Effluent Quality Assessment of Marsh Cove WWTF Nassau County NPDES # FL0032654 Sampled May 22, 2023

Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
October 2023

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Summary of Results

Copper was detected in the effluent grab sample at levels that exceeded the Class II and III Water Quality Criterion for Marine Waters and effluent permit limit. Toxicity whole effluent test results were invalidated due to pH issues. The AGP and nutrient results suggest a potential for nutrient enrichment of the receiving waters. Eleven organic constituents were detected in the effluent grab sample.

Facility Overview

The Marsh Cove Facility is an activated sludge domestic wastewater treatment facility. A Facility Summary, including a description of the facility, summary of permit limits, and any relevant Administrative Order (AO), Consent Order (CO), and Discharge Monitoring Report (DMR) information is provided in Appendix A. The effluent is intermittently discharged near the east bank of the river, south of the Thomas J Shave, Junior Bridge, on the boundary of a Class III marine waterbody to the north, Amelia River [waterbody identification (WBID) 2124A] and a Class II Marine waterbody to the south, South Amelia River, (WBID 2149A) (Figure 1).

Receiving waters for this facility fall under the Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criteria (NNC) for South Amelia River within the Lower Nassau River Estuary region. For this region, the NNC, expressed as annual geometric means, are 0.107 mg/L total phosphorus and 0.80 mg/L total nitrogen. The NNC for chlorophyll *a* is 17.5 µg/L and is expressed as a value that shall not be exceeded in more than 10 percent of the measurements (Subparagraph 62-302.532(1)(u)(2), F.A.C.). For Class II and III predominantly marine waters, the daily average dissolved oxygen (DO) saturation shall not be below 42 percent in more than 10 percent of the values (Subsection 62-302.533(2), F.A.C.). This FYI event only provides single sample results. It should be noted that waterbody impairment assessments are based on longer-term data, and individual exceedances of a criterion do not indicate use impairment. http://ca.dep.state.fl.us/mapdirect/?focus=nutrientcriteria

Methods

Effluent grab samples were collected from monitoring site location EFD-02 for outfall D-002 on May 22, 2023. There is a permit limit for CBOD but the sample was not analyzed because of a shipping issue. There is a permit limit for total residual chlorine but sampling staff noted there was no probe available.

Samples were collected by Phillippe Hook and Stephen Spence (FDEP/Northeast District Office). Analyses were performed by DEP Laboratory in Tallahassee.

All field and laboratory methods followed DEP Standard Operating Procedures (see https://floridadep.gov/dear/quality-assurance/content/dep-sops and https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-

manual-and-sops for details) and met DEP quality assurance/quality control standards (see https://floridadep.gov/dear/quality-assurance). Explanations of specific methods and measurements can be found in Appendix B.

Class II and III Water Quality Criteria for Fresh and Marine Waters are found in Chapter 62-302, F.A.C. All references to Rule 62-302.530, F.A.C. are to the surface water quality criteria table with an effective date of 02/17/2016 and a notice identification number of 17115667.

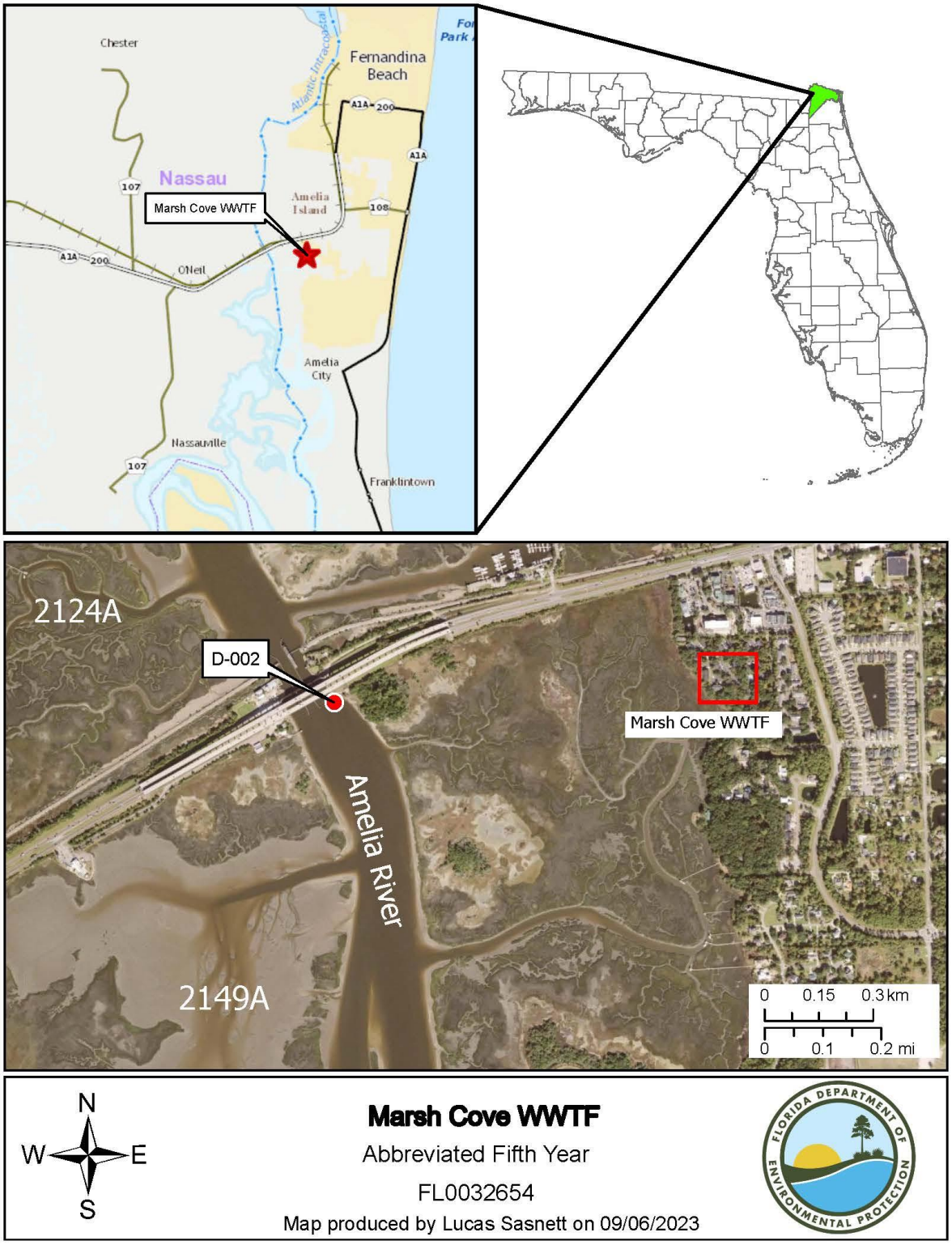


Figure 1. Map of Facility and Discharge Location

Results

Physical and Chemical Parameters (See Table 1 and Appendices C & D)

- All effluent water quality parameters measured at EFD-02 complied with Class II and III Water Quality Criteria for Marine Waters and effluent permit limits.

Analytical Water Chemistry (See Table 2 and Appendix D)

- All water chemistry analytes detected in the effluent grab samples complied with Class II and III Water Quality Criteria for Marine Waters and effluent permit limits.

Microbiology (See Table 2 and Appendix B)

- The effluent enterococci level complied with Class II and III Water Quality Criteria for Marine Waters and the effluent permit limit. The effluent fecal coliform level complied with Class II Water Quality Criteria for Marine Waters and the effluent permit limit.

Toxicity Whole Effluent Test (See Table 2)

- Tests were performed May 23 through May 27, 2023.

- The toxicity sample was invalidated and reported as "No Result" because the pH was not adjusted according to the method. There was excessive mortality observed in the 50%, 75% and 100% concentrations at test initiation. At first, low DO was suspected as the cause however, the mortality was most likely due to unstable pH. An extremely low alkalinity (0-25 mg $CaCO_3$/L) is suspected of being the cause of the pH instability.

- After mortality was observed, the sample was aerated twice for a total of 60 minutes at a rate of approximately 100 bubbles per minute to increase the DO from 2.4 mg/L to 7.7 mg/L.

- The sample arrived with a pH of 7.1 S.U. but, after aeration, the pH was measured to be 4.5 S.U. The method requires that pH values be above 7.01 so that other forms of toxicity (metals and organics) in the sample are not masked by the toxic effects of low pH.

- Acute bioassay results are reported as the Concentration Lethal to 50% of the test organisms (LC50).

- The acute definitive bioassay sample pH was unstable due to low alkalinity. pH was not adjusted according to the method. Customer was notified. The tests were invalidated and reported as 'No Result'.

- In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Paragraph 62-302.500(1)(a), F.A.C.). Mortality between 20 and 50% indicates low to moderate levels of toxicity, and further action may be required. Mortality

of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Paragraph 62-4.244(3)(a), F.A.C.).

- For more information or to obtain copies of the toxicity bench sheets, please contact the Biology Laboratory at 850-245-8177.

Metals (See Table 3 and Appendix D)

- Effluent copper exceeded the Class II and III Water Quality Criterion for Marine Waters (Subsection 62-302.530(23), F.A.C.) and the effluent permit limit.

- All other effluent metals complied with Class II and III Water Quality Criteria for Marine Waters.

