Biological Assessment of Bayou Marcus Reclamation Facility Escambia County NPDES # FL0031801 Sampled May 9, 2022; resampled June 6, 2022

Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
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Summary of Results

Iron exceeded the Class III Marine Water Criterion (Subsection 62-302.530(38), F.A.C.) in the Control Site sample. Enterococci exceeded the Class III Marine Water Criterion Paragraph 62-302.530(6)(c), F.A.C.) in the Test and Control Site samples. The Algal Growth Potential (AGP) test results indicate moderate productivity levels of freshwater algae, indicating the potential for the effluent to add nutrients to the wetlands. Although the Florida Wetland Condition Index (FWCI) method is unverified for the Bayou Marcus wetland type in the Panhandle region, the FWCI score and metrics were calculated to compare the ecological integrity of a vascular plant community to the most closely applicable isolated, forested wetland type. The FWCI scores for both the Control and Test Sites were more similar to a forested wetland with human disturbance than without human disturbance. The Control Site had a higher score for the % wetland status metric than the Test Site suggesting the Control Site may be wetter than the Test Site.

Facility Overview

The Bayou Marcus Water Reclamation Facility is a 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 continuously discharged to wetlands flowing to Perdido Bay and Bayou Marcus Creek, both Class III Marine Waterbodies. The wetlands include Class III Fresh Water [waterbody identification (WBID) 697C] and Class III Marine Water [WBIDs - 697B, 489D and 797] (Figure 1). Receiving waters for this facility fall under the Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criteria (NNC) for Upper Perdido Bay. For this region, the NNC, expressed as annual geometric means, are 0.102 mg/L total phosphorus, 1.27 mg/L total nitrogen, and 11.5 µg/L chlorophyll *a* (Subparagraph 62-302.532(1)(k)(2), F.A.C.). Perdido Bay is in the Panhandle bioregion. For the Panhandle bioregion, the daily average DO saturation shall not be below 42 percent in more than 10 percent of the values (Paragraph 62-302.533(2)(a), 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 samples were collected on May 9, 2022 as both grab and 24-hour flow proportioned composite samples from monitoring site location EFF-01 for outfall D-002. Due to a delay in transit, all data from samples collected on May 9, 2022 were Q qualified, except the microbiology and sulfide samples that were sent to local, Pensacola overflow labs. All samples

were recollected June 6, 2022. Acute definitive toxicity bioassays were performed instead of the chronic whole effluent toxicity bioassays required by the permit due to another delay in transit.

Chemical and biological comparisons were made between a wetland Test Site (located at Bayou Marcus Wetland North, approximately 800 m northwest of D-002) and a wetland Control Site (located at Bayou Marcus Wetland South, approximately 1900 m south of D-002). Bayou Marcus Creek runs between D-002 and the Control Site. Additionally, water samples were collected in Perdido Bay near the Bayou Marcus exit point (Perdido Bay Site) and near the mouth of Bayou Marcus Creek (Bayou Marcus Creek Site) (Figure 1). These two sites are the same sites the facility monitors quarterly (SWA-03 and SWD-02), respectively.

Samples were collected by Northwest District (Nathan Mulkey, Kylie Decker, Larry Couch, Michael Mucci, Michael Brumfield). Analyses were performed by the University of West Florida Wetlands Research Laboratory in Pensacola, Eurofins Test America Laboratories in Pensacola and in Tampa, and DEP Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Herbert Johnson, Ben Nomann and Austin Nolan).

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 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. Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criterion are found in Chapter 62-302.532

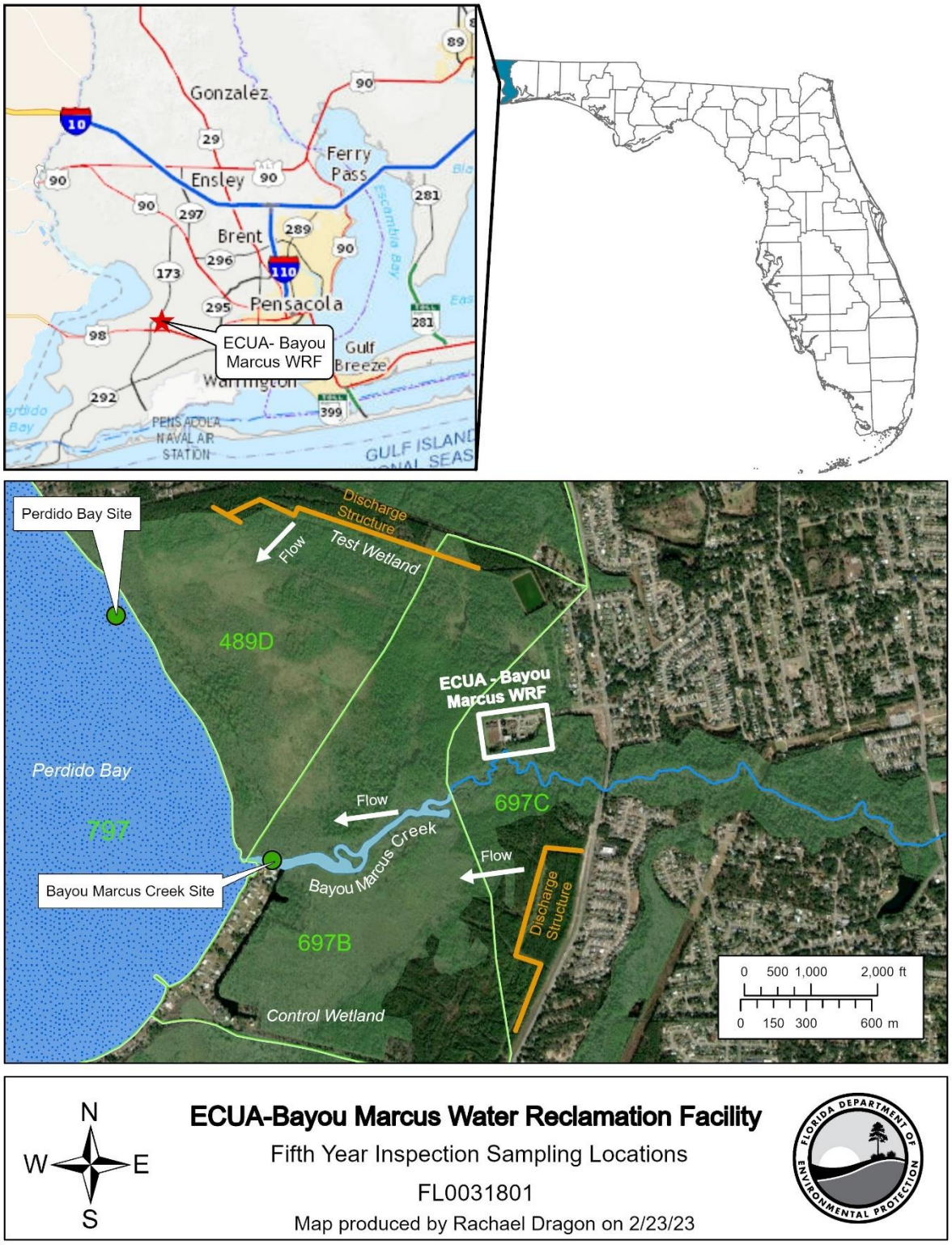


Figure 1. Map of Facility and Sampling Locations

Results

Physical and Chemical Parameters (See Table 1 and Appendices B, C, D and E)

- All measured water quality parameters in the effluent grab and composite samples complied with effluent permit limits and Class III Water Quality Criteria for Marine Waters.

- All water quality parameters measured at the Test Site complied with Class III Water Quality Criteria for Marine Waters.

- DO measured at the Test and Control Sites complied with the Wetland rule, Subsection 62.611.500(2), F.A.C.. Field staff noted that the water depth was 0.1m and there was no flow at the Control Site at the time of sampling.

Analytical Water Chemistry (See Table 2 and Appendix B, E)

- For comparative purposes only, the Perdido Bay and Bayou Marcus Creek samples for total phosphorus and total nitrogen complied with the Estuary-Specific Numeric Interpretations of the NNC, Subparagraph 62-302.532(1)(k)(2), F.A.C.).

Microbiology (See Table 2 and Appendix B, E)

- Effluent fecal coliform levels complied with the effluent permit limit and Class III Water Quality Criterion for Marine Waters (Paragraph 62-302.530(6)(a) F.A.C.).

- Enterococci levels in the Test and Control Site samples on 5/9/2022 and the Control Site sample on 6/6/2022 exceeded Class III Water Quality Criteria for Marine Waters (Paragraph 62-302.530(6)(c), F.A.C.).

Toxicity Whole Effluent Test (See Table 2 and Appendix B, E)

- Tests were performed June 9, 2022 through June 13, 2022.
- Acute bioassay results are reported as the Concentration Lethal to 50% of the test organisms (LC50).

- 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 (Rule 62-4.244(3)(a), F.A.C.).

- For the 96-hour acute definitive test, the calculated LC50 for the water flea, *Ceriodaphnia dubia*, was >100% effluent with 0% mortality in 100% sample. The calculated LC50 for the fish, *Pimephales promelas*, was >100% effluent with 5%

mortality in 100% sample. The effluent sample was not toxic to either test species during the 96-hour acute definitive bioassays and therefore, complied with effluent permit limits.

- 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 B, E)

- Metals in the effluent and Test Site samples complied with Class III Water Quality Criteria for Marine Waters (62-302.530 F.A.C.). There are no effluent permit limits for metals.

- Iron exceeded the Class III Water Quality Criterion for Marine Waters (Subsection 62-302.530(38), F.A.C.) in the Control Site sample.

Algal Growth Potential (See Table 4 and Appendix B, E)

- The freshwater unicellular green alga, *Pseudokirchneriella subcapitata* was used to determine the AGP values in the effluent, Test Site and Control Site samples. The analytical chemistry suggests that the effluent and the Test Site are nitrogen-phosphorus co-limited, indicating that the effluent has the potential to enrich the wetlands (Miller et al. 1978).

- The effluent grab sample AGP result of 4.28 mg dry wt/L and the Test Site sample result of 5.09 mg dry wt/L are 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). There was no detectable AGP for the Control Site sample.

- 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.

Detected Organic Constituents (See Table 5 and Appendix B, E)

- There are no effluent permit limits for organic constituents.

- Atrazine, Azinphos Methyl, Azoxystrobin, Bromacil, Chlorfenapyr, Cyprodinil, Fipronil, Fipronil Desulfinyl, Fipronil Sulfide, Fipronil Sulfone, Fludioxonil, Flutolanil, Fluxapyroxad, Hexazinone, Loratadine, Phenytoin, Propiconazole, Sulfentrazone, and Tebuconazole, were detected in the effluent grab sample.

- Caffeine, Dimethomorph, Dithiopyr, Metolachlor were detected in the effluent grab sample at levels between the MDL and PQL. Caffeine for the effluent grab sample was Q qualified.

Flora (See Table 6 and Appendix D)

- The Florida Wetland Condition Index (FWCI) is used to examine the ecological integrity of a vascular plant community. Because the method requires additional data for validation in certain regions and for wetland types not included in the original development dataset, it is used by DEP in an exploratory manner. The overall FWCI scores for the Bayou Marcus Control and Test Sites were somewhat similar, with the Control Site scoring higher, 34 versus 27. For the % tolerant, % sensitive, % exotic, and average Coefficient of Conservatism (CC) metrics, the Control and Test Sites had the same score or a one-point difference. The % native perennial and % wetland status metric scores were very different between sites. The Control and Test Sites were also compared to the mean values for the overall and individual metric scores for the original FWCI method development data for forested wetlands. For comparative purposes, the method development sites were divided into two groups based on Landscape Development Intensity (LDI): sites with low LDI (LDI $\leq$2) and sites with high LDI (LDI $\geq$2). The FWCI scores for both the Control and Test sites were closest to the mean score (20.4) for the isolated forested development sites in the Panhandle region with high LDI scores (more human disturbance). The results are more mixed, however, when the individual metrics are considered. Both the Test and Control had scores more similar to the low LDI development sites for % tolerant, % exotic, and % wetland status. The Control Site had a particularly high score for the % wetland status metric, higher than the Test Site and the mean low LDI group score. This score suggests the Control Site may be wetter than both the Test Site and a majority of the low disturbance development sites. Both the Test and Control Sites had scores similar to the high LDI development sites for the % sensitive, average CC, and % native perennial metrics. (Table 6). The Control Site had 64 total taxa, and the Test Site had 57 total taxa.

Literature Cited

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- 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.
- Reiss, K.C. and Brown, M. T. 2005. The Florida Wetland Condition Index (FWCI): Developing Biological Indicators for Isolated Depressional Forested Wetlands. Howard T. Odum Center for Wetlands. University of Florida. 168 pp.
- USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

Table 1. Measured field parameters

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

Parameter	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab 5/9/22	Effluent Grab 6/6/22	Test Site 6/6/22	Control Site 6/6/22	Perdido Bay Site	Bayou Marcus Creek Site
Sample Depth	m	-	-	-	-	0.05	0.1	0.3	0.3
Temperature	C	-	-	26.3	28.0	27.2	24.3	28.3	26.4
pH	SU	6.5 - 8.5	6.0-8.5	7.14	6.97	6.84	6.18	6.5	6.43
Specific Conductance	µmhos/cm	-	-	444.3	431.3	420.4	139.6	3,553	379.4
Dissolved Oxygen	% saturation	≥ 42	-	87.6	85.7 c	89.9 c	16.7 c	97.4 c	58.9 c
Dissolved Oxygen	mg/L	-	> 5.0	-	6.7	7.13	1.40	7.51	4.74

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

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

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

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite 6/6/22	Effluent Grab 6/6/22	Test Site 6/6/22	Control Site 6/6/22	Perdido Bay Site	Bayou Marcus Creek Site
Ortho-phosphate	mg P/L	-	Report	-	0.16 Q	0.21 Q	0.014 Q	0.004 UQ	0.007 IQ
Total Phosphorus	mg P/L	≤ 0.102 g [1]	≤ 2 sp	0.29	0.24	0.3	0.082	0.021	0.029
Total Ammonia	mg N/L	≤ 2.85 c (EFF-01 Grab) ≤ 4.03 c (Control) ≤ 3.13 c (Test)	≤ 3.2 sp	0.043	0.051	0.038	0.047	0.009	0.011
Nitrate and Nitrite	mg N/L	-	-	1.3	1	1.2	0.026	0.067	0.23
Nitrite-N	mg N/L	-	-		0.009 Q	0.008 Q	0.004 IQ	-	-
Total Kjeldahl Nitrogen	mg N/L	-	Report	1.2	1	0.99	0.91	0.51	0.4
Organic Nitrogen	mg N/L	-	-	1.2 c	1 c	0.95 c	0.86 c	0.5 c	0.4 c
Total Nitrogen	mg N/L	≤ 1.27 g [1]	≤ 6.0 p	2.5 c	2 c	2.2 c	0.94 c	0.58 c	0.6 c
Total Organic Carbon	mg C/L	-	-	6.3 A	6.1	6.2	11	8.4	4.4
Chlorophyll a - Corrected	µg/L	11.5 g [1]	-	-	3.3 IQ	1.4 IQ	6.6 IQ	7.9 Q	5.7 Q
Phaeophytin	µg/L	-	-	-	1.8 UQ	0.90 UQ	4.5 UQ	1.2 UQ	0.90 UQ
CBOD, 5 day, N - inhibited	mg/L	-	≤ 10 p	2.0 U	2.0 U	2.0 QU	2.0 QU	-	-
Total Suspended Solids	mg/L	-	≤ 10 p	2 U	2 U	3 I	24	-	-
Turbidity	NTU	≤ 29 t	-	-	1.0 AQ	0.75 IQ	17 Q	3.2 Q	2.6 Q
Color (true)	PCU	-	-	-	21 AQ	22 Q	57 Q	72 Q	56 Q
Alkalinity	mg CaCO3/L	≥ 20	-	-	60 A	64	39	-	-
Chloride	mg Cl/L	-	-	-	47 A	46	11	-	-
Fluoride	mg F/L	≤ 5.0	-	-	0.28	0.3	0.043 I	-	-

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite 6/6/22	Effluent Grab 6/6/22	Test Site 6/6/22	Control Site 6/6/22	Perdido Bay Site	Bayou Marcus Creek Site
Sulfate	mg SO4/L	-	-	-	59 AJ	54	0.79	54	-
Sulfide	mg/L	-	-	0.20 U	1.0 U [2]	1.0 UQ	1.0 UQ	-	-
Microbiology									
Fecal Coliforms	cfu/100 mL	-	≤ 800 s	-	10 U [3]	42 J [3]	142 [3]	-	-
Escherichia coli	MPN/100 mL	-	-	-	-	20 [4]	158 [4]	-	-
Enterococci	MPN/100 mL	≤ 130 g	-	-	10 U [5] s	121 [5] s	557 e [5] s	-	-
Toxicity									
Bioassay Acute - Water flea *(Ceriodaphnia dubia)*	% effluent	-	> 100	> 100	-	-	-	-	-
Bioassay Acute - Fish *(Pimephales promelas)*	% effluent	-	> 100	> 100	-	-	-	-	-

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
e - Value exceeds the Class III Water Quality Criteria or permit limits
g - Value expressed as annual geometric mean.
s - Single sample
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
1 - Upper Perdido Bay estuary-specific nutrients criteria, expressed as annual geometric means, are: Total Phosphorus < 0.0120 mg/L; Total Nitrogen < 1.27 mg/L; Chlorophyll-a < 11.5 mg/L.
2 - Sulfide: Effluent grab sample from 5/9/2022 result was 0.057 UQ (Units: mg/L).
3 - Fecal coliform results from 5/9/2022 samples were: Effluent grab = 10 U, Control Site = 87 J, Test Site = 48 J (Units: cfu/100 mL).
4 - *Escherichia coli* results from 5/9/2022 samples were: Control Site = 20, Test Site = 41 (Units: MPN/100 mL)
5 - Enterococci results from 5/9/2022 samples were: Effluent grab =10 U, Control Site = 613 e, Test Site = 1439 e (Units: MPN/100 mL).

