Effluent Quality Assessment of Buckman Wastewater Treatment Facility Duval County NPDES # FL0026000 Sampled October 12, 16, 18, & 20, 2023

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

The chronic toxicity bioassay result was reported as No Result due to late arrival of the final renewal sample. Nutrient and algal growth potential (AGP) results suggest that there is potential for nutrient enrichment in the receiving waters due to effluent discharge. There were twenty-four organic constituents detected in the effluent sample.

Facility Overview

The Buckman Wastewater Treatment 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. Buckman is operating under Administrative Order 200 NE. The AO requires the facility to comply with final permit limits for chronic whole effluent toxicity with marine species or obtain Department approved regulatory relief by December 31, 2023. The effluent is continuously discharged into the St. Johns River, a Class III Marine Water [waterbody identification (WBID) 2213D] (Figure 1).

Receiving waters for this facility fall under the Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criteria (NNC) for the Lower St. Johns River and Tributaries. For this region, the NNC, expressed as annual loads, are 722,834 kg/yr total phosphorus and 1,376,855 kg/yr total nitrogen. The chlorophyll *a* limit, expressed as the long term average of annual means, is 5.4 µg/L (Subparagraph 62-302.532(1)(bb)1, F.A.C.). For Class III predominantly marine waters, the daily average dissolved oxygen (DO) saturation shall not be below 42 percent in more than 10 percent of the values (Subsection 62-302.533(2), F.A.C.). This FYI event only provides single sample results. It should be noted that waterbody impairment assessments are based on longer-term data, and individual exceedances of a criterion do not indicate use impairment. http://ca.dep.state.fl.us/mapdirect/?focus=nutrientcriteria

Methods

Equipment blank samples were collected on October 12, 2023. Effluent grab and 24-hour time proportioned composite samples were collected from monitoring site location EFD-01, for outfall D-001 on October 16, 2023. Effluent renewal composite samples were collected on October 18, 2023 and October 20, 2023. Permit limits are based on flow proportioned composite samples, but a 24 hour time-proportioned composite sample was collected.

Samples were collected by Paul Duff, Yahya Farah, Philippe Hook, and Lydia Joyner (Northeast District Office). Analyses were performed by Diversified Environmental Laboratories in Jacksonville, Eurofins Environmental Testing Orlando, Eurofins Savannah, Eurofins Pensacola, and DEP Laboratory in Tallahassee.

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

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

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

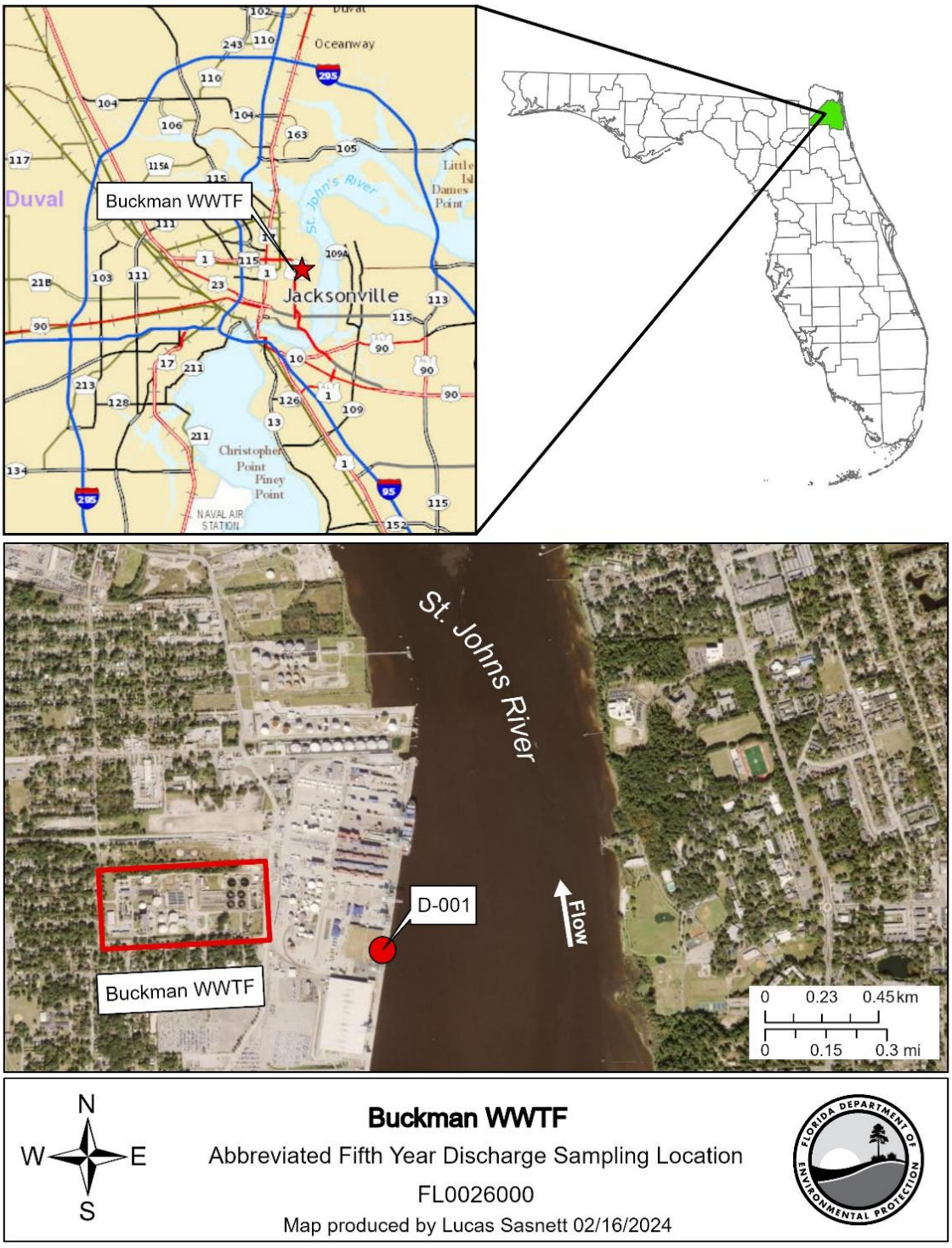


Figure 1. Map of Facility and Discharge Location

Results

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

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

Analytical Water Chemistry (See Table 2 and Appendix D)

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

- Total ammonia nitrogen was detected in the equipment blank.

Microbiology (See Table 2 and Appendix B)

- Effluent enterococci levels complied with the Class III Water Quality Criterion for Marina Waters and effluent permit limits. Fecal coliform levels complied with effluent permit limits.

Toxicity Whole Effluent Test (See Table 2)

- Tests were performed October 17 through October 21, 2023.

- The chronic definitive bioassay sample hold time was exceeded for the final renewal sample. The tests were invalidated and reported as 'No Result'.

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

Metals (See Table 3 and Appendix D)

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

Algal Growth Potential (See Table 4 and Appendix B)

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

- The effluent grab sample AGP result of 13.1 mg dry wt/L is within the AGP range (6.10 to 20.0 mg dry wt/L) suggested to be representative of high productivity for freshwater (Miller et al. 1978).

- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.5 parts per thousand (ppth) to a salinity of approximately 7 ppth by the addition of artificial sea salts to meet the salinity requirements of the test species *Dunaliella tertiolecta*.

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

Organic Constituents (See Table 5 and Appendix D)

- Ametryn, AMPA, atrazine, atrazine desethyl, azoxystrobin, bromacil, fenbuconazole, fipronil, fipronil desulfinyl, fipronil sulfide, fipronil sulfone, fludioxonil, glyphosate, iprodione, metolachlor, metribuzin, oxadiazon, oxyfluorfen, prodiamine, prometon, propiconazole, sulfentrazone, tebuconazole, and 2,4,6-trichlorophenol were detected in the effluent grab sample.

- Aldrin levels from effluent grab sample complied with the effluent permit limit.

- Twenty of the organic constituents were herbicides and four were pesticides which may account for measured AGP results being lower than predicted AGP values.