Algal Growth Potential (See Table 4 and Appendix B)

- The freshwater unicellular green alga, *Pseudokirchneriella subcapitata,* and marine species, *Dunaliella tertiolecta*, were used to determine the AGP values in the effluent grab samples. The analytical chemistry suggests that the effluent is ortho-phosphate-limited (Miller et al. 1978).

- The effluent grab sample AGP result of 3.44 mg dry wt/L is within the AGP range (0.81 to 6.00 mg dry wt/L) suggested to be representative of moderately high productivity for freshwater (Miller et al. 1978).

- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.48 parts per thousand (ppth) to a salinity of approximately 6.8 ppth by the addition of artificial sea salts to meet the salinity requirements of the test species *Dunaliella tertiolecta*.

- Effluent grab sample AGP was not detected for the saltwater test.

- Differences greater than an order of magnitude between actual and predicted AGP values are considered sufficient evidence to warrant follow up testing with the algal growth inhibition bioassay. True algal growth inhibition can only be determined by performing an actual algal growth inhibition test. Should algal growth inhibition be suspected, the district should request that the algal growth inhibition test be performed as a follow-up to the inspection.

Organic Constituents (See Table 5 and Appendix D)

- Atrazine, azoxystrobin, caffeine, dithiopyr, fipronil desulfinyl, fipronil sulfide, fluxapyroxad, loratadine, simazine, tebuconazole and phenanthrene were detected in the effluent grab sample. These include three herbicides, three fungicides, two insecticides, a stimulant, one antihistamine pharmaceutical, and one Polycylic aromatic hydrocarbon (PAH) priority organic pollutant.

Literature Cited

Miller, W. E., Maloney, T. E. and Greene, J. C. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA600/978-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Stevenson, R. J. and Bahls, L. L. 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. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

Table 1. Measured field parameters

Effluent limits, Class II Water Quality Criteria for Marine Waters, and field parameters

Parameter	Units	Class II Criteria	Effluent Permit Limits EFD-2	Effluent Grab EFD-2
Sample Depth	ft	-	-	5.8
Temperature	C	-	-	26.5
pH	SU	6.5-8.5	6.5-8.5 s	7.3
Specific Conductance	µmhos/cm	-	-	1,183
Salinity	ppt	-	-	0.6 c
Dissolved Oxygen	mg/L		≥ 5.0	-
Dissolved Oxygen	% saturation	≥ 42	≥ 92 a (CAL-1)	90.4
Total Residual Chlorine (Dechlorination)	mg/L	≤ 0.01	≤ 0.01 s	-

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

Table 2. Analytical water chemistry, microbiological, and toxicological data

Effluent limits, Class II Water Quality Criteria for Marine Waters, and analytical water chemistry, microbiological, and toxicological data

Analyte	Units	Class II Criteria	Effluent Permit Limits EFD-2	Effluent Grab EFD-2
Ortho-phosphate	mg P/L	-	Report s	0.075
Total Phosphorus	mg P/L	≤ 0.107 g	≤ 6.0 s	0.11
Total Ammonia Nitrogen	mg N/L	-	Report s	0.040
Un-ionized Ammonia (calculated salinity)	mg N/L	-	-	< 0.02 c
Nitrate and Nitrite	mg N/L	-	Report s	1.6
Total Kjeldahl Nitrogen	mg N/L	-	Report s	0.75
Organic Nitrogen	mg N/L	-	Report s	0.71 c
Total Nitrogen	mg N/L	≤ 0.80 g	≤ 9.0 s	2.4 c
Total Organic Carbon	mg C/L	-	-	7.3
Chlorophyll *a* - Corrected	µg/L	≤ 17.5 [1]	-	0.82 U
Phaeophytin	µg/L	-	-	0.90 U
CBOD, 5 day, N - inhibited	mg/L	-	≤ 40 s	-
Hardness	mg CaCO3/L	-	-	308 c
Total Suspended Solids	mg/L	-	≤ 40 s	2 I
Turbidity	NTU	≤ 29 t	-	0.65 I
Color (true)	PCU	-	-	2.9 IA
Alkalinity	mg CaCO3/L	-	-	0.65 UA
Chloride	mg Cl/L	-	-	170
Fluoride	mg F/L	≤ 1.5	-	0.45
Sulfate	mg SO4/L	-	-	460
Fecal Coliforms	cfu/100 mL	≤ 800	≤ 800	18 BQ
Enterococci	MPN/100 mL	≤130	≤ 130	1.0 UQ
Bioassay - Water flea *(C. dubia)*	% effluent	-	≥ 100 s	No Result
Bioassay - Fish *(C. leedsi)*	% effluent	-	≥ 100 s	No Result

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
a - Annual average
c- Value is calculated
g- Value expressed as annual geometric mean.
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
Q - Sample held beyond normal holding time

U- Material analyzed for but not detected; value reported is the method detection limit
1 - Lower Nassau Estuary Region Numeric Nutrient Criteria (NNC). Criteria shall not be exceeded in more than 10 percent of the measurements (62-302.532(u)(2) F.A.C.).

Table 3. Analytical metals data

Effluent limits, Class II Water Quality Criteria for Marine Waters, and analytical metals data

Analyte	Units	Class II Criteria	Effluent Permit Limits EFD-2	Effluent Grab EFD-2
Aluminum	µg/L	≤ 1,500	-	85
Arsenic	µg/L	≤ 50	-	0.47
Cadmium	µg/L	≤ 8.8	-	0.020 U
Calcium	mg/L	-	-	69.9
Chromium, Total [2]	µg/L	≤ 50	-	0.40 U
Copper	µg/L	≤ 3.7	≤ 3.7 s	3.77 e
Iron	µg/L	≤ 300	-	47 I
Lead	µg/L	≤ 8.5	-	0.20 U
Magnesium	mg/L	-	-	32.5
Nickel	µg/L	≤ 8.3	-	0.67 I
Potassium	mg/L	-	-	14.6
Selenium	µg/L	≤ 71	-	0.20 U
Silver	µg/L	≤ 2.3	-	0.010 U
Sodium	mg/L	-	-	114
Zinc	µg/L	≤ 86	-	37

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

e- Value exceeds the Class II and III Water Quality Criteria or permit limits

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

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

Table 4. Algal Growth Potential (AGP)

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

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*	3.44 A	62.3 ± 12.5	32.3 ± 6.5	89.3 ± 17.9	47.3 ± 9.5	21.9	21.4
Effluent Grab	*Dunaliella tertiolecta*	3.00 U *	not applicable [3]	not applicable [3]	not applicable [3]	not applicable [3]	21.9	21.4

* - sample salinity adjusted to 6.8 ppth

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

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

3 - predictions not applicable to marine matrix

Table 5. Detected Organic Constituents

Effluent limits, Class II Water Quality Criteria for Marine Waters, and analytical organic and pesticide data

Analyte	Units	Class II Criteria	Effluent Permit Limits EFD-2	Effluent Grab EFD-2
Atrazine	ng/L	-	-	5.1
Azoxystrobin	ng/L	-	-	2.9
Caffeine	ng/L	-	-	28 I
Dithiopyr	ng/L	-	-	2.3 I
Fipronil Desulfinyl	ng/L	-	-	0.14 I
Fipronil Sulfide	ng/L	-	-	0.15 I
Fluxapyroxad	ng/L	-	-	0.63 I
Loratadine	ng/L	-	-	4.0
Simazine	ng/L	-	-	1.1 I
Tebuconazole	ng/L	-	-	5.4 I
Phenanthrene	µg/L	-	-	0.14 I

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

Appendix A. Facility Summary

PART I: Information gathered prior to sampling event

Prepared By: MaryAnne Mills	**Contact Number:** (904)256-1691
Facility Name (as it appears on permit): Marsh Cove WWTF	**Former Names:** N/A
NPDES Permit Number: FL0032654	**Permit Expiration Date:** May 7, 2024
Physical Address: 123 West Hirth Road, Fernandina Beach, Florida 32034	
District: Northeast	**County:** Nassau
Function of Facility: Domestic wastewater treatment	
Facility Type: DW NPDES minor	**Permitted Capacity (MGD):** • 0.050 MGD • 0.0499 MGD AADF at the request of the permittee due to low influent flows.

Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months):

- Annual Average Flow – 0.012 MGD
- Monthly Average Flow in MGD:
  - 03/31/2023 - 0.015
  - 02/28/2023 - 0.011
  - 01/31/2023 - 0.012
  - 12/31/2022 - 0.011
  - 11/30/2022 - 0.011
  - 10/31/2022 - 0.012
  - 09/30/2022 - 0.017
  - 08/31/2022 - 0.012
  - 07/31/2022 - 0.012
  - 06/30/2022 - 0.01
  - 05/31/2022 - 0.011
  - 04/30/2022 - 0.015

If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):
N/A

Description of type of Discharge:
☐ **Continuous** ☒ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent**
☐ **Other, please specify:**

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):
FLW-1 2" Propeller flow meters on the force-main discharge piping.

CAL-1 Calculated Value.

EFA-2 Effluent, immediately following disinfection prior to dechlorination.

EFD-1 Effluent point after dechlorination and immediately prior to discharge to the South Amelia River through Outfall D-002

EFD-2 Effluent, immediately following dichlorination prior to discharge to the Outfall D-001.

INF-2 Influent, prior to any biological, chemical, physical treatment or dilution.