Table 3. Analytical metals data

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

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab 6/6/22	Test Site 6/6/22	Control Site 6/6/22
Hardness	mg CaCO3/L	-	-	87.6 c	87.1 c	42.9 c
Aluminum	µg/L	≤ 1500	-	129	135	211
Arsenic	µg/L	≤ 50	-	0.57	0.63	3.64
Cadmium	µg/L	≤ 8.8	-	0.020 U	0.020 U	0.020 U
Calcium	mg/L	-	-	29.8	29.6	14.6
Chromium, Total[6]	µg/L	≤ 50	-	0.40 U	0.40 U	0.43 I
Copper	µg/L	≤ 3.7	-	1.8	1.89	0.73 I
Iron	µg/L	≤ 300	-	100 I	34 I	3170 e
Lead	µg/L	≤ 8.5	-	0.20 U	0.20 U	2.43
Magnesium	mg/L	-	-	3.21	3.21	1.56
Nickel	µg/L	≤ 8.3	-	4.6	4.7	0.50 U
Potassium	mg/L	-	-	13	12.9	1.6
Selenium	µg/L	≤ 71	-	0.20 U	0.20 U	0.20 U
Silver	µg/L	≤ 2.3	-	0.010 U	0.010 U	0.010 U
Sodium	mg/L	-	-	44.4	43.6	7.2
Zinc	µg/L	≤ 86	-	58	54	8.6 I

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
e- Value exceeds the Class III Water Quality Criteria (62-302.530 (F.A.C.))
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limits
U - Material analyzed for but not detected; value reported is the method detection limit
6 - Class III Marine Quality Criterion (62-302.530(19)(b), F.A.C.) is for chromium-VI

Table 3. 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 6/6/22	*Pseudokirchneriella subcapitata*	4.28	39.9 ± 8	68.8 ± 13.8	76 ± 15.2	103.2 ± 20.6	6.6	8.3
Test Site 6/6/22	*Pseudokirchneriella subcapitata*	5.09	47 ± 9.4	90.3 ± 18.1	83.2 ± 16.6	129 ± 25.8	5.9	7.3
Control Site 6/6/22	*Pseudokirchneriella subcapitata*	0.300 U	2.8 ± 0.6	6 ± 1.2	35.6 ± 7.1	35.3 ± 7.1	5.2	11.4

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

Table 5. Detected Organic Constituents

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

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab 6/6/22
Atrazine	ng/L	-	-	41
Azinphos Methyl	ng/L	-	-	8.6
Azoxystrobin	ng/L	-	-	2.8
Bromacil	ng/L	-	-	29
Caffeine	ng/L	-	-	20 IQ
Chlorfenapyr	ng/L	-	-	0.89
Cyprodinil	ng/L	-	-	0.56
Dimethomorph	ng/L	-	-	0.20 I
Dithiopyr	ng/L	-	-	0.34 I
Fipronil	ng/L	-	-	35
Fipronil Desulfinyl	ng/L	-	-	4.1
Fipronil Sulfide	ng/L	-	-	6.2
Fipronil Sulfone	ng/L	-	-	8.1
Fludioxonil	ng/L	-	-	3.3
Flutolanil	ng/L	-	-	0.52
Fluxapyroxad	ng/L	-	-	0.5
Hexazinone	ng/L	-	-	2
Loratadine	ng/L	-	-	4.8
Metolachlor	ng/L	-	-	1.3 I
Phenytoin	ng/L	-	-	83
Propiconazole	ng/L	-	-	11
Sulfentrazone	ng/L	-	-	6.2
Tebuconazole	ng/L	-	-	14

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.
Q - Sample held beyond normal holding time

Table 6. Florida Wetland Condition Index – Vegetation (FWCI-V)

	Test Site	Control Site	Low LDI* (≤2)	High LDI* (≥2)
FWCI Score	27	34	50.3 (8.6)	20.4 (13.1)
% Tolerant metric score	8	8	8.1 (2.5)	2.1 (1.9)
% Sensitive metric score	2	1	8.8 (2.6)	2.5 (2.0)
Average CC# metric score	3	4	8.5 (2.2)	3.2 (3.2)
% Exotic metric score	6	6	9.3 (1.0)	4.0 (3.0)
% Native Perennial metric score	2	5	8.6 (0.9)	5.2 (2.7)
% Wetland Status metric score	6	10	7.0 (2.0)	3.3 (2.4)

*Values represent the mean scores for development sites in each LDI group with (Standard Deviation). CC=Coefficient of Conservatism. Described on pgs. 27-28 of the document at this link: http://publicfiles.dep.state.fl.us/dear/sas/library/docs/wet_depf.pdf

Appendix A. Facility Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kylie Decker	**Contact Number:** 850-595-0639
Facility Name (as it appears on permit): ECUA – Bayou Marcus Water Reclamation Facility	**Former Names:** n/a
NPDES Permit Number: FL0031801	**Permit Expiration Date:** August 12, 2023
Physical Address: 3050 Fayal Drive Pensacola, Fl 32526	
District: Northwest District	**County:** Escambia
Function of Facility: Domestic Wastewater Treatment Facility	
Facility Type: DW	**Permitted Capacity (MGD):** 8.2 MGD
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): Date range: 04/30/2021 – 03/31/2022 FLW-04: 6.16 MGD FLW-03: 1.84 MGD FLW-02: 4.32 MGD	
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-04 Total Flow to Receiving Wetlands, Calculated total from FLW-02 and FLW-03 FLW-02 Flow to northern portion of wetlands FLW-03 Flow to southern portion of wetlands EFF-01 Effluent monitoring point prior to discharge to the wetlands. EFA-UV UV dosage monitoring WEP-S3 Southern System Quadrat S-3. Point of discharge (exit) from the southern wetland. WEP-N4 Northern System Quadrat N-4. Point of discharge (exit) from the northern wetland. WIM-S2 Southern System Quadrat S-2. Southern wetland internal monitoring station. WIM-N5 Northern System Quadrat N-5. Northern wetland internal monitoring station. SWA-01 Bayou Marcus Creek Upstream Monitoring Station - BMC SWD-02 Mouth of Bayou Marcus Creek (southern system)-BMP SWA-03 Perdido Bay Monitoring Station (Northern System Quadrat) - PB	
Description of Permitted Outfall(s): Surface Water Discharge D-002: An existing 10.25 MGD annual average daily flow discharge to wetlands flowing to Bayou Marcus Creek (Class III Estuary Water) and Perdido Bay (Class III Estuary), the wetlands include WBIDs 697B, 697C, 763, and 797; northern portion (642 acres) and the southern portion (350 acres) of the receiving wetlands (Zones 10 thru 13). The point of discharge is located approximately at latitude 30°26' 22" N, longitude	

87°19' 45" W.

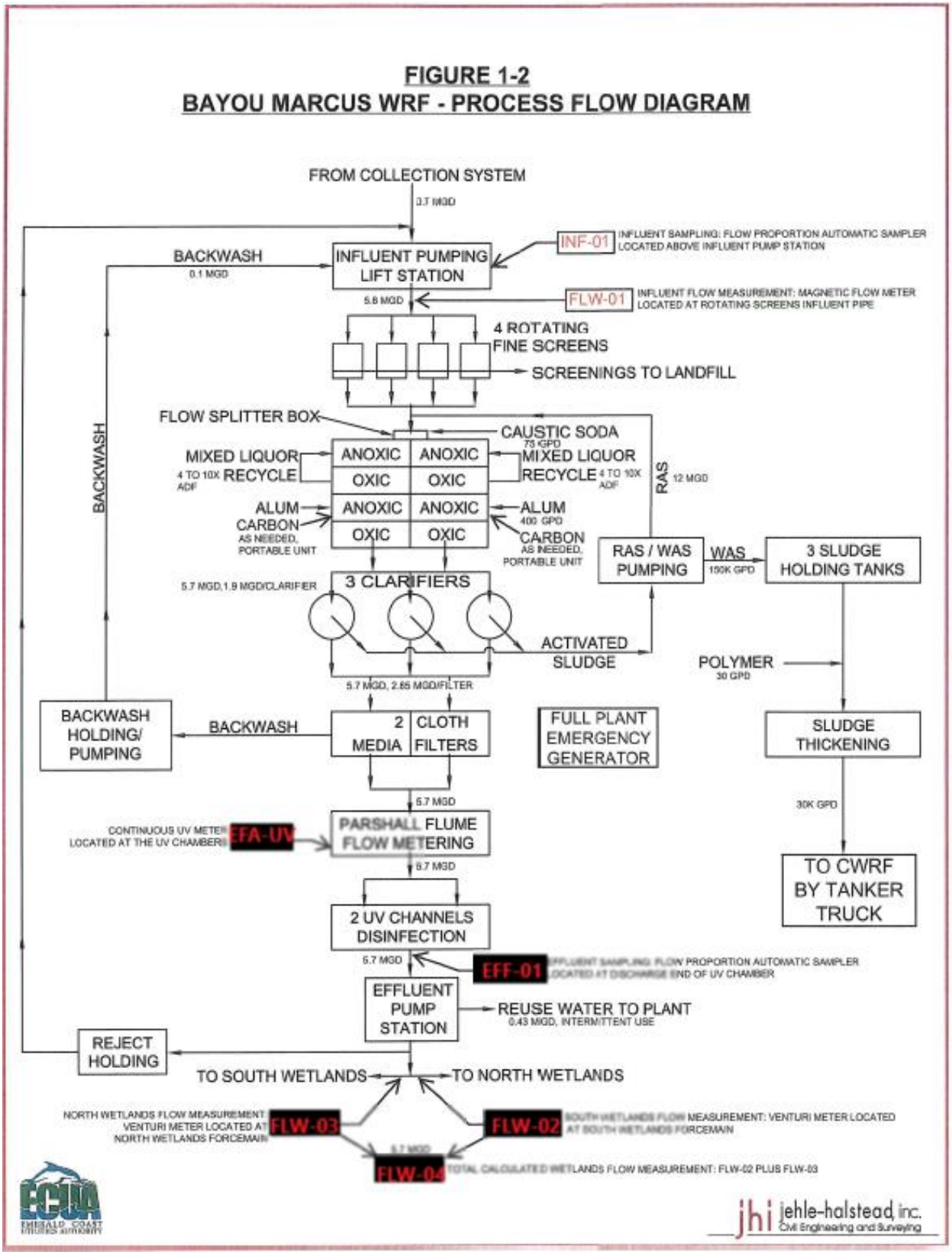
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

An existing 8.2 MGD annual average daily flow (AADF) permitted capacity activated sludge system with advanced waste treatment (AWT). The mode of treatment operation of the wastewater treatment plant (WWTP) is conventional plug flow with extended aeration advanced treatment. The WWTP consist of pretreatment processes that include influent pumping with four (4) submersible pumps, two (2) perforated plate screens, and two (2) grit vortex removal units. The biological treatment process includes bioreactors - oxidation ditches (two parallel four-stage EIMCO carrousel aeration basins with anoxic with magnesium hydroxide and carbon (as needed) addition, oxic, anoxic with alum and carbon (as needed) addition, and reaeration chambers) and four (4) secondary clarifiers. Secondary effluent management includes two (2) cloth media effluent filters, two (2) parallel ultraviolet irradiation disinfection channels, effluent lift station with four (4) submersible pumps which pumps the effluent to the Bayou Marcus wetlands and two (2) turbine pumps for reuse water. An 8.2 MG lined reject holding pond is provided with recirculation.

The biosolids management facilities include one (1) circular plant tankage (aerated sludge holding tank) for sludge processing with four (4) cells, secondary scum and return activated sludge (RAS) pumping, waste activated sludge (WAS) pumping, one (1) rotary drum thickener to thicken sludge and facilities to transfer the thickened sludge to a tanker truck. All residual solids generated at the Bayou Marcus plant are transferred to ECUA Central WRF or landfilled. See attached WWTP Site Plan and Process Flow Diagram.

This system includes a 62-610 Part VII industrial reuse system sending reclaimed water to Industrial reuse at the WWTP for process, wash down or other purposes at the wastewater treatment plant in accordance with 62-610.699(3), F.A.C.