Literature Cited

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

Stevenson, R. J. and Bahls, L. L. 1999. Periphyton protocols. Pp. 6.1-6.22 in: Rapid bioassessment protocols for use in wadeable streams and rivers. 2nd edition. By: M. T. Barbour, J. Gerritsen, B. D. Snyder and J. B. Stribling. EPA 841-B-99-002. U. S. Environmental Protection Agency, Office of Water, Washington, D. C.

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

Table 1. Measured field parameters

Effluent limits, Class III Water Quality Criteria for Marine Waters, and Effluent EFD-1

Parameter	Units	Class III Criteria	Effluent Permit Limits	Effluent EFD-1
Sample Depth	ft	-	-	0.4
Temperature	C	-	Report	29.0
pH	SU	6.5 - 8.5	6.5-8.5	7.1
Specific Conductance	µmhos/cm	-	-	1,160
Salinity	ppth	-	-	0.5 c
Dissolved Oxygen	% saturation	≥ 42	-	43.9

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	Effluent Grab
Ortho-phosphate	mg P/L	-	Report	-	11
Total Phosphorus	mg P/L	-	Report	5.3	11
Total Ammonia Nitrogen	mg N/L	-	-	0.5	0.5
Un-ionized Ammonia (calc salinity)	mg N/L	-	-	< 0.02 c	< 0.02 c
Nitrate and Nitrite	mg N/L	-	Report	2.3	6.0
Total Kjeldahl Nitrogen	mg N/L	-	Report	2.3	2.3
Organic Nitrogen	mg N/L	-	Report	1.9 c	1.8 c
Total Nitrogen	mg N/L	-	Report	4.6 c	8.3 c
Total Organic Carbon	mg C/L	-	-	13	13 A
Chlorophyll *a* - Corrected	µg/L	-	-	-	1 U
Phaeophytin	µg/L	-	-	-	1.0 U
CBOD, 5 day, N - inhibited	mg/L	-	≤ 60 sp	2.7	-
Hardness	mg CaCO3/L	-	-	-	275 c
Total Suspended Solids	mg/L	-	≤ 60 sp	3 I	-
Turbidity	NTU	≤ 29 t	-	-	1.1
Color (true)	PCU	-	-	-	41 A
Alkalinity	mg CaCO3/L	≥ 20	-	-	174 A
Chloride	mg Cl/L	-	-	-	160 A
Cyanide	mg/L	≤ 1.0	≤ 1.0 s	-	0.0046 IV
Fluoride	mg F/L	≤ 5.0	-	-	1.1
Sulfate	mg SO4/L	-	-	-	130 A
Fecal Coliforms	cfu/100 mL	-	≤ 800 s	-	11 B
Enterococci	MPN/100 mL	≤ 130	≤ 35	-	6.2
Bioassay - Mysid *(A. bahia)*	% effluent	-	> 100 sp	No Result O	-
Bioassay - Fish (*M. beryllina)*	% effluent	-	> 100 sp	No Result O	-

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
p – 24-hr flow proportioned composite
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
O - Sampled, but analysis lost or not performed
U - Material analyzed for but not detected; value reported is the method detection limit
V - Analyte was detected in both sample and method blank

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 Composite	Effluent Grab
Aluminum	µg/L	≤ 1500	-	-	14 I
Arsenic	µg/L	≤ 50	-	-	2
Cadmium	µg/L	≤ 8.8	-	-	0.020 U
Calcium	mg/L	-	-	-	67.7
Chromium, Total [1]	µg/L	≤ 50	-	-	0.7 I
Copper	µg/L	≤ 3.7	≤ 7.45 sp	0.6 I	0.4 I
Iron	µg/L	≤ 300	≤ 300 sp	160	120 I
Lead	µg/L	≤ 8.5	-	-	0.2 U
Magnesium	mg/L	-	-	-	25.7
Mercury	ng/L	≤ 25	≤ 25	-	0.71
Nickel	µg/L	≤ 8.3	≤ 13.0 sp	4.9	5.2
Potassium	mg/L	-	-	-	17.4
Selenium	µg/L	≤ 71	-	-	0.2 U
Silver	µg/L	≤ 2.3	-	-	0.01 U
Sodium	mg/L	-	-	-	116
Zinc	µg/L	≤ 86	-	-	8.6 I

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
p – 24-hr flow proportioned composite
s - Single sample
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit
1- Class III Marine Water Quality Criterion (62-302.530(19)(b), F.A.C.) is for chromium-VI

Table 4. Algal Growth Potential (AGP)

Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus

Location	Test Species	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Grab	*P. subcapitata*	13.1 A	250 ± 49	4700 ± 950	320 ± 63	4700 ± 950	0.6	0.8
Effluent Grab	*D. tertiolecta*	3.0 U *	not applicable [2]	not applicable [2]	not applicable [2]	not applicable [2]	0.6	0.8

* - sample salinity adjusted to 7 ppth
A - Value reported is the mean of two or more determinations
U - Material analyzed for but not detected; value reported is the method detection limit
2 - predictions not applicable to marine matrix

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
Aldrin	ng/L	-	≤ 1,300 sp	0.68 U
Ametryn	ng/L	-	-	6
AMPA	µg/L	-	-	1.3
Atrazine	ng/L	-	-	100
Atrazine Desethyl	ng/L	-	-	32 J
Azoxystrobin	ng/L	-	-	92
Bromacil	ng/L	-	-	14
Fenbuconazole	ng/L	-	-	3.1
Fipronil	ng/L	-	-	34
Fipronil Desulfinyl	ng/L	-	-	1.2
Fipronil Sulfide	ng/L	-	-	5.8
Fipronil Sulfone	ng/L	-	-	7.5
Fludioxonil	ng/L	-	-	120
Glyphosate	µg/L	-	-	0.7
Iprodione	ng/L	-	-	270 J
Metolachlor	ng/L	-	-	2100 J
Metribuzin	ng/L	-	-	5,100
Oxadiazon	ng/L	-	-	1,500
Oxyfluorfen	ng/L	-	-	340
Prodiamine	ng/L	-	-	1,500
Prometon	ng/L	-	-	5,300
Propiconazole	ng/L	-	-	150
Sulfentrazone	ng/L	-	-	2,500
Tebuconazole	ng/L	-	-	1,400
2,4,6-Trichlorophenol	µg/L	-	-	0.1 I

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
p – 24-hr time proportioned composite
s - Single sample
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
U - Material analyzed for but not detected; value reported is the method detection limit

Appendix A. Facility Summary

PART I: Information gathered prior to sampling event	
Prepared By: Ian Watkins	Contact Number: (904) 256-1573
Facility Name (as it appears on permit): Buckman WWTF	Former Names: N/A
NPDES Permit Number: FL0026000	Permit Expiration Date: June 12, 2024
Physical Address: 2221 Buckman Street, Jacksonville, Florida 32206	
District: Northeast District	County: Duval
Function of Facility: Domestic wastewater treatment	
Facility Type: DW NPDES major	Permitted Capacity (MGD): 52.50
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 26.105 MGD (September 1, 2022 – August 31, 2023)	
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): Monitoring Location Site EFD-1: Sample point immediately after final treatment and prior to discharge from outfall D-001 to the surface water	

CAL-1: Calculated value

CAL-2: Calculated percent removal of $CBOD_5$ or TSS

EFF-1: Sample point at the ultraviolet (UV) channels

CAL-3: Calculated monthly or annual mass load of total nitrogen and total phosphorus.

SWA-BM2: Ambient surface water site upstream from the Buckman WWTF effluent discharge located at latitude 30° 20' 59" N and longitude 81° 37' 14.3" W.

SWA-BM1: Ambient surface water site downstream from the Buckman WWTF effluent discharge located at latitude 30° 21' 4.4" N and longitude 81° 37' 14.3" W.

SWB-BM1: Ambient background surface water site from the Buckman WWTF effluent discharge located at latitude 30° 21' 0.7" N and longitude 81° 37' 1.5" W.

Description of Permitted Outfall(s):

Surface Water Discharge D-001: An existing 52.5 MGD AADF permitted capacity discharge to St. Johns River, Class III marine waters, (WBID# 2213D) at Outfall D – 001 which is 78 inches in diameter discharges at the river wall to the river at a depth of approximately 30.5 feet. The point of discharge is located approximately at latitude 30° 21' 1.55" N, longitude 81° 37' 15.73" W.

