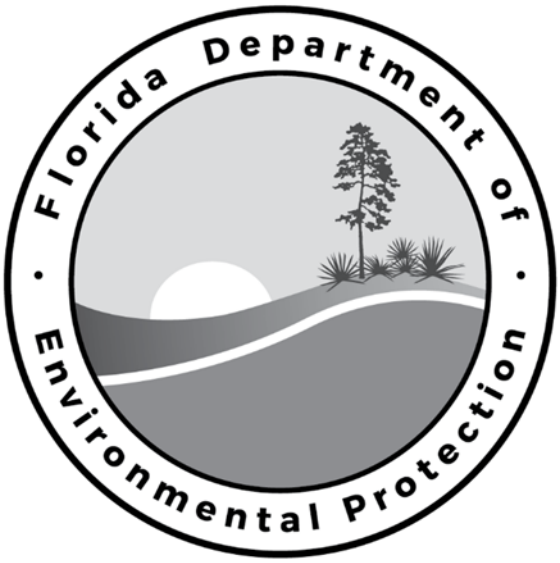


Effluent Quality Assessment of

Florida State Hospital WWTP

Gadsden County

NPDES # FL0031402

Sampled March 28, 30 and April 1, 2016

December 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

Florida State Hospital Wastewater Treatment Facility (WWTF) Blackberry Lane, Chattahoochee, Gadsden County, Florida, 32324. NPDES #FL0031402.

Facility Overview

Florida State Hospital 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 composite samples for toxicity testing were collected on March 28, March 30 and April 1, 2016. Effluent grab samples for biological and chemical analyses for this facility were collected on March 28, 2016. All samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Adrienne Pennington, Sydney Cummings and Jennifer Walters (FDEP Division of Water Resource Management) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).The following samples were collected as 24-hour flow proportioned composites but have permitted limits for 16-hour flow proportioned composites: carbonaceous biochemical oxygen demand (CBOD), total suspended solids, total nitrogen, total phosphorus, total recoverable copper and total hardness.

The 7-day chronic definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09 (see Appendix B).

Results

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

- Receiving Waters for this facility fall within the Panhandle West Nutrient Watershed Region for Numeric Nutrient Criteria (NNC). This FYI event can only provide single sample results: therefore, compliance should be determined with additional sampling events.
- The total ammonia concentration in the composite sample and the grab sample collected and preserved for chemical analysis were 0.037 mg N/L and 0.026 mg/L, respectively. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentrations were < 0.02 mg/L.
- Arsenic, carbonaceous biochemical oxygen demand (CBOD), chromium, copper, lead, nickel, zinc, total nitrogen, total phosphorus and total suspended solids were detected in the effluent at levels that comply with Class III Fresh Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Cadmium, selenium and silver were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Total phosphorus was detected in the field blank between the MDL and PQL.

Algal Growth Potential (See Table 4 and Appendix C)

- The effluent Algal Growth Potential (AGP) was 197 A mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum.* Based on analytical chemistry, the ratio of total soluble inorganic nitrogen to ortho-phosphate (2.4) and the ratio of total nitrogen to total phosphorus (2.4) suggests that the effluent is nitrogen limited (Miller et al. 1978) (USEPA 2000).
- The effluent AGP result is greater than the AGP range (6.10 to 20.0 mg dry wt/L) suggested to be representative of high productivity for freshwater (Miller et al. 1978).
- The AGP result of 197 mg dry wt/L was greater than the predicted AGP values based on total nitrogen and total phosphorus concentrations. The reason for this discrepancy between the analyzed value and the predicted value(s) was not determined.
- To determine actual nutrient limitation, a limiting-nutrient algal growth potential test with associated nutrient chemistry should be performed (Miller et al. 1978).

Toxicity Test Results (See Appendix C)

- Tests were performed March 29 – April 5, 2016

Ceriodaphnia dubia 7-day chronic definitive bioassay – IC25: > 100%
NOEC: 25%

Pimephales promelas 7-day chronic definitive bioassay – IC25: 19.4%
NOEC: 12.5%

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

- The bioassay samples were not chronically toxic to the *Ceriodaphnia dubia* test organisms based on the permitted limit (25% Inhibition Concentration ≥ 100). The No Observed Effect Concentration (NOEC) for reproduction was 25% sample; the Lowest Observed Effect Concentration (LOEC) for reproduction was 50% sample. The bioassay samples were chronically toxic to the *Pimephales promelas* test organisms. The cause of toxicity was not determined; however, the pattern of mortality in the *Pimephales promelas* test was like that observed in tests exhibiting pathogen interference (USEPA 2002).
- The bioassay samples were aerated for ~10 minutes at a rate of approximately 100 bubbles per minute to decrease dissolved oxygen (DO) concentrations from ≥ 9.0 mg/L to less than 9 mg/L prior to test initiations and renewals.

