.004	0.016
03/10/16 12:06	Field Blank	Pesticides	Diuron	0.0020 U	ug/L	0.002	0.008
03/10/16 12:06	Field Blank	Pesticides	Fenuron	0.0080 U	ug/L	0.008	0.032
03/10/16 12:06	Field Blank	Pesticides	Atrazine Desisopropyl	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Atrazine Desethyl	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Hexazinone	0.031 UJ	ug/L	0.031	0.12
03/10/16 12:06	Field Blank	Pesticides	Prometon	0.021 U	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Pesticides	Sucralose	0.010 U	ug/L	0.01	0.04
03/10/16 12:06	Field Blank	Pesticides	Alachlor	0.062 U	ug/L	0.062	0.25
03/10/16 12:06	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.010 U	ug/L	0.01	0.041

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:06	Field Blank	Pesticides	Diazinon	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Fonofos	0.010 U	ug/L	0.01	0.041
03/10/16 12:06	Field Blank	Pesticides	Naled	0.041 U	ug/L	0.041	0.16
03/10/16 12:06	Field Blank	Pesticides	Prometryn	0.021 U	ug/L	0.021	0.082
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Phenanthrene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40 U	ug/L	40	160
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Diethyl phthalate	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Nitrobenzene	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Anthracene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzidine	99 U	ug/L	99	400
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Pentachlorophenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Phenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.9 U	ug/L	9.9	40
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Fluoranthene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Pyrene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.99 U	ug/L	0.99	4

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Chrysene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Fluorene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Hexachloroethane	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0 U	ug/L	3	12
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Acenaphthene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Isophorone	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	ug/L	2	7.9
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Naphthalene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	15 U	ug/L	15	59
03/10/16 12:06	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.99 U	ug/L	0.99	4
03/10/16 12:06	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	ug/L	0.2	0.79
03/10/16 12:06	Field Blank	Priority Organic Pollutants	4-Nitrophenol	15 U	ug/L	15	59
03/10/16 12:58	Field Blank	Overflow	Fecal Coliforms-Membrane Filter	1 U	cfu/100 mL	1	1
03/10/16 12:58	Field Blank	Overflow	Enterococci-Membrane Filter	4 U	cfu/100 mL	4	4
03/17/16 13:20	D-001 3/17 Grab	AGP/LN	Algal Growth Potential - Saltwater	3.00 UQ	mg DryWt/L	3	3
03/17/16 13:20	D-001 3/17 Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
03/17/16 13:20	D-001 3/17 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	1.7		0	0
03/17/16 13:20	D-001 3/17 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	2.9	ug/L	0.4	1.2
03/17/16 13:20	D-001 3/17 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.8	ug/L	0.55	1.7
03/17/16 13:20	D-001 3/17 Grab	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.1 IJ	mg/L	0.2	2
03/17/16 13:20	D-001 3/17 Grab	Metals	Lead	0.15 U	ug/L	0.15	0.6
03/17/16 13:20	D-001 3/17 Grab	Metals	Iron	90 U	ug/L	90	360
03/17/16 13:20	D-001 3/17 Grab	Metals	Magnesium	924	mg/L	2	8
03/17/16 13:20	D-001 3/17 Grab	Metals	Nickel	0.18 I	ug/L	0.15	0.6
03/17/16 13:20	D-001 3/17 Grab	Metals	Aluminum	37	ug/L	6	24