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

It is an existing 52.50 million gallon per day (MGD) annual average daily flow (AADF) permitted capacity activated sludge wastewater treatment facility which can operate in either plug flow or complete mix mode. The facility consists of the following process units:

- Two 60-MGD capacity mechanical bar screens with ½ inch opening;
- An influent wet well / dry well pump station with four pumps;
- An influent chamber and two influent channels;
- Two grit settling basins with three channels (8.5 ft x 260 ft x 8ft) in each basin. Each channel will be equipped with a dewatering system. The maximum design flow for the grit facility will be 154 MGD. An overhead hoist system for removal of settled grit from each channel to a dumpster using a clamshell. Includes a grit removal system and a 0.151 million gallon (MG) aerated grit chamber consisting of three grit removal pumps each with a capacity of 200 gpm @ 34 ft total dynamic head (TDH);
- Two (2) new fine screens in the pre-aeration channel. The 6 mm screens are perforated plate, straight-through flow type with a total peak capacity of 100 MGD. Associated equipment includes washer/compactors, reuse water

filters, sluice gates for screen isolation, sluice gates at primary clarifier influent ports, weir gates for screen diversion, roll-off containers, platforms, covers, odor control ducting, and a bypass channel;
• Eight primary clarifiers (225 ft long x 18 ft wide x 12 ft side water depth) with a surface loading rate of 1,296 gpd/ft^2 at ADF and 2,593 gpd/ft^2 at PHF; and a weir loading rate of 20,195 gpd/ft at ADF and 40,384 gpd/ft; tanks 9 and 10 were modified as part of the first phase of the BNR modification process (sidestream project) to reduce the ammonia load from the Biosolids RMF centrate wastestream. The project added concrete baffle walls in both tanks and a fiberglass wall between tanks 9 and 10, two 5.6 HP propeller recirculation pumps, one return waste pump, four floating electrical mixers and nitrate, ammonia and nitrite monitoring equipment, rerouted centrate flow to the East end of tank 9;
• Four aeration tanks operated in series plug flow mode. The structure of basin is 310 ft long x 55 ft wide with a side water depth of 15 ft. Ceramic, fine bubble diffusers are used to aerate and mix each basin and supplied with five-drop pipes per tank. Four sets of Neuros Turbo Blowers, Total SCFM @ 10 PSIG: 18,800 X 4;
• Recycle pumps were added in aeration tanks, replaced sluice gates with electric actuated weir slide gates in aeration tanks, installed new piping, removed sections of air diffusers and air supply header, installed new RAS piping and flow-meter;
• Secondary clarifiers 1 through 4 were modified by demolishing existing clarifier mechanisms and installing new clarifier mechanisms plus other appurtenances and conversion from square to round clarifiers, installation of new baffle walls in several of the aeration tanks to establish anoxic zones with ten floating electrical mixers and mooring cables. The structure is 120 ft long x 120 ft wide with a side water depth of 12 ft has a hydraulic loading rate of 608 gpd/ft^2. The Two circular peripheral clarifiers have a diameter of 136 ft and a hydraulic loading rate of 602 gpd/ft^2;
• Ultraviolet Disinfection System provides UV dosage of 29 mW-sec/cm^2 at 65% UV Transmittance, 157.5 mgd and 26.3 mW-sec/cm^2 at 49% UV Transmittance, 108 mgd capacity;
• Chlorination facility can be used for the return activated sludge;
• A groundwater dewatering system with discharge into the aeration tanks; and
• A new package septage receiving station consisting of metal trap, grinder, screen, auger, and wash water system. The station is constructed from 316L stainless steel.

PART I: Continued										
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)										
			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	MGD	Max	52.5	Report	Report		Continuous	Recording Flow Meter with Totalizer	EFD-1	--
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max		Report			Monthly	Calculated	CAL-1	
BOD, Carbonaceous 5 day, 20C	mg/L	Max	20.0	25.0	40.0	60.0	Daily; 24 hours (7days/week)	24-hr FPC	EFD-1	
CBOD, % Removal, 5-day	percent	Min		85.0			Monthly	Calculated	CAL-2	--
Solids, Total Suspended	mg/L	Max	20.0	30.0	45.0	60.0	Daily; 24 hours (7days/week)	24-hr FPC	EFD-1	

Solids, Total Suspended, % Removal	percent	Min		85.0			Monthly	Calculated	CAL-2	--
Fecal Coliform	#/100mL	Max	200.0	200.0	400.0	800.0	Daily; 24 hours (7days/week)	Grab	EFD-1	--
Enterococci	#/100mL	Max		35.0			Daily; 24 hours (5days/week)	Grab	EFD-1	--
pH	s.u.	Range				6.5-8.5	Daily; 24 hours (7days/week)	Meter	EFD-1	--
Ultraviolet Light Dosage	mW-s/ sqcm	Min				25	Continuous	Meter	EFF–1	--
Ultraviolet Light Transmittance	percent	Min				Report	Continuous	Meter	EFF–1	--
Ultraviolet Light Intensity	mW/sqcm	Min				Report	Continuous	Meter	EFF–1	--
Reactor Status	On/Off	-				Report	Continuous	Sensor/Meter	EFF–1	--

Lamp Status	On/Off	-				Report	Continuous	Sensor	EFF–1	--
Lamp Age	Hour	Max				Report	Continuous	Meter	EFF–1	--
Reactor On/Off Cycles	Total Number	Min				Report	Continuous	Meter	EFF–1	--
Reactor Power Setpoint	Percent	-				Report	Continuous	Meter	EFF–1	--
Water Level in Reactors	Feet	Range				Report	Continuous	Meter	EFF–1	--
Oxygen, Dissolved (DO)	mg/L	Min				5.0	Daily; 24 hours (7days/week)	Meter	EFD-1	--
Nitrogen, Total, as N	mg/L	Max	Report	Report	Report		Daily; 24 hours (7days/week)	24-hr FPC	EFD-1	--
Nitrogen, Total, as N	lb	Max	Report Total	Report Total			Monthly	Calculated	CAL-3	--

Phosphorus, Total (as P)	mg/L	Max	Report	Report	Report		Daily; 24 hours (7days/week)	24-hr FPC	EFD-1	--
Phosphorus, Total (as P)	lb	Max	Report Total	Report Total			Monthly	Calculated	CAL-3	--
Cyanide, Total (as CN)	µg/L	Max				1.0	Monthly	Grab	EFD-1	--
Copper, Total Recoverable (Mixing Zone)	µg/L	Max				7.45	Monthly	24-hr FPC	EFD-1	--
Nickel, Total Recoverable (Mixing Zone)	µg/L	Max				13.0	Monthly	24-hr FPC	EFD-1	--
Mercury, Total Recoverable	µg/L	Max				0.025	Monthly	Grab	EFD-1	--
Iron, Total Recoverable	µg/L	Max				300.0	Monthly	24-hr TPC	EFD-1	
Aldrin	µg/L	Max	0.00014			1.3	Quarterly	24-hr TPC	EFD-1	--

Nitrogen, Organic, Total (as N)	mg/L	Max				Report	Bi-monthly; every 2 months	24-hr FPC	EFD-1	--
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max				Report	Bi-monthly; every 2 months	24-hr FPC	EFD-1	--
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max				Report	Bi-monthly; every 2 months	24-hr FPC	EFD-1	--
Nitrogen, Ammonia, Total (as N)	mg/L	Max				Report	Bi-monthly; every 2 months	24-hr FPC	EFD-1	--
Temperature (C), Water	Deg C	Max				Report	Bi-monthly; every 2 months	Meter	EFD-1	--
Phosphate, Ortho (as P)	mg/L	Max				Report	Bi-monthly; every 2 months	Grab	EFD-1	--
St. Johns River – Ambient Monitoring	-	Min/ Max				Report	Monthly or Bi-monthly	Grab/Meter	SWA-BM1 SWA-BM2 SWB-BM1	--

Chronic Whole Effluent Toxicity, 7-Day IC25 (*Americamysis bahia*)	percent	Min				100	Semi-Annually; twice per year	24-hr FPC	EFD-1	--
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Menidia beryllina)*	percent	Min				100	Semi-Annually; twice per year	24-hr FPC	EFD-1	--

PART I: Continued	
Receiving Waters: St. Johns River	Classification (indicate whether fresh or marine): Class III marine

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

The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001. a. Effluent Limitation (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. *[Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]*

(2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. *[Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]*
Monitoring Frequency

(1) Routine toxicity tests shall be conducted once every six months, the first starting within 6 months of the most recent toxicity tests and lasting for the duration of this permit.