MWC-16R
WIM-N1
MWB-14
MWB-15
D-002
WEP-N4
SWA-03
Northern Wetlands
ECUA - Bayou Marcus Water Reclamation Facility
WIM-N5
SWA-01
SWD-02
WEP-S3
WIM-S2
MWC-11R
Southern Wetlands
MWI-12
MWI-13
Millview
Kainui Dr
Alekai Dr
Mariners Dr
Windjammer Ct
Valdez St
Alicante St
Fayal Dr
N Blue Angel Pkwy
Cayenne Way
Jambalaya Tr
Creole
Mesquite Dr
Kennedy Dr
Stennis Dr
Tempest Dr
Imperial
La Paz St
173
298


FIGURE 1-2
BAYOU MARCUS WRF - PROCESS FLOW DIAGRAM
FROM COLLECTION SYSTEM
3.7 MGD
INF-01
INFLUENT SAMPLING: FLOW PROPORTION AUTOMATIC SAMPLER LOCATED ABOVE INFLUENT PUMP STATION
BACKWASH
0.1 MGD
INFLUENT PUMPING LIFT STATION
5.8 MGD
FLW-01
INFLUENT FLOW MEASUREMENT: MAGNETIC FLOW METER LOCATED AT ROTATING SCREENS INFLUENT PIPE
4 ROTATING FINE SCREENS
SCREENINGS TO LANDFILL
FLOW SPLITTER BOX
CAUSTIC SODA
73 GPD
MIXED LIQUOR RECYCLE
4 TO 10X ADF
ANOXIC
OXIC
ANOXIC
OXIC
MIXED LIQUOR RECYCLE
4 TO 10X ADF
RAS
12 MGD
ALUM
CARBON
AS NEEDED, PORTABLE UNIT
ANOXIC
OXIC
ANOXIC
OXIC
ALUM
400 GPD
CARBON
AS NEEDED, PORTABLE UNIT
RAS / WAS PUMPING
WAS
150K GPD
3 SLUDGE HOLDING TANKS
5.7 MGD, 1.9 MGD/CLARIFIER
3 CLARIFIERS
ACTIVATED SLUDGE
POLYMER
30 GPD
5.7 MGD, 2.85 MGD/FILTER
BACKWASH HOLDING/ PUMPING
BACKWASH
2 MEDIA
CLOTH FILTERS
FULL PLANT EMERGENCY GENERATOR
SLUDGE THICKENING
30K GPD
5.7 MGD
CONTINUOUS UV METER LOCATED AT THE UV CHAMBER
EFA-UV
PARSHALL FLUME FLOW METERING
5.7 MGD
TO CWRF BY TANKER TRUCK
2 UV CHANNELS DISINFECTION
5.7 MGD
EFF-01
EFFLUENT SAMPLING: FLOW PROPORTION AUTOMATIC SAMPLER LOCATED AT DISCHARGE END OF UV CHAMBER
EFFLUENT PUMP STATION
REUSE WATER TO PLANT
0.43 MGD, INTERMITTENT USE
REJECT HOLDING
TO SOUTH WETLANDS
TO NORTH WETLANDS
NORTH WETLANDS FLOW MEASUREMENT: VENTURI METER LOCATED AT NORTH WETLANDS FORCEMAIN
FLW-03
FLW-02
SOUTH WETLANDS FLOW MEASUREMENT: VENTURI METER LOCATED AT SOUTH WETLANDS FORCEMAIN
5.7 MGD
FLW-04
TOTAL CALCULATED WETLANDS FLOW MEASUREMENT: FLW-02 PLUS FLW-03
jehle-halstead, inc.
Civil Engineering and Surveying

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)

Parameter	Units	Max/ Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow (Total to Wetland)	MGD	Max Max	10.25 Report	Annual Average Monthly Average	Continuous	Calculated	FLW-04	
Flow (Northern Wetland)	MGD	Max Max	7.35 Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-02	See I.A.4
Flow (Southern Wetland)	MGD	Max Max	2.9 Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-03	See I.A.4
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max Max Max	5.0 6.25 7.5 10.0	Annual Average Monthly Average Weekly Average Single Sample	5 Days/Week	24-hr FPC	EFF-01	See I.A.20
Solids, Total Suspended	mg/L	Max Max Max Max	5.0 6.25 7.5 10.0	Annual Average Monthly Average Weekly Average Single Sample	5 Days/Week	24-hr FPC	EFF-01	See I.A.20
Nitrogen, Total	mg/L	Max Max Max Max	3.0 3.75 4.5 6.0	Annual Average Monthly Average Weekly Average Single Sample	5 Days/Week	24-hr FPC	EFF-01	
Nitrogen, Total	lb/day	Max	205.2	Annual Average	5 Days/Week	Calculated	EFF-01	
Nitrogen, Total (Northern Wetland)	lb/day	Max	132.6	Annual Average	5 Days/Week	Calculated	EFF-01	
Nitrogen, Total (Southern Wetland)	lb/day	Max	72.6	Annual Average	5 Days/Week	Calculated	EFF-01	

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)

Nitrogen, Ammonia, Total (as N)	mg/L	Max Max Max Max	1.6 2.0 2.4 3.2	Annual Average Monthly Average Weekly Average Single Sample	5 Days/Week	24-hr FPC	EFF-01	
Phosphorus, Total (as P)	mg/L	Max Max Max Max	1.0 1.25 1.5 2.0	Annual Average Monthly Average Weekly Average Single Sample	5 Days/Week	24-hr FPC	EFF-01	
Phosphorus, Total (as P)	lb/day	Max	68.4	Annual Average	5 Days/Week	Calculated	EFF-01	
Phosphorus, Total (as P) (Northern Wetland)	lb/day	Max	44.2	Annual Average	5 Days/Week	Calculated	EFF-01	
Phosphorus, Total (as P) (Southern Wetland)	lb/day	Max	24.2	Annual Average	5 Days/Week	Calculated	EFF-01	
Coliform, Fecal	#/100 mL	Max Max Max	200 200 400 800	Annual Average Mo. Geo. Mean 90th Percentile Single Sample	5 Days/Week	Grab	EFF-01	See I.A.5 and 19
Enterococci	#/100 mL	Max Max	35 130	Mo. Geo. Mean 90th Percentile	3 Days/Week	Grab	EFF-01	See I.A.19
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	Continuous	Meter	EFF-01	See I.A.3
Oxygen, Dissolved (DO)	mg/L	Min	5.0	Single Sample	Daily; 24 hours	Grab	EFF-01	
Ultraviolet Light Dosage	mW-s/sqcm	Min	25	Single Sample	Continuous	Calculated	EFA-UV	
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFF-01	See I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFF-01	See I.A.6

PART I: Continued	
Receiving Waters: Surface waters in the northern and southern wetland area flows to both Bayou Marcus Creek and upper Perdido Bay (WBID 697B, 697C, 763, 797)	**Classification (indicate whether fresh or marine):** Class III Marine

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

AO-109NW

Administrative Order, AO-109NW ("AO") was executed August 13, 2018. The AO provided until August 1, 2019, to comply with the final permit limits for Enterococci. The AO includes the submittal of a semiannual progress requirement and interim limits for Enterococci. The first semiannual progress report was due on January 28, 2019, and submitted January 7, 2019. The second semiannual progress report was due on July 28, 2019, and submitted July 11, 2019. The table in the semiannual progress reports demonstrates the facility's continued compliance with the permit limits for Enterococci. The facility complied with the conditions of the AO and was issued an AO closure letter on November 20, 2019.

ACO #11-0982

Amended Consent Order OGC #11-0982 was executed on March 5, 2019 for unauthorized wastewater releases ("spills") from the collection/transmission systems connected to ECUA - Bayou Marcus Facility, Central Facility, and Pensacola Beach Facility ("facilities"). The Department finds that the following violations occurred:

a) Eleven spills from the Collection System exhibited samples exceeding fecal coliform bacteria levels of 800 Most Probable Number, which is a violation of the bacteriological water quality criteria in Rule 62-302.530(6), F.A.C.;

b) Respondent's 24 spills of untreated wastewater from the Collection System violated Rule 62-604.130(1), F.A.C., which prohibits the release of excreta, sewage, or other wastewaters or residuals without providing proper treatment;

c) Respondent's Collection System allowed 24 spills and, therefore, was not maintained to provide proper, uninterrupted service in violation of Rules 62-604.500(2)-(3), F.A.C.;

d) Lastly, Respondent's failure to comply with Department rules is a violation of Section 403.161(1)(b), F.S.

The Amended Order requires the Emerald Coast Utilities Authority ("Respondent") to provide to the Department a corrective action plan ("CAP") that is based on the findings of the Comprehensive Evaluation described in paragraph 12 by May 26, 2019, or within 90 days of the effective date of the Amended Order, whichever occurs later. The CAP shall:

i. Summarize the results of the Comprehensive Evaluation of each sewer basin in the Collection System, describe in detail the techniques used to evaluate the Collection System, and include a justification for why the techniques were used;

ii. Identify the cause or causes of spills that have occurred from May 15, 2010, through the end of the month preceding the deadline date for submittal of the Corrective Action Plan;

iii. List all deficiencies in the Collection System, and their locations, that were identified during the Comprehensive Evaluation, clearly specifying which deficiencies have been corrected and which deficiencies remain for each sewer basin in the Collection System;

iv. Identify the areas in the Collection System with problems related to capacity, inflow/infiltration, and FOG, and any areas needing further investigation;

v. Describe any corrective actions that have been implemented since May 15, 2010 to improve the function of Respondent's Collection System and explain how and to what extent these measures have reduced the average volume and frequency of spills;

vi. Identify any additional corrective actions Respondent plans to undertake to further reduce spills and improve the functioning of the Collection System;

vii. Identify the remaining Collection System deficiencies Respondent has prioritized for repair and rehabilitation ("Projects"), and explain how completion of each Project is anticipated to reduce future spills. The Projects shall be presented in prioritized order. The main criteria for prioritizing the Projects shall be correction of the Collection System deficiencies that have the greatest potential to result in non-excusable discharges as determined by the Comprehensive Evaluation and historical data. Priority will be

given to those deficiencies that have proven to be systemic problems (e.g., force main breaks, grease chokes, etc.).
viii. Provide a schedule for completing the Projects referenced in subparagraph vii above.

Paragraph 14.c. The Department will review the CAP. The Department will notify Respondent in writing of any deficiencies identified. Respondent shall respond to RAI requests within 60 days. Upon approval by the Department, the CAP shall become incorporated into the ACO and enforceable.

Paragraph 14.d. Within the timeframes identified within the approved CAP, Respondent shall complete the Projects. Respondent shall submit notification of Project completion within 45 days of completion. Notification shall include completion dates for each project.

Paragraph 14.e. Due 12/27/2027 No later than the 8-year anniversary of the CAP approval date, Respondent shall submit an update of the CAP (CAP Update), addressing progress made to date, lessons learned, and identify any additional Projects or revisions to the prioritized list of Projects. Identify projects permitted by ECUA or DEP, include permit number for permits already obtained. CAP update shall also include defined long term system wide plan and comprehensive assessment and maintenance program to be implemented for prevention of future spills (Prevention Component of CAP Update). The Prevention Component shall be embodied in a CMOM Program for the collection system.

Paragraph 14.f. Minimum $8,000,000 budgeting requirement for CIP program for FY2020-FY2028 for the Projects. Budget year begins 10/1. Minimum annual amount shall be reported in semi-annual reports due 2/28.

Paragraph 17. Original order assessed $14,049.25, paid in full 8/31/2012.

Paragraph 18. Stipulated penalty paragraph $300 per day for failure to timely comply with paragraphs 14. a. through f., 15, and 35 of the ACO. Penalties due within 60 days of written demand.

Paragraph 19. SSO stipulated penalty paragraph. Shall pay stipulated penalties accumulated annually except for Excusable Discharges:

Amount per day per Discharge	Discharge Volume
$1,000.00	Up to 5,000 gallons
$2,000.00	5,001 to 10,000 gallons
$5,000.00	10,001 to 25,000 gallons
$10,000.00	25,001 to 100,000 gallons
$20,000.00	in excess of 100,000 gallons

Excusable Discharges - Respondent shall not be liable for stipulated penalties under subparagraph 19.a), above if Respondent demonstrates that the Discharge was caused by an Act of God, vandalism, a non-Respondent contractor, or any act of a third party not working directly or indirectly on behalf of Respondent, and Respondent demonstrates that it has used reasonable measures to prevent such Discharge.

Paragraph 21. In-kind election for Paragraph 19. Notify the department within 15 days. Comply with Exhibit II In-Kind Projects - Stipulated Penalties for Spills

Paragraph 35. Publication due within 14 days of ACO, submit certified copy within 30 days of publication**.** Publication made 3/9/2019 and proof of publication received 3/20/2019.

Exhibit II - Stipulated Penalties for Spills
I.(a) Within 60 days receipt for written demand, submit detailed in-kind project proposal.

I.(d) Within 120 days receipt of written demand, obtain approval of in-kind project. Or within 30 days of Department notice, pay stipulated penalties assessed.
I.(e) Within 180 days of obtaining approval complete in-kind project, or in accordance with approved schedule submitted. Complete entire in-kind project.
I.(h) Within 15 days of completing in-kind project, notify the Department of project completion. Include supporting information verifying project was completed in accordance with the approved proposal and documentation showing actual costs incurred to complete the project.

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:
n/a

Describe previous FYI and WQBEL study:

A Fifth Year Inspection was conducted on May 16, 2016. The background site sample results indicated the following exceedances in permit limits and/or water quality criteria:

Parameter	Units	Limit	Result
Iron	µg/L	≤ 1,000	3750 e
Lead	µg/L	≤ 3.84b	7.04 e
Dissolved Oxygen	mg/L	≥ 5.0 s	2.2 e

b - Value is calculated based on hardness
e - Value exceeds the Class III Water Quality Criteria or permit limit
s - Single sample

Iron was detected in the Background Site sample at levels approximately 4 times higher than the Class III Freshwater Quality Criteria (62-302.530 (38) F.A.C.). Lead was detected in the Background Site sample at levels approximately 6 times higher than the Class III Freshwater Quality Criteria (62-302.530 (39) F.A.C.). The effluent dissolved oxygen complied with the permit limit. The Test Site dissolved oxygen complied with Rule 62-611.500 (2), however, there was an exceedance in the Background Site (see Table 1). Depth at the Background Site was 0.2m and there was no flow at the time of sampling. It is not known whether these site conditions may have compromised the integrity of the sample collected. Turbidity in the Background Site sample was greatly elevated in comparison to the effluent and Test Site samples but without a measure of natural background, an exceedance of the Class III Freshwater Quality Criterion (62-302.530 (69) F.A.C.) could not be determined. It is not known whether the shallow depth and no flow site conditions may have compromised the integrity of the sample collected. Any additional, available data should be considered when evaluating turbidity. AGP values and amounts of orthophosphate and nitrogen indicate nutrient enrichment at the Test Site as a result of the effluent.

Describe previous or current Enforcement Actions (including WLs):
Date Executed, Enforcement Action, Description, Compliance Status

June 3, 2020, Warning Letter, Addresses 10 Spills from 3/07/2020 – 5/20/2020, To be addressed with stipulated penalty assessment

April 6, 2020, Warning Letter, Addresses 17 Spills from 12/04/2019 – 2/28/2020, To be addressed with stipulated penalty assessment

November 27, 2019, Warning Letter, Addresses 7 Spills from 10/07/2019 – 10/17/2019, To be addressed with stipulated penalty assessment

October 18, 2019, Warning Letter, Addresses 7 Spills from 08/03/2019 – 08/23/2019, Addressed with approved in-kind project

September 27, 2019, Warning Letter, Addresses 6 Spills from 07/02/2019 – 08/03/2019, Addressed with approved in-kind project

March 5, 2019, ACO OGC #11-0982, Unauthorized wastewater releases ("spills") from the collection/transmission systems connected to ECUA - Bayou Marcus Facility, Central Facility, and Pensacola Beach Facility ("facilities"). The Department finds that the following violations occurred:

a) Eleven spills from the Collection System exhibited samples exceeding fecal coliform bacteria levels of 800 Most Probable Number, which is a violation of the bacteriological water quality criteria in Rule 62-302.530(6), F.A.C.;

b) Respondent's 24 spills of untreated wastewater from the Collection System violated Rule 62-604.130(1), F.A.C., which prohibits the release of excreta, sewage, or other wastewaters or residuals without providing proper treatment;

c) Respondent's Collection System allowed 24 spills and, therefore, was not maintained to provide proper, uninterrupted service in violation of Rules 62-604.500(2)-(3), F.A.C.;

d) Lastly, Respondent's failure to comply with Department rules is a violation of Section 403.161(1)(b), F.S.

Respondent agrees to pay the Department stipulated penalties in the amount of $300.00 per day for each and every day Respondent fails to timely comply with any of the requirements of paragraph(s) 14 a. through f., 15 and 35 of the Amended Order. The Department may demand stipulated penalties at any time after violations occur. Respondent shall pay stipulated penalties owed within 60 days of the Department's issuance of written demand for payment and shall do so. For spills from any of the Facilities or the Collection System that do not qualify as Excusable Discharges, Respondent agrees to pay stipulated penalties accumulated annually as follows:

Amount per day per Discharge	Discharge Volume $1,000.00	Up to 5,000 gal
$2,000.00	5,001 to 10,000 gal	
$5,000.00	10,001 to 25,000 gal	
$10,000.00	25,001 to 100,000 gal	
$20,000.00	In excess of 100,000 gal	

, In compliance

Describe any violations or problems noted in previous inspection:

Section 9 Effluent Quality: Minor Out-of-Compliance

Deficiency: DMR's were reviewed from February 2018 through August 2019 and the following violation was noted:

Date	Monitoring Location		Description		Result	Limit
	Units	Statistical Basis				
9/30/18	EFF-01	Coliform, Fecal	920.8	800.0	#/100mL	Maximum

Corrective Action: The comment on the DMR submitted for this exceedance is sufficient. No known cause was determined. The violations did not continue, therefore, no further action is required for this reported exceedance.