Conclusion

The effluent samples collected from the EFD-01 NPDES sampling point for this facility on March 28, March 30 and April 1, 2016 were not chronically toxic to the *Ceriodaphnia dubia* test organisms based on permitted limits; but were chronically toxic to the *Pimephales promelas* test organisms during the 7-day chronic definitive bioassays. The cause of toxicity was not determined; however, the mortality pattern was like that noted with pathogen interference. The effluent AGP result is greater than the AGP range (6.10 - 20.0 mg dry wt/L) suggested to be representative of high productivity for freshwater (Miller et al. 1978). A reason for the discrepancy between the predicted AGP values based on nutrient chemistry and the measured AGP result was not determined. Additional effluent water quality samples collected on March 28, 2016, 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.

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 Freshwater Criteria and field parameters

Florida State Hospital WWTF	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab
Temperature	C	-	Report	20.33
pH	SU	6.0 - 8.5	6.0 - 8.5 s	6.72
Specific Conductance	umhos/cm	≤ 1,275	-	240
Salinity	ppt	-	-	0.1 c
Dissolved Oxygen	% saturation	≥ 34	-	89.7
Dissolved Oxygen	mg/L	-	≥ 5.0 s	8.10
Total Residual Chlorine	mg/L	-	≤ 0.01 s	≤ 0.01

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
s - Single sample

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

Florida State Hospital WWTF	Units	Class III Criteria	Effluent Permit Limits	Effluent Comp 24-hour	Effluent Grab
Ortho-phosphate	mg P/L	-	-	-	1.0
Total Phosphorus	mg P/L	≤0.06	≤ 16.0 sp	1.5	1.4
Total Ammonia	mg N/L	-	-	0.037	0.026
Un-ionized Ammonia	mg N/L	≤ 0.02 s	-	-	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	2.5	2.4
Total Kjeldahl Nitrogen	mg N/L	-	-	1.5	0.92 J
Organic Nitrogen	mg N/L	-	-	1.5 c	0.89 c
Total Nitrogen	mg N/L	≤ 0.67	≤ 25.0 sp	4 c	3.3 c
Total Organic Carbon	mg C/L	-	-	3.3	2.7 A
Chlorophyll *a* - Corrected	µg/L	-	-	-	0.79 U
Phaeophytin	µg/L	-	-	-	0.57 U
Chlorophyll *a*	µg/L	-	-	-	0.57 U
CBOD, 5 day, N - inhibited	mg/L	-	≤ 40.0 sp	2.1	-
Total Suspended Solids	mg/L	-	≤ 40.0 sp	15	-
Turbidity	NTU	≤ 29 t	-	-	5.6 A
Color (true)	PCU	-	-	-	4.6 I
Alkalinity	mg $CaCO_3$/L	≥ 20	-	-	68 A
Chloride	mg Cl/L	-	-	-	14 A
Fluoride	mg F/L	≤ 10.0	-	-	0.083 I
Sulfate	mg SO4/L	-	-	-	18 A
Microbiology					
Fecal Coliforms	cfu/100 mL	≤ 400# s	≤ 800 s	-	2 U
Toxicity (IC25, Chronic Definitive, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*	% effluent	-	≥ 100 p	≥100	-
Bioassay - Fish *(Pimephales promelas)*	% effluent	-	≥ 100 p	19.4 e	-

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
e -Value exceeds the Class III Water Quality Criteria or permit limits
p – permit limit is 16-hour flow proportioned composite – 24-hour composites were collected
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
J - Estimated value
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

Florida State Hospital WWTF	Units	Class III Criteria	Effluent Comp Class III Criteria	Effluent Comp
Hardness	mg $CaCO_3$ /L	-	-	106 c
Aluminum	µg/L	-	-	335
Arsenic	µg/L	≤ 50	-	0.76
Cadmium	µg/L	-	≤ 0.282 b	0.022 I
Calcium	mg/L	-	-	31.0
Chromium, Total [g]	µg/L	-	≤ 90.1 b	0.31
Copper	µg/L	-	≤ 9.77 p b	7.92[1]
Iron	µg/L	≤ 1,000	-	270
Lead	µg/L	-	≤ 3.41 b	0.51
Magnesium	mg/L	-	-	6.83
Nickel	µg/L	-	≤ 54.6 b	0.61
Potassium	mg/L	-	-	4.6
Selenium	µg/L	≤ 5.0	-	0.51 I
Silver	µg/L	≤ 0.07	-	0.012 I
Sodium	mg/L	-	-	10.0
Zinc	µg/L	-	≤ 125 b	41

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
1 – 24-hour flow proportioned composite collected
b - Value is calculated based on hardness, (62-302.530(3))
c - Value is calculated
g - Class III Freshwater Quality Criterion (62-302.530(19)(a), F.A.C.) is for chromium-III
p - permit limit is for 16-hour flow proportioned composite
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

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

Florida State Hospital WWTF								
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (OP) ± 20%**	**Predicted AGP (TN) ± 20%**	**Predicted AGP (TP) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent Grab	*Pseudokirchneriella subcapitata*	197 A	92.2 ± 18.4	430 ± 86	126.2 ± 25.2	602 ± 120.4	2.4	2.4