Description of Permitted Outfall(s):
D-002 - a 4" PVC pipe 4,000-ft in length discharging approximately at a depth of 2-ft below sea level and latitude 30° 37' 40.52" N, longitude 81° 28' 59.07" W. The point of discharge is located near the right bank of the river, below the Thomas J Shave, Junior, Bridge, on the boundary of Amelia River (WBID 2124 A, Class III Marine water) and South Amelia River (WBID 2149A, Class II.)

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):
To operate an existing 0.050 million gallons per day (MGD) annual average daily flow (AADF) design capacity activated sludge domestic wastewater treatment facility (WWTF) operating in extended aeration mode with biological nutrient removal (BNR) capability. The treatment facility consists of an on-site lift-station, an influent bar-screen, a 33,495-gallon aerated equalization basin, an 18,425-gallon anoxic basin, a 41,900-gallon aeration basin, a 15,100-gallon secondary dual-hopper clarifier, dual tertiary sand filters (84-ft^2 total filter area), a 6,370-gallon clear well, a 3,100-gallon chlorine contact chamber, a 13,819-gallon aerobic digester and an on-site effluent pump-station. Chlorinated reclaimed water from the wastewater treatment process is de-chlorinated by injection of liquid sodium bisulfate into the effluent force-main prior to surface water discharge. Flow is measured by two 2" propeller flow meters on the force-main discharge piping. The permitted capacity of the wastewater treatment facility is limited to 0.0499 MGD AADF at the request of the permittee due to low influent flows.

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)										
*includes AO limits			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	MGD	Max	0.0499	Report	Report (Quarterly Average)		5 Days/Week	Meter	FLW-1	See I.A.3
Percent Capacity (TMADF/Permitted Capacity) x 100	percent	Max		Report			Monthly	Calculated	Cal-1	See I.B.9
BOD, Carbonaceous 5 day, 20 C	Mg/L	Max	20.0	25.0	30.0	40.0	Monthly	Grab	EFD-2	
Solids, Total Suspended	Mg/L	Max	20.0	25.0	30.0	40.0	Monthly	Grab	EFD-2	
Coliform, Fecal*	#/100mL	Max	Median: 14	90th Percentile: 43		800	Bi-weekly (every 2 weeks)	Grab	EFD-2	See I.A.4 & VI.2
			AO Median: Report	AO 90th Percentile: Report		AO: 800				See III.2.2(3)

Enterococci*	#/100mL	Max	Monthly Geo Mean: 35	90th Percentile: 130			Bi-weekly (every 2 weeks)	Grab	EFD-2	See I.A.5 & VI.2
			AO Monthly geo mean: Report	AO 90th Percentile: Report						See III.2.2(4)
pH	S.U.	Min/Max				6.5/8.5	5 Days/Week	Grab	EFD-2	
Oxygen, Dissolved (DO)	Mg/L	Min		Report		5.0	5 Days/ Week, Monthly	Grab, Monthly - Calculated	EFD-2 CAL-1	See I.A.7
Oxygen, Dissolved (Percent in Compliance)	Percent	Min	92 (Annual Minimum)				Monthly	Calculated	CAL-1	See I.A.7
Chlorine, Total Residual (For Disinfection)	Mg/L	Min				1.0	5 Days/Week	Grab	EFA-2	
Chlorine, Total Residual (For Dechlorination)	Mg/L	Max				0.01	Monthly	Grab	EFD-2	
Nitrogen, Total	Mg/L	Max	4.5	Report	Report	9.0	Monthly	Grab	EFD-2	
Nitrogen Total	Lbs/yr	Max	462.3				Monthly	Calculate	CAL-1	

(Mass Load	Lbs/mo			Report				d		
Nitrogen, Ammonia, Total (as N)	Mg/L	Max				Report	Monthly	Grab	EFD-2	
Phosphorous, Total (as P)	Mg/L	Max	3.0	Report	Report	6.0	Monthly	Grab	EFD-2	
Phosphorous, Total (as P)	Lbs/yr	Max	308.2				Monthly	Calculated	CAL-1	See I.A.8
	Lbs/mo			Report						
Copper, Total Recoverable	µg/L	Max				3.7	Monthly	Grab	EFD-2	
Nitrogen, Kjeldahl, Total (as N)	Mg/L	Max				Report	Semi-Annually; twice per year	Grab	EFD-2	
Nitrogen, Organic, Total (as N)	Mg/L	Max				Report	Semi-Annually; twice per year	Grab	EFD-2	
Nitrite plus Nitrate, Total 1 det. (as N)	Mg/L	Max				Report	Semi-Annually; twice per year	Grab	EFD-2	
Phosphate, Ortho (as P)	Mg/L	Max				Report	Semi-Annually; twice per year	Filtered Grab	EFD-2	

Acute Whole Effluent Toxicity, 96 Hour LC50 (Ceriodaphnia dubia)	Percent	Min				100	Semi-Annually; twice per year	Grab	EFD-2	See I.A.10
Acute Whole Effluent Toxicity, 96 Hour LC50 (Cyprinella leedsi)	Percent	Min				100	Semi-Annually; twice per year	Grab	EFD-2	See I.A.10

PART I: Continued	
Receiving Waters: South Amelia River	**Classification (indicate whether fresh or marine):** Class II Water (marine)

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

1. The permittee shall comply with the following requirements to evaluate acute whole effluent toxicity of the discharge from outfall D-002.

a. Effluent Limitation

(1) In any routine or additional follow-up test for acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent. [Rules 62-302.200(1), 62-302.500(1)(a)4., 62- 4.244(3)(a), and 62-4.241, F.A.C.]

b. Monitoring Frequency

(1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.

c. Sampling Requirements

(1) All tests shall be conducted on a single grab sample of final effluent.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 75%, 50%, 25%, and 12.5% effluent.

(2) The permittee shall conduct 96-hour acute static renewal multi-concentration toxicity tests using the daphnid, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*, concurrently.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, EPA-821-R-02-012. 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 acute 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-02-012, Table 7.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) acute 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 acute 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 10% for either species in any test, the test for that species (including the control) shall be invalidated and the test repeated. The repeat test shall begin within 14 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either species prior to the end of any test and the control mortality is less than 10% 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 concentration-response relationship, as required by EPA-821-R-02-012, Section 12.2.6.2., and included with the bioassay laboratory reports.

f. Reporting Requirements
   (1) Results from all required tests (both routine and additional) shall be reported monthly on the toxicity page of the DMR as the calculated LC50 value for that test species.
   (2) A bioassay laboratory report for the routine test shall be prepared according to EPA-821-R- 02-012, Section 12, Report Preparation and Test Review, and mailed or e-mailed to the Department at the address below within 30 days after the last day of the routine test.
   (3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-012, Section 12, and mailed or e-mailed within 30 days after the last day of the second valid additional follow-up test.
   (4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
   (5) The same bioassay data shall not be reported as the results of more than one test.
   (6) All bioassay laboratory reports shall be mailed or e-mailed to Jacksonville *only*: Florida Department of Environmental Protection
   Northeast District – Wastewater Compliance
   8800 Baymeadows Way, Suite 100
   Jacksonville, Florida 32256

g. Test Failures
   (1) A test fails when the test results do not meet the limits in 10.a.(1).
   (2) Additional Follow-up Tests:
      (a) If a routine test does not meet the acute toxicity limitation in 8.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 10.d.
      (b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
      (c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 75%, 50%, 25%, and 12.5% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control are run. All test results shall be statistically analyzed according to the procedures in EPA-821-R-02-012.
   (3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
      (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
      (b) The Department shall review and approve the plan before initiation.
      (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
      (d) Progress reports shall be submitted quarterly to the Department at the address above.
      (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 10.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 8.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-012, a repeat test shall be initiated within 14 days after the last day of the invalid routine test.

(f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in 8.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests.

(g) If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 14 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for whole effluent toxicity failures.

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

			Effluent Limitations		**Monitoring Requirements**			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site Number**	**Notes**
Coliform, Fecal	#/100 mL	Max	Report	Median	Bi-weekly *(every 2 week)*	Grab	EFD-2	See III.2.2) (3)
		Max	Report	90th percentile				
		Max	800	Single Sample				
Enterococci	#/100 mL	Max	Report	Monthly Geometric Mean	Bi-weekly *(every 2 week)*	**Grab**	EFD-2	See III.2.2) (4)

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
01/31/2023	Nitrogen, Total, mg/L	4.5	AB - Annual Average
12/31/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
12/31/2022	Copper, Total Recoverable, µg/L	3.7	MB - Maximum
11/30/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
10/31/2022	BOD, Carbonaceous 5 day, 20C, mg/L	25	MK - Monthly Average

10/31/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
09/30/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
08/31/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
08/31/2022	Copper, Total Recoverable, µg/L	3.7	MB - Maximum
07/31/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
06/30/2022	Oxygen, Dissolved Percent Saturation, percent	92	YM - Yearly Minimum
06/30/2022	Chlorine, Total Residual, mg/L	1	ME - Minimum
06/30/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
06/30/2022	Nitrogen, Total, mg/L	9	MB - Maximum
05/31/2022	Oxygen, Dissolved Percent Saturation, percent	92	YM - Yearly Minimum
05/31/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average
04/30/2022	Nitrogen, Total, mg/L	4.5	AB - Annual Average

Describe previous FYI and WQBEL study:

An FYI3 was conducted on February 5, 2018. Chemical Analysis Report from the lab can be found at: https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=38.671320.1]&[profile=Discovery_Compliance]**.**

- Metals: copper and lead were detected in the effluent at levels that comply with Class III marine Quality Criteria (62-302.530, F.A.C.). Arsenic, zinc, chromium-III, and nickel were detected between the minimum detection limit (MDL) and practical quantitation limit (PQL).
- Total ammonia, TKN and nitrate plus nitrite in the sample collected and preserved for chemical analysis were 1.4 mg/L, 2.0 mg/L, and 0.89 mg/L, respectively. Total phosphorous and ortho-phosphate in the sample collected and preserved for chemical analysis were 0.12 mg/L 0.11 mg/L, respectively. Total residual chlorine was not measured in the effluent when collected.
- All Volatile organic compounds (VOCs) were not detectable with the MDL analysis.