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

The type and number of exceedances within the previous five years are as follows:

2017 - 0

2018 - 1

Date	Monitoring Location	Description		Result	Limit Units
	Statistical Basis				
09/30/2018	EFF-01	Coliform, Fecal	920.8	800	#/100mL	Maximum

DMR Comments below:

08/30/2018 The cause of a high single sample is unknown. Results from the day before were 1.0 mpn/100 mls and subsequent testing demonstrated <1.0 mpn/100 mls. The UV system was operating properly at the time and minimum UV dosage for the day was 150 mW/cm2. This is typical of for the system. The only difference in operation was the Bayou Marcus WRF had received a large amount of leachate from the landfill the day prior. This is not abnormal and has been done in the past with no adverse effects, but studies have demonstrated a decrease in UVT from small amounts of landfill leachate.

2019 - 0

2020 - 2

Date	Monitoring Location	Description		Result	Limit
	Units	Statistical Basis			
6/30/2020	EFF-01	Coliform, Fecal	980.4	800	#/100mL	Maximum
1/31/2020	EFF-01	IC25 Statre 7day Chr Ceriodaphnia	3.94	100	percent
	Minimum				

DMR Comments below:

06/30/20 Trending of UV dosages in addition to verification of UV bulb operation all appear to have been normal. UV transmittance was lower than historical values and may have been tracked to an industrial user. A meeting with that user was scheduled and conversations regarding their discharges were had.

01/31/2020 The Bayou Marcus WRF failed its Bi-Annual Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia), testing on the most recent testing. In accordance with our permit we are notifying FDEP within 21 days. The twenty-four hour composite samples were taken on January 27, 29 and 31, 2020. The Ceriodaphnia dubia failed with 3.94% reproduction. The NOEC was >100 for the Pimephales promelas. Follow up testing for the Ceriodaphnia dubia is required and will start February 24, 2020, for two consecutive weeks. The failure of the Ceriodaphnia dubia reproduction test has no apparent explanation.

2021 – 0

Based on the above information, the DMRs show a trend of 1 to 2 violations every other year for the previous five years.

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

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.

- **Florida Wetland Condition Index-Vegetation**

  The Florida Wetland Condition Index-Vegetation (WCI-VI) for isolated, forested wetlands is a biological assessment of wetland health conducted by sampling vascular plants along transects, identifying them to the species level, and calculating metric values based on attributes of the plant community that change predictably along an independent gradient of human disturbance. The index is calculated based on six metrics: percent tolerant indicator species, percent sensitive indicator species, percent exotic macrophyte species, average Coefficient of Conservatism (CC) score, percent native perennial species, and percent wetland status species. These metrics are calibrated for four ecoregions within the state including the Panhandle, North, Central, and South regions. The score is based on a 0-60 scale, with 60 representing high biological integrity. This current index is based on the Florida Wetland Condition Index (FWCI) developed by Reiss and Brown (2005) to provide a quantitative measure of the biological integrity of a wetland system.

- **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

SAMPLE TRANSMITTAL FORM
Document Reference # 05.1.0

Project: FDEP | Laboratory: Wetlands Research Laboratory | Sampler's initials: NM

Method of transport: on ice by hand | Page 1 of 1

Samples delivered by: [illegible] of FDEP | Date/Time: 5/9/22 1 10:50

Sample received by: [illegible] of WRL | Date/Time: 5/9/22 1 10:50

Instructions: Fill in all fields except "Lab ID" on sample transport form completely. Each sample container must use a separate line. Place this form in a waterproof bag and place it with the samples for transport. If a field log or other chain of custody is attached, that information may be referenced on this form and the log or COC attached.

CST

Lab ID	Sample ID 05/9/2022	Matrix[1]	Type[2]	Container Type	Analyses Requested	Preservative	Sample (°C)[3]	Sampling Date/Time
22-49578	Bayou Marcus Test Wetland (FL0031801)	FW	G	Sterile plastic	Enterolert 24-QT / E. coli	ice/$Na_2S_2O_3$	5.1	5/9/22 0830
22-49579	Bayou Marcus Control Wetland	FW	G	Sterile plastic	Enterolert 24-QT / E. coli	ice/$Na_2S_2O_3$	5.3	↓ 0900

Comments: **Sample Container lot#** 21190 | Surface water, no chlorine expected

RQ -2022-04-25-27

Contact organization FDEP | Contact name: **Nathan Mulkey** | Phone: 850-595-8300

Address 160 Governmental Center, suite 308, Pensacola, FL 32502 | Sampler's name:Nathan Mulkey

[1]Matrix examples: SW = surface water, PW = pore water, GW = ground water, FW = Freshwater, MW = Marine Water, BW = Brackish Water, S = soil/sediment, Other X =

[2]Type codes: G = grab, C = composite, X = | [3] Recorded using IRT-2

Wetlands Research Lab\Documents\QAP\Regional Operation Centers\NW ROC\TMDL\SMP 2022\Field Sheets and Forms\Dune Lake Run (1037 1009A 959C 959E)\Bacteria CoC\UWF Sample Transmittal Form

Eurofins TestAmerica, Pensacola
3355 McLemore Drive

Pensacola, FL 32514-7045
phone 850.474.1001 fax 850.474.4789

Chain of Custody Record

eurofins | Environment Testing TestAmerica

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Kara Sprague	Site Contact:	Date:	COC No:
Florida Department of Environmental Protection	Email: dep-overflowmicro@dep.state.fl.us	Lab Contact:	Carrier:	___ of ___ COCs
2600 Blair Stone Rd.	Tel/Fax: 850-245-8826			Sampler: Nathan Malkey
Tallahassee, FL 32301	Analysis Turnaround Time			For Lab Use Only:
Nathan Malkey Phone 595 0636	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
FAX	TAT if different from Below ____			Lab Sampling:
Project Name: Fifth Year Inspection PACS	☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Job / SDG No.:
Site: Bayou Marcus WRF				
PO # RQ-2022-04-25-27				

400-219624 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Fecal Coliform MF	Sample Specific Notes:
Bayou Marcus Test Wetland	5/9/22	0830	G	Fresh				X	Fecal coliform MF
Bayou Marcus Control Wetland	↓	0900	G	Fresh				X	Fecal coliform MF

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: Please perform ***three dilutions*** on all fecal coliform (SM9222D) samples.

RQ-2022-04-25-27

5.9°C Thermometer

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd. ____ Corr'd. ____		Therm ID No.:
Relinquished by:	Company: FDEP	Date/Time: 5/9/22 1035	Received by:	Company:	Date/Time: 5.9.22 10:35
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

SAMPLE TRANSMITTAL FORM
Document Reference # 05.1.0

Project: FDEP ECUA Bayou Marcus WRF (FL0031801) Laboratory: Wetlands Research Laboratory

Sampler's intials : KD/CC/MM/MB

Method of transport: on ice by hand

Page 1 of 1

Samples delivered by: Kylie Decker of FDEP 850-595-0639 Date/Time: 5/9/22 1215

Sample received by: [signature] of WRL Date/Time: 5/9/2022 1215

Instructions: Fill in all fields except "Lab ID" on sample transport form completely. Each sample container must use a separate line. Place this form in a waterproof bag and place it with the samples for transport. If a field log or other chain of custody is attached, that information may be referenced on this form and the log or COC attached.

5/9/2022

Lab ID	Sample ID	Matrix[1]	Type[2]	Container Type	Analyses Requested	Preservative	Sample (°C)[3]	Sampling Date/Time
22-49580	FL0031801 EFF-01 ECUA Bayou Marcus	X	G	Sterile plastic	Enterococci + Fecal	ice/Na2S2O3	10.7	5/9/2022 09:48

Comments: Sample Container lot# MS-SRT120PP L21190# Expiration 8/10/24 and MSSRT120PP L21190# Expiration 8/10/24
RQ-2022-04-25-27

Contact organization FDEP Contact name Herbert Johnson Phone: 850-245-8641

Address 160 Governmental Center, suite 308, Pensacola, FL 32502 Sampler's name:

[1]Matrix examples: SW = surface water, PW = pore water, GW = ground water, FW = Freshwater, MW = Marine Water, BW = Brackish Water, S = soil/sediment, Other X = wastewater

[2]Type codes: G = grab, C = composite, X =

[3] Recorded using IRT-2

Wetlands Research Laboratory University of West Florida Z:\Chains of Custody\UWF coc

Request Number: RQ-2022-04-25-27

FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FYI5

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Herbert Johnson

Field Report Prepared By: Kylie Decker

Collected By: Kylie Decker, Larry Couch, Michael Mocca, Mike Brumbelow

Sampling Agency: FDEP

Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/9/22 Time 9:40	Eastern (Central)	Composite end Date	Time	Bottle Group(s) (See pg 2): A					
Field ID: Effluent Grab	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen 87.6	☐ mg/L ☒ % sat	Total Res. Chlorine (mg/L)							
WIN/STORET #	Temp (C) 26.3	pH 7.14	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm) 444.3							
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments								
Location: ECUA Bayou Marcus WRF	☒ Comp ☐ Grab	Collection (comp begin or grab) Date 5/8/22 Time 9:30	Eastern (Central)	Composite end Date 5/9/22 Time 9:30		Bottle Group(s): B					
Field ID: Effluent Comp	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen ~~87.6~~ 4.0	☐ mg/L ☒ % sat	Total Res. Chlorine (mg/L)							
WIN/STORET #	Temp (C) 26.3 KD	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)							
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments: Used Facility Composite Sampler								
Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/9/22 Time 10:00	Eastern (Central)	Composite end Date	Time	Bottle Group(s): D					
Field ID: Field Blank	Matrix (type, e.g., Salt, Fresh, etc): DI water	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:	Received By:	Date/Time
Kylie Decker	5/9/22 13:00	FedEx			

79 Tampa

Request Number: RQ-2022-04-25-27

FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FYI5

Florida Department of Environmental Protection
Central Laboratory Submittal Form

400-219626 COC

Page 1 of 6

last revised Jan 25, 2018

Requester: Herbert Johnson

Collected By: Kylie Deeker

Field Report Prepared By: Kylie Deeker

Sampling Agency: FDEP

Location: ECUA - Bayou Marcus WRF (FL0031801)	☐ Comp ☐ Grab	Collection (comp begin or grab) Date / Time		Eastern Central	Composite end Date / Time		Bottle Group(s) (See pg 2): A, B, C
Field ID: Effluent Composite & Grab	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen: 87.6	☐ mg/L ☑ % sat	Total Res. Chlorine (mg/L)	
WIN/STORET #:	Temp (C): 26.3	pH: 7.14	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm): 444.3 (4430)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt):	Comments:			
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date 5/8/22 Time 9:30		Eastern (Central)	Composite end Date 5/9/22 Time 9:30		Bottle Group(s): B
Field ID: ECUA - Bayou Marcus WRF	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen:	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)	
WIN/STORET #: Effluent Composite	Temp (C):	pH:	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm):	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt):	Comments: Used facility Composite Sampler			
Location: ECUA Bayou Marcus WRF	☒ Comp ☐ Grab	Collection (comp begin or grab) Date 5/9/22 Time 10:00		Eastern (Central)	Composite end Date / Time		Bottle Group(s):
Field ID: Field Blanks	Matrix (type, e.g., Salt, Fresh, etc): DI water	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:	Received By:	Date/Time
Kylie Deeker	5/9/22 12:45			EE/S	5/9/22 1245

9.7°C IR 10

Request Number: RQ-2022-04-25-27

FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FYI5

Florida Department of Environmental Protection

Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Herbert Johnson

Field Report Prepared By: Kylie Deeker

Collected By: Kylie Deeker, Larry Cauch, Michael Mucci, Mike Brumbach

Sampling Agency: FDEP

Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/9/22 Time 9:40 Eastern Central	Composite end Date Time	Bottle Group(s) (See pg 2)
Field ID: Effluent Grab	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen 87.6 ☐ mg/L ☒ % sat	Total Res. Chlorine (mg/L)	A
WIN/STORET #	Temp (C) 26.3	pH 7.14	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm) 444.3	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments	
Location: ECUA Bayou Marcus WRF	☒ Comp ☐ Grab	Collection (comp begin or grab) Date 5/8/22 Time 9:30 Eastern Central	Composite end Date 5/9/22 Time 9:30	Bottle Group(s)
Field ID: Effluent Comp.	Matrix (type, e.g., Salt, Fresh, etc): Wastewater/Effluent	Diss. Oxygen 87.6 ☐ mg/L ☒ % sat	Total Res. Chlorine (mg/L)	B
WIN/STORET #	Temp (C) 26.3	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments: Used Facility Composite Sampler	
Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/9/22 Time 10:00 Eastern Central	Composite end Date Time	Bottle Group(s)
Field ID: Field Blank	Matrix (type, e.g., Salt, Fresh, etc): DI Water	Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)	D
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:	Received By:	Date/Time
Kylie Deeker	5/9/22 13:00	FedEx			

79 Tampa

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
TASK ASSIGNMENT/NOTIFICATION FORM: LAB145

Contract Manager: Linda Allen/Magan Bowden (850)-245-8084 / (850) 245-8095
2600 Blair Stone Rd., MS 6512
Tallahassee, FL 32399-2400

Contractor: Eurofins Environmental Testing Southeast, LLC
5102 LaRoche Ave
Savannah, GA 31404
ATTN: Noel Savoie

DEP Approval By: Linda S. Allen Contractor Approval By: Noel Savoie
Project Manager

Contractor Representatives Contacted: Noel Savoie

Date: 4/20/2022
Means of Contact: Email

Task Assignment Number: OV349 Maximum Cost: **$145.00** Turnaround Time: 5 BD

Sample Delivery Date: 5/10/2022

Project Name/Description:
RQ-2022-04-25-27:FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Deliverable Number/ Parameter Group/ Method	Sample Matrix	# of Samples	# of Containers	DEP ID #	Unit Cost	% Mark-up (if any)	Cost
Quote/OV-CBOD-1N CBOD, nitrogen-inhibited 5210B-2011	W	4	4		$33.75		$135.00
217/Sample Disposal Fee:	4				$2.50		$10.00
Total Number of Containers Shipped:	4					**Total:**	**$145.00**

660-120125 Chain of Custody

Loc: 660
120125

QC Instructions:

Comments: Quote # 66017169 - 0

Samples released to Contract Lab by: Kylie Wecker Date/Time: 5/9/22

Delivery Method: Shipping FedEx

Samples Accepted by: Date/Time 5/10/22 9:06

* **Please sign and return by email to** Linda.S.Allen@FloridaDEP.gov and Magan.Bowden@dep.state.fl.us

e.2 | 2 5

This RQ has overflow analysis that will need to be shipped directly from the field to the TestAmerica laboratory.

We have prepared a small cooler for you to ship to TestAmerica.