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

Appendix A

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event

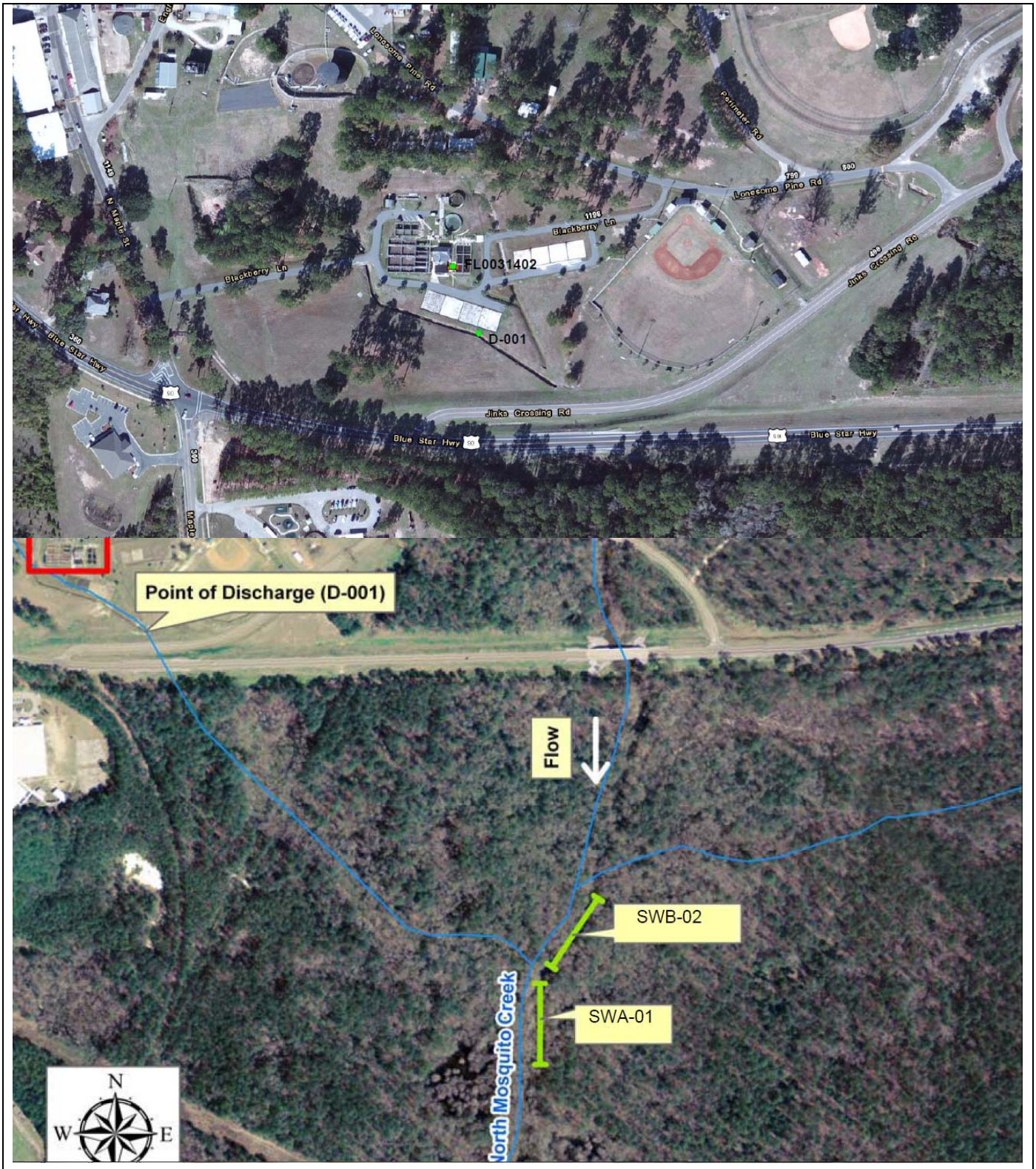
Prepared By: Shelley Alexander	**Contact Number:** 850-595-0677
Facility Name (as it appears on permit): **Florida State Hospital WWTP**	**Former Names:**
NPDES Permit Number: FL0031402	**Permit Expiration Date:** November 15, 2016
Physical Address: Blackberry Lane, Chatahoochee, Florida 32324	
District: Northwest District	**County:** Gadsden
Function of Facility: Domestic Wastewater Treatment Facility	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD):** 1.3
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 12/2014-12/2015 0.28 MGD	
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):