Sampling Requirements (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.

(2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

(3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.

(2) The permittee shall conduct 7-day survival and growth chronic toxicity tests with a mysid shrimp, Americamysis (Mysidopsis) bahia, Method 1007.0, and an inland silverside, Menidia beryllina, Method 1006.0, concurrently.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, 3rd Edition, EPA-821-R-02-014. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

(4) The control water and dilution water used shall be artificial sea salts as described in EPA-821-R-02-014, Section 7.2. The test salinity shall be determined as follows: (a) For the Americamysis bahia bioassays, the effluent shall be adjusted to a salinity of 20 parts per thousand (ppt) with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 20 ppt. If the salinity of the effluent is greater than 20 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.

(b) For the Menidia beryllina bioassays, if the effluent salinity is less that 5 ppt, the salinity shall be adjusted to 5 ppt with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 5 ppt. If the salinity of the effluent is greater than 5 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.

(c) If the salinity of the effluent requires adjustment, a salinity adjustment control should be prepared and included with each bioassay. The salinity adjustment control is intended to identify toxicity resulting from adjusting the effluent salinity with artificial sea salts. To prepare the salinity adjustment control, dilute the

Quality Assurance Requirements (1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism

supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control exceeds 20% for either species in any test, or any of the test acceptability criteria are not met, then the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (***Ceriodaphnia dubia***) and Section 11.11 (***Pimephales promelas***). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

Reporting Requirements (1) Results from all required tests shall be entered on the Discharge Monitoring Report (DMR) as the calculated IC_{25} for each test species.

(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and **e-mailed** or mailed to the Department at the address below **within 30 days** after the last day of the test.

(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and **e-mailed** or mailed **within 30 days** after the last day of the second valid additional follow-up test.

(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.

(5) The same bioassay data shall not be reported as the results of more than one test.

(6) All bioassay laboratory reports shall be **e-mailed** or mailed **within 30 days** to Jacksonville *only*:
Florida Department of Environmental Protection
Northeast District – Wastewater Section
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

Test Failures (1) A test fails when the test results do not meet the limits in 27.a.(1).
(2) Additional Follow-up Tests: (a) If a routine test does not meet the chronic toxicity limitation in 27.a.(1) above, then the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 27.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The additional follow-up tests shall be conducted using a control and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the additional follow-up tests to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure. (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
(b) The Department shall review and approve the plan before initiation.
(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
(d) Progress reports shall be submitted quarterly to the Department at the address above.

(e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 27.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 27.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
(f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in 27.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests.
(g) If a test within the sequence of the four is deemed invalid but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, then the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the
acute toxicity limit in 27.a.(2), then the Department may revise this permit to require acute definitive whole effluent toxicity testing.
(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]
28. A mixing zone for concentration of nickel (total recoverable) in the effluent discharged through the existing outfall D-001 to St. Johns River has been established. The mixing zone is a half-circle with a radius of 26 feet (7.8 meter) of which the largest area of the mixing zone is approximate 1062 square feet (96 square meters) centered at the point of discharge. In critical/worse case hydrologic scenarios, the centerline dilution of the mixing zone is 1.67. The maximum concentration limit at the end-of-pipe for nickel (total recoverable) is 13.0 µg/L. The discharger shall meet the water quality criterion of 8.3 µg/L for nickel at the edge of the mixing zone area. The coordinates of the vertices of the nickel mixing zone and the Outfall D-001 are listed in the Table 1. Mixing zone delineation is shown on Figure 1.

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

AO 200 NE, Executed June 13, 2019:

1. The Permittee, JEA, shall be allowed to discharge from D-001 and shall comply with the requirements of this Order, the Permit, and any subsequent revisions to the Permit.

2. During the period beginning upon the effective date of the permit revision and lasting as indicated in the compliance schedule VI.(1), the following effluent monitoring requirement for 7-day chronic toxicity (the 25 percent inhibition concentration, IC25), and a 96-hr acute toxicity limit (the 50 percent lethal concentration, LC50), shall apply at outfall D-001 in lieu of the applicable monitoring requirements contained in Part I.A.1 of the permit:

a. Monitoring Requirements:

Parameter	Units	Max/ Min	Limit	Statistical Basis	Monitoring Frequency	Sample Type	Monitoring Site
Chronic Whole Effluent Toxicity	percent	Min	Report IC25	Single Sample	Quarterly	24-hr FPC	EFD-1
Acute Whole Effluent Toxicity	percent	Min	96-hr LC50 ≥ 100% (derived from chronic test data)	Single Sample	Quarterly	24-hr FPC	EFD-1

b. Effluent samples shall be used for loading calculations shall be taken at the monitoring sites described in the permit and as described below:

Monitoring Site	Description of Monitoring Site
EFD-1	Sample point immediately after final treatment and prior to discharge from outfall D-001 to the surface water

c. The Permittee, JEA, shall complete the following action items as part of a Plan of Study (POS) and to achieve compliance for chronic toxicity according to the posted schedule.

ACTION ITEM DUE DATE

(1)	Complete first quarterly chronic toxicity testing with the mysid shrimp, *Americamysis bahia*, and the inland silverside, *Menidia beryllina*, using test methods contained in EPA-821-R-02-014, Short-Term Methods For Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms. Laboratory toxicity report is due to DEP NED for review within 30 days from the end of each test.	*Completed*	
(2)	Conduct six quarters of chronic toxicity tests using two marine species (mysid & silverside) at test salinities required by the respective test methods.	*Completed*	
(3)	If any quarterly chronic tests show acute toxicity 96-hr LC50 < 100% effluent, then two additional weekly follow-up acute tests shall be conducted using test methods contained in EPA-821-R-02-012, Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.	*Completed*	
(4)	Submit final toxicity lab reports to DEP-NED within 30 days of each quarterly test termination. Calculate the 7-day IC25 for each species' growth. Calculate the 96-hr LC50 for each species from the chronic test survival data. Both values are reported on monthly toxicity DMR.	Quarterly	
(5)	Submit first progress report summarizing either compliance with final permit limits for chronic whole effluent toxicity OR intent to seek regulatory relief.	*Completed*	
(6)	Submit application for a permit revision.	*Completed*	
(7)	Submit Second progress report summarizing either compliance with final permit limits for chronic whole effluent toxicity OR intent to seek regulatory relief.	*Completed*	
(9)	Comply with final permit limits for chronic whole effluent toxicity with marine species or obtain Department-approved regulatory relief.	*December 31, 2023*	

Facility Mixing Zone Details (if applicable):

Copper Mixing Zone – Evaluation*: 1.* Existing Mixing Zone
The mixing zone for copper has been established in the previous permit. The mixing zone is a half-circle with a radius of 39 feet (11.9 meter) of which the largest area of the mixing zone is approximate 2,389 square feet (223 square meters) centered at the point of discharge. In critical/worse case hydrologic scenarios, the centerline dilution of the mixing zone is 3.0. The maximum concentration limit at the end-of-pipe for copper (total recoverable) is 7.45 µg/L. The discharger shall meet the water quality criterion of 3.7 µg/L for copper at the edge of the mixing zone area.
2. Evaluation of Existing Mixing Zone: *a.* Ambient Water Conditions:

- Buoyancy effects caused by density differences between the effluent and the receiving water can be an important factor in near-field dilution of the discharges to the receiving waterbody (St. Johns River). Any differences in density between the effluent discharge from Buckman WWTF and the St. Johns River were assumed to be wholly due to temperature and salinity differences.