Inside there will be:

- Pre-labeled overflow sampling container
- Extra Field sheets (please fill them out for TestAmerica)
- Shipping label (to TestAmerica)
- Task Assignment form (to be used by TestAmerica | Please Sign the highlighted portion)

QC Instructions:

Comments: Quote *66015426 - 0*

Samples released to Contract Lab by: Date/Time:

Delivery Method Shipping

Samples Accepted by Date/Time

* Please sign and return by email to Irenette.L.Wilson@floridaDEP.gov and Megan.Bowden@dep.state.fl.us

- Return shipping labels (to be used by TestAmerica)

If you have any questions please give us a call at 850-245-8206.

st Number: RQ-2022-04-25-27

)31801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FYI5

Florida Department of Environmental Protection
Central Laboratory Submittal Form

Page 1 of 6
last revised Jan 25, 2018

Requester: Herbert Johnson
Collected By: Nathan Mulkey
Field Report Prepared By: N. Mulkey
Sampling Agency: FDEP NW/ROC

Location: Bayou Marcus Wetland North	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 6/6/22 Time 0810	Eastern Central	Composite end Date	Time	Bottle Group(s) (See pg 2): C				
Field ID: Test Wetland	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen 7.13	☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C) 27.2	pH 6.84	Sample Depth 0.05	☐ ft ☑ m	Sp. Conductance (umho/cm) 420.4					
Latitude 30.44415 ☑ dd ☐ dms	Longitude 87.33573 ☑ dd ☐ dms	Salinity (ppt)	Comments: Diffuser discharging during sampling							
Location: Bayou Marcus Wetland South	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 6/6/22 Time 0850	Eastern Central	Composite end Date	Time	Bottle Group(s): C				
Field ID: Control Wetland	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen 7.40	☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C) 24.3	pH 6.18	Sample Depth 0.1	☐ ft ☑ m	Sp. Conductance (umho/cm) 139.6					
Latitude 30.42316 ☑ dd ☐ dms	Longitude 87.33844 ☑ dd ☐ dms	Salinity (ppt)	Comments: no flow							
Location: Bayou Marcus Creek near mouth	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 6/6/22 Time 0940	Eastern Central	Composite end Date	Time	Bottle Group(s): E				
Field ID: NNC 2	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen 4.74	☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C) 26.4	pH 6.43	Sample Depth 0.3	☐ ft ☑ m	Sp. Conductance (umho/cm) 379.4					
Latitude 30.43050 ☑ dd ☐ dms	Longitude 87.33934 ☑ dd ☐ dms	Salinity (ppt)	Comments: NNC							
Location: Perdido Bay near Bayou Marcus exit point	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 6/6/22 Time 0950	Eastern Central	Composite end Date	Time	Bottle Group(s): E				
Field ID: NNC 1	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen 7.51	☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C) 28.3	pH 6.49	Sample Depth 0.3	☐ ft ☑ m	Sp. Conductance (umho/cm) 3553					
Latitude 30.44031 ☑ dd ☐ dms	Longitude 87.34769 ☑ dd ☐ dms	Salinity (ppt)	Comments: NNC							

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
[signature]	6/6/22/1400	Fed Ex	3	IM	6/8/22 10:10

Request Number: RQ-2022-04-25-27

FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FYI5

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Herbert Johnson

Field Report Prepared By: Kylie Decker

Collected By: Kylie Decker, Michael Muoi, Mike Bramfield

Sampling Agency: FDEP

Location: ECUA Bayou Marcus WRF	☒ Comp ☐ Grab	Collection (comp begin or grab) Date 6/5/22 Time 9:30	Eastern (Central)	Composite end Date 6/6/22 Time 9:30	Bottle Group(s) (See pg 2): B						
Field ID: EFF-01 Composite	Matrix (type, e.g., Salt, Fresh, etc): Fresh (effluent)			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: Used facility's composite sampler								
Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 6/6/22 Time 9:45	Eastern (Central)	Composite end Date Time	Bottle Group(s): A						
Field ID: EFF-01 Grab	Matrix (type, e.g., Salt, Fresh, etc): Fresh (effluent)			Diss. Oxygen: 6.7	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C): 28.0	pH: 6.97		Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm): 431.3					
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments								
Location: ECUA Bayou Marcus WRF	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 6/6/22 Time 10:45	Eastern (Central)	Composite end Date Time	Bottle Group(s): C						
Field ID: Field Blanks	Matrix (type, e.g., Salt, Fresh, etc): DI Water			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: Field Blanks collected near EFF-01								
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:	Received By:	Date/Time
Kylie Decker	6/6/22 12:30	FedEx	6	IM	6/8/22 10:10

FDEP

Request Number: RQ-2022-04-25-27

FL0031801 ECUA - Bayou Marcus Water Reclamation Facility

Customer: NW-DIST

Project ID: FY15

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Herbert Johnson

Field Report Prepared By: Kylie Decker

Collected By: Kylie Decker

Sampling Agency: FDEP

Location: ECUA Bayou Marcus WRF	☒ Comp ☐ Grab	Collection (comp begin or grab) Date 6/7/22 Time 9:30	Eastern Central	Composite end Date 6/8/22 Time 9:30			Bottle Group(s) (See pg 2): B
Field ID: EFF-01 Composite	Matrix (type, e.g., Salt, Fresh, etc): Fresh (effluent)		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: Used facility composite sampler				
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				
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:	Received By:	Date/Time
Kylie Decker	6/8/22 11:00	FedEx	2	ABB Devon Wileyk	06-09-22 09:28 6.9.22/0936

Appendix D. Physical/ Chemical and Wetland Condition Index

Field Sheets

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID _____ ORG ID 21FLPNS LATITUDE 30.42366
COUNTY Hillsborough WIN ID/STORET # CONTROL LONGITUDE -82.33844
DATE 6/6/22 TIME 0850 CTZ SAMPLING AGENCY FL DEP - NWROC
SITE NAME Bayou Marcus Wetland South RQ 2022-04-25-27
FIELD ID/NAME Control RECEIVING BODY OF WATER Bayou Marcus Creek / Pond WBID 697 Project: FWRS

RIPARIAN ZONE / STREAM FEATURES WBID: 697 LIMS ID:

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) :
Forest/Natural | Silviculture | Field/Pasture | Agricultural | Residential | Commercial | Industry | Other (Specify) | Landscape Development Intensity Index (LDI)

Local Watershed Erosion (select one) : ☐ None ☐ Slight ☐ Moderate ☐ Heavy
Local Watershed NPS Pollution : ☐ No evidence ☐ Slight ☐ Moderate ☐ Heavy
Typical Width (m) Depth (m)/Velocity (m/sec) Transect ____ m wide
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank : ____ Right Bank : ____
Hydrologic Modification Score (per FT 3101) ____
____ m/s ____ m/s ____ m/s
High Water Mark: ____ (m) + ____ (above present water level) = ____ (present depth) (above bed)
Artificially Impounded ☐ Yes ☐ No
____ m deep ____ m deep ____ m deep
Artificially Channelized : ☐ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe
Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE NO Flow

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse
Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify) :
Smothering of Substrates
Sand Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Silt Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Algae Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐

SUBSTRATE TYPE
Assessment Tool: ☐ SCI ☐ RPS ☐ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.1	24.3	6.18	~~16~~ 140	16.6	139.6	0.06	0.2
Mid:								☑ VOB
Bottom								TOTAL DEPTH 0.2

Meter ID: ____

Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐
Water Surface Oils Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other ☐
Water Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____
Color Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☐ _____
Algae Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____
Clarity Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☐
Fish:	☐	☐	☐	☐
Aquatic Plants:	☐	☐	☐	☐
Iron/Sulfur Bacteria:	☐	☐	☐	☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐ _____

AMBIENT FIELD CONDITIONS / NOTES:
NO Flow

☐ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM: Nathan Maltby / Stephen Stake SIGNATURE : _____ DATE : 6/6/22

62-160.800, F.A.C. Revision Date: March 1, 2014

Control Wetland. Transect 1. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
~~Albizia~~ Andropogon						
Baccharis						
Boehmeria						
Carex ~~albolutsceens~~						
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus ~~polystachos~~ virens						
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium						
Hydrocotyle						
Ink Berry						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia repens						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens						
Mock Bishop Weed						
Myrica cerifera						
Not Mikania scandens						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
Persea palustris						
Pinus						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						

8/11/2022

Control Wetland. Transect 1. Date. GPS 0 M.

GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Ludwigia ~~octovalvis~~	1	1	1	1		✓ FB
Woodwardia aerolata ~~virginica~~	1	1	1	1		FB
~~Vitis~~ Alternanthera	1	1	F	1	1	
Typha	1		1		1	
~~Al~~ ~~sphagnum~~	1	1	1		1	
Bidens	1					
Peltandra	1	1	1	1	1	
Sagittaria latifolia	1	1	1			
Osmunda regalis	1	1	1	1		
Acer rubrum	1	1	1	1	1	
Saururus	1	1	1	1		
Ilicaceae			1	1		
Pontederia			1			
Sagittaria				1	1	
Habenaria repens					1	
~~Umbrella sedge~~					1	✓
Cyperus virens					1	✓ FB

Control Wetland. Transect 2. Date. GPS 0 M.

GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria						
Carex ~~albolutscens~~						
Carex ~~folliculata~~						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos						
Eleocharis						
Erechtites hieraciifolius						
~~Gallium tinctorium~~						
Hydrocotyle						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia repens						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens						
Mock Bishop Weed						
Myrica cerifera						
~~Not Mikania scandens~~						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
~~Persea palustris~~						
Pinus						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						
Hypericum						

Control Wetland. Transect 2. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Nyssa	1			1	1	
Alternanthera	1	1	1	1	1	
Centella	1		1		1	
Acer rubrum	1	1	1	1	1	
Cyperus	1		1			
Schoenoplectus	1					
Fuirena	1			1		
Dichanthelium						
Muhlenbergia	1	1		1		
Centella		1				
Peltandra		1	1	1	1	
Sagittaria kurzii		1	1	1	1	
Nyssa		1				
Sphagnum		1	1			
Ilex vomitoria			1	1		
Baccharis halimifolia			1	1		
Ludwigia sp				1		
Lyonia lucida				1		
Hedyotis nigricans					1	

Control Wetland. Transect 3. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis Succ.olus.s				1		
Boehmeria	1	1	1	1	1	
Carex ~~alboluts~~ceens slam	1	1	C		1	
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus ~~polystachos~~ Virens			1	1		
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium				1		
Hydrocotyle			1	1		
~~Ink Berry~~						
Juncus effusus	1					
Juncus repens						
Limnobium	D	C	1			
Ludwigia peruviana						
Ludwigia repens				1	1	
Lycopus sp.			1	1	1	1
Magnolia virginiana			1			
Mikania scandens	1	1	1	1	1	
Mock Bishop Weed				1		
Myrica cerifera	1	1	1	1	1	
Not Mikania scandens						
Osmunda cinnamomea	1	C	1	1	1	
~~Panicum~~ Runke			1			
Paspalum urvillei						
Persea palustris						
Pinus elliotti			1	1		
Polygonum punctata						
Polygonum ~~sp.~~ Hydropiperoides	1	1		1		F
Rubus						
Sapium sebiferum	1	1	1		1	
Saururus cernuus	1	1	1	D	1	
Scleria Nyssa				1		
Toxicodendron radicans	1	1	1	1	1	
Triadenum virginicum		1				
Typha	1	1	1	1	1	
~~Vaccinium~~ Lachnanthes sp	1					
Vitis rotundifolia	1	1	1	1		
Woodwardia areolata	1	1	1	1	1	R

Control Wetland. Transect 3. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Nyssa						
Alternanthera						
Thalia						
Schoenoplectus						
Peltandra						
Acer rubrum						
Ilex cassine						
Osmunda regalis						
Dichromena						
Taxodium						
Sphagnum						
M. cruciferum						
Juncus repens						
Centella						
Panicum virgatum (?)						
Rhynchospora inundata						
Water Oak						
Smilax walteri						
Centella Rubins						
Sagittaria lancifolia						
Schoenoplectus						
Oxypolis						

Control Wetland. Transect 4 Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria	1	1	1			
Carex ~~albolutsceens~~ glaucea		1	1	1		
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos						
Eleocharis	1					
Erechtites hieraciifolius						
Gallium tinctorium		1		1		
Hydrocotyle	1	1	1	1	1	
Juncus effusus	1	1	1			
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia repens	1		1	1	1	
Lycopus sp.		1				1
Magnolia virginiana		1				
Mikania scandens	1	1	1	1	1	S
Mock Bishop Weed						
Myrica cerifera	1	1	1			
Not Mikania scandens						
Osmunda cinnamomea	D	1	1	1	1	
Panicum						
Paspalum urvillei						
Persea palustris					1	
Pinus elliotii						
Poaceae						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum	1	1	1	1		
Saururus cernuus	1	D	D	D	1	
Scleria						
Toxicodendron radicans	1	1	1	1	1	S
Triadenum virginicum						
Typha		1	1	1	1	S
Vaccinium						
Vitis rotundifolia	1	1		1		
Woodwardia areolata	1	1	1	1		

Control Wetland. Transect 4. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Thalia (?)	R	1	1	1	1	
Tg American Bur-reed	+	+				
Sag. latifolia	1					
Taxodium	1					
Bidens alba	1			1		
Peltandra	1	1	1	1	1	
Acer rubrum	1	1	1	1	1	
cantella / Sphagnum	1 1	/	1			
Alternanthera	1	1	1	1	1	
Smilax walteri		1				
Oak(?) / Nyssa ?	1	1	1	1	1	
Dichanthelium scabs			1	1		
Osmunda Regalis			1	1	1	
Cherokee Rose			1			
Alsemon / Bidens mitis				1	/ ←	
Shoreplehy				1	1 ←	
Micranthemum					1 ←	

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID _____ ORG ID 21FLPNS LATITUDE 30.44415
COUNTY Escambia WIN ID/STORET # TEST LONGITUDE 87.33573
DATE 6/6/22 TIME 0810 CTZ SAMPLING AGENCY FL DEP - NWROC
SITE NAME Bayou Marcus Wetland North RQ 2022-04-25-27
FIELD ID/NAME West RECEIVING BODY OF WATER Bayou Marcus Creek/Pond WBID 697 Project: FY25
LIMS ID: BJ

RIPARIAN ZONE / STREAM FEATURES WBID: 697

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):
Forest/Natural | Silviculture | Field/Pasture | Agricultural | Residential | Commercial | Industry | Other (Specify)

Landscape Development Intensity Index (LDI)

Local Watershed Erosion (select one): ☐ None ☐ Slight ☐ Moderate ☐ Heavy
Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: _____ Right Bank: _____

Hydrologic Modification Score (per FT 3101) _____

High Water Mark: _____ (m) + _____ (above present water level) = _____ (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
_____ m wide
_____ m/s _____ m/s _____ m/s
_____ m deep _____ m deep _____ m deep

Artificially Channelized: ☐ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE Diffusers discharging

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify):

Smothering of Substrates
Sand Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Silt Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Algae Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐

SUBSTRATE TYPE
Assessment Tool: ☐ SCI ☐ RPS ☐ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☐
Fish:	☐	☐	☐	☐
Aquatic Plants:	☐	☐	☐	☐
Iron/Sulfur Bacteria:	☐	☐	☐	☐

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	~~0.1~~ 0.1	27.2	6.84	7.13	90.1	420.4	0.20	~~0.1~~ 0.1
Mid:	0.05							☑ VOB
Bottom								TOTAL DEPTH ~~0.1~~ 0.1

Meter ID: ~~YSI 077~~ 155772

Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Color Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☐ _____

Algae Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Clarity Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque ☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐ _____

AMBIENT FIELD CONDITIONS / NOTES:
Diffusers discharging

☐ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM: Nathan Malley / Stephen Slade SIGNATURE: [signature] DATE: 6/6/22

62-160.800, F.A.C. Revision Date: March 1, 2014

Test Wetland. Transect 1. Date. GPS 0 M. 30.44420, -87.33560

GPS 50 M [redacted].