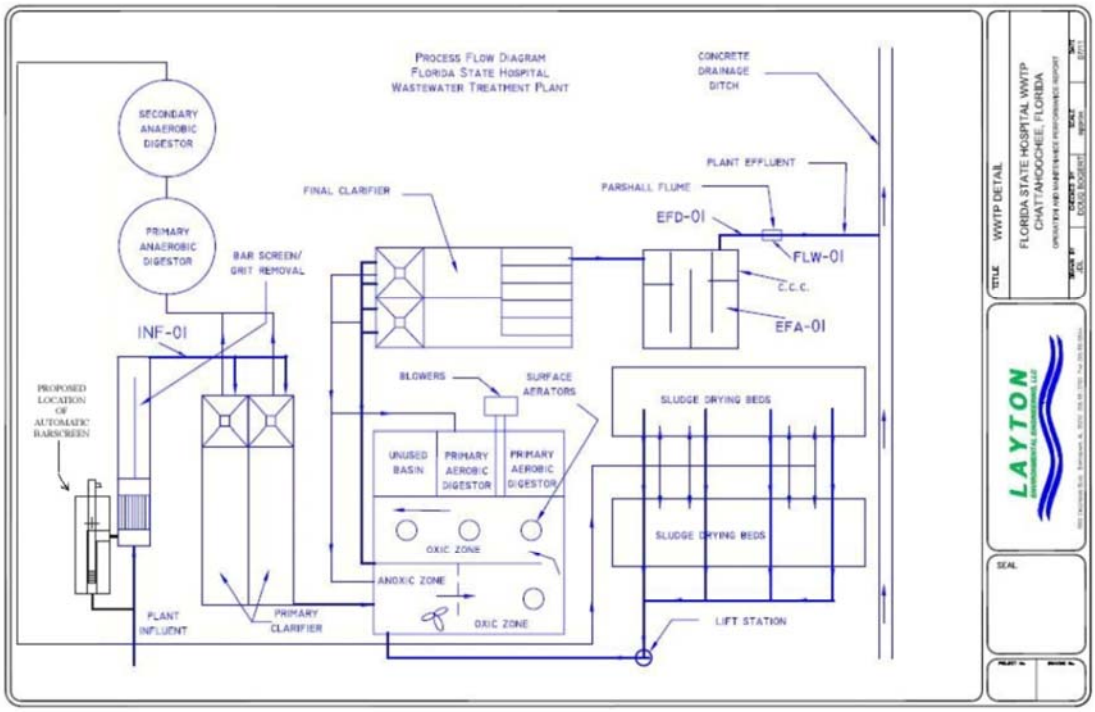
FLW-01	Flow to D-001; The flow meter transducer is located in the effluent parshall flume just outside the south wall of the chlorine contact chamber.
EFD-01	Grab and composite samples of effluent to Mosquito Creek to the Apalachicola River.
EFA-01	Post-disinfection, samples are collected in chlorine contact chamber.
OTH-01	Un-ionized Ammonia Monitoring Point at EFD-01 (WWTP discharge @ v-notch on the discharge side of the Chlorine Contact Chamber).
SWA-01	Test site located approximately 10 m downstream the confluence of the unnamed tributary and N Mosquito Creek and ending 110 m downstream **Lat 30 41 49.14 Long 84 49 38.36**
SWB-02	Control Site (Background Ambient Monitoring Station) located in Mosquito Cr beginning approx. 20 m upstream from the confluence of the unnamed tributary and N Mosquito Creek and ending approx. 120 m upstream **Lat 30 41 52.86 Long 84 49 36.83**

Description of Permitted Outfall(s):
Surface Water Discharge D-001: An existing permitted capacity 1.3 MGD AADF discharge to North Mosquito Creek, Class III fresh waters, (WBID# 376A) by way of a concrete lined drainage ditch and discharges at a depth of approximately 0 feet. The point of discharge is located approximately at latitude 30°42' 06.4" N, longitude 84°49' 58.8" W



Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): Florida State Hospital wastewater treatment plant (WWTP) is an existing treatment plant with a treatment capacity of 1.3 MGD annual average daily flow (AADF). The WWTP operates in the extended aeration mode. The WWTP includes a bar screen (4 MGD capacity), a grit Chamber (3.7 peak factor @ 1.3 MGD AADF), two (2) - primary clarifiers (59,400 gallons, each), two (2) - aeration tanks (in series @ 225,000 gallons, each), two (2) - final clarifiers (110,600 gallons, each), a chlorine contact chamber (27,300 gallons), a dechlorination tank (700 gallons), two (2) - anaerobic digesters (159,380 and 99,650 gallons), two (2) - aerobic digesters (70,500 and 73,300 gallons), eight (8) biosolids drying beds (total area of 17,040 ft^2.), and a spare tank currently empty (72,590 gallons) which could be used to supplement either aeration tanks/digesters.

Florida Department of Environmental Protection makes no warranty,expressed or implied,or assumes any legal liability or responsibility for the accuracy,completeness,or us



