

Effluent Quality Assessment

City of Auburndale, Allred WWTP

Polk County

NPDES #FL0021466

Sampled September 17, 2012

BIOASSAYS NOT PERFORMED

February 2013

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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City of Auburndale Allred Wastewater Treatment Facility (WWTF), Recker Highway (S.R. 655), Auburndale, Polk County, FL 33823. NPDES #FL0021466. Effluent grab samples for biological and chemical analyses for this facility were collected on September 17, 2012.

Introduction

Auburndale-Allred WWTF is an oxidation ditch domestic wastewater treatment facility which uses a UV disinfection system.

See the Facility Summary (Appendix C) for detailed facility information provided by Peter Wenner of FDEP Southwest District. The Discharge Monitoring Report (DMR) information (Table 3) immediately follows the Facility Summary.

Methods

Samples were collected from the EFA-01 NPDES sampling point for Outfall D-001 by Peter Wenner (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/bars/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The algal growth potential tests were performed following internal DEP SOPs TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.dep.state.fl.us/water/sas/sop/index.htm.

An aliquot of the AGP sample was salinity adjusted to approximately 7 ppth with artificial salts to meet the salinity requirements of the marine AGP test.

Results and Discussion

- **Toxicity Test Results**
  The facility was not discharging at the time of sampling; therefore, bioassay samples were not collected during this sampling event. All water was being directed to reuse.

- **Algal Growth Potential**
  The effluent Algal Growth Potential (AGP) was 259.0 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a “problem” threshold for fresh receiving waters, implying nutrient enrichment. The ratio (2.5:1) of total nitrogen to total phosphorus suggests that the effluent was nitrogen limited. (Table 1a; Miller et al. 1978).

  The salinity adjusted effluent Algal Growth Potential (AGP) was 246.0 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The ratio (2.5:1) of total nitrogen to total phosphorus suggests that the effluent is nitrogen limited (Table 1b; Maloney et al. 1974).

- **Chemistry Results**
  The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.017 I mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was <0.02 mg/L, which complies with Class III fresh water quality criteria (62-302.530, F.A.C.).

  Arsenic, copper, nickel, zinc, and fluoride were detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.) and/or the facility’s permitted limit. Dissolved oxygen

(DO), pH, and conductivity were detected in the effluent at levels that complied with water quality criteria and permit limits. Iron was detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

In the field blank, calcium was detected between the laboratory method detection limit (MDL) and practical quantitation limit (PQL).

See Table 2 for results of analytes detected in the effluent, corresponding limits, and qualifiers. See Appendix B for a complete list of chemical analyses performed.

Conclusion

Effluent samples were collected from the EFA-01 NPDES sampling point for Outfall D-001 for this facility on September 17, 2012. The effluent AGP and the salinity adjusted AGP results were greater than the respective "problem" thresholds for fresh (5.0 mg dry weight/L) and marine (10.0 mg dry weight/L) receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

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

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

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.

Table 1a. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

City of Auburndale, Allred WWTF NPDES#FL0021466					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	259.0	202.0 ± 40.4	234.5 ± 46.9	2.3	2.5

Table 1b. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus.

City of Auburndale, Allred WWTF NPDES#FL0021466			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	246.0	2.3	2.5

Table 2. Effluent limits, Class III Freshwater Criteria and chemical, and microbiological data.