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/17/16 13:20	D-001 3/17 Grab	Metals	Zinc	12	ug/L	3	12
03/17/16 13:20	D-001 3/17 Grab	Metals	Selenium	0.60 U	ug/L	0.6	2.4
03/17/16 13:20	D-001 3/17 Grab	Metals	Sodium	7.45E+03	mg/L	25	100
03/17/16 13:20	D-001 3/17 Grab	Metals	Calcium	278	mg/L	0.22	0.9
03/17/16 13:20	D-001 3/17 Grab	Metals	Copper	0.36 I	ug/L	0.3	1.2
03/17/16 13:20	D-001 3/17 Grab	Metals	Cadmium	0.060 U	ug/L	0.06	0.24
03/17/16 13:20	D-001 3/17 Grab	Metals	Arsenic	1.11	ug/L	0.15	0.6
03/17/16 13:20	D-001 3/17 Grab	Metals	Silver	0.015 U	ug/L	0.015	0.06
03/17/16 13:20	D-001 3/17 Grab	Metals	Potassium	271	mg/L	15	60
03/17/16 13:20	D-001 3/17 Grab	Metals	Chromium	0.15 U	ug/L	0.15	0.6
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Ammonia-N	0.004 I	mg N/L	0.002	0.005
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Color (true)	7.7	PCU	2.5	6
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Turbidity	0.70	NTU	0.1	0.1
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Total Alkalinity	90	mg CaCO3/L	0.65	2.5
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Sulfate	1.9E+03	mg SO4/L	40	100
03/17/16 13:20	D-001 3/17 Grab	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
03/17/16 13:20	D-001 3/17 Grab	Nutrients	TSS	3 I	mg/L	3	10
03/17/16 13:20	D-001 3/17 Grab	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Organic Carbon	3.3	mg C/L	1	2
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Kjeldahl Nitrogen	0.32 I	mg N/L	0.16	0.4
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Total-P	0.011	mg P/L	0.004	0.01
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Chloride	1.4E+04	mg Cl/L	40	100
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Fluoride	0.90	mg F/L	0.18	0.5
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Bromacil	0.039 UJ	ug/L	0.039	0.16
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Ethion	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Imidacloprid	0.0040 U	ug/L	0.004	0.016
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Ametryn	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Butylate	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Demeton	0.024 U	ug/L	0.024	0.094
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Naled	0.039 U	ug/L	0.039	0.16
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Atrazine Desethyl	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Diazinon	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Disulfoton	0.0049 U	ug/L	0.0049	0.02
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Mevinphos	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Phorate	0.0049 U	ug/L	0.0049	0.02

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Simazine	0.018 I	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Sucralose	0.068	ug/L	0.01	0.04
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Malathion	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Fenuron	0.0080 U	ug/L	0.008	0.032
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Fenamiphos	0.029 UJ	ug/L	0.029	0.12
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Parathion Methyl	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Prometon	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Diuron	0.0020 U	ug/L	0.002	0.008
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Linuron	0.0040 U	ug/L	0.004	0.016
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Alachlor	0.059 U	ug/L	0.059	0.24
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Atrazine	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Metolachlor	0.059 U	ug/L	0.059	0.24
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Metribuzin	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Norflurazon	0.029 U	ug/L	0.029	0.12
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Primidone	0.0080 U	ug/L	0.008	0.032
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Chlorpyrifos Ethyl	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Chlorpyrifos Methyl	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Ethoprop	0.0049 U	ug/L	0.0049	0.02
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Fonofos	0.0098 U	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Acetaminophen	0.0040 U	ug/L	0.004	0.016
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Fluridone	4.0E-04 U	ug/L	0.0004	0.0016
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Atrazine Desisopropyl	0.0098 UJ	ug/L	0.0098	0.039
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Azinphos Methyl	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Hexazinone	0.029 U	ug/L	0.029	0.12
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Metalaxyl	0.039 UJ	ug/L	0.039	0.16
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Prometryn	0.020 U	ug/L	0.02	0.079
03/17/16 13:20	D-001 3/17 Grab	Pesticides	Carbamazepine	4.1E-04 I	ug/L	0.0004	0.0016
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Hexachloroethane	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2-Chlorophenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.77

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Diethyl phthalate	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Butyl benzyl phthalate	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2-Nitrophenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	ug/L	2.9	12
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,4-Dimethylphenol	9.6 U	ug/L	9.6	38
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Dimethyl phthalate	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Hexachlorobenzene	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	4-Nitrophenol	14 U	ug/L	14	58
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzidine	96 U	ug/L	96	380
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Pentachlorophenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2,4-Dinitrophenol	14 U	ug/L	14	58
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.7