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	Max	1.3	Report			Continuous	Flow Meter	FLW-01	See I.A.4
BOD, Carbonaceous 5 day	mg/L	Max	20.0	25.0	30.0	40.0	weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	20.0	25.0	30.0	40.0	weekly	16-hr FPC	EFD-01	
Nitrogen, Total	mg/L	Max	12.5	16.0	18.75	25.0	weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	8.0	10.0	12.0	16.0	weekly	16-hr FPC	EFD-01	
Coliform, Fecal	#/100 ml	Max	200	200		800	weekly	Grab	EFD-01	See I.A.5
pH	s.u.	Range				6.0-8.5	Continuous	Meter	EFD-01	
Chlorine, Total Residual (For Disinfection)	mg/L	Min				0.5	Continuous	Meter	EFA-01	See I.A.3 and I.A.6
Chlorine, Total Residual (For Dechlorination)	mg/L	Max				0.01	Daily; 7 days/Week	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min				5.0	Daily; 7 days/Week	Grab	EFD-01	
Copper, Total Recoverable	ug/L	Max				See I.A.8	Monthly	16-hr FPC	EFD-01	
Hardness, Total (as CaCO3)	mg/L	Max				Report	Monthly	16-hr FPC	EFD-01	
Nitrogen, Ammonia, Total as N	mg/L	Max	Report	Single Sample	Weekly	Grab	OTH-01	See Cond. I.A.7		
Unionized Ammonia as NH3	mg/L	Max	0.02	Single Sample	Weekly	Calculated	OTH-01	See Cond. I.A.7		
Temperature	deg C	Max	Report	Single Sample	Weekly	Grab	OTH-01	See Cond. I.A.7		
pH	s.u.	Max	Report	Single Sample	Weekly	Grab	OTH-01	See Cond. I.A.7		

Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes		
Chronic Whole Effluent Toxicity, 7-day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.9		
Chronic Whole Effluent Toxicity, 7-day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.9		
Specific Conductance	umhos/cm		Report		Quarterly	Grab	SWA-01, SWB-02			
Nitrogen, Nitrate, Total (as N)	mg/l		Report		Quarterly	Grab	SWA-01, SWB-02			
Nitrogen, Total (as N)	mg/l		Report		Quarterly	Grab	SWA-01, SWB-02			
Phosphorus, Total (as P)	mg/l		Report		Quarterly	Grab	SWA-01 SWB-02			
pH	s.u.		Report		Quarterly	Grab	SWA-01 SWB-02			
Dissolved Oxygen (DO)	mg/l		Report		Quarterly	Grab	SWA-01 SWB-02			
Stream Condition Index			Report		Once in 2013 June, July, August	Grab	SWA-01 SWB-02	See I.A.11		

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. *[Chapter 62-601, Figure 2]*

I.A.4-A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months. *[62-601.200(17) and .500(6)]*

I.A.5- The effluent limitation for the monthly geometric mean for fecal coliform is only applicable if 10 or more values are reported. If fewer than 10 values are reported, the mont ly geometric mean shall be calculated and reported on the Discharge Monitoring Report. *[62-600.440(4)(c)]*

I.A.6- A minimum of 0.5 mg/Ltotal residual chlorine must be maintained for a minimumcontact time of 15 minutes based on peak hourly flow. *[62-600.440(4)(b), (5)(b), and (6)(b)]*

I.A.7- Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammoniagrab sample which is used to calculate the un-ionized ammonia value. The sample point is OTH-01 which is the same location as EFD-01 (WWTP discharge @ v-notch on the discharge side of the Chlorine ContactChamber). [62-302.530(3)]

I.A.8- The limit for "Copper, Total Recoverable" shall be calculated using the following equation(s):

$$\mathbf{Cu \leq e^{(0.8545[lnH]-1.702)}}$$

Total hardness shall be measured at the time of the effluent sample. The "ln H" means the natural logarithm of total hardness expressed as mg/L of $CaCO_3$. For metals criteria involving equations with hardness, the hardness shall be set at 25 mg/L if actual hardness is <25 mg/L and set at 400 mg/L if actual hardness is >400 mg/L.

The measured effluent value shall be recorded on the DMR on the parameter row for "Copper, Total Recoverable (effluent)." The calculated effluent limit shall be recorded on the DMR in the parameter row for "Copper, Total Recoverable (calculated limit)." Compliance with the effluent limitation is determined by calculating the difference between the measured effluent value and the calculated. The compliance value shall be recorded on the DMR in the parameter row for "Copper, Total Recoverable (effluent minus calculated limit)." The compliance value shall not exceed 0.00. *[62-302.530(23) and 62-302.530(39)]*

I.A.11 The permittee shall sample the ambient monitoring surface waters sites, identified in permit condition I.A.10. The **surface water sites shall be monitored for the parameters listed below quarterly except stream condition index, which will be monitored during the first quarter after permit issuance and then continued biennially thereafter.**

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
North Mosquito Creek	**Class III freshwaters**

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

I.A.9 **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 within the next six month period following the last routine test 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

a. 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.

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

c. 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.

d. 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

b. 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.

c. 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.): AO # AO078NW date executed 11.16.2011.

Based on the foregoing findings of fact, IT IS ORDERED,

a. Interim Discharge

(1) The Permittee shall not be required to comply with effluent Copper, Total Recoverable requirement of Part I.A.1. of Permit FL0031402-003-DW1P/NR, except as required by this Administrative Order. In lieu of Part I.A.1., the Permittee shall comply with the following conditions.