City of Auburndale, Allred WWTF NPDES#FL0021466	Class III Criteria	Effluent Limits	Effluent	Field Blank
Organic Constituents (µg/L)				
None Detected	-	-	None Detected	None Detected
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	16 I	5 U
Arsenic	≤ 50	-	2.16	0.25 U
Cadmium	≤ 0.3 b	-	0.05 U	0.05 U
Calcium (mg/L)	-	-	37	0.12 I
Chromium-III	≤ 97.6 b	-	0.46 I	0.3 U
Copper	≤ 10.6 b	-	1.67	0.5 U
Iron	≤ 1,000	-	68 I	30 U
Lead	≤ 3.9 b	-	0.2 U	0.2 U
Magnesium (mg/L)	-	-	5.82	0.04 U
Nickel	≤ 59.3 b	-	2.34	0.25 U
Selenium	≤ 5.0	-	0.2 U	0.2 U
Silver	≤ 0.07	-	0.025 U	0.025 U
Zinc	≤ 136.2 b	-	34	5 U
Nutrients (mg/L)				
Ortho-phosphate	-	-	2.3	0.004 U
Total Phosphorus	-	Report	2.5	0.004 U
Total Ammonia	-	-	0.017 I	0.01 U
Un-ionized Ammonia	< 0.02 s	-	≤ 0.02 c	-
Nitrate and Nitrite	-	-	5.3	0.004 U
Total Kjeldahl Nitrogen	-	-	0.87	0.08 U
Organic Nitrogen	-	-	0.853 c	0.04 c
Total Nitrogen	-	-	6.17 c	0.04 c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 7.0	7.0	-
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.5	-
Conductivity (µmhos/cm)	≤ 1,275	-	396	-
Temperature (°C)	-	-	28.5	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55 U	-
Phaeophytin (µg/L)	-	-	0.4 U	-
Total Suspended Solids (mg/L)	-	≤ 60.0	2 U	-
CBOD, 5 day (mg/L), N - inhibited	-	-	0.61 I	-
Chloride (mg/L)	-	-	36	0.2 U
Fluoride (mg/L)	≤ 10.0	-	0.38	0.035 U
Sulfate (mg/L)	-	-	20	0.2 U
Hardness (mg $CaCO_3$)	-	-	116.36 c	0.46 c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	800	1 U	-

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

c - Value is calculated

s - Single sample

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

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

¥ - Fecal coliform analysis performed by Advanced Environmental Laboratory (AEL), E84589

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

Appendix A. Chain of Custody Form

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-09-10-18
Auburndale Allred WWTP FYI3 Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: PETE WENNER
Collected By: PETE WENNER
Send Final Report To: Joe Squiteri/ Michele Duggan
Sampling Agency: FDEP - SWD
PETE WENNER / ADAM WOOD

Customer: SW-DIST
Project ID: FYI3
PMAS: 1143

Lab ID *	Location EFD-01			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 9/17/12 Time 1045 Central		Composite end Date Time	Eastern Central	Bottle Group(s)**		
	Field ID 40388			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.98		Storet Station Number				
	Matrix (include type e.g. Salt, Fresh, etc) FRESH: WWTP EFFLUENT	Temp (C) 28.47	pH 7.54	Sample Depth ☐ m ☐ ft 396		☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)		NPDES Number	A		
	Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms	Comments NO TOX SAMPLES WERE COLLECTED							
Lab ID *	Location FIELD BLANK			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 9/17/12 Time 1110 Central		Composite end Date Time	Eastern Central	Bottle Group(s)**		
	Field ID 40389			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number				
	Matrix (include type e.g. Salt, Fresh, etc) DI H_2O	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	B		
	Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms	Comments							
Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date Time Central		Composite end Date Time	Eastern Central	Bottle Group(s)**		
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number				
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms	Comments							
Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date Time Central		Composite end Date Time	Eastern Central	Bottle Group(s)**		
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number				
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms	Comments							

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			FEDEX	09-18-12 09:15				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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Appendix B. Chemical Analyses performed on the effluent from the City of Auburndale, Allred WWTF Outfall D-001, sampled on September 17, 2012.