The density of ambient or effluent water depends upon three variables: temperature, salinity, and pressure. At atmospheric pressure and at temperature of 0°C the density is a function of the salinity only, or, as a simple relationship exists between salinity and chlorinity, the density can be considered a function of chlorinity (Cl) or salinity (S) can be expressed as Knudsen's equation:
$\sigma_o = -0.093 + 0.8149\ S - 0.000482\ S^2 + 0.0000068\ S^3$
$\sigma_o = -0.069 + 1.4708\ Cl - 0.001570\ Cl^2 + 0.0000398\ Cl^3$
To include effect of temperature on density, Knudsen's table used the thermal expansion data at 1 atmosphere, σ_t then calculated using σ_o.

- Ambient Copper Concentration:

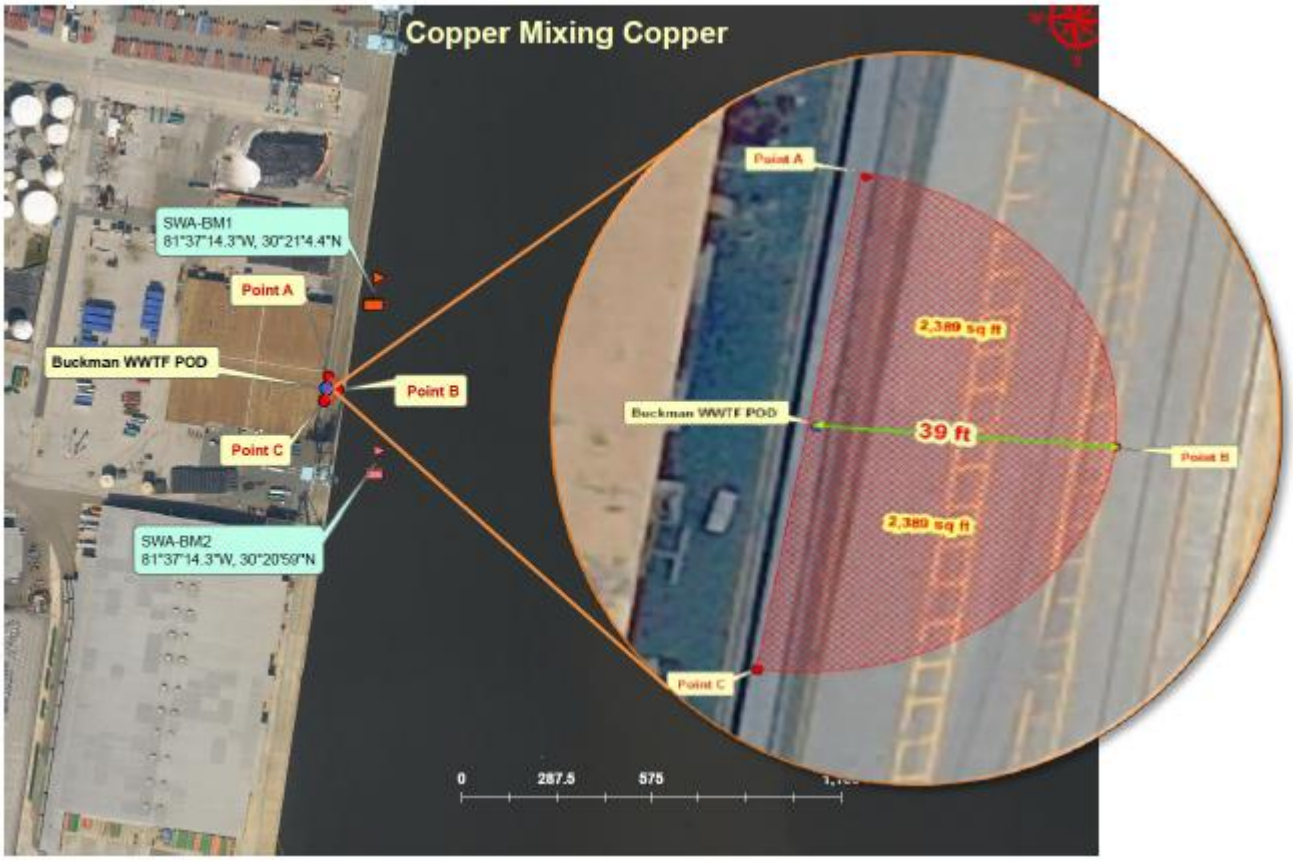
The permittee has monitored for ambient/river Copper concentration in monthly basis from June 2009 through December 2018. Three stations (north, south west of the POD) were sampled. Over 300 samples were collected and analyzed for Copper, total recoverable. Analytical results for copper were below the laboratory detection limit (MDL) of 2.5 µg/L. In pursuance of Rule 62-4.246(7), FAC, an ambient concentration of half the MDL (1.25 µg/L) can be used as background concentration for Copper in the dilution calculation.
b. Outfall D-001:

- Outfall location: The Outfall D-001 was located in the segment of the St. Johns River designated as WBID 2213D which was not listed as impaired for copper.
- Outfall Configurations:

The Outfall, which is a 78-inch diameter, open-ended reinforced concrete pipe, was constructed in 1959, and since them it has not been modified. The depth of the invert of the pipe is at -30.92 feet NGVD1929, or about 31.2 ft below the mean low water level. The river bank has been filled for the Talleyrand Marine Terminal and bulkhead is located near the Outfall pipe exit. The wharf extends about 50 feet beyond the bulkhead and is supported by piers. Consequently, the buoyant plume could surface behind the edge of the wharf and travel near the bulkhead, partially obscured by the wharf.
The river is deep along the wharf edge since it is regularly dredged for shipping
c. Effluent Characteristics:

- Flow Rate

• Permitted Flow Rate: 52.0 MGD AADF.



(viii) Nickel: ➢ JEA, the permittee, has monitored for nickel, total recoverable in the effluent discharge to the river. The discharge is required to comply with the water quality standards (WQS) of 8.3µg/L for nickel, except within an approved mixing zone area.

➢ Nickel Mixing Zone – Evaluation*: 1.* Existing Mixing Zone

The mixing zone for nickel has been established in the previous permit. The mixing zone is a half-circle with a radius of 26 feet (7.8 meter) of which the largest area of the mixing zone is approximate 1,062 square feet (96 square meters) centered at the point of discharge. The maximum concentration limit at the end-of-pipe for nickel (total recoverable) is 13.0 µg/L. The discharger shall meet the water quality criterion of 8.3 µg/L for nickel at the edge of the mixing zone area.

2. Evaluation of Existing Mixing Zone: *a.* Ambient Water Conditions:

➢ Ambient Nickel Concentration:

The permittee has monitored for ambient/river nickel concentration in monthly basis since June 2009. Three stations (north, south west of the POD) were sampled. Over 300 samples were collected and analyzed for Copper, total recoverable. Analytical results for copper were below the laboratory detection limit (MDL) of 2.5 µg/L. In pursuance of Rule 62-4.246(7), FAC, an ambient concentration of half the MDL (1.25 µg/L) can be used as background concentration for Copper in the dilution calculation.

b. Outfall D-001:

➢ Outfall location: The Outfall D-001 was located in the segment of the St. Johns River designated as WBID 2213D which was not listed as impaired for either copper.