Characteristic of the Receiving Waterbody-

Impairment: The receiving water body (South Amelia River) for this facility is listed on the 303(d) list as being impaired for Mercury, as noted in the table below:

Basin / Segment Waterbody	**Waterbody North of POD**		**Outfall D-002**		**Waterbody South of POD**	
WBID	**2124A (Amelia River, Class III Marine- Estuary)**		**2149A*** (South Amelia River – Class II/OFW)**		**2174 (Nassau Sound- Class II)**	
Agency	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**
Parameters of Concern	Mercury (in fish tissue, Exceeds DOH Threshold < 0.3 ppm)	-	Mercury	-	Mercury (in fish tissue, Exceeds DOH Threshold < 0.3 ppm)	-

Describe previous or current Enforcement Actions (including WLs):

Enforcement history since 2018:

February 2023 – Draft LFCO for Copper, CBOD, CBOD removal by %, Nitrogen, DO, DO Saturation by %, Total Chlorine, pH, Phosphorous.

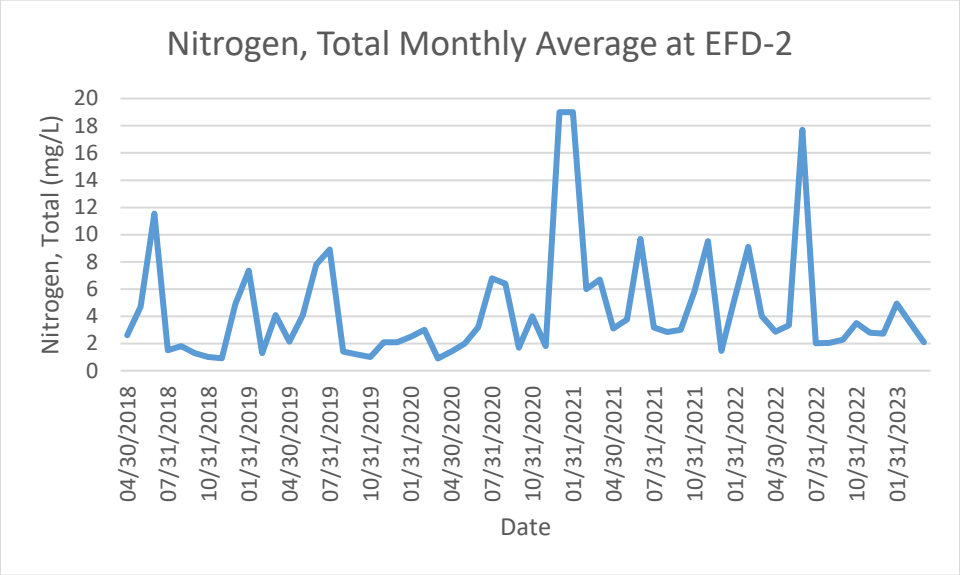
June 2021 – Warning letter issued for exceedances in TN, CBOD, Copper.

March 2019 – Consent Order issued for TN and copper exceedances. Facility completed all items by 10/16/2020 and was put back in compliance 11/12/2020.

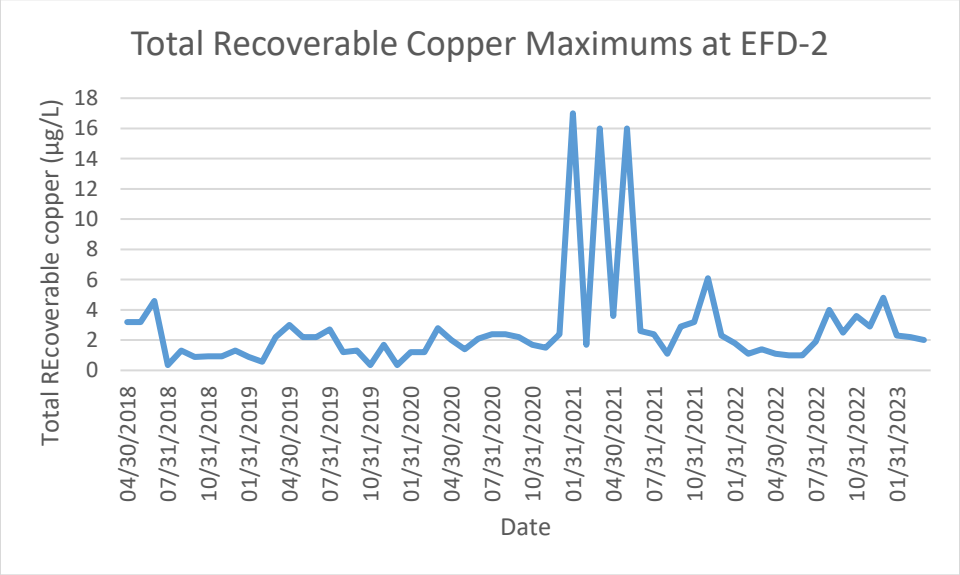
Describe any violations or problems noted in previous inspection:
Previous inspection took place 11/22/2019. The following was found out-of-compliance:

- Permit and compliance schedule had missing items. (Missing 3rd and 4th quarter progress reports on CO 19-0004, and an incomplete compliance plan was submitted with no mention of TN corrective actions.
- Facility gate not secured
- Was in poor operating conditions with corrosion
- No current RPZ certification
- No current flow meter certification
- Facility had TN and Copper exceedances. However, they had not exceeded the interim limits under CO 19-0004.
- No current hauling agreement. The one on site had been expired for 3 years.
- No SSOP available

Discuss whether DMR trends within previous five years are improving or declining:
Nitrogen, Total Monthly Average – Limit 12.5 mg/L. 5 Exceedances since April 2018, however CO 19-0004 placed interim limits in July 2021. Last spike was in June 2022, which the facility attributed to blower operations testing. Over the last 5 years, these levels have increased overall. However, it has decreased overall and hasn't exceeded its permit limit of 12.5 in 10 months.

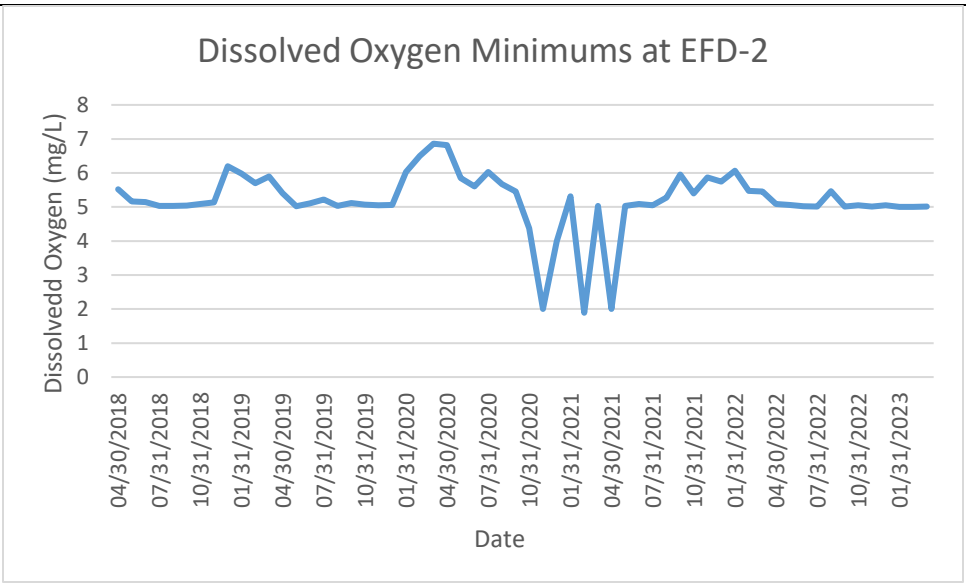


Copper, Total Recoverable Maximum – Limit 3.7 µg/L. 7 exceedances since April 2018. Exceedances peaked in 2021, and have leveled out closer to the limit over the last year. Still facing occasional exceedances every few months, but its an overall improvement. New exceedances are still in the single digits (4-6µ/L), while the 2021 exceedances were around 16 and 17 µ/L

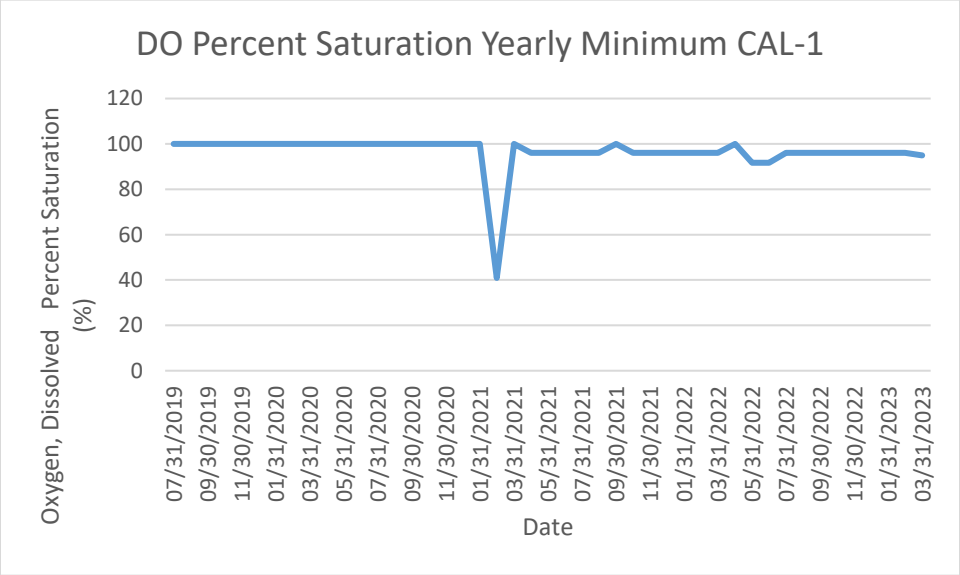


Phosphorous, Total Maximum – Limit 6 mg/L. One exceedance in August 2020, no DMR trends.