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	MDL	PQL
9/17/2012 10:45	Effluent	AGP/LN	Algal Growth Potential-Salinity Adjusted	246		mg DryWt/L	3	3
9/17/2012 10:45	Effluent	AGP/LN	Algal Growth Potential	259		mg DryWt/L	0.3	0.9
9/17/2012 10:45	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
9/17/2012 10:45	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.61	I	mg/L	0.2	2
9/17/2012 10:45	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
9/17/2012 10:45	Effluent	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Metals	Calcium	37		mg/L	0.075	0.3
9/17/2012 10:45	Effluent	Metals	Copper	1.67		ug/L	0.5	1
9/17/2012 10:45	Effluent	Metals	Magnesium	5.82		mg/L	0.04	0.16
9/17/2012 10:45	Effluent	Metals	Aluminum	16	I	ug/L	5	20
9/17/2012 10:45	Effluent	Metals	Chromium	0.46	I	ug/L	0.3	1.2
9/17/2012 10:45	Effluent	Metals	Lead	0.2	U	ug/L	0.2	0.8
9/17/2012 10:45	Effluent	Metals	Sodium	33.1		mg/L	0.5	2
9/17/2012 10:45	Effluent	Metals	Zinc	34		ug/L	5	20
9/17/2012 10:45	Effluent	Metals	Iron	68	I	ug/L	30	120
9/17/2012 10:45	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
9/17/2012 10:45	Effluent	Metals	Selenium	0.2	U	ug/L	0.2	0.8
9/17/2012 10:45	Effluent	Metals	Arsenic	2.16		ug/L	0.25	1
9/17/2012 10:45	Effluent	Metals	Nickel	2.34		ug/L	0.25	1
9/17/2012 10:45	Effluent	Nutrients	Sulfate	20		mg SO4/L	0.2	0.5
9/17/2012 10:45	Effluent	Nutrients	O-Phosphate-P	2.3		mg P/L	0.08	0.2
9/17/2012 10:45	Effluent	Nutrients	Kjeldahl Nitrogen	0.87		mg N/L	0.08	0.2
9/17/2012 10:45	Effluent	Nutrients	TSS	2	U	mg/L	2	10
9/17/2012 10:45	Effluent	Nutrients	Color (true)	32		PCU	2.5	6
9/17/2012 10:45	Effluent	Nutrients	NO2NO3-N	5.3		mg N/L	0.04	0.1
9/17/2012 10:45	Effluent	Nutrients	Total-P	2.5		mg P/L	0.025	0.25
9/17/2012 10:45	Effluent	Nutrients	Organic Carbon	7.3		mg C/L	0.4	0.8
9/17/2012 10:45	Effluent	Nutrients	Fluoride	0.38		mg F/L	0.035	0.1
9/17/2012 10:45	Effluent	Nutrients	Chloride	36		mg Cl/L	0.2	0.5
9/17/2012 10:45	Effluent	Nutrients	Alkalinity	89		mg CaCO3/L	0.65	2.5
9/17/2012 10:45	Effluent	Nutrients	Ammonia-N	0.017	I	mg N/L	0.01	0.02
9/17/2012 10:45	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	MDL	PQL
9/17/2012 10:45	Effluent	Pesticides	Sucralose	9.5		ug/L	0.2	1
9/17/2012 10:45	Effluent	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
9/17/2012 10:45	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
9/17/2012 10:45	Effluent	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
9/17/2012 10:45	Effluent	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
9/17/2012 10:45	Effluent	Pesticides	Chlorpyrifos Methyl	0.05	UJ	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
9/17/2012 10:45	Effluent	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
9/17/2012 10:45	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
9/17/2012 10:45	Effluent	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
9/17/2012 10:45	Effluent	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
9/17/2012 10:45	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
9/17/2012 10:45	Effluent	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
9/17/2012 10:45	Effluent	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
9/17/2012 10:45	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
9/17/2012 10:45	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
9/17/2012 10:45	Effluent	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
9/17/2012 10:45	Effluent	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
9/17/2012 10:45	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
9/17/2012 10:45	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	MDL	PQL
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.77