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria						
Carex albolutscens						
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos						
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium						
Hydrocotyle						
Ink Berry						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia repens						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens (NOT)						
~~*Mock Bishop Weed*~~ Myrica 2						
Myrica cerifera						
~~Not~~ *Mikania scandens*						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
Persea palustris						
Pinus						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						

Birds

Test Wetland. Transect 1. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Ptilium						
Carex stipat						
Thallium Fern						
Acer rubrum						
Virginia creeper						
Sphagnum						
Carex lurida						
Eriocaulon 1						
Lespedeza						
Dichanthelium						
Cerat lobe						
Rhynchospora						
G						

Test Wetland. Transect 2. Date. GPS 0 M. 30.44373 -87.33405

GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria						
Carex albolutscens						
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos						
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium						
Hydrocotyle						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia repens						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens						
Mock Bishop Weed						
Myrica cerifera						
Not Mikania scandens						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
Persea palustris						
Pinus						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						

Test Wetland. Transect 2. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Thalia fern	D D	1 1	1 1	1	1 1	
Poaceae	1 1					
Cuna Stipata				1		
Cladium		1 1				
Virginia Creeper		1 1				
~~Rhododendron~~			1 1			
Smilax Laurifolia			1			
Woodwardia areolata			1	1		
Carex Lurida			1	1	1 1	
Liliaceae sp				1		
Micranthemum				1		
Ligustrum sinense					1 1	
Xyris					1	

Test Wetland. Transect 3. Date. GPS 0 M. 30.44367 x 87.33349

GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria						
Carex albolutscens						
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos						
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium						
Hydrocotyle						
Ink Berry						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia ~~repens~~						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens						
Mock Bishop Weed						
Myrica cerifera						
Not Mikania scandens						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
Persea palustris						
Pinus						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						

Testl Wetland. Transect 3. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Thelypteris dentata Thelypteris - Form	1 1	1	1 1	D D	D D	
Centella asiatica	1	1 1				
Cer* Stratiotes	1			1	1 1	
Hab Jap. Chimaphila fragrans	1					
Ilex glabra	1 1					
Eup fennel Eupatorium	1			1		
Salix		1	1			
Sphagnum			1			
Andropogon				1		
Typha					1	
Stink Weed					1	

Test Wetland. Transect 4 Date. GPS 0 M. 30.44353 x 87.33305

GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Albizia						
Baccharis						
Boehmeria						
Carex albolutscens						
Carex folliculata						
Cliftonia monophylla						
Commelenia difusa						
Cyperus polystachos (NOT)						
Eleocharis						
Erechtites hieraciifolius						
Gallium tinctorium						
Hydrocotyle						
Juncus effusus						
Juncus repens						
Limnobium						
Ludwigia peruviana						
Ludwigia ~~repens~~						
Lycopus sp.						
Magnolia virginiana						
Mikania scandens						
Mock Bishop Weed						
Myrica cerifera						
Not Mikania scandens						
Osmunda cinnamomea						
Panicum						
Paspalum urvillei						
Persea palustris						
Pinus						
Poaceae						
Polygonum punctata						
Polygonum sp.						
Rubus						
Sapium sebiferum						
Saururus cernuus						
Scleria						
Toxicodendron radicans						
Triadenum virginicum						
Typha						
Vaccinium						
Vitis rotundifolia						
Woodwardia areolata						

Test Wetland. Transect 4. Date. GPS 0 M.
GPS 50 M

Taxa	0-10 m	10-20 m	20-30 M	30-40m	40-50m	Coll.
Thalia	D D	D C	1 1	1 D	D D	
Carex stipata	1 1	1 1		1	1 1	
Eupatorium	1					
Echinochloa	1					
Typha	1					
Cladium	1			1	1	
Sphagnum	1					
Smilax glauca	1					
Super Fuzzy		1 1				
Chinese Privet		1	1			
Ink Berry			1			
Carex lurida			1	1		
Lilium sp.					1	
Acer rubrum					1	
3-Leaf Vine					1	

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID _____ ORG ID 21FLPNS LATITUDE 30.44031
COUNTY Escambia WIN ID/STORET # WNC1 LONGITUDE 87.34769
DATE 6/6/22 TIME 0956 CTZ SAMPLING AGENCY FL DEP - NWROC
SITE NAME Perdido Bay par Bayou Marcus Exit Point RO 2022-04-25-27
FIELD ID/NAME WNC1 RECEIVING BODY OF WATER Gulf of Mexico WBID 797 Project: FIES

RIPARIAN ZONE / STREAM FEATURES WBID: 797 LIMS ID:

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) :
Forest/Natural | Silviculture | Field/Pasture | Agricultural | Residential | Commercial | Industry | Other (Specify)

Landscape Development Intensity Index (LDI)

Local Watershed Erosion (select one) : ☐ None ☐ Slight ☐ Moderate ☐ Heavy
Local Watershed NPS Pollution : ☐ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side Left Bank : _____ Right Bank : _____

Hydrologic Modification Score (per FT 3101) _____

High Water Mark: _____ (m) + _____ (above present water level) = _____ (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
_____ m wide
_____ m/s _____ m/s _____ m/s
_____ m deep _____ m deep _____ m deep

Artificially Channelized : ☐ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify) :

Smothering of Substrates
Sand Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Silt Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Algae Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐

SUBSTRATE TYPE
Assessment Tool: ☐ SCI ☐ RPS ☐ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☐
Fish:	☐	☐	☐	☐
Aquatic Plants:	☐	☐	☐	☐
Iron/Sulfur Bacteria:	☐	☐	☐	☐

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.3	28.3	6.49	7.51	97.9	3553	1.86	1.0
Mid:								☐ VOB
Bottom	1.1	28.3	6.28	4.20	55.3	8256	4.56	TOTAL DEPTH
Meter ID:	155077							1.6

Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Color Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Clarity Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque ☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐ _____

AMBIENT FIELD CONDITIONS / NOTES:

☐ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM: Nathan Milby / Skyler Dale SIGNATURE : _____ DATE : 6/6/22

62-160.800, F.A.C. Revision Date: March 1, 2014

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID _____ ORG ID 21FLPNS LATITUDE 30.43050
COUNTY Escambia WIN ID/STORET # NWC 2 LONGITUDE 87.33934
DATE 6/6/22 TIME 0940 CTZ SAMPLING AGENCY FL DEP - NWROC
SITE NAME Bayou Marcus Creek near mouth RQ 2022-04-25-27
FIELD ID/NAME NWC2 RECEIVING BODY OF WATER Perdido Bay WBID 697 Project: FY25

RIPARIAN ZONE / STREAM FEATURES WBID: 697 LIMS ID:

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) :
Forest/Natural | Silviculture | Field/Pasture | Agricultural | Residential | Commercial | Industry | Other (Specify)

Landscape Development Intensity Index (LDI)

Local Watershed Erosion (select one) : ☐ None ☐ Slight ☐ Moderate ☐ Heavy
Local Watershed NPS Pollution : ☐ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side Left Bank : _____ Right Bank : _____

Hydrologic Modification Score (per FT 3101) _____

High Water Mark: _____ + _____ = _____
(m) (above present water level) (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
_____ m wide
_____ m/s _____ m/s _____ m/s
_____ m deep _____ m deep _____ m deep

Artificially Channelized : ☐ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify) :

Smothering of Substrates
Sand Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Silt Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐
Algae Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☐

SUBSTRATE TYPE
Assessment Tool: ☐ SCI ☐ RPS ☐ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.3	26.4	6.43	4.74	59.0	379.4	0.18	1.1
Mid:								☐ VOB
Bottom	1.6	28.2	6.04	5.79	75.3	4449	0.36	TOTAL DEPTH

Meter ID: 155077 — 2.1

Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Color Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☐ No
Sample Preserved? ☐ Yes ☐ No
Lot Number:_____ Exp:_____

Clarity Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☐
Fish:	☐	☐	☐	☐
Aquatic Plants:	☐	☐	☐	☐
Iron/Sulfur Bacteria:	☐	☐	☐	☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐ _____

AMBIENT FIELD CONDITIONS / NOTES:

☐ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM: Nathan Milby / Stephen Dale SIGNATURE : _____ DATE : 6/6/22

62-160.800, F.A.C. Revision Date: March 1, 2014

Appendix E. Chemical Analysis of Effluent and Receiving Water

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/9/2022 10:30	Effluent Composite	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2	2
5/9/2022 10:40	Effluent Grab	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2	2
5/9/2022 10:40	Effluent Grab	Overflow	Sulfide	0.057 UQ	mg/L	0.057	0.1
5/9/2022 10:40	Effluent Grab	Nutrients	Dissolved Oxygen %Sat	87.6	%Sat		
5/9/2022 10:40	Effluent Grab	Nutrients	pH	7.14			
5/9/2022 10:40	Effluent Grab	Nutrients	Specific Conductance	444.3	µmhos/cm		
5/9/2022 10:40	Effluent Grab	Nutrients	Temperature	26.3	C		
5/9/2022 10:40	Effluent Grab	Overflow	Enterococci-Quanti-Tray	10 U	MPN/100 mL	10	10
5/9/2022 10:40	Effluent Grab	Overflow	Fecal Coliform-Quanti-Tray	10 U	MPN/100 mL	10	10
5/9/2022 10:00	Control Site	Overflow	Enterococci-Quanti-Tray	613	MPN/100 mL	10	10
5/9/2022 10:00	Control Site	Overflow	Fecal Coliforms-Membrane Filter	87 J	cfu/100 mL	1	1
5/9/2022 10:00	Control Site	Overflow	Escherichia Coli-Quanti-Tray	20	MPN/100 mL	10	10
5/9/2022 9:30	Test Site	Overflow	Fecal Coliforms-Membrane Filter	48 J	cfu/100 mL	2	2
5/9/2022 9:30	Test Site	Overflow	Escherichia Coli-Quanti-Tray	41	MPN/100 mL	10	10
5/9/2022 9:30	Test Site	Overflow	Enterococci-Quanti-Tray	1439	MPN/100 mL	10	10
5/9/2022 11:00	Field Blank	Overflow	Sulfide	0.057 UQ	mg/L	0.057	0.1
6/8/2022 10:30	Effluent Composite	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100 L	LC50		
6/8/2022 10:30	Effluent Composite	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100 L	LC50		
6/6/2022 10:30	Effluent Composite	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2	2
6/6/2022 10:30	Effluent Composite	Nutrients	Ammonia-N	0.043	mg N/L	0.002	0.005
6/6/2022 10:30	Effluent Composite	Nutrients	Organic Carbon	6.3 A	mg C/L	0.5	1
6/6/2022 10:30	Effluent Composite	Nutrients	NO2NO3-N	1.3	mg N/L	0.04	0.1
6/6/2022 10:30	Effluent Composite	Nutrients	Kjeldahl Nitrogen	1.2	mg N/L	0.08	0.2
6/6/2022 10:30	Effluent Composite	Nutrients	TSS	2 U	mg/L	2	10
6/6/2022 10:30	Effluent Composite	Nutrients	Total-P	0.29	mg P/L	0.005	0.05
6/6/2022 10:45	Effluent Grab	AGP/LN	Algal Growth Potential	4.28	mg DryWt/L	0.3	0.9
6/6/2022 10:45	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	2.6 IQ	µg/L	1.2	3.5
6/6/2022 10:45	Effluent Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.8 UQ	µg/L	1.8	5.3
6/6/2022 10:45	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	3.3 IQ	µg/L	1.6	4.8
6/6/2022 10:45	Effluent Grab	Overflow	Fecal Coliform-Quanti-Tray	10 U	MPN/100 mL	10	10
6/6/2022 10:45	Effluent Grab	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2	2
6/6/2022 10:45	Effluent Grab	Overflow	Enterococci-Quanti-Tray	10 U	MPN/100 mL	10	10

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:45	Effluent Grab	Metals	Selenium	0.20 U	µg/L	0.2	0.8
6/6/2022 10:45	Effluent Grab	Metals	Calcium	29.8	mg/L	0.075	0.3
6/6/2022 10:45	Effluent Grab	Metals	Zinc	58	µg/L	5	20
6/6/2022 10:45	Effluent Grab	Metals	Sodium	44.4	mg/L	0.5	2
6/6/2022 10:45	Effluent Grab	Metals	Potassium	13	mg/L	0.3	1.2
6/6/2022 10:45	Effluent Grab	Metals	Hardness	87.6	mg/L	0.35	1.4
6/6/2022 10:45	Effluent Grab	Metals	Aluminum	129	µg/L	5	20
6/6/2022 10:45	Effluent Grab	Metals	Chromium	0.40 U	µg/L	0.4	1.6
6/6/2022 10:45	Effluent Grab	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
6/6/2022 10:45	Effluent Grab	Metals	Iron	100 I	µg/L	30	120
6/6/2022 10:45	Effluent Grab	Metals	Silver	0.010 U	µg/L	0.01	0.04
6/6/2022 10:45	Effluent Grab	Metals	Nickel	4.6	µg/L	0.5	2
6/6/2022 10:45	Effluent Grab	Metals	Lead	0.20 U	µg/L	0.2	0.4
6/6/2022 10:45	Effluent Grab	Metals	Copper	1.8	µg/L	0.4	0.8
6/6/2022 10:45	Effluent Grab	Metals	Arsenic	0.57	µg/L	0.05	0.2
6/6/2022 10:45	Effluent Grab	Metals	Magnesium	3.21	mg/L	0.04	0.16
6/6/2022 10:45	EFF-01 Grab	Nutrients	Turbidity	1.0 AQ	NTU	0.1	1
6/6/2022 10:45	Effluent Grab	Nutrients	Organic Carbon	6.1	mg C/L	0.5	1
6/6/2022 10:45	Effluent Grab	Nutrients	Total Alkalinity	60 A	mg CaCO3/L	1	2.5
6/6/2022 10:45	Effluent Grab	Nutrients	TSS	2 U	mg/L	2	10
6/6/2022 10:45	Effluent Grab	Nutrients	Chloride	47 A	mg Cl/L	0.2	0.5
6/6/2022 10:45	Effluent Grab	Nutrients	Nitrite-N	0.009 Q	mg N/L	0.002	0.005
6/6/2022 10:45	Effluent Grab	Nutrients	NO2NO3-N	1	mg N/L	0.04	0.1
6/6/2022 10:45	Effluent Grab	Nutrients	Color (true)	21 AQ	PCU	2.5	6
6/6/2022 10:45	Effluent Grab	Nutrients	Total-P	0.24	mg P/L	0.005	0.05
6/6/2022 10:45	Effluent Grab	Nutrients	Sulfate	59 AJ	mg SO4/L	0.2	0.5
6/6/2022 10:45	Effluent Grab	Nutrients	Fluoride	0.28	mg F/L	0.035	0.1
6/6/2022 10:45	Effluent Grab	Nutrients	O-Phosphate-P	0.16 Q	mg P/L	0.008	0.02
6/6/2022 10:45	Effluent Grab	Nutrients	Kjeldahl Nitrogen	1	mg N/L	0.08	0.2
6/6/2022 10:45	Effluent Grab	Nutrients	Ammonia-N	0.051	mg N/L	0.002	0.005
6/6/2022 10:45	Effluent Grab	Overflow	Sulfide	1.0 U	mg/L	1	1
6/6/2022 10:45	Effluent Grab	Pesticides	Acetochlor	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Atrazine Desethyl	1.4 U	ng/L	1.4	5.8
6/6/2022 10:45	Effluent Grab	Pesticides	Azoxystrobin	2.8	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Caffeine	20 IQ	ng/L	7.3	29
6/6/2022 10:45	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.048 U	ng/L	0.048	0.19