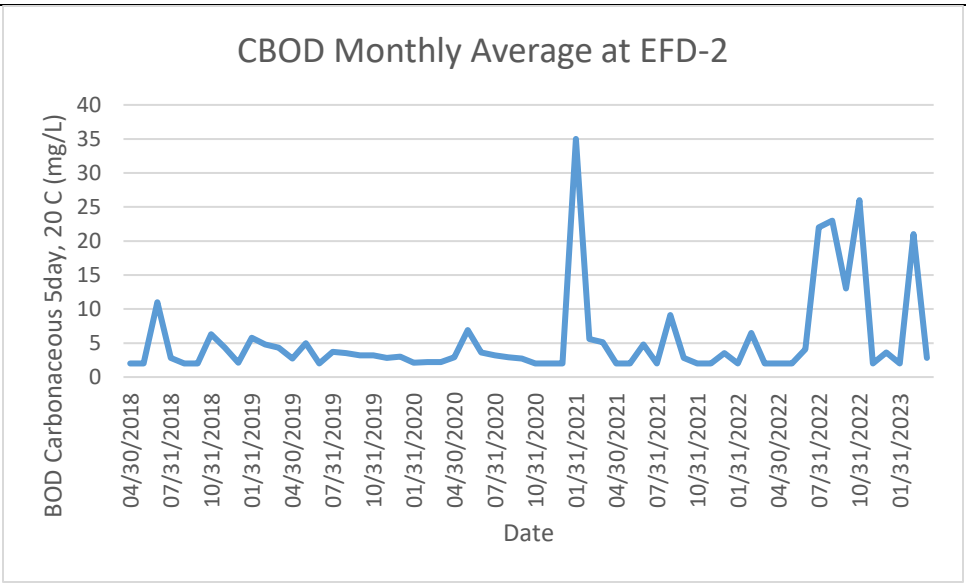
Dissolved Oxygen Minimum – Limit 5 mg/L. 5 exceedances between October 2020 and April 2021. No exceedances since then, DMR trend shows improvement since 2021. DO is a specific Alternative Criteria for the South Amelia River. Facility violated criteria with DO discharging below 4.0 mg/L.



DO Percent Saturation Yearly Minimum – Limit 92 %. 3 exceedances since April 2018, 2 in May and June 2022. From July 2019 to January 2021, results were consistently 100%. After the initial exceedance in February 2021, it began to vary 96 or 100%. Following the final two exceedances, the level has remained between 95 and 96%. Too variable to tell if the results decline or a new average limit following process control changes.



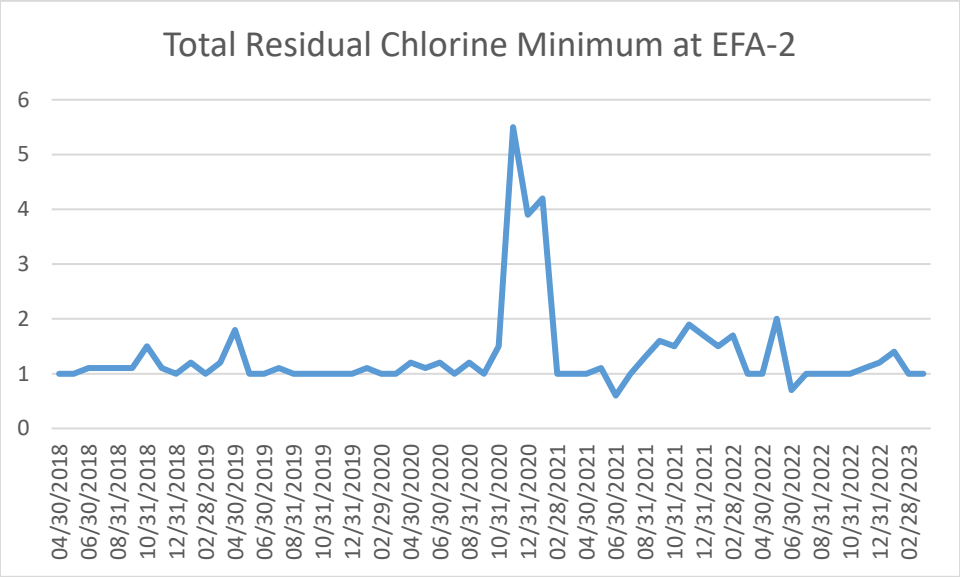
BOD, Carbonaceous 5 Day, 20 C Monthly Average – Limit 25 mg/L. 2 total exceedances, 1st one from January 2021 due to process control changes. Recent exceedance and high results. Most recent DMR from 10/31/2022 mentioned no known cause for the exceedance. DMR trends show more uncertainty and results that are closer to the limit more often now than in the past.



CBOD, % Removal, 5-Day – One exceedance in January 2021 that lined up with the CBOD exceedance. Likely due to process control changes.

pH Minimum – Two exceedances in February and May 2021. No trend overall.

Total Residual Chlorine – Limit 1 mg/L. 2 exceedances in June 2021 and June 2022. Too infrequent to say it's declining for positive.



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

Characteristics of the Receiving Waterbody continued from above impairment.

* EPA 303 (d) List (Group 4 Basins, December 21, 2010)

** FDEP 303 (d) List, Updated August 1, 2018

*** This waterbody has been re-assigned to WBID 2149A (WIBD 2140A and 2149 were merged.).

Nutrients *(Nutrients (Chlorophyll a))* was listed as impaired parameter in WBIDs 2124A and 2149. However, it was delisted based on the information that insufficient data to calculate any annual mean Chlorophyll a. In addition, there was. no Chlorophyll a annual means exceeded the threshold (20 µg/l); the Chlorophyll a annual mean was 1.44 µg/l in 2004. 26 Chlorophyll a values, ranged from 1 to 5.4 µg/l, with a mean 5.4 µg/l. 59 TN values had median of 0.711 mg/L. 33 TP values had a median of 0.082 mg/l.

 The waterbodies WBIDs 2124A, 2149, and 2174 were listed as impaired for Mercury (in fist tissue). However, this parameter is being delisted from the Verified List and is being placed in category 4a because there is a DEP Adopted - EPA Approved TMDL for Mercury.

 The waterbodies WBIDs 2149 and 2174 were listed as impaired for bacteria. However, These WBID is being delisted from the Cycle 1 Verified List for this parameter based on a flaw in the original analysis. *(These WBIDs were erroneously verified in Cycle 1 due to a "downgrade in shellfish harvesting classification based on water quality;" however, this assessment was incorrect as no downgrade occurred. These WBIDs have been assigned the shellfish harvesting.*

Marsh Cove WWTF FL0032654 –

classification of Unclassified by the Shellfish Environmental Assessment Section (SEAS) of the Florida Department of Agriculture and Consumer Services. Unclassified indicates that "shellfish harvesting is not permitted pending bacteriological and sanitary surveys." This classification is due to the lack of available data to determine the health of the waterbody.)

TMDL and NNC:

 Florida's Statewide Mercury TMDL is applicable to the waterbodies (WBIDs: 2124A, 2149A, and 2174)

 The waterbodies are required to meet the Estuary-specific numeric interpretations of the narrative nutrient criterion (NNC) in paragraph 62-302.532, F.A.C.

Segment Waterbody Name		Lower St. Mary's River	Lower Nassau
WBIDs		2124A	2149A, 2174
Rule References		62-620.532(1)(cc).3, FAC	62-302.532(1)(u).2, FAC
	Chlorophyll a	12.9 µg/L *(Annual Geometric Mean)*	17.5 µg/L *(Annual Geometric Mean)*
NNC Criteria	TN	0.77 mg/L *(Annual Geometric Mean)*	0.80 mg/L *(Annual Geometric Mean)*
	TP	0.181 mg/L *(Annual Geometric Mean)*	0.107 mg/L *(Annual Geometric Mean)*

Appendix B. Explanations of Measurements

Biological assessments are prepared by DEP staff to provide information for review of NPDES permit renewal applications. Biological assessments, in conjunction with other information concerning the subject facility and its receiving-water body, are used to determine appropriate permit conditions. References to Rule 62-302.530, F.A.C., are to the currently applicable surface water quality criteria table with an effective date of 02/17/2016 and a notice identification number of 17115667.