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Di-n-butyl phthalate	1.9 U	ug/L	1.9	7.7
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Phenol	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.77
03/17/16 13:20	D-001 3/17 Grab	Priority Organic Pollutants	Isophorone	0.96 U	ug/L	0.96	3.8
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Sample Depth	0.2	m		
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Specific Conductance	38460	umhos/cm		
03/17/16 13:20	D-001 3/17 Grab	Nutrients	pH	8.0			
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Dissolved Oxygen	7.7	mg/L		
03/17/16 13:20	D-001 3/17 Grab	Nutrients	Temperature	22.5	C		
03/17/16 13:40	Hwy 98 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.8 A	ug/L	0.55	1.7
03/17/16 13:40	Hwy 98 Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
03/17/16 13:40	Hwy 98 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	1.7 A		0	0
03/17/16 13:40	Hwy 98 Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	2.9 A	ug/L	0.4	1.2
03/17/16 13:40	Hwy 98 Grab	Nutrients	Ammonia-N	0.004 I	mg N/L	0.002	0.005
03/17/16 13:40	Hwy 98 Grab	Nutrients	Total-P	0.010	mg P/L	0.004	0.01
03/17/16 13:40	Hwy 98 Grab	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
03/17/16 13:40	Hwy 98 Grab	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
03/17/16 13:40	Hwy 98 Grab	Nutrients	Organic Carbon	3.6	mg C/L	1	2
03/17/16 13:40	Hwy 98 Grab	Nutrients	Kjeldahl Nitrogen	0.42	mg N/L	0.16	0.4
03/17/16 13:40	Hwy 98 Grab	Nutrients	Dissolved Oxygen	7.6	mg/L		
03/17/16 13:40	Hwy 98 Grab	Nutrients	Sample Depth	0.2	m		
03/17/16 13:40	Hwy 98 Grab	Nutrients	Specific Conductance	36876	umhos/cm		
03/17/16 13:40	Hwy 98 Grab	Nutrients	pH	8.0			
03/17/16 13:40	Hwy 98 Grab	Nutrients	Temperature	22.7	C		
03/17/16 13:55	Red Flasher Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	2.8	ug/L	0.4	1.2
03/17/16 13:55	Red Flasher Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.7	ug/L	0.55	1.7
03/17/16 13:55	Red Flasher Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.40 U	ug/L	0.4	1.2
03/17/16 13:55	Red Flasher Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	1.7		0	0

Date Sampled	UDL	SCH_Group	Component	Result	Units	MDL	PQL
03/17/16 13:55	Red Flasher Grab	Nutrients	Total-P	0.010	mg P/L	0.004	0.01
03/17/16 13:55	Red Flasher Grab	Nutrients	Ammonia-N	0.004 I	mg N/L	0.002	0.005
03/17/16 13:55	Red Flasher Grab	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
03/17/16 13:55	Red Flasher Grab	Nutrients	Kjeldahl Nitrogen	0.33 I	mg N/L	0.16	0.4
03/17/16 13:55	Red Flasher Grab	Nutrients	Organic Carbon	3.1	mg C/L	1	2
03/17/16 13:55	Red Flasher Grab	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
03/17/16 13:55	Red Flasher Grab	Nutrients	Dissolved Oxygen	8.0	mg/L		
03/17/16 13:55	Red Flasher Grab	Nutrients	pH	8.1			
03/17/16 13:55	Red Flasher Grab	Nutrients	Temperature	22.6	C		
03/17/16 13:55	Red Flasher Grab	Nutrients	Specific Conductance	41017	umhos/cm		
03/17/16 13:55	Red Flasher Grab	Nutrients	Sample Depth	0.2	m		

EPA End Sheet

The Bioassay of St. Andrews WWTF effluent sampled on March 7, 9, and 11, 2016. NPDES #FL0020451.

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 FL0020451	11 12 160307	18 B	19 S	20 1

Remarks

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The Priority Pollutants Analysis of St. Andrews WWTF effluent sampled on March 10 and 17, 2016. NPDES #FL0020451.

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 FL0020451	11 12 160307	18 X	19 S	20 1

Remarks

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Biological Analyses of St. Andrews WWTF effluent sampled on March 10 and 17, 2016. NPDES #FL0020451.

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 FL0020451	11 12 160307	18 S	19 S	20 1

Remarks

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