(2) Surface Water Discharges D-001 – Interim Limit

Interim Limits D-001					
D-001	**Discharge Limitations**		**Monitoring Requirements**		
Parameters (units)	**Monthly Avg.**	**Daily Max.**	**Frequency**	**Sample Type**	**Sample Point**
Copper, Total Recoverable (ug/L)	NA	Report	Monthly	16-hr FPC	EFD-01

During the period beginning upon issuance date of Permit FL0031402-003-DW1P/NR and lasting through the compliance date of this Order, paragraph III.4, the permittee is authorized to discharge from Outfall D-001 to North Mosquito Creek. Such discharge shall be limited and monitored by the Permittee per Permit I.A.1 with the following interim limits as specified below:

2. Florida State Hospital shall submit to the Department for review and approval a plan of study (POS) to meet the Total Recoverable Copper criteria for Class III fresh water. The POS will include a timetable. The POS will be submitted to the Department within 6 months of the effective date of this order.

d. Florida State Hospital shall perform the approved plan of study. The plan of study shall be completed and the study results presented to the Department by December 31, 2013.

e. Florida State Hospital shall comply with the final permit limit for Copper by July 1, 2014.

f. Florida State Hospital shall provide this office with quarterly reports outlining progress toward compliance with the time frames specified in paragraphs III.2, 3 & 4 of this section, beginning no more than 4 months from the effective date of this Order.

g. Florida State Hospital shall maintain and operate its facilities in compliance with all other conditions of DEP Permit No. FL0031402-003-DW1P/NR.

h. This order may be modified through revisions as set forth in chapter 62-620 of the Florida Administrative Code.

AO in full compliance with final limits for copper on 7/01/2014

Facility Mixing Zone Details (if applicable):

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

Date	Parameter and Units	Limit	Result
January 2015	Copper, Total Recoverable, ug/l	0.0	0.6

Describe previous FYI and WQBEL study:

Describe previous or current Enforcement Actions (including WLs):

Describe any violations or problems noted in previous inspection:

9. EFFLUENT QUALITY: Minor Non Compliance

Area of Concern: A review of the DMRs for the period from 02/01/2013 through 01/01/2014 indicated the following effluent quality and/or permit limit violations.

Date	Parameters	Permit Limit	Analytical Value
03/31/2013	**Statre 7day Chr. Pimephales**	**100%**	**<6.25%**

Corrective Action: The Department received a response from the facility addressing the above failed toxicity test on March 21, 2014. No additional response is required at this time.

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	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 10:30	Effluent Comp	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.1	mg/L	0.2	2
3/28/2016 10:30	Effluent Comp	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	12.5	NOEC		
3/28/2016 10:30	Effluent Comp	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	25	NOEC		
3/28/2016 10:30	Effluent Comp	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100 L	IC25		
3/28/2016 10:30	Effluent Comp	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	19.4	IC25		
3/28/2016 10:30	Effluent Comp	Metals	Nickel	0.61	µg/L	0.05	0.2
3/28/2016 10:30	Effluent Comp	Metals	Chromium	0.31	ug/L	0.05	0.2
3/28/2016 10:30	Effluent Comp	Metals	Aluminum	335	ug/L	2	8
3/28/2016 10:30	Effluent Comp	Metals	Calcium	31.0	mg/L	0.075	0.3
3/28/2016 10:30	Effluent Comp	Metals	Lead	0.51	ug/L	0.05	0.2
3/28/2016 10:30	Effluent Comp	Metals	Copper	7.92	ug/L	0.1	0.4
3/28/2016 10:30	Effluent Comp	Metals	Arsenic	0.76	ug/L	0.05	0.2
3/28/2016 10:30	Effluent Comp	Metals	Sodium	10.0	mg/L	0.5	2
3/28/2016 10:30	Effluent Comp	Metals	Potassium	4.6	mg/L	0.3	1.2
3/28/2016 10:30	Effluent Comp	Metals	Magnesium	6.83	mg/L	0.04	0.16
3/28/2016 10:30	Effluent Comp	Metals	Iron	270	ug/L	30	120
3/28/2016 10:30	Effluent Comp	Metals	Silver	0.012 I	ug/L	0.005	0.02
3/28/2016 10:30	Effluent Comp	Metals	Zinc	41	ug/L	5	20
3/28/2016 10:30	Effluent Comp	Metals	Cadmium	0.022 I	ug/L	0.02	0.08
3/28/2016 10:30	Effluent Comp	Metals	Hardness	105	mg/L	0.35	1.4
3/28/2016 10:30	Effluent Comp	Metals	Selenium	0.51 I	ug/L	0.2	0.8
3/28/2016 10:30	Effluent Comp	Nutrients	Organic Carbon	3.3	mg C/L	0.5	1
3/28/2016 10:30	Effluent Comp	Nutrients	NO2NO3-N	2.5	mg N/L	0.04	0.1
3/28/2016 10:30	Effluent Comp	Nutrients	Kjeldahl Nitrogen	1.5	mg N/L	0.08	0.2
3/28/2016 10:30	Effluent Comp	Nutrients	TSS	15	mg/L	2	10
3/28/2016 10:30	Effluent Comp	Nutrients	Ammonia-N	0.037	mg N/L	0.002	0.005
3/28/2016 10:30	Effluent Comp	Nutrients	Total-P	1.5	mg P/L	0.005	0.05
3/28/2016 11:30	Effluent Grab	AGP/LN	Algal Growth Potential	197 A	mg DryWt/L	0.3	0.9
3/28/2016 11:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.57 U	ug/L	0.57	1.7
3/28/2016 11:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.79 U	ug/L	0.79	2.4
3/28/2016 11:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll/Phaeophytin Ratio	1.3		0	0
3/28/2016 11:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.57 U	ug/L	0.57	1.7