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:45	Effluent Grab	Pesticides	Cyprodinil	0.56	ng/L	0.096	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Ethion	0.14 U	ng/L	0.14	0.58
6/6/2022 10:45	Effluent Grab	Pesticides	Fludioxonil	3.3	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Flumioxazin	1.7 U	ng/L	1.7	6.7
6/6/2022 10:45	Effluent Grab	Pesticides	Loratadine	4.8	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Metolachlor	1.3 I	ng/L	0.34	1.3
6/6/2022 10:45	Effluent Grab	Pesticides	Oxadiazon	0.29 U	ng/L	0.29	1.2
6/6/2022 10:45	Effluent Grab	Pesticides	Prometon	0.86 U	ng/L	0.86	3.5
6/6/2022 10:45	Effluent Grab	Pesticides	Propargite	1.4 U	ng/L	1.4	5.8
6/6/2022 10:45	Effluent Grab	Pesticides	Sulfentrazone	6.2	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Butylate	0.38 U	ng/L	0.38	1.5
6/6/2022 10:45	Effluent Grab	Pesticides	Fenbuconazole	0.12 U	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Fluazifop-P-butyl	0.096 U	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Fonofos	0.19 U	ng/L	0.19	0.77
6/6/2022 10:45	Effluent Grab	Pesticides	Metalaxyl	0.72 U	ng/L	0.72	2.9
6/6/2022 10:45	Effluent Grab	Pesticides	Naled	1.4 UJ	ng/L	1.4	5.8
6/6/2022 10:45	Effluent Grab	Pesticides	Tebuconazole	14	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Terbuthylazine	0.41 U	ng/L	0.41	1.6
6/6/2022 10:45	Effluent Grab	Pesticides	Sucralose	94	µg/L	0.1	0.4
6/6/2022 10:45	Effluent Grab	Pesticides	Carfentrazone Ethyl	0.096 U	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Chlorfenapyr	0.89	ng/L	0.17	0.67
6/6/2022 10:45	Effluent Grab	Pesticides	Cyanazine	3.1 U	ng/L	3.1	12
6/6/2022 10:45	Effluent Grab	Pesticides	Dimethenamid	0.096 U	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Dimethomorph	0.20 I	ng/L	0.17	1
6/6/2022 10:45	Effluent Grab	Pesticides	Dithiopyr	0.34 I	ng/L	0.17	0.67
6/6/2022 10:45	Effluent Grab	Pesticides	EPTC	1.2 U	ng/L	1.2	4.8
6/6/2022 10:45	Effluent Grab	Pesticides	Fenamiphos	0.48 U	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Fipronil Sulfide	6.2	ng/L	0.14	0.58
6/6/2022 10:45	Effluent Grab	Pesticides	Fipronil Sulfone	8.1	ng/L	0.14	0.58
6/6/2022 10:45	Effluent Grab	Pesticides	Imazalil	0.72 U	ng/L	0.72	2.9
6/6/2022 10:45	Effluent Grab	Pesticides	Phenytoin	83	ng/L	3.4	13
6/6/2022 10:45	Effluent Grab	Pesticides	Prodiamine	0.17 U	ng/L	0.17	0.67
6/6/2022 10:45	Effluent Grab	Pesticides	Diazinon	0.12 U	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Disulfoton	0.48 U	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Metribuzin	2.4 U	ng/L	2.4	9.6
6/6/2022 10:45	Effluent Grab	Pesticides	Pronamide	0.14 U	ng/L	0.14	0.58

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:45	Effluent Grab	Pesticides	Propiconazole	11	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Simazine	0.48 U	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Naproxen	0.016 I	µg/L	0.008	0.032
6/6/2022 10:45	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Coumaphos	0.48 U	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Demeton	1.4 U	ng/L	1.4	5.8
6/6/2022 10:45	Effluent Grab	Pesticides	Difenoconazole	0.58 U	ng/L	0.58	2.3
6/6/2022 10:45	Effluent Grab	Pesticides	Ethoprop	0.096 U	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Etridiazole	0.14 U	ng/L	0.14	0.58
6/6/2022 10:45	Effluent Grab	Pesticides	Malathion	0.34 U	ng/L	0.34	1.3
6/6/2022 10:45	Effluent Grab	Pesticides	Parathion Methyl	0.53 U	ng/L	0.53	2.1
6/6/2022 10:45	Effluent Grab	Pesticides	Phorate	0.50 U	ng/L	0.5	2
6/6/2022 10:45	Effluent Grab	Pesticides	Prometryn	0.19 U	ng/L	0.19	0.77
6/6/2022 10:45	Effluent Grab	Pesticides	Propanil	0.12 U	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Pyriproxyfen	0.12 U	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Stirophos	0.12 UJ	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Ibuprofen	0.080 U	µg/L	0.08	0.32
6/6/2022 10:45	Effluent Grab	Pesticides	Fipronil	35	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Fluxapyroxad	0.5	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Hexazinone	2	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Iprodione	0.58 U	ng/L	0.58	2.3
6/6/2022 10:45	Effluent Grab	Pesticides	Napropamide	0.38 U	ng/L	0.38	1.5
6/6/2022 10:45	Effluent Grab	Pesticides	Norflurazon	0.48 U	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Oxyfluorfen	0.14 U	ng/L	0.14	0.58
6/6/2022 10:45	Effluent Grab	Pesticides	Pendimethalin	0.96 U	ng/L	0.96	3.8
6/6/2022 10:45	Effluent Grab	Pesticides	Pyridaben	0.43 U	ng/L	0.43	2.2
6/6/2022 10:45	Effluent Grab	Pesticides	Alachlor	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Azinphos Methyl	8.6	ng/L	1.9	7.7
6/6/2022 10:45	Effluent Grab	Pesticides	Bromacil	29	ng/L	0.48	1.9
6/6/2022 10:45	Effluent Grab	Pesticides	Flutolanil	0.52	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Pesticides	Mevinphos	1.0 U	ng/L	1	4
6/6/2022 10:45	Effluent Grab	Pesticides	Myclobutanil	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Thiobencarb	0.58 U	ng/L	0.58	2.3
6/6/2022 10:45	Effluent Grab	Pesticides	Triadimefon	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Atrazine	41	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Ametryn	0.58 U	ng/L	0.58	2.3

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:45	Effluent Grab	Pesticides	Carbophenothion	0.19 U	ng/L	0.19	0.77
6/6/2022 10:45	Effluent Grab	Pesticides	Fipronil Desulfinyl	4.1	ng/L	0.12	0.48
6/6/2022 10:45	Effluent Grab	Pesticides	Molinate	0.29 U	ng/L	0.29	1.2
6/6/2022 10:45	Effluent Grab	Pesticides	Parathion Ethyl	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Pyraflufen Ethyl	0.24 U	ng/L	0.24	0.96
6/6/2022 10:45	Effluent Grab	Pesticides	Terbufos	0.096 U	ng/L	0.096	0.38
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	11 U	µg/L	11	43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	0.22 U	µg/L	0.22	0.87
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	1,4-Dioxane	0.36	µg/L	0.04	0.16
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Anthracene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Chrysene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	2.2 U	µg/L	2.2	8.7
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.11 U	µg/L	0.11	0.43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	0.54 U	µg/L	0.54	2.2
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.11 U	µg/L	0.11	0.43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Phenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	11 U	µg/L	11	43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	11 U	µg/L	11	43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzidine	11 U	µg/L	11	43

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2 U	µg/L	2.2	8.7
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.4 U	µg/L	5.4	22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	µg/L	1.1	4.3
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Fluorene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3 U	µg/L	3.3	13
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	2.2 U	µg/L	2.2	8.7
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Pyrene	0.11 U	µg/L	0.11	0.43
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Isophorone	0.054 U	µg/L	0.054	0.22
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.027 U	µg/L	0.027	0.11
6/6/2022 10:45	Effluent Grab	Nutrients	Dissolved Oxygen mg/L	6.7	mg/L		
6/6/2022 10:45	Effluent Grab	Nutrients	Temperature	28	C		
6/6/2022 10:45	Effluent Grab	Nutrients	Specific Conductance	431.3	µmhos/cm		
6/6/2022 10:45	Effluent Grab	Nutrients	pH	6.97			
6/6/2022 9:50	Control Site	AGP/LN	Algal Growth Potential	0.300 U	mg DryWt/L	0.3	0.9
6/6/2022 9:50	Control Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	4.5 UQ	µg/L	4.5	14
6/6/2022 9:50	Control Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	6.4 IQ	µg/L	3	9
6/6/2022 9:50	Control Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	6.6 IQ	µg/L	4.1	12
6/6/2022 9:50	Control Site	Overflow	Fecal Coliforms-Membrane Filter	142	cfu/100 mL	1.33	1.33
6/6/2022 9:50	Control Site	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 QU	mg/L	2	2
6/6/2022 9:50	Control Site	Overflow	Enterococci-Quanti-Tray	557	MPN/100 mL	10	10
6/6/2022 9:50	Control Site	Overflow	Escherichia Coli-Quanti-Tray	158	MPN/100 mL	10	10
6/6/2022 9:50	Control Site	Metals	Zinc	8.6 I	µg/L	5	20

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:50	Control Site	Metals	Nickel	0.50 U	µg/L	0.5	2
6/6/2022 9:50	Control Site	Metals	Magnesium	1.56	mg/L	0.04	0.16
6/6/2022 9:50	Control Site	Metals	Sodium	7.2	mg/L	0.5	2
6/6/2022 9:50	Control Site	Metals	Lead	2.43	µg/L	0.2	0.4
6/6/2022 9:50	Control Site	Metals	Calcium	14.6	mg/L	0.075	0.3
6/6/2022 9:50	Control Site	Metals	Selenium	0.20 U	µg/L	0.2	0.8
6/6/2022 9:50	Control Site	Metals	Iron	3.17E+03	µg/L	30	120
6/6/2022 9:50	Control Site	Metals	Copper	0.73 I	µg/L	0.4	0.8
6/6/2022 9:50	Control Site	Metals	Silver	0.010 U	µg/L	0.01	0.04
6/6/2022 9:50	Control Site	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
6/6/2022 9:50	Control Site	Metals	Aluminum	211	µg/L	5	20
6/6/2022 9:50	Control Site	Metals	Arsenic	3.64	µg/L	0.05	0.2
6/6/2022 9:50	Control Site	Metals	Potassium	1.6	mg/L	0.3	1.2
6/6/2022 9:50	Control Site	Metals	Chromium	0.43 I	µg/L	0.4	1.6
6/6/2022 9:50	Control Site	Nutrients	Turbidity	17 Q	NTU	0.1	1
6/6/2022 9:50	Control Site	Nutrients	Color (true)	57 Q	PCU	2.5	6
6/6/2022 9:50	Control Site	Nutrients	Sulfate	0.79	mg SO4/L	0.2	0.5
6/6/2022 9:50	Control Site	Nutrients	Kjeldahl Nitrogen	0.91	mg N/L	0.08	0.2
6/6/2022 9:50	Control Site	Nutrients	Total Alkalinity	39	mg CaCO3/L	1	2.5
6/6/2022 9:50	Control Site	Nutrients	Fluoride	0.043 I	mg F/L	0.035	0.1
6/6/2022 9:50	Control Site	Nutrients	NO2NO3-N	0.026	mg N/L	0.004	0.01
6/6/2022 9:50	Control Site	Nutrients	Organic Carbon	11	mg C/L	0.5	1
6/6/2022 9:50	Control Site	Nutrients	Ammonia-N	0.047	mg N/L	0.002	0.005
6/6/2022 9:50	Control Site	Nutrients	Total-P	0.082	mg P/L	0.005	0.05
6/6/2022 9:50	Control Site	Nutrients	Chloride	11	mg Cl/L	0.2	0.5
6/6/2022 9:50	Control Site	Nutrients	Nitrite-N	0.004 IQ	mg N/L	0.002	0.005
6/6/2022 9:50	Control Site	Nutrients	O-Phosphate-P	0.014 Q	mg P/L	0.004	0.01
6/6/2022 9:50	Control Site	Nutrients	TSS	24	mg/L	2	10
6/6/2022 9:50	Control Site	Overflow	Sulfide	1.0 UQ	mg/L	1	1
6/6/2022 9:50	Control Site	Pesticides	Naproxen	0.0080 U	µg/L	0.008	0.032
6/6/2022 9:50	Control Site	Pesticides	Ibuprofen	0.080 U	µg/L	0.08	0.32
6/6/2022 9:50	Control Site	Pesticides	Sucralose	0.091	µg/L	0.01	0.04
6/6/2022 9:50	Control Site	Priority Organic Pollutants	3,3'-Dichlorobenzidine	11 U	µg/L	11	44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Acenaphthylene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.028 U	µg/L	0.028	0.11

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Chrysene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Fluorene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2-Chlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Fluoranthene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,4-Dichlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Anthracene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Pyrene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Phenanthrene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2 U	µg/L	2.2	8.9
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Hexachlorobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.6 U	µg/L	5.6	22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,4-Dimethylphenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Diethyl phthalate	2.2 U	µg/L	2.2	8.9
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Dimethyl phthalate	0.22 U	µg/L	0.22	0.89
6/6/2022 9:50	Control Site	Priority Organic Pollutants	1,4-Dioxane	0.040 U	µg/L	0.04	0.16
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,4-Dinitrotoluene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Isophorone	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Pentachlorophenol	0.56 U	µg/L	0.56	2.2
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,4-Dinitrophenol	11 U	µg/L	11	44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Di-n-butyl phthalate	2.2 U	µg/L	2.2	8.9
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Naphthalene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Phenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzidine	11 U	µg/L	11	44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzo(a)pyrene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Hexachlorobutadiene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Hexachloroethane	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Nitrobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2-Chloronaphthalene	0.056 U	µg/L	0.056	0.22

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Acenaphthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzo(a)anthracene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzo(b)fluoranthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	µg/L	1.1	4.4
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Di-n-octyl phthalate	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3 U	µg/L	3.3	13
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2-Nitrophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	2,6-Dinitrotoluene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:50	Control Site	Priority Organic Pollutants	4-Nitrophenol	11 U	µg/L	11	44
6/6/2022 9:50	Control Site	Priority Organic Pollutants	Benzo(k)fluoranthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:50	Control Site	Nutrients	pH	6.18			
6/6/2022 9:50	Control Site	Nutrients	Dissolved Oxygen mg/L	1.4	mg/L		
6/6/2022 9:50	Control Site	Nutrients	Temperature	24.3	C		
6/6/2022 9:50	Control Site	Nutrients	Specific Conductance	139.6	µmhos/cm		
6/6/2022 9:50	Control Site	Nutrients	Sample Depth	0.1	m		
6/6/2022 9:10	Test Site	AGP/LN	Algal Growth Potential	5.09	mg DryWt/L	0.3	0.9
6/6/2022 9:10	Test Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.4 IQ	µg/L	0.82	2.5
6/6/2022 9:10	Test Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	1.5 IQ	µg/L	0.6	1.8
6/6/2022 9:10	Test Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.90 UQ	µg/L	0.9	2.7
6/6/2022 9:10	Test Site	Overflow	Fecal Coliforms-Membrane Filter	42 J	cfu/100 mL	2	2
6/6/2022 9:10	Test Site	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 QU	mg/L	2	2
6/6/2022 9:10	Test Site	Overflow	Escherichia Coli-Quanti-Tray	20	MPN/100 mL	10	10
6/6/2022 9:10	Test Site	Overflow	Enterococci-Quanti-Tray	121	MPN/100 mL	10	10
6/6/2022 9:10	Test Site	Metals	Arsenic	0.63	µg/L	0.05	0.2
6/6/2022 9:10	Test Site	Metals	Calcium	29.6	mg/L	0.075	0.3
6/6/2022 9:10	Test Site	Metals	Nickel	4.7	µg/L	0.5	2
6/6/2022 9:10	Test Site	Metals	Sodium	43.6	mg/L	0.5	2
6/6/2022 9:10	Test Site	Metals	Chromium	0.40 U	µg/L	0.4	1.6
6/6/2022 9:10	Test Site	Metals	Magnesium	3.21	mg/L	0.04	0.16
6/6/2022 9:10	Test Site	Metals	Lead	0.20 U	µg/L	0.2	0.4
6/6/2022 9:10	Test Site	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
6/6/2022 9:10	Test Site	Metals	Copper	1.89	µg/L	0.4	0.8
6/6/2022 9:10	Test Site	Metals	Iron	34 I	µg/L	30	120