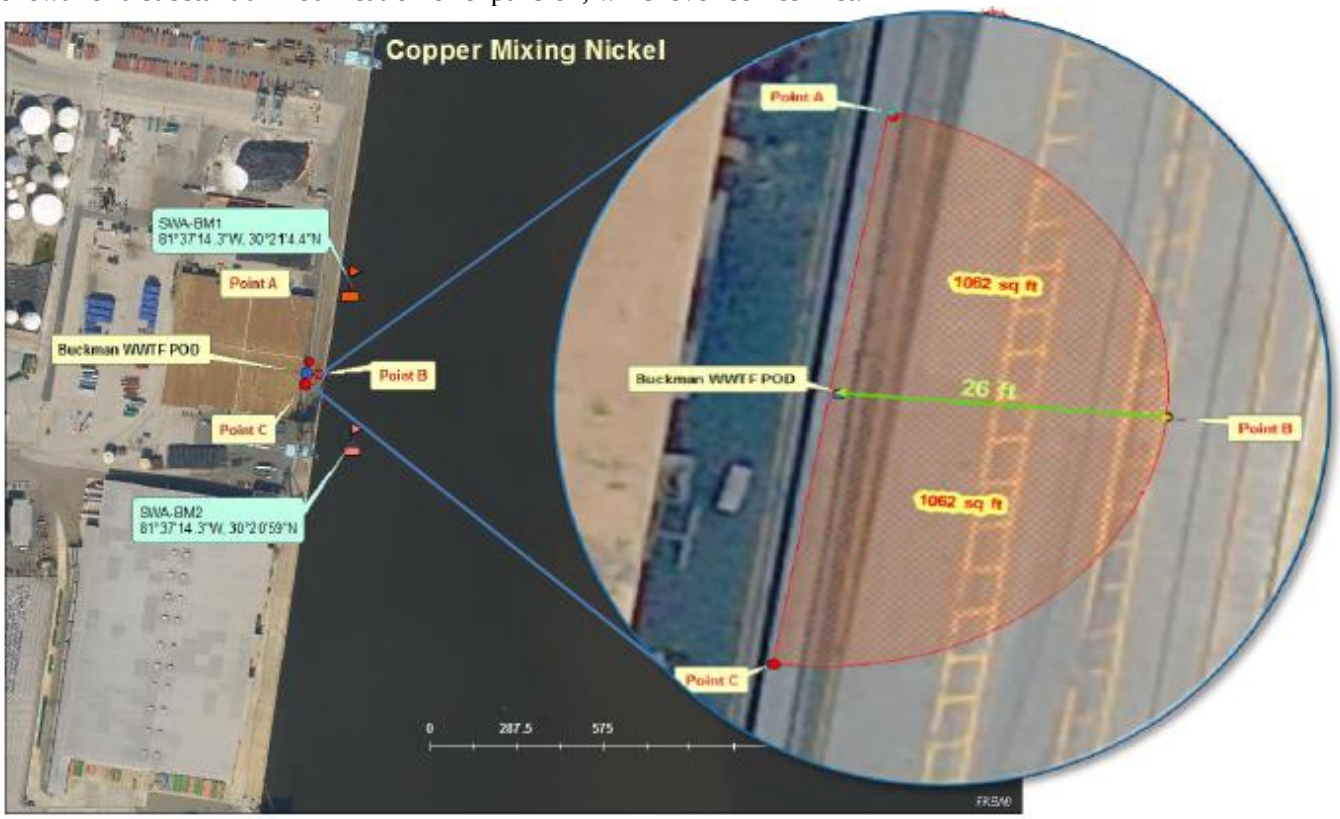
➢ Outfall Configurations:

The Outfall, which is 78-inch diameter, open-ended reinforced concrete pipe, was constructed in 1959, and since then it has not been modified. The depth of the invert of the pipe is at -30.92 feet NGVD1929, or about 31.2 ft

below the mean low water level. The river bank has been filled for the Talleyrand Marine Terminal and bulkhead is located near the Outfall pipe exit. The wharf extends about 50 feet beyond the bulkhead and is supported by piers. Consequently, the buoyant plume could surface behind the edge of the wharf and travel near the bulkhead, partially obscured by the wharf.
The river is deep along the wharf edge since it is regularly dredged for shipping
c. Effluent Characteristics:

- Flow Rate: Permitted Flow Rate: 52.0 MGD AADF.
- Concentration of Nickel

Conclusion of Nickel Mixing Zone Evaluation:
The existing mixing zone area was established based on the target dilution of 1.67 which for approximately 99.00% of time that concentration of nickel would be below the WQS of 8.3 µg/L. Based on the current (up-to-date) data, at a dilution factor (S) of 1.67, is approximately 99.02% of time that concentration of nickel is below the WQS of 8.3 µg/L and 100.0 % of time that concentration of nickel will be below the MZ concentration of 13.0 µg/L. Results of the new calculations are closed to the existing calculation. Therefore, the existing nickel mixing zone is proposed to remain in the new permit. The nickel mixing zone is recommended to be re-evaluated prior to the next permit renewal or a substantial modification of expansion, whichever comes first.



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

Date	Parameter and Units	Limit	Result

10/31/2022	IC25 Statre 7day Chr Mendia, Percent	100 Minimum	91.6
06/30/2023	IC25 Statre 7day Chr Mysid Bahia, Percent	100 Minimum	33.93
07/31/2023	Ultraviolet Light Dosage, mW-s/sqcm	25 Minimum	14.6

Describe previous FYI and WQBEL study:

In order to protect existing water quality and preserve the designated beneficial uses of Florida's surface waters, the discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Florida State Surface Water Quality Standards (Chapter 62-302, FAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state.
Effluent limitations were based on a Level I WQBEL which discussed below:

(a) Parameters Evaluations:

(i) Bacteriological Qualities

- **Enterococci**: In 2004, EPA promulgated bacteriological water quality criteria for Florida in 40 CFR 131.41. A requirement for discharges from the Outfall D-001 to meet the federal criteria was adopted in subsection 62-600.520(5), F.A.C, but the facility discharges to WBID 2213D which is distances from coastal recreation waters of the U.S. Thus, in the previous permit cycle, monitoring requirement for enterococci was exempted.

In July 2017, EPA approved Florida's bacteriological water quality standards in Rule 62-302.530, F.A.C., superseding the criteria in 40 CFR 131.41. Therefore, the exemption of enterococci limitations previously has been removed and replaced with enterococci effluent limitations consistent with the bacteriological water quality standards for enterococci in Rule 62-302.530, F.A.C.

- **Fecal Coliform**: Because there is no established relationship between fecal coliform and enterococci bacteria, limitations based on both the disinfection requirements for fecal coliform from Rule 62-600.440, F.A.C., and based on the bacteriological water quality standards for enterococci for discharges to Class III predominately marine waters under Rule 62-302.530, F.A.C., have been included in the permit

Describe previous or current Enforcement Actions (including WLs):

Facility is currently under Consent Order 06-1796 to address Sanitary Sewer Overflows. This Consent Order creates a mechanism to resolve SSO enforcement. The latest stipulated penalty letter was issued October 2, 2023. A new Consent Order, 23-0759 is being drafted for the same purpose.

Sanitary Sewer Overflow Discharges

Date	Initial Spill Volume (Gallons)
9/25/2023	70500

9/20/2023	20
8/11/2023	50
7/20/2023	100
7/15/2023	10
7/5/2023	40
6/26/2023	268
6/7/2023	100
5/31/2023	200
5/2/2023	1000
5/2/2023	1000
4/29/2023	5
4/28/2023	50
4/18/2023	500
4/14/2023	20
3/21/2023	75
3/17/2023	5410
3/12/2023	100
3/5/2023	10
2/15/2023	50
2/13/2023	10
1/18/2023	15
1/18/2023	30
12/21/2022	5
12/13/2022	50
12/10/2022	2000
11/29/2022	200
11/18/2022	1000
11/7/2022	5
10/29/2022	3360
10/29/2022	360

10/25/2022	50

Describe any violations or problems noted in previous inspection:

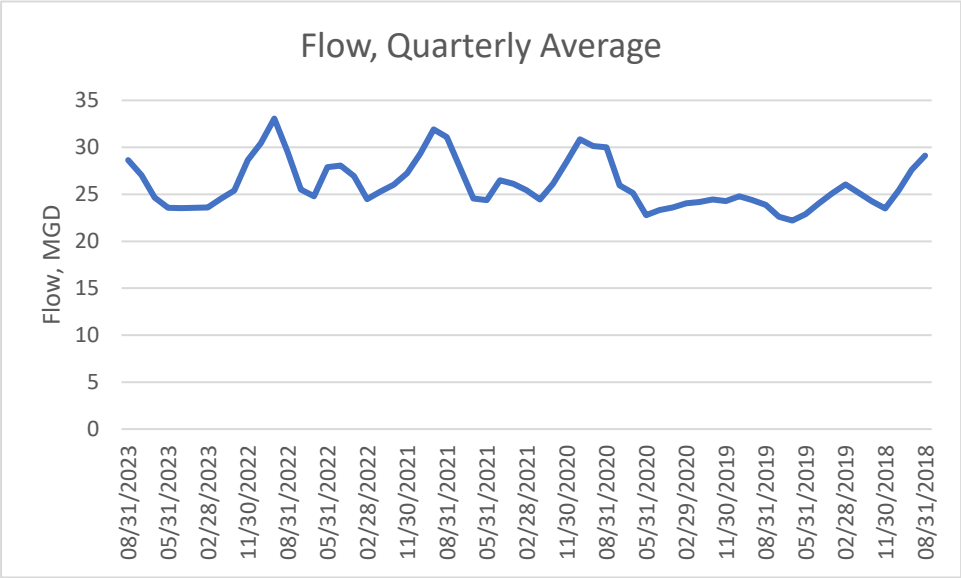
Facility had minor facility violations that were repaired during the previous inspection.