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	MDL	PQL
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
9/17/2012 10:45	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	58
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.77
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	58
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
9/17/2012 10:45	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
9/17/2012 10:45	Effluent	Field Parameter	Specific Conductance	396		umhos/cm		
9/17/2012 10:45	Effluent	Field Parameter	Dissolved Oxygen	6.98		mg/L		
9/17/2012 10:45	Effluent	Field Parameter	pH	7.54				
9/17/2012 10:45	Effluent	Field Parameter	Temperature	28.47		C		
9/17/2012 10:45	Effluent	Overflow	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL	1	
9/17/2012 11:10	Field Blank	Metals	Iron	30	U	ug/L	30	120
9/17/2012 11:10	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
9/17/2012 11:10	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
9/17/2012 11:10	Field Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
9/17/2012 11:10	Field Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
9/17/2012 11:10	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
9/17/2012 11:10	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	1
9/17/2012 11:10	Field Blank	Metals	Aluminum	5	U	ug/L	5	20
9/17/2012 11:10	Field Blank	Metals	Zinc	5	U	ug/L	5	20
9/17/2012 11:10	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
9/17/2012 11:10	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
9/17/2012 11:10	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
9/17/2012 11:10	Field Blank	Metals	Calcium	0.12	I	mg/L	0.075	0.3
9/17/2012 11:10	Field Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
9/17/2012 11:10	Field Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
9/17/2012 11:10	Field Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
9/17/2012 11:10	Field Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
9/17/2012 11:10	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
9/17/2012 11:10	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
9/17/2012 11:10	Field Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	MDL	PQL
9/17/2012 11:10	Field Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
9/17/2012 11:10	Field Blank	Nutrients	Organic Carbon	0.53	I	mg C/L	0.4	0.8
9/17/2012 11:10	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
9/17/2012 11:10	Field Blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
9/17/2012 11:10	Field Blank	Pesticides	Butylate	0.099	U	ug/L	0.099	0.4
9/17/2012 11:10	Field Blank	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
9/17/2012 11:10	Field Blank	Pesticides	Sucralose	0.0095	U	ug/L	0.0095	0.048
9/17/2012 11:10	Field Blank	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Prometryn	0.099	U	ug/L	0.099	0.4
9/17/2012 11:10	Field Blank	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.099
9/17/2012 11:10	Field Blank	Pesticides	Chlorpyrifos Methyl	0.05	UJ	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.79
9/17/2012 11:10	Field Blank	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
9/17/2012 11:10	Field Blank	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Metribuzin	0.099	U	ug/L	0.099	0.4
9/17/2012 11:10	Field Blank	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.79
9/17/2012 11:10	Field Blank	Pesticides	Parathion Ethyl	0.099	U	ug/L	0.099	0.4
9/17/2012 11:10	Field Blank	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.59
9/17/2012 11:10	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Naled	0.2	U	ug/L	0.2	0.79
9/17/2012 11:10	Field Blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.59
9/17/2012 11:10	Field Blank	Pesticides	Phorate	0.025	U	ug/L	0.025	0.099
9/17/2012 11:10	Field Blank	Pesticides	Azinphos Methyl	0.099	U	ug/L	0.099	0.4
9/17/2012 11:10	Field Blank	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.59
9/17/2012 11:10	Field Blank	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
9/17/2012 11:10	Field Blank	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2

Appendix C. Facility Summary, Effluent Limits, and Permit Violations Recorded on Discharge Monitoring Report

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Peter Wenner	**Contact Number:** 813-632-7600 x442
Facility Name (as it appears on permit): City of Auburndale, Allred WWTP	**Former Names:**
NPDES Permit Number: FL0021466	**Permit Expiration Date:** June 1, 2013
Physical Address: Recker Highway (S.R. 655)	
District: Southwest	**County:** Polk
Function of Facility: Treatment of Domestic Wastewater	
Facility Type: Domestic Wastewater Treatment Facility	**Permitted Capacity (MGD):** 0.65 MGD
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): Facility has not discharged to D-001 since June 2010	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): August 2011-July 2012: 0.410 MGD	
Description of type of Discharge: ☐ Continuous ☒ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

Appendix C. (continued)

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

Monitoring Location	Description of Monitoring Location
EFA-01	After disinfection before water storage/reuse and discharge.
FLW-07	Effluent before discharge to D-001 (Surface Water Discharge).