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:10	Test Site	Metals	Potassium	12.9	mg/L	0.3	1.2
6/6/2022 9:10	Test Site	Metals	Selenium	0.20 U	µg/L	0.2	0.8
6/6/2022 9:10	Test Site	Metals	Silver	0.010 U	µg/L	0.01	0.04
6/6/2022 9:10	Test Site	Metals	Aluminum	135	µg/L	5	20
6/6/2022 9:10	Test Site	Metals	Zinc	54	µg/L	5	20
6/6/2022 9:10	Test Site	Nutrients	Total-P	0.3	mg P/L	0.005	0.05
6/6/2022 9:10	Test Site	Nutrients	Organic Carbon	6.2	mg C/L	0.5	1
6/6/2022 9:10	Test Site	Nutrients	Ammonia-N	0.038	mg N/L	0.002	0.005
6/6/2022 9:10	Test Site	Nutrients	TSS	3 I	mg/L	2	10
6/6/2022 9:10	Test Site	Nutrients	Sulfate	54	mg SO4/L	0.2	0.5
6/6/2022 9:10	Test Site	Nutrients	Nitrite-N	0.008 Q	mg N/L	0.002	0.005
6/6/2022 9:10	Test Site	Nutrients	Chloride	46	mg Cl/L	0.2	0.5
6/6/2022 9:10	Test Site	Nutrients	Turbidity	0.75 IQ	NTU	0.1	1
6/6/2022 9:10	Test Site	Nutrients	Total Alkalinity	64	mg CaCO3/L	1	2.5
6/6/2022 9:10	Test Site	Nutrients	NO2NO3-N	1.2	mg N/L	0.02	0.05
6/6/2022 9:10	Test Site	Nutrients	Color (true)	22 Q	PCU	2.5	6
6/6/2022 9:10	Test Site	Nutrients	Fluoride	0.3	mg F/L	0.035	0.1
6/6/2022 9:10	Test Site	Nutrients	O-Phosphate-P	0.21 Q	mg P/L	0.004	0.01
6/6/2022 9:10	Test Site	Nutrients	Kjeldahl Nitrogen	0.99	mg N/L	0.08	0.2
6/6/2022 9:10	Test Site	Overflow	Sulfide	1.0 UQ	mg/L	1	1
6/6/2022 9:10	Test Site	Pesticides	Ibuprofen	0.080 U	µg/L	0.08	0.32
6/6/2022 9:10	Test Site	Pesticides	Naproxen	0.022 I	µg/L	0.008	0.032
6/6/2022 9:10	Test Site	Pesticides	Sucralose	110	µg/L	0.01	0.04
6/6/2022 9:10	Test Site	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3 U	µg/L	3.3	13
6/6/2022 9:10	Test Site	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzo(a)pyrene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzo(k)fluoranthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Acenaphthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Dimethyl phthalate	0.22 U	µg/L	0.22	0.89
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Hexachlorobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2-Nitrophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,6-Dinitrotoluene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	3,3'-Dichlorobenzidine	11 U	µg/L	11	44

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.6 U	µg/L	5.6	22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	µg/L	1.1	4.4
6/6/2022 9:10	Test Site	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Acenaphthylene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Chrysene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Fluorene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	4-Nitrophenol	11 U	µg/L	11	44
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Anthracene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Hexachlorobutadiene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Hexachloroethane	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Naphthalene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Nitrobenzene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Pentachlorophenol	0.56 U	µg/L	0.56	2.2
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Phenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2-Chlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzo(a)anthracene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Di-n-butyl phthalate	2.2 U	µg/L	2.2	8.9
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Di-n-octyl phthalate	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Diethyl phthalate	2.2 U	µg/L	2.2	8.9
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Isophorone	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2 U	µg/L	2.2	8.9
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,4-Dinitrophenol	11 U	µg/L	11	44
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,4-Dinitrotoluene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzo(b)fluoranthene	0.028 U	µg/L	0.028	0.11
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Fluoranthene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	1,4-Dioxane	0.37	µg/L	0.04	0.16
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2-Chloronaphthalene	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,4-Dichlorophenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	2,4-Dimethylphenol	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Benzidine	11 U	µg/L	11	44

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.056 U	µg/L	0.056	0.22
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Phenanthrene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:10	Test Site	Priority Organic Pollutants	Pyrene	0.11 U	µg/L	0.11	0.44
6/6/2022 9:10	Test Site	Nutrients	pH	6.84			
6/6/2022 9:10	Test Site	Nutrients	Temperature	27.2	C		
6/6/2022 9:10	Test Site	Nutrients	Dissolved Oxygen mg/L	7.13	mg/L		
6/6/2022 9:10	Test Site	Nutrients	Sample Depth	0.05	m		
6/6/2022 9:10	Test Site	Nutrients	Specific Conductance	420.4	µmhos/cm		
6/6/2022 11:45	Field Blank	Metals	Silver	0.010 U	µg/L	0.01	0.04
6/6/2022 11:45	Field Blank	Metals	Lead	0.20 U	µg/L	0.2	0.4
6/6/2022 11:45	Field Blank	Metals	Sodium	0.50 U	mg/L	0.5	2
6/6/2022 11:45	Field Blank	Metals	Potassium	0.30 U	mg/L	0.3	1.2
6/6/2022 11:45	Field Blank	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
6/6/2022 11:45	Field Blank	Metals	Selenium	0.20 U	µg/L	0.2	0.8
6/6/2022 11:45	Field Blank	Metals	Iron	30 U	µg/L	30	120
6/6/2022 11:45	Field Blank	Metals	Nickel	0.50 U	µg/L	0.5	2
6/6/2022 11:45	Field Blank	Metals	Hardness	0.35 U	mg/L	0.35	1.4
6/6/2022 11:45	Field Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.3
6/6/2022 11:45	Field Blank	Metals	Copper	0.40 U	µg/L	0.4	0.8
6/6/2022 11:45	Field Blank	Metals	Aluminum	5.0 U	µg/L	5	20
6/6/2022 11:45	Field Blank	Metals	Chromium	0.40 U	µg/L	0.4	1.6
6/6/2022 11:45	Field Blank	Metals	Cadmium	0.020 U	µg/L	0.02	0.08
6/6/2022 11:45	Field Blank	Metals	Arsenic	0.050 U	µg/L	0.05	0.2
6/6/2022 11:45	Field Blank	Metals	Zinc	5.0 U	µg/L	5	20
6/6/2022 11:45	Field Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
6/6/2022 11:45	Field Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
6/6/2022 11:45	Field Blank	Nutrients	Color (true)	2.5 UQ	PCU	2.5	6
6/6/2022 11:45	Field Blank	Nutrients	Nitrite-N	0.002 UQ	mg N/L	0.002	0.005
6/6/2022 11:45	Field Blank	Nutrients	Turbidity	0.10 U	NTU	0.1	1
6/6/2022 11:45	Field Blank	Nutrients	Total Alkalinity	1.0 U	mg CaCO3/L	1	2.5
6/6/2022 11:45	Field Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.004	0.01
6/6/2022 11:45	Field Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
6/6/2022 11:45	Field Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
6/6/2022 11:45	Field Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
6/6/2022 11:45	Field Blank	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 11:45	Field Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
6/6/2022 11:45	Field Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
6/6/2022 11:45	Field Blank	Overflow	Sulfide	1.0 UY	mg/L	1	1
6/6/2022 11:45	Field Blank	Pesticides	Sucralose	0.010 U	µg/L	0.01	0.04
6/6/2022 11:45	Field Blank	Pesticides	Demeton	1.5 U	ng/L	1.5	5.9
6/6/2022 11:45	Field Blank	Pesticides	Etridiazole	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Fipronil Desulfinyl	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Propanil	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Triadimefon	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Ibuprofen	0.080 U	µg/L	0.08	0.32
6/6/2022 11:45	Field Blank	Pesticides	Naproxen	0.0080 U	µg/L	0.008	0.032
6/6/2022 11:45	Field Blank	Pesticides	Carfentrazone Ethyl	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Diazinon	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Ethion	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Metalaxyl	0.73 U	ng/L	0.73	2.9
6/6/2022 11:45	Field Blank	Pesticides	Molinate	0.29 U	ng/L	0.29	1.2
6/6/2022 11:45	Field Blank	Pesticides	Oxadiazon	0.29 U	ng/L	0.29	1.2
6/6/2022 11:45	Field Blank	Pesticides	Parathion Methyl	0.54 U	ng/L	0.54	2.1
6/6/2022 11:45	Field Blank	Pesticides	Phenytoin	3.4 U	ng/L	3.4	14
6/6/2022 11:45	Field Blank	Pesticides	Pronamide	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Sulfentrazone	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Atrazine Desethyl	1.5 U	ng/L	1.5	5.9
6/6/2022 11:45	Field Blank	Pesticides	Dimethomorph	0.17 U	ng/L	0.17	1
6/6/2022 11:45	Field Blank	Pesticides	Fenbuconazole	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Fluazifop-P-butyl	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Fluxapyroxad	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Loratadine	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Pyriproxyfen	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Simazine	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Terbuthylazine	0.41 U	ng/L	0.41	1.7
6/6/2022 11:45	Field Blank	Pesticides	Bromacil	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Dithiopyr	0.17 U	ng/L	0.17	0.68
6/6/2022 11:45	Field Blank	Pesticides	Fludioxonil	0.12 U	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Pesticides	Flutolanil	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Fonofos	0.20 U	ng/L	0.2	0.78
6/6/2022 11:45	Field Blank	Pesticides	Imazalil	0.73 U	ng/L	0.73	2.9

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 11:45	Field Blank	Pesticides	Metribuzin	2.4 U	ng/L	2.4	9.8
6/6/2022 11:45	Field Blank	Pesticides	Phorate	0.51 U	ng/L	0.51	2
6/6/2022 11:45	Field Blank	Pesticides	Prometryn	0.20 U	ng/L	0.2	0.78
6/6/2022 11:45	Field Blank	Pesticides	Azoxystrobin	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Coumaphos	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Cyprodinil	0.098 U	ng/L	0.098	0.49
6/6/2022 11:45	Field Blank	Pesticides	Fenamiphos	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Hexazinone	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Metolachlor	0.34 U	ng/L	0.34	1.4
6/6/2022 11:45	Field Blank	Pesticides	Prometon	0.88 U	ng/L	0.88	3.5
6/6/2022 11:45	Field Blank	Pesticides	Pyridaben	0.44 U	ng/L	0.44	2.2
6/6/2022 11:45	Field Blank	Pesticides	Thiobencarb	0.59 U	ng/L	0.59	2.3
6/6/2022 11:45	Field Blank	Pesticides	Alachlor	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Ametryn	0.59 U	ng/L	0.59	2.3
6/6/2022 11:45	Field Blank	Pesticides	Atrazine	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Butylate	0.39 U	ng/L	0.39	1.6
6/6/2022 11:45	Field Blank	Pesticides	Caffeine	7.4 UQ	ng/L	7.4	30
6/6/2022 11:45	Field Blank	Pesticides	Chlorpyrifos Methyl	0.049 U	ng/L	0.049	0.2
6/6/2022 11:45	Field Blank	Pesticides	Cyanazine	3.2 U	ng/L	3.2	13
6/6/2022 11:45	Field Blank	Pesticides	Ethoprop	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Fipronil Sulfone	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Malathion	0.34 U	ng/L	0.34	1.4
6/6/2022 11:45	Field Blank	Pesticides	Norflurazon	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Pendimethalin	0.98 U	ng/L	0.98	3.9
6/6/2022 11:45	Field Blank	Pesticides	Propargite	1.5 U	ng/L	1.5	5.9
6/6/2022 11:45	Field Blank	Pesticides	Propiconazole	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Pyraflufen Ethyl	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Tebuconazole	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	Acetochlor	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Azinphos Methyl	2.0 U	ng/L	2	7.8
6/6/2022 11:45	Field Blank	Pesticides	Carbophenothion	0.20 U	ng/L	0.2	0.78
6/6/2022 11:45	Field Blank	Pesticides	Chlorfenapyr	0.17 U	ng/L	0.17	0.68
6/6/2022 11:45	Field Blank	Pesticides	Difenoconazole	0.59 U	ng/L	0.59	2.3
6/6/2022 11:45	Field Blank	Pesticides	Dimethenamid	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Disulfoton	0.49 U	ng/L	0.49	2
6/6/2022 11:45	Field Blank	Pesticides	EPTC	1.2 U	ng/L	1.2	4.9

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 11:45	Field Blank	Pesticides	Fipronil	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Flumioxazin	1.7 U	ng/L	1.7	6.8
6/6/2022 11:45	Field Blank	Pesticides	Iprodione	0.59 U	ng/L	0.59	2.3
6/6/2022 11:45	Field Blank	Pesticides	Myclobutanil	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Napropamide	0.39 U	ng/L	0.39	1.6
6/6/2022 11:45	Field Blank	Pesticides	Oxyfluorfen	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Parathion Ethyl	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Prodiamine	0.17 U	ng/L	0.17	0.68
6/6/2022 11:45	Field Blank	Pesticides	Terbufos	0.098 U	ng/L	0.098	0.39
6/6/2022 11:45	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.24 U	ng/L	0.24	0.98
6/6/2022 11:45	Field Blank	Pesticides	Fipronil Sulfide	0.15 U	ng/L	0.15	0.59
6/6/2022 11:45	Field Blank	Pesticides	Mevinphos	1.0 U	ng/L	1	4.1
6/6/2022 11:45	Field Blank	Pesticides	Naled	1.5 UJ	ng/L	1.5	5.9
6/6/2022 11:45	Field Blank	Pesticides	Stirophos	0.12 UJ	ng/L	0.12	0.49
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Nitrobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Fluoranthene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3 U	µg/L	3.3	13
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	4-Nitrophenol	11 U	µg/L	11	43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.22 U	µg/L	0.22	0.87
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Naphthalene	0.11 U	µg/L	0.11	0.43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	1,4-Dioxane	0.040 U	µg/L	0.04	0.16
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	11 U	µg/L	11	43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.4 U	µg/L	5.4	22

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Diethyl phthalate	2.2 U	µg/L	2.2	8.7
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Isophorone	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2 U	µg/L	2.2	8.7
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Acenaphthene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Hexachloroethane	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Phenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzidine	11 U	µg/L	11	43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	µg/L	1.1	4.3
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	2.2 U	µg/L	2.2	8.7
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Phenanthrene	0.11 U	µg/L	0.11	0.43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Pyrene	0.11 U	µg/L	0.11	0.43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	11 U	µg/L	11	43
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Anthracene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Chrysene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Fluorene	0.027 U	µg/L	0.027	0.11
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	Pentachlorophenol	0.54 U	µg/L	0.54	2.2
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.054 U	µg/L	0.054	0.22
6/6/2022 11:45	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.054 U	µg/L	0.054	0.22
6/6/2022 10:50	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	7.9 Q	µg/L	1.1	3.4
6/6/2022 10:50	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	8.2 Q	µg/L	0.81	2.4
6/6/2022 10:50	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.2 UQ	µg/L	1.2	3.7
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Kjeldahl Nitrogen	0.51	mg N/L	0.16	0.4
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Turbidity	3.2 Q	NTU	0.1	1

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	O-Phosphate-P	0.004 UQ	mg P/L	0.004	0.01
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Total-P	0.021	mg P/L	0.002	0.005
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Color (true)	72 Q	PCU	2.5	6
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	NO2NO3-N	0.067	mg N/L	0.004	0.01
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Organic Carbon	8.4	mg C/L	0.5	1
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Ammonia-N	0.009	mg N/L	0.002	0.005
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Temperature	28.3	C		
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	pH	6.49			
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Specific Conductance	3553	µmhos/cm		
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Sample Depth	0.3	m		
6/6/2022 10:50	PERDIDO BAY SITE	Nutrients	Dissolved Oxygen mg/L	7.51	mg/L		
6/6/2022 10:40	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.90 UQ	µg/L	0.9	2.7
6/6/2022 10:40	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	5.7 Q	µg/L	0.82	2.5
6/6/2022 10:40	PERDIDO BAY SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	5.8 Q	µg/L	0.6	1.8
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Total-P	0.029	mg P/L	0.002	0.005
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Ammonia-N	0.011	mg N/L	0.002	0.005
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Color (true)	56 Q	PCU	2.5	6
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Organic Carbon	4.4	mg C/L	0.5	1
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	NO2NO3-N	0.23	mg N/L	0.004	0.01
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	O-Phosphate-P	0.007 IQ	mg P/L	0.004	0.01
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Turbidity	2.6 Q	NTU	0.1	1
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Kjeldahl Nitrogen	0.4	mg N/L	0.08	0.2
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Dissolved Oxygen mg/L	4.74	mg/L		
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Sample Depth	0.3	m		
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Specific Conductance	379.4	µmhos/cm		
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	Temperature	26.4	C		
6/6/2022 10:40	BAYOU MARCUS CREEK SITE	Nutrients	pH	6.43			