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:30	Effluent Grab	Microbiology	Fecal Coliforms-Membrane Filter	2 U	cfu/100 mL	2	2
3/28/2016 11:30	Effluent Grab	Nutrients	Fluoride	0.083 I	mg F/L	0.035	0.1
3/28/2016 11:30	Effluent Grab	Nutrients	Ammonia-N	0.026	mg N/L	0.002	0.005
3/28/2016 11:30	Effluent Grab	Nutrients	NO2NO3-N	2.4	mg N/L	0.04	0.1
3/28/2016 11:30	Effluent Grab	Nutrients	O-Phosphate-P	1.0	mg P/L	0.08	0.2
3/28/2016 11:30	Effluent Grab	Nutrients	Turbidity	5.6 A	NTU	0.1	0.1
3/28/2016 11:30	Effluent Grab	Nutrients	Chloride	14 A	mg Cl/L	0.2	0.5
3/28/2016 11:30	Effluent Grab	Nutrients	Kjeldahl Nitrogen	0.92 J	mg N/L	0.08	0.2
3/28/2016 11:30	Effluent Grab	Nutrients	Organic Carbon	2.7 A	mg C/L	0.5	1
3/28/2016 11:30	Effluent Grab	Nutrients	Total Alkalinity	68 A	mg CaCO3/L	0.65	2.5
3/28/2016 11:30	Effluent Grab	Nutrients	Sulfate	18 A	mg SO4/L	0.2	0.5
3/28/2016 11:30	Effluent Grab	Nutrients	Total-P	1.4	mg P/L	0.025	0.25
3/28/2016 11:30	Effluent Grab	Nutrients	Color (true)	4.6 I	PCU	2.5	6
3/28/2016 11:30	Effluent Grab	Pesticides	Mevinphos	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Carbamazepine	0.59	ug/L	0.004	0.016
3/28/2016 11:30	Effluent Grab	Pesticides	Bromacil	0.040 U	ug/L	0.04	0.16
3/28/2016 11:30	Effluent Grab	Pesticides	Parathion Methyl	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Ametryn	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Ethion	0.010 UJ	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Ethoprop	0.0050 U	ug/L	0.005	0.02
3/28/2016 11:30	Effluent Grab	Pesticides	Fonofos	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Hexazinone	0.030 UJ	ug/L	0.03	0.12
3/28/2016 11:30	Effluent Grab	Pesticides	Atrazine	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Atrazine Desethyl	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Atrazine Desisopropyl	0.010 UJ	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Metribuzin	0.020 U	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Prometryn	0.020 U	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Acetaminophen	0.0040 U	ug/L	0.004	0.016
3/28/2016 11:30	Effluent Grab	Pesticides	Butylate	0.020 U	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Malathion	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Metalaxyl	0.040 UJ	ug/L	0.04	0.16
3/28/2016 11:30	Effluent Grab	Pesticides	Norflurazon	0.030 U	ug/L	0.03	0.12

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:30	Effluent Grab	Pesticides	Phorate	0.0050 U	ug/L	0.005	0.02
3/28/2016 11:30	Effluent Grab	Pesticides	Simazine	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Demeton	0.024 U	ug/L	0.024	0.096
3/28/2016 11:30	Effluent Grab	Pesticides	Disulfoton	0.0050 U	ug/L	0.005	0.02
3/28/2016 11:30	Effluent Grab	Pesticides	Metolachlor	0.060 U	ug/L	0.06	0.24
3/28/2016 11:30	Effluent Grab	Pesticides	Naled	0.040 U	ug/L	0.04	0.16
3/28/2016 11:30	Effluent Grab	Pesticides	Prometon	0.020 UJ	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Sucralose	5.3	ug/L	0.1	0.4
3/28/2016 11:30	Effluent Grab	Pesticides	Azinphos Methyl	0.020 UJ	ug/L	0.02	0.08
3/28/2016 11:30	Effluent Grab	Pesticides	Diazinon	0.010 U	ug/L	0.01	0.04
3/28/2016 11:30	Effluent Grab	Pesticides	Fenamiphos	0.030 U	ug/L	0.03	0.12
3/28/2016 11:30	Effluent Grab	Pesticides	Alachlor	0.060 U	ug/L	0.06	0.24
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	1,4-Dioxane	0.063 I	ug/L	0.02	0.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	15 UJ	ug/L	15	61
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Isophorone	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Pyrene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40 U	ug/L	40	160
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Chrysene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.20 U	ug/L	0.2	0.81