- **Chemical Analyses of the Effluent**

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

- **Toxicity Bioassays**

  Greater than 50% mortality in an acute toxicity test may constitute an exceedance of Paragraph 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 Subsection 62-302.530(20), Subsection 62-302.530(62) and/or facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of Subsection 62-302.530(62) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

- **Bacteriological Testing**

  High levels of fecal indicator bacteria may constitute an exceedance of Subsection 62-302.530(6) and/or facility permit limits. Fecal coliform 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.

- **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. AGP results within the range 6.10 to 20.0 mg dry wt/L are suggested to be representative of high productivity for freshwaters (Miller et al. 1978). High AGP values may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C. and/or Paragraph 62-302.530(48)(b), F.A.C.

  The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP 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 ± 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 (USEPA 2000). 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 Subsection 62-302.530(62), F.A.C.

- **Chlorophyll *a* Content**

  Chlorophyll *a* content is an estimate of algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a) F.A.C. and/or Paragraph 62-302.530(48)(b) F.A.C..

- **Definition of Qualifiers** (Rule 62-160.700, F.A.C.)

  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. Chain of Custody

Request Number: RQ-2023-04-24-51

FYI3 Marsh Cove WWTF FL0032654 Sampling Inspection

Customer: NE-DIST

Project ID: FYI3

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Page 1 of 4

last revised Jan 25, 2018

Requester: Benjamin Nomann

Field Report Prepared By: Philippe Hook

Collected By: Philippe Hook, Stephen Spence

Sampling Agency: FDEP - NED

Location: EFD-2 Field ID: FL0032654 Marsh Cove WWTF FYI3 WIN/STORET #: RQ-2023-04-24-51 Bottle Group A - (Grab)	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 5/22/2023 Time ~~2:25pm~~ 9:39	Eastern / Central	Composite end Date — Time —	Bottle Group(s) (See pg 2): A						
	Matrix (type, e.g., Salt, Fresh, etc): wastewater			Diss. Oxygen: 90.4% ☐ mg/L ☑ % sat	Total Res. Chlorine (mg/L): no probe						
	Temp (C): 26.5	pH: 7.32		Sample Depth: 5.8 ☑ ft ☐ m	Sp. Conductance (umho/cm): 1183						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt): NA	Comments: Heavy rains; crossed out time was: grab, started ; time of document								
Location: EFD-2 Field ID: FL0032654 Marsh Cove WWTF FYI3 WIN/STORET #: RQ-2023-04-24-51 Bottle Group B - (Blanks)	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 5/22/2023 Time ~~2:25pm~~ 11:00	Eastern / Central	Composite end Date — Time —	Bottle Group(s): B						
	Matrix (type, e.g., Salt, Fresh, etc): DI water			Diss. Oxygen: 22.7 ☐ mg/L ☑ % sat	Total Res. Chlorine (mg/L): no probe						
	Temp (C): 24.2	pH: 6.22		Sample Depth: NA ☐ ft ☐ m	Sp. Conductance (umho/cm): 0.6						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt): NA	Comments: Heavy rains; crossed out time was time of document, blanks started at ~11:00								
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern / Central	Composite end Date Time	Bottle Group(s)						
Field ID	Matrix (type, e.g., Salt, Fresh, etc)			Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
WIN/STORET #	Temp (C)	pH		Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments								
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern / Central	Composite end Date Time	Bottle Group(s)						
Field ID	Matrix (type, e.g., Salt, Fresh, etc)			Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
WIN/STORET #	Temp (C)	pH		Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments								

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped: 4	Received By: Brian Krech	Date/Time 5/23/23 0923

Appendix D. Chemical Analysis of Effluent

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	AGP/LN	Algal Growth Potential-Salinity Adjusted	3.00 U	mg DryWt/L	3.00	3.00
5/22/2023 9:30	Effluent Grab	AGP/LN	Algal Growth Potential	3.44 A	mg DryWt/L	0.300	0.900
5/22/2023 9:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.60 U	µg/L	0.60	1.8
5/22/2023 9:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.82 U	µg/L	0.82	2.5
5/22/2023 9:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.90 U	µg/L	0.90	2.7
5/22/2023 9:30	Effluent Grab	Microbiology	Enterococci-Quanti-Tray	1.0 UQ	MPN/100 mL	1.0	1.0
5/22/2023 9:30	Effluent Grab	Microbiology	Fecal Coliforms-Membrane Filter	18 BQ	cfu/100 mL	9	9
5/22/2023 9:30	Effluent Grab	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	No Result	LC50		
5/22/2023 9:30	Effluent Grab	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	No Result	LC50		
5/22/2023 9:30	Effluent Grab	Metals	Magnesium	32.5	mg/L	0.040	0.16
5/22/2023 9:30	Effluent Grab	Metals	Iron	47 I	µg/L	30	120
5/22/2023 11:00	Effluent Grab	Metals	Silver	0.010 U	µg/L	0.010	0.040
5/22/2023 11:00	Effluent Grab	Metals	Iron	30 U	µg/L	30	120
5/22/2023 11:00	Effluent Grab	Metals	Calcium	0.075 U	mg/L	0.075	0.30
5/22/2023 11:00	Effluent Grab	Metals	Lead	0.20 U	µg/L	0.20	0.40
5/22/2023 11:00	Effluent Grab	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
5/22/2023 9:30	Effluent Grab	Metals	Selenium	0.20 U	µg/L	0.20	0.80
5/22/2023 9:30	Effluent Grab	Metals	Lead	0.20 U	µg/L	0.20	0.40
5/22/2023 9:30	Effluent Grab	Metals	Copper	3.77	µg/L	0.40	0.80
5/22/2023 9:30	Effluent Grab	Metals	Arsenic	0.47	µg/L	0.050	0.20
5/22/2023 11:00	Effluent Grab	Metals	Magnesium	0.040 U	mg/L	0.040	0.16
5/22/2023 9:30	Effluent Grab	Metals	Zinc	37	µg/L	5.0	20
5/22/2023 11:00	Effluent Grab	Metals	Selenium	0.20 U	µg/L	0.20	0.80
5/22/2023 9:30	Effluent Grab	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
5/22/2023 9:30	Effluent Grab	Metals	Sodium	114	mg/L	0.50	2.0
5/22/2023 11:00	Effluent Grab	Metals	Potassium	0.30 U	mg/L	0.30	1.2
5/22/2023 9:30	Effluent Grab	Metals	Nickel	0.67 I	µg/L	0.50	2.0
5/22/2023 11:00	Effluent Grab	Metals	Nickel	0.50 U	µg/L	0.50	2.0
5/22/2023 11:00	Effluent Grab	Metals	Copper	0.40 U	µg/L	0.40	0.80

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 11:00	Effluent Grab	Metals	Aluminum	5.0 U	µg/L	5.0	20
5/22/2023 11:00	Effluent Grab	Metals	Sodium	0.50 U	mg/L	0.50	2.0
5/22/2023 9:30	Effluent Grab	Metals	Silver	0.010 U	µg/L	0.010	0.040
5/22/2023 9:30	Effluent Grab	Metals	Chromium	0.40 U	µg/L	0.40	1.6
5/22/2023 9:30	Effluent Grab	Metals	Aluminum	85	µg/L	5.0	20
5/22/2023 9:30	Effluent Grab	Metals	Calcium	69.9	mg/L	0.075	0.30
5/22/2023 11:00	Effluent Grab	Metals	Zinc	5.0 U	µg/L	5.0	20
5/22/2023 11:00	Effluent Grab	Metals	Arsenic	0.050 U	µg/L	0.050	0.20
5/22/2023 11:00	Effluent Grab	Metals	Chromium	0.40 U	µg/L	0.40	1.6
5/22/2023 9:30	Effluent Grab	Metals	Potassium	14.6	mg/L	0.30	1.2
5/22/2023 9:30	Effluent Grab	Nutrients	Sulfate	460	mg SO4/L	2.0	5.0
5/22/2023 9:30	Effluent Grab	Nutrients	Chloride	170	mg Cl/L	2.0	5.0
5/22/2023 11:00	Effluent Grab	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
5/22/2023 11:00	Effluent Grab	Nutrients	Chloride	0.20 U	mg Cl/L	0.20	0.50
5/22/2023 9:30	Effluent Grab	Nutrients	O-Phosphate-P	0.075	mg P/L	0.0040	0.010
5/22/2023 9:30	Effluent Grab	Nutrients	Color (true)	2.9 IA	PCU	2.5	6.0
5/22/2023 9:30	Effluent Grab	Nutrients	Total Alkalinity	0.65 UA	mg CaCO3/L	0.65	2.5
5/22/2023 9:30	Effluent Grab	Nutrients	Organic Carbon	7.3	mg C/L	0.50	1.0
5/22/2023 11:00	Effluent Grab	Nutrients	Organic Carbon	0.50 U	mg C/L	0.50	1.0
5/22/2023 11:00	Effluent Grab	Nutrients	Ammonia-N	0.002 U	mg N/L	0.0020	0.0050
5/22/2023 11:00	Effluent Grab	Nutrients	Fluoride	0.025 U	mg F/L	0.025	0.10
5/22/2023 11:00	Effluent Grab	Nutrients	Turbidity	0.10 U	NTU	0.10	1.0
5/22/2023 9:30	Effluent Grab	Nutrients	Kjeldahl Nitrogen	0.75	mg N/L	0.080	0.20
5/22/2023 9:30	Effluent Grab	Nutrients	Fluoride	0.45	mg F/L	0.025	0.10
5/22/2023 9:30	Effluent Grab	Nutrients	Ammonia-N	0.040	mg N/L	0.0020	0.0050
5/22/2023 11:00	Effluent Grab	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
5/22/2023 9:30	Effluent Grab	Nutrients	NO2NO3-N	1.6	mg N/L	0.040	0.10
5/22/2023 11:00	Effluent Grab	Nutrients	Sulfate	0.20 U	mg SO4/L	0.20	0.50
5/22/2023 11:00	Effluent Grab	Nutrients	Color (true)	2.5 U	PCU	2.5	6.0
5/22/2023 11:00	Effluent Grab	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.0040	0.010
5/22/2023 9:30	Effluent Grab	Nutrients	Total-P	0.11	mg P/L	0.010	0.050
5/22/2023 11:00	Effluent Grab	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
5/22/2023 11:00	Effluent Grab	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
5/22/2023 9:30	Effluent Grab	Nutrients	TSS	2 I	mg/L	2.0	10