Monitoring Location	Description of Monitoring Location
EFA-01	After disinfection before water storage/reuse and discharge.
EFB-01	After filtration before disinfection.
FLW-03	Before R-002 (Calpine Osprey Energy Center).
FLW-05	Before R-004 (Cemetery Reuse Site).

Description of Permitted Outfall(s):

DISPOSAL:

Surface Water Discharge (D-001): An existing 0.65 MGD Monthly Average Daily Flow (MADF) permitted discharge to Lake Lena Run (Class III fresh waters) a tributary to Lake Hancock which can flow to the Peace River when the SWFWMD flood control structure is open. (D-001) is approximately 2.0 feet in length and discharges at a depth of approximately 2.0 feet. The point of discharge is located approximately at latitude 28 ° 03' 04" N, longitude 81 ° 47' 30" W. .

REUSE:

Land Application (R-002): An existing 1.4 MGD Annual Average Daily Flow (AADF) permitted capacity industrial reuse system (R-002). R-002 consists of Calpine Osprey Energy Center located approximately at latitude 28° 03' 04" N, longitude 81° 47' 30" W.

Land Application (R-004): An existing 0.26 MGD Annual Average Daily Flow (AADF) permitted capacity slow-rate public access system (R-004). R-004 consists of a 33 acre cemetery located approximately at latitude 28° 03' 04" N, longitude 81° 47' 30" W.

Land Application (R-006): A new 0.40 MGD AADF permitted capacity slow-rate public access system (R-006). The City of Auburndale-Allred WWTF serves as a source plant for up to 0.40 MGD AADF of reclaimed water which is transferred to the City of Auburndale Regional WWTF (FLA016559). The discharge point to R-006 is located approximately at latitude 28° 03' 05.72" N, longitude 81° 48' 31.07" W.

Appendix C. (continued)

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

An existing 1.4 mgd Annual Average Daily Flow (AADF) oxidation ditch domestic wastewater treatment facility. The treatment components consist of: two manual bar screens with two velocity controlled grit chambers, one oxidation ditch of 1.58 million gallons, two clarifiers having a combined total of 59,082 gallons with a combined total surface area of 4,667 square feet, one alum storage tank of 275 gallons with metering pumps for injection prior to filtration if needed, two traveling bridge filters with a total of 730 square feet of filter surface area, a turbidimeter, a dual channel Wedeco TAK55 ultraviolet lamp radiation system featuring one standby reactor per channel with monitoring alarms, a pump station with three pumps at the outfall of the UV disinfection system to transfer water to a 1.0 million gallon reclaimed water ground storage tank, a pump station with dual pumps downstream of the reclaimed water ground storage tank to transmit reclaimed water to the reuse sites, two sludge digester tanks of 264,358 gallons each, and a centrifuge. Flow at the facility is measured through a 90 V-Notch weir with an ultrasonic meter located at the outfall of the UV disinfection system and recorder with a totalizer meter located at the outfall of the UV disinfection system and recorded with a totalizer/indicator located in the Operations Building. One diesel powered generator with a 48-hour continuous operation capacity. This facility is operated to achieve secondary treatment with high-level disinfection for public access reuse of reclaimed water and/or advanced secondary with basic disinfection prior to discharging to Lake Lena Run.