Facility had discharge exceedances for Nickel, Fecal Coliform, Aldrin, Toxicity, and Total Suspended Solids during the previous inspection.

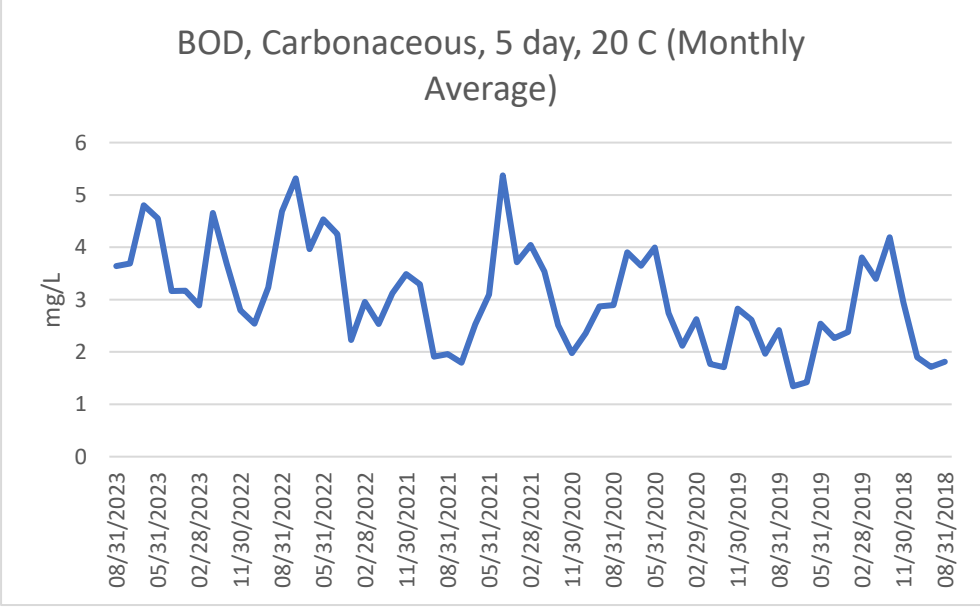
Facility regularly experiences sanitary sewer overflows. See table below:

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

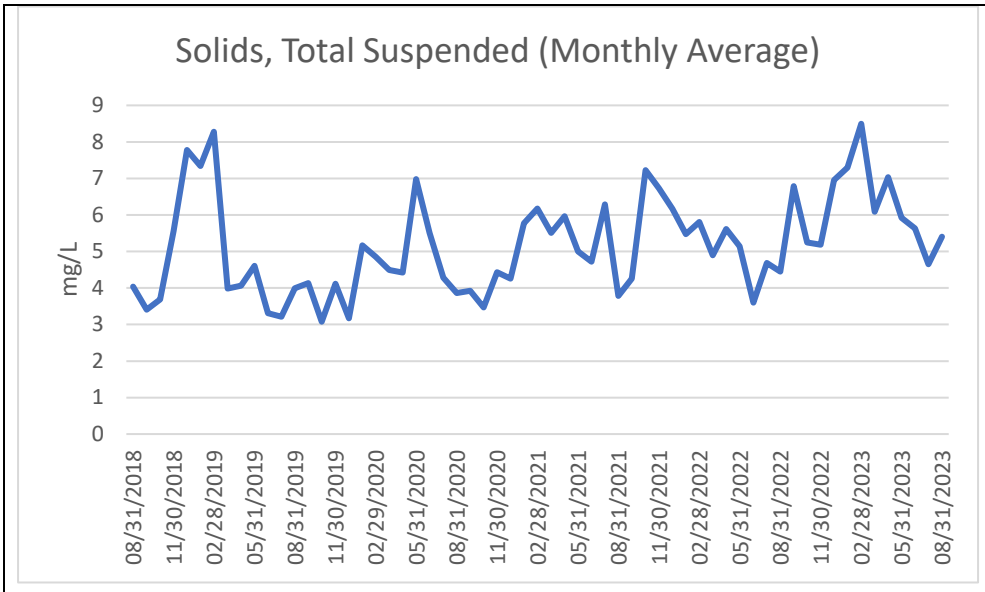
A visual inspection appears to reveal a rising level of Total Nitrogen in the effluent, with levels still remaining within permitted limits. Monthly Average Datapoints were graphed for Flow, BOD, TSS, Total Nitrogen, Total Phosphorus and Mysidopsis bahia toxicity.



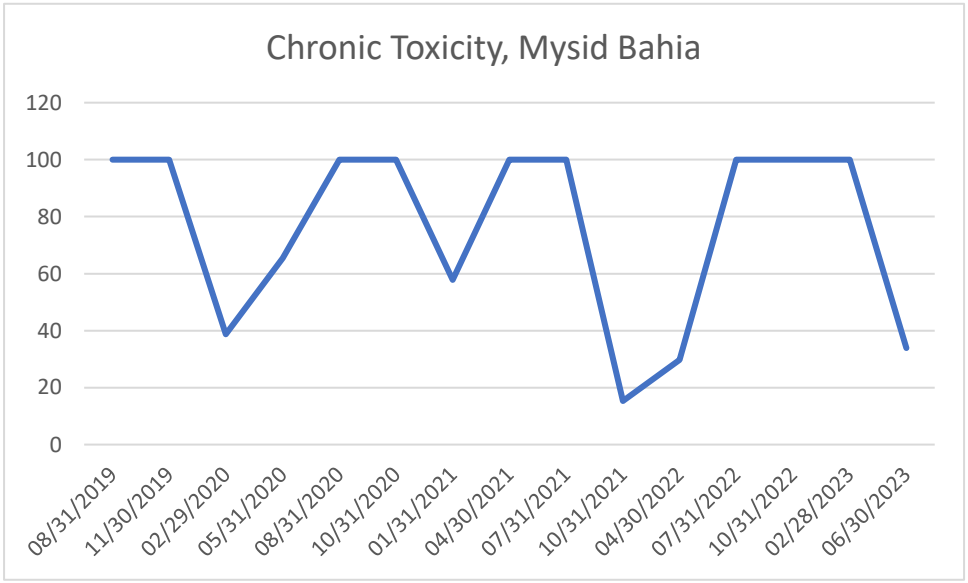
The graph above depicts the trend for flow, monthly average, D-001, DMR monitoring data for the last five years.



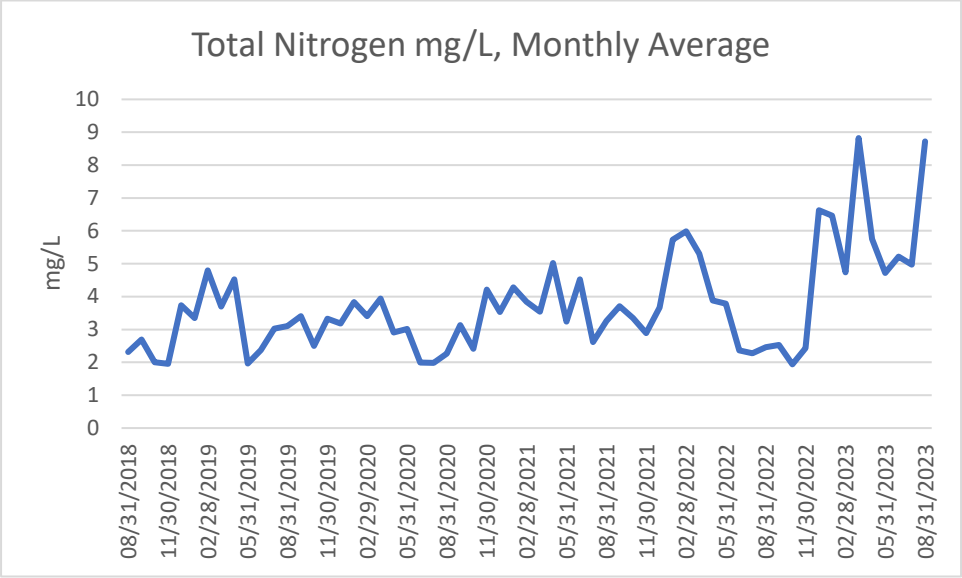
The graph above depicts the trend for BOD, Carbonaceous 5 day, 20C, monthly average, D-001, DMR monitoring data for the last five years.