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	Nutrients	Turbidity	0.65 I	NTU	0.10	1.0
5/22/2023 11:00	Effluent Grab	Pesticides	Sucralose	0.010 U	µg/L	0.010	0.040
5/22/2023 9:30	Effluent Grab	Pesticides	Triadimefon	0.16 U	ng/L	0.16	0.78
5/22/2023 9:30	Effluent Grab	Pesticides	Fluazifop-P-butyl	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Parathion Methyl	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Prodiamine	0.21 U	ng/L	0.21	1.0
5/22/2023 11:00	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Coumaphos	1.1 U	ng/L	1.1	5.8
5/22/2023 11:00	Effluent Grab	Pesticides	Cyprodinil	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Diazinon	0.13 U	ng/L	0.13	0.66
5/22/2023 11:00	Effluent Grab	Pesticides	Oxyfluorfen	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Propiconazole	0.64 U	ng/L	0.64	3.2
5/22/2023 9:30	Effluent Grab	Pesticides	Sucralose	140	µg/L	1.0	4.0
5/22/2023 9:30	Effluent Grab	Pesticides	Thiobencarb	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Ametryn	1.1 U	ng/L	1.1	5.7
5/22/2023 9:30	Effluent Grab	Pesticides	Atrazine Desethyl	1.3 U	ng/L	1.3	6.7
5/22/2023 9:30	Effluent Grab	Pesticides	Carbophenothion	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Dithiopyr	2.3 I	ng/L	1.0	5.2
5/22/2023 9:30	Effluent Grab	Pesticides	Fludioxonil	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Flutolanil	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Myclobutanil	0.36 U	ng/L	0.36	1.8
5/22/2023 9:30	Effluent Grab	Pesticides	Napropamide	0.72 U	ng/L	0.72	3.6
5/22/2023 11:00	Effluent Grab	Pesticides	Ametryn	1.2 U	ng/L	1.2	5.8
5/22/2023 11:00	Effluent Grab	Pesticides	Atrazine	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Cyanazine	5.3 U	ng/L	5.3	26
5/22/2023 11:00	Effluent Grab	Pesticides	Dimethenamid	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Dithiopyr	1.1 U	ng/L	1.1	5.3
5/22/2023 11:00	Effluent Grab	Pesticides	Fipronil	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Fluazifop-P-butyl	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Myclobutanil	0.37 U	ng/L	0.37	1.9
5/22/2023 11:00	Effluent Grab	Pesticides	Oxadiazon	0.37 U	ng/L	0.37	1.9
5/22/2023 11:00	Effluent Grab	Pesticides	Parathion Methyl	0.21 U	ng/L	0.21	1.1
5/22/2023 9:30	Effluent Grab	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032
5/22/2023 9:30	Effluent Grab	Pesticides	Terbuthylazine	0.21 U	ng/L	0.21	1.0

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	Pesticides	Caffeine	28 I	ng/L	7.8	39
5/22/2023 9:30	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.31 U	ng/L	0.31	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Cyprodinil	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Diazinon	0.13 U	ng/L	0.13	0.65
5/22/2023 9:30	Effluent Grab	Pesticides	Fenbuconazole	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Fipronil Sulfide	0.15 I	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Fluxapyroxad	0.63 I	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Acetochlor	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Atrazine Desethyl	1.4 U	ng/L	1.4	6.9
5/22/2023 11:00	Effluent Grab	Pesticides	Butylate	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.32 U	ng/L	0.32	1.6
5/22/2023 11:00	Effluent Grab	Pesticides	Demeton	3.7 U	ng/L	3.7	19
5/22/2023 11:00	Effluent Grab	Pesticides	EPTC	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Fluxapyroxad	0.26 U	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Imazalil	0.69 U	ng/L	0.69	3.4
5/22/2023 11:00	Effluent Grab	Pesticides	Metolachlor	0.79 U	ng/L	0.79	4.0
5/22/2023 11:00	Effluent Grab	Pesticides	Metribuzin	0.42 U	ng/L	0.42	2.1
5/22/2023 11:00	Effluent Grab	Pesticides	Naled	2.6 U	ng/L	2.6	13
5/22/2023 11:00	Effluent Grab	Pesticides	Norflurazon	1.1 U	ng/L	1.1	5.3
5/22/2023 11:00	Effluent Grab	Pesticides	Pendimethalin	0.79 UJ	ng/L	0.79	4.0
5/22/2023 11:00	Effluent Grab	Pesticides	Phorate	0.26 U	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Pyraflufen Ethyl	0.32 U	ng/L	0.32	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Ibuprofen	0.080 U	µg/L	0.080	0.32
5/22/2023 11:00	Effluent Grab	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032
5/22/2023 9:30	Effluent Grab	Pesticides	Azinphos Methyl	3.1 U	ng/L	3.1	16
5/22/2023 9:30	Effluent Grab	Pesticides	Chlorfenapyr	0.31 U	ng/L	0.31	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Coumaphos	1.1 U	ng/L	1.1	5.7
5/22/2023 9:30	Effluent Grab	Pesticides	Demeton	3.6 U	ng/L	3.6	18
5/22/2023 9:30	Effluent Grab	Pesticides	Fenamiphos	0.47 U	ng/L	0.47	2.3
5/22/2023 9:30	Effluent Grab	Pesticides	Fipronil	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Fipronil Desulfinyl	0.14 I	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Fipronil Sulfone	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Fonofos	0.16 U	ng/L	0.16	0.78

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	Pesticides	Metolachlor	0.78 U	ng/L	0.78	3.9
5/22/2023 9:30	Effluent Grab	Pesticides	Molinate	0.26 U	ng/L	0.26	1.3
5/22/2023 9:30	Effluent Grab	Pesticides	Naled	2.6 U	ng/L	2.6	13
5/22/2023 9:30	Effluent Grab	Pesticides	Norflurazon	1.0 U	ng/L	1.0	5.2
5/22/2023 9:30	Effluent Grab	Pesticides	Prometon	3.1 U	ng/L	3.1	16
5/22/2023 9:30	Effluent Grab	Pesticides	Pronamide	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Propiconazole	0.62 U	ng/L	0.62	3.1
5/22/2023 11:00	Effluent Grab	Pesticides	Azinphos Methyl	3.2 U	ng/L	3.2	16
5/22/2023 11:00	Effluent Grab	Pesticides	Bromacil	0.64 U	ng/L	0.64	3.2
5/22/2023 11:00	Effluent Grab	Pesticides	Ethion	0.32 U	ng/L	0.32	1.6
5/22/2023 11:00	Effluent Grab	Pesticides	Ethoprop	0.13 U	ng/L	0.13	0.66
5/22/2023 11:00	Effluent Grab	Pesticides	Fludioxonil	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Flumioxazin	3.2 U	ng/L	3.2	16
5/22/2023 11:00	Effluent Grab	Pesticides	Malathion	0.37 U	ng/L	0.37	1.9
5/22/2023 11:00	Effluent Grab	Pesticides	Mevinphos	1.1 U	ng/L	1.1	5.3
5/22/2023 11:00	Effluent Grab	Pesticides	Napropamide	0.74 U	ng/L	0.74	3.7
5/22/2023 11:00	Effluent Grab	Pesticides	Phenytoin	5.6 U	ng/L	5.6	28
5/22/2023 11:00	Effluent Grab	Pesticides	Prometon	3.2 U	ng/L	3.2	16
5/22/2023 11:00	Effluent Grab	Pesticides	Triadimefon	0.16 U	ng/L	0.16	0.79
5/22/2023 11:00	Effluent Grab	Pesticides	Ibuprofen	0.080 U	µg/L	0.080	0.32
5/22/2023 9:30	Effluent Grab	Pesticides	Tebuconazole	5.4 I	ng/L	1.4	7.2
5/22/2023 9:30	Effluent Grab	Pesticides	Alachlor	0.41 U	ng/L	0.41	2.1
5/22/2023 9:30	Effluent Grab	Pesticides	Atrazine	5.1	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Dimethenamid	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Disulfoton	0.62 U	ng/L	0.62	3.1
5/22/2023 9:30	Effluent Grab	Pesticides	EPTC	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Etridiazole	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Flumioxazin	3.1 U	ng/L	3.1	16
5/22/2023 9:30	Effluent Grab	Pesticides	Pyriproxyfen	0.26 U	ng/L	0.26	1.7
5/22/2023 9:30	Effluent Grab	Pesticides	Propanil	0.10 U	ng/L	0.10	0.52
5/22/2023 9:30	Effluent Grab	Pesticides	Parathion Ethyl	0.16 U	ng/L	0.16	0.78
5/22/2023 9:30	Effluent Grab	Pesticides	Phenytoin	5.5 U	ng/L	5.5	27
5/22/2023 9:30	Effluent Grab	Pesticides	Propargite	0.83 U	ng/L	0.83	4.1
5/22/2023 9:30	Effluent Grab	Pesticides	Pyraflufen Ethyl	0.31 U	ng/L	0.31	1.6