Appendix C. (continued)

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 (to D-001)	MGD	Maximum	Report	0.65	-	-	Continuous	Meter	FLW-07	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	-	8.0	12.0	-	Weekly	16-Hour FPC	EFA-01	
BOD, Carbonaceous 5 day, 20C	Kg/Month	Maximum	Report	121.2	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.7
Solids, Total Suspended	MG/L	Maximum	20.0	30.0	-	60.0	Weekly	16-Hour FPC	EFA-01	
pH	SU	Range	-	-	-	6.0 to 8.5	Continuous	Meter	EFA-01	See Cond.I.A.3
Coliform, Fecal	#/100ML	Maximum	200	-	-	800	Daily	Grab	EFA-01	See Cond.I.A.5 & 8
Nitrogen, Total (as N)	MG/L	Maximum	4.0	6.0	9.0	-	Weekly	16-Hour FPC	EFA-01	
Nitrogen, Total (as N)	Kg/Year	Maximum	1073.1	Report	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.9
Nitrogen, Kjeldahl, Total (as N)	MG/L	Maximum	-	1.5	2.2	-	Weekly	16-Hour FPC	EFA-01	
Phosphorus, Total (as P)	MG/L	Report	Report	Report	-	Report	Weekly	16-Hour FPC	EFA-01	
Oxygen demand, Ultimate	Lbs/Day	Maximum	-	99.19	-	-	Weekly	16-Hour FPC	EFA-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	7.0	Daily	Grab	EFA-01	
Chronic Whole Effluent Toxicity	%	Minimum	-	-	-	100	Quarterly	24-Hour FPC	EFD-01	See Cond. I. A. 6.

Appendix C. (continued)

PART I: Continued	
Receiving Waters: Lake Lena Run	**Classification (indicate whether fresh or marine):** Class III Fresh Water
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): See email attachment entitled: Auburndale-Allred Tox Language	
Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): N/A	
Facility Mixing Zone Details (if applicable): N/A	
List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:	

Date	Parameter and Units	Limit	Result
N/A			

Describe previous FYI and WQBEL study: See email attachment entitled: Auburndale-Allred FYI Report 2003
Describe previous or current Enforcement Actions (including WLs):
Describe any violations or problems noted in previous 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):

Appendix C. (continued)

City of Auburndale, Allred WWTP PART II: FYI3 Sampling Event Information	
Date(s) sample collected: 12 September 2012	**Sampler(s):** Pete Wenner
Temperature (Deg C): 28.47	**pH (SU):** 7.54
Dissolved Oxygen (mg/L): 6.98	**Conductivity (umhos/cm):** 396
Total Residual Chlorine (mg/L): N/A	**Total Residual Chlorine - after Disinfection (mg/L):** N/A
Method of Chlorination: Facility utilizes UV disinfection	**Method of De-chlorination:** N/A
Flow During Sample Collection for each outfall(MGD): R-001: 0.372 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): October 2011-September 2012: 0.396 MGD	
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:	

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Table 3. City of Auburndale, Allred WWTF Discharge Monitoring Report Violations for 1 Year Prior to Sampling

Facility ID	Facility Name	District	Outfall Type	Monitoring Date	Outfall Indicator	Parameter Description	Conc. (1)	Conc. Limit (1)	Conc. Statistical Base (1)	Conc. Units	Violation Code
FL0021466	Auburndale Allred WWTP	TA	EXO	4/30/2012	001-T	NOEL STATRE 7DAY CHR CERIODAPHNIA	5.52	100	MINIMUM	%	E90

Appendix D. EPA End Sheet

The Priority Pollutants Analysis for the City of Auburndale, Allred WWTF effluent sampled on September 17, 2012 NPDES #FL0021466

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 2 1 4 6 6 11	12 1 2 0 9 1 7	# X	# S	# 1

Remarks

#

Biological Analyses of the City of Auburndale, Allred WWTF effluent sampled on September 17, 2012, NPDES #FL0021466

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 2 1 4 6 6 11	12 1 2 0 9 1 7	# S	# S	# 1

Remarks

#