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	10 U	ug/L	10	40
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Phenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzidine	100 U	ug/L	100	400
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0 U	ug/L	3	12
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	2.0 U	ug/L	2	8.1
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Fluorene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.0 U	ug/L	1	4
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	15 U	ug/L	15	61
3/28/2016 11:30	Effluent Grab	Priority Organic Pollutants	Anthracene	0.20 U	ug/L	0.2	0.81
3/28/2016 11:30	Effluent Grab	Nutrients	Dissolved Oxygen	8.10	mg/L		
3/28/2016 11:30	Effluent Grab	Nutrients	pH	6.72			
3/28/2016 11:30	Effluent Grab	Nutrients	Temperature	20.33	C		
3/28/2016 11:30	Effluent Grab	Nutrients	Specific Conductance	240	umhos/cm		

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:05	Field Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
3/28/2016 11:05	Field Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
3/28/2016 11:05	Field Blank	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
3/28/2016 11:05	Field Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
3/28/2016 11:05	Field Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6
3/28/2016 11:05	Field Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
3/28/2016 11:05	Field Blank	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
3/28/2016 11:05	Field Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
3/28/2016 11:05	Field Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
3/28/2016 11:05	Field Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
3/28/2016 11:05	Field Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
3/28/2016 11:05	Field Blank	Nutrients	Total-P	0.002 I	mg P/L	0.002	0.005
3/28/2016 11:05	Field Blank	Pesticides	Atrazine Desisopropyl	0.0098 UJ	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Sucralose	0.010 U	ug/L	0.01	0.04
3/28/2016 11:05	Field Blank	Pesticides	Fonofos	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Parathion Methyl	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Simazine	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Azinphos Methyl	0.020 UJ	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Ethion	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Malathion	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Prometon	0.020 UJ	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Alachlor	0.059 U	ug/L	0.059	0.23
3/28/2016 11:05	Field Blank	Pesticides	Metalaxyl	0.039 UJ	ug/L	0.039	0.16
3/28/2016 11:05	Field Blank	Pesticides	Ethoprop	0.0049 U	ug/L	0.0049	0.02
3/28/2016 11:05	Field Blank	Pesticides	Hexazinone	0.029 U	ug/L	0.029	0.12
3/28/2016 11:05	Field Blank	Pesticides	Ametryn	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Atrazine Desethyl	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Demeton	0.023 U	ug/L	0.023	0.094
3/28/2016 11:05	Field Blank	Pesticides	Metribuzin	0.020 U	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Mevinphos	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Norflurazon	0.029 U	ug/L	0.029	0.12
3/28/2016 11:05	Field Blank	Pesticides	Carbamazepine	4.0E-04 U	ug/L	4.00E-04	0.0016

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:05	Field Blank	Pesticides	Butylate	0.020 U	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Disulfoton	0.0049 U	ug/L	0.0049	0.02
3/28/2016 11:05	Field Blank	Pesticides	Naled	0.039 U	ug/L	0.039	0.16
3/28/2016 11:05	Field Blank	Pesticides	Atrazine	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Bromacil	0.039 U	ug/L	0.039	0.16
3/28/2016 11:05	Field Blank	Pesticides	Diazinon	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Pesticides	Fenamiphos	0.029 U	ug/L	0.029	0.12
3/28/2016 11:05	Field Blank	Pesticides	Phorate	0.0049 U	ug/L	0.0049	0.02
3/28/2016 11:05	Field Blank	Pesticides	Prometryn	0.020 U	ug/L	0.02	0.078
3/28/2016 11:05	Field Blank	Pesticides	Acetaminophen	0.0040 U	ug/L	0.004	0.016
3/28/2016 11:05	Field Blank	Pesticides	Metolachlor	0.059 U	ug/L	0.059	0.23
3/28/2016 11:05	Field Blank	Pesticides	Chlorpyrifos Methyl	0.0098 U	ug/L	0.0098	0.039
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Diethyl phthalate	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Hexachloroethane	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Pentachlorophenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.6 U	ug/L	9.6	38
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.77

Date	Field ID	Analysis	Component	Result	Units	MDL	PQL
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Isophorone	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzidine	96 U	ug/L	96	380
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9 U	ug/L	2.9	12
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.7
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Phenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	4-Nitrophenol	14 U	ug/L	14	58
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96 U	ug/L	0.96	3.8
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.77
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	1,4-Dioxane	0.020 U	ug/L	0.02	0.1
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14 UJ	ug/L	14	58
3/28/2016 11:05	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.96 U	ug/L	0.96	3.8

EPA End Sheet

The Bioassay of Florida State Hospital WWTF effluent sampled on March 28, March 30 and April 1, 2016. NPDES #FL0031402.

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 3 1 4 0 2	1 1 1 2 1 6 0 3 2 8	1 8 **B**	1 9 **S**	2 0 2

Remarks

6 6

The Priority Pollutants Analysis of Florida State Hospital WWTF effluent sampled on March 28, 2016. NPDES #FL0031402.

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 3 1 4 0 2	1 1 1 2 1 6 0 3 2 8	1 8 **X**	1 9 **S**	2 0 2

Remarks

6 6

Biological Analyses of Florida State Hospital WWTF effluent sampled on March 28, 2016. NPDES #FL0031402.

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 3 1 4 0 2	1 1 1 2 1 6 0 3 2 8	1 8 **S**	1 9 **S**	2 0 2

Remarks

6 6