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 11:00	Effluent Grab	Pesticides	Dimethomorph	0.32 U	ng/L	0.32	1.6
5/22/2023 11:00	Effluent Grab	Pesticides	Fenbuconazole	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Fipronil Sulfide	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Fipronil Sulfone	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Parathion Ethyl	0.16 U	ng/L	0.16	0.79
5/22/2023 11:00	Effluent Grab	Pesticides	Prometryn	0.37 U	ng/L	0.37	1.9
5/22/2023 11:00	Effluent Grab	Pesticides	Propanil	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Pyriproxyfen	0.26 U	ng/L	0.26	1.7
5/22/2023 11:00	Effluent Grab	Pesticides	Sulfentrazone	1.5 U	ng/L	1.5	7.4
5/22/2023 9:30	Effluent Grab	Pesticides	Acetochlor	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Carfentrazone Ethyl	0.16 U	ng/L	0.16	0.78
5/22/2023 9:30	Effluent Grab	Pesticides	Dimethomorph	0.31 U	ng/L	0.31	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Imazalil	0.67 U	ng/L	0.67	3.4
5/22/2023 9:30	Effluent Grab	Pesticides	Metalaxyl	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Oxadiazon	0.36 U	ng/L	0.36	1.8
5/22/2023 11:00	Effluent Grab	Pesticides	Caffeine	7.9 U	ng/L	7.9	40
5/22/2023 11:00	Effluent Grab	Pesticides	Fenamiphos	0.48 U	ng/L	0.48	2.4
5/22/2023 11:00	Effluent Grab	Pesticides	Hexazinone	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Prodiamine	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Pesticides	Pronamide	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Propargite	0.85 U	ng/L	0.85	4.2
5/22/2023 11:00	Effluent Grab	Pesticides	Stirophos	0.42 U	ng/L	0.42	3.4
5/22/2023 11:00	Effluent Grab	Pesticides	Tebuconazole	1.5 U	ng/L	1.5	7.4
5/22/2023 11:00	Effluent Grab	Pesticides	Thiobencarb	0.53 U	ng/L	0.53	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Azoxystrobin	2.9	ng/L	0.41	2.1
5/22/2023 9:30	Effluent Grab	Pesticides	Bromacil	0.62 U	ng/L	0.62	3.1
5/22/2023 9:30	Effluent Grab	Pesticides	Butylate	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Ethoprop	0.13 U	ng/L	0.13	0.65
5/22/2023 9:30	Effluent Grab	Pesticides	Hexazinone	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Loratadine	4.0	ng/L	0.31	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Malathion	0.36 U	ng/L	0.36	1.8
5/22/2023 9:30	Effluent Grab	Pesticides	Metribuzin	0.41 U	ng/L	0.41	2.1
5/22/2023 9:30	Effluent Grab	Pesticides	Pyridaben	1.4 U	ng/L	1.4	7.2
5/22/2023 9:30	Effluent Grab	Pesticides	Pendimethalin	0.78 UJ	ng/L	0.78	3.9

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	Pesticides	Prometryn	0.36 U	ng/L	0.36	1.8
5/22/2023 11:00	Effluent Grab	Pesticides	Azoxystrobin	0.42 U	ng/L	0.42	2.1
5/22/2023 11:00	Effluent Grab	Pesticides	Carbophenothion	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Carfentrazone Ethyl	0.16 U	ng/L	0.16	0.79
5/22/2023 11:00	Effluent Grab	Pesticides	Chlorfenapyr	0.32 U	ng/L	0.32	1.6
5/22/2023 11:00	Effluent Grab	Pesticides	Etridiazole	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Metalaxyl	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Molinate	0.26 U	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Pyridaben	1.5 U	ng/L	1.5	7.4
5/22/2023 11:00	Effluent Grab	Pesticides	Terbufos	0.21 U	ng/L	0.21	1.1
5/22/2023 9:30	Effluent Grab	Pesticides	Simazine	1.1 I	ng/L	0.26	1.3
5/22/2023 9:30	Effluent Grab	Pesticides	Stirophos	0.41 U	ng/L	0.41	3.3
5/22/2023 9:30	Effluent Grab	Pesticides	Sulfentrazone	1.4 U	ng/L	1.4	7.2
5/22/2023 9:30	Effluent Grab	Pesticides	Terbufos	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Cyanazine	5.2 U	ng/L	5.2	26
5/22/2023 9:30	Effluent Grab	Pesticides	Difenoconazole	0.62 U	ng/L	0.62	3.1
5/22/2023 9:30	Effluent Grab	Pesticides	Ethion	0.31 U	ng/L	0.31	1.6
5/22/2023 9:30	Effluent Grab	Pesticides	Iprodione	0.52 U	ng/L	0.52	2.6
5/22/2023 9:30	Effluent Grab	Pesticides	Mevinphos	1.0 U	ng/L	1.0	5.2
5/22/2023 9:30	Effluent Grab	Pesticides	Oxyfluorfen	0.21 U	ng/L	0.21	1.0
5/22/2023 9:30	Effluent Grab	Pesticides	Phorate	0.26 U	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Alachlor	0.42 U	ng/L	0.42	2.1
5/22/2023 11:00	Effluent Grab	Pesticides	Difenoconazole	0.64 U	ng/L	0.64	3.2
5/22/2023 11:00	Effluent Grab	Pesticides	Disulfoton	0.64 U	ng/L	0.64	3.2
5/22/2023 11:00	Effluent Grab	Pesticides	Fipronil Desulfinyl	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Flutolanil	0.11 U	ng/L	0.11	0.53
5/22/2023 11:00	Effluent Grab	Pesticides	Fonofos	0.16 U	ng/L	0.16	0.79
5/22/2023 11:00	Effluent Grab	Pesticides	Iprodione	0.53 U	ng/L	0.53	2.6
5/22/2023 11:00	Effluent Grab	Pesticides	Loratadine	0.32 U	ng/L	0.32	1.6
5/22/2023 11:00	Effluent Grab	Pesticides	Simazine	0.26 U	ng/L	0.26	1.3
5/22/2023 11:00	Effluent Grab	Pesticides	Terbuthylazine	0.21 U	ng/L	0.21	1.1
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.41

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.3
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	2.0 U	µg/L	2.0	8.2
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	µg/L	2.0	8.2
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 UJ	µg/L	10	42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.3
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	0.10 U	µg/L	0.10	0.42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	0.52 U	µg/L	0.52	2.1
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	2.0 U	µg/L	2.0	8.2
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.052 U	µg/L	0.052	0.21

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.1
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Phenol	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	0.052 U	µg/L	0.052	0.21
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Anthracene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.3
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.14 I	µg/L	0.10	0.42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.42
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.052 U	µg/L	0.052	0.21
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.1 U	µg/L	5.1	20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	0.20 U	µg/L	0.20	0.82
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Isophorone	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	0.10 U	µg/L	0.10	0.41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	0.51 U	µg/L	0.51	2.0
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.41
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	42
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.2 U	µg/L	5.2	21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.2
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	0.21 U	µg/L	0.21	0.83
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Isophorone	0.052 U	µg/L	0.052	0.21
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	41
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	0.052 U	µg/L	0.052	0.21
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
5/22/2023 9:30	Effluent Grab	Priority Organic Pollutants	Phenol	0.052 U	µg/L	0.052	0.21
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.051 U	µg/L	0.051	0.20

Date_Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Anthracene	0.051 U	µg/L	0.051	0.20
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
5/22/2023 11:00	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.051 U	µg/L	0.051	0.20
5/22/2023 9:30	Effluent Grab	Nutrients	Sample Depth	5.8	ft		
5/22/2023 11:00	Effluent Grab	Nutrients	pH	6.22	SU		
5/22/2023 11:00	Effluent Grab	Nutrients	Temperature	26.2	C		
5/22/2023 9:30	Effluent Grab	Nutrients	Specific Conductance	1183	µmhos/cm		
5/22/2023 9:30	Effluent Grab	Nutrients	Dissolved Oxygen %Sat	90.4	%Sat		
5/22/2023 11:00	Effluent Grab	Nutrients	Dissolved Oxygen %Sat	22.7	%Sat		
5/22/2023 9:30	Effluent Grab	Nutrients	Temperature	26.5	C		
5/22/2023 9:30	Effluent Grab	Nutrients	pH	7.32	SU		
5/22/2023 11:00	Effluent Grab	Nutrients	Specific Conductance	0.6	µmhos/cm		