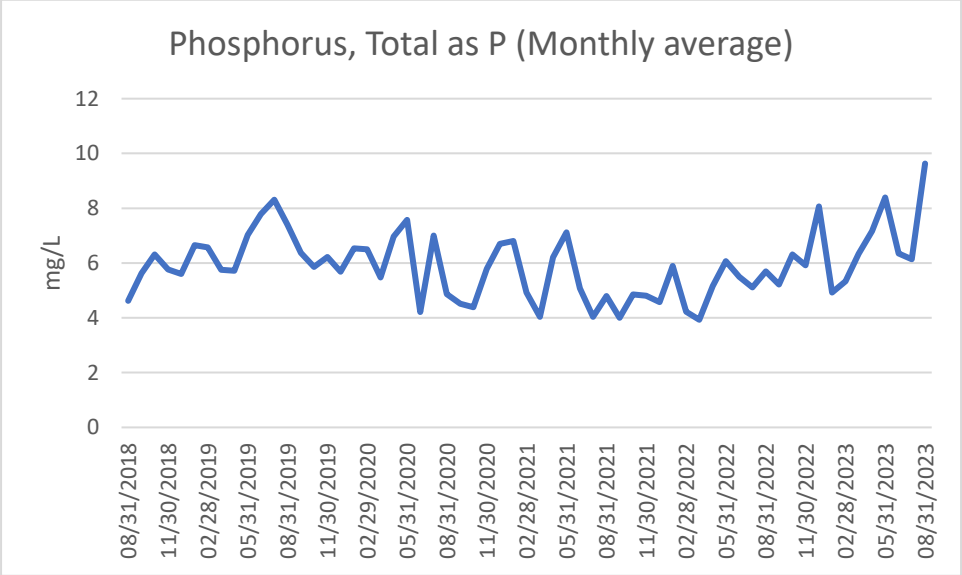
The graph above depicts the trend for Total Suspended Solids, monthly average, D-001, monitoring data for the last five years.



The Graph above depicts the trend for chronic toxicity in mysidopsis bahia at D-001, DMR monitoring data for the last five years. Note that the permit limit is a minimum of 100% effluent without growth inhibition in the shrimp. Points less than 100% are deficiencies.



The graph above depicts the trend for total nitrogen at D-001, DMR monitoring data for the last five years. Monthly average nitrogen levels appear to be increasing, though no limits have been exceeded.



The graph above depicts the trend for total phosphorus as P, D-001, monthly average for the last five years.

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

Facility does not have reuse at this time.

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.

- **Bacteriological Testing**

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

- **Algal Growth Potential (AGP)**

  The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. AGP results within the range 6.10 to 20.0 mg dry wt/L are suggested to be representative of high productivity for freshwaters (Miller et al. 1978). High AGP values may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C. and/or Paragraph 62-302.530(48)(b), F.A.C.

  The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of Subsection 62-302.530(62), F.A.C.

  Chlorophyll *a* Content

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

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

  A - Value reported is the mean of two or more determinations
  B - Results based on colony counts outside the acceptable range.
  I - The reported value is between the laboratory method detection limit and the laboratory

practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC)

Appendix C. Chain of Custody

Request Number: RQ-2023-10-02-73

FYI3 Buckman WWTF (FL0026000)

Customer: NE-DIST

Project ID: FYI3

Florida Department of Environmental Protection

Central Laboratory Submittal Form

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last revised Jan 25, 2018

Requester: Benjamin Nomann

Field Report Prepared By: Paul Duff

Collected By: Paul D., Phillip H., Yahya F.

Sampling Agency: FDEP

Location: FYI3 Buckman	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 10/12/23 Time 9:30 AM	Eastern Central	Composite end Date	Time	Bottle Group(s) (See pg 2): D
Field I		Matrix (type, e.g., Salt, Fresh, etc): DI water from lab	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)	
WIN/S		Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latituc ☐ dd ☐ dms	EQUIP BLANK	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			
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
	10/12/23 3:00PM	FEDEX	1		10.13.23 9:00

Request Number: RQ-2023-10-02-73

FYI3 Buckman WWTF (FL0026000)

Florida Department of Environmental Protection

Central Laboratory Submittal Form

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last revised Jan 25, 2018

Customer: NE-DIST

Project ID: FYI3

Requester: Benjamin Nomann

Collected By: Philippe H, Lydia T, Yahya F

Field Report Prepared By:

Sampling Agency:

Location: FYI3 Buckman

Field ID

WIN/STOR: EFF GRAB

Latitude ☐dd ☐dms | Longitude ☐dd ☐dms

☐ Comp ☑ Grab | Collection (comp begin or grab) Date 10/16/23 Time 10:45 | Eastern / Central | Composite end Date ~~10/16/23~~ Time ~~10:45~~

Matrix (type, e.g., Salt, Fresh, etc): WW Effluent | Diss. Oxygen: 43.9 ☐ mg/L ☑ % sat | Total Res. Chlorine (mg/L): collected by FDEP composite

Temp (C): 29.0 | pH: 7.05 | Sample Depth: 0.4 ☑ ft ☐ m | Sp. Conductance (umho/cm): 1160

Salinity (ppt): — | Comments:

Bottle Group(s) (See pg 2): A

Location: FYI3 Buckman

Field ID

WIN/STORE: EFF COMP

Latitude ☐dd ☐dms | Longitude ☐dd ☐dms

☑ Comp ☐ Grab | Collection (comp begin or grab) Date 10/16/23 Time 10:00 | Eastern / Central | Composite end Date 10/16/23 Time 10:00

Matrix (type, e.g., Salt, Fresh, etc): WW Effluent | Diss. Oxygen: 43.8 ☐ mg/L ☑ % sat | Total Res. Chlorine (mg/L): collected by FDEP composite

Temp (C): 4.2 | pH: 7.06 | Sample Depth: ~~0.4~~ 0.5 ☑ ft ☐ m | Sp. Conductance (umho/cm): 1162

Salinity (ppt): — | Comments:

Bottle Group(s): B

Location: FYI3 Buckman

Field ID

WIN/STORE: FIELD BLANK

Latitude ☐dd ☐dms | Longitude ☐dd ☐dms

☐ Comp ☑ Grab | Collection (comp begin or grab) Date Time | Eastern / Central | Composite end Date 10/16/23 Time 11:00

Matrix (type, e.g., Salt, Fresh, etc): DF water | Diss. Oxygen: ☐ mg/L ☐ % sat | Total Res. Chlorine (mg/L)

Temp (C): — | pH: — | Sample Depth: — ☐ ft ☐ m | Sp. Conductance (umho/cm)

Salinity (ppt): — | Comments:

Bottle Group(s): C

Location

Field ID

WIN/STORET #

Latitude ☐dd ☐dms | Longitude ☐dd ☐dms

☐ Comp ☐ Grab | Collection (comp begin or grab) Date Time | Eastern / Central | Composite end Date Time

Matrix (type, e.g., Salt, Fresh, etc) | Diss. Oxygen: ☐ mg/L ☐ % sat | Total Res. Chlorine (mg/L)

Temp (C) | pH | Sample Depth: ☐ ft ☐ m | Sp. Conductance (umho/cm)

Salinity (ppt) | Comments

Bottle Group(s)

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
				MK	10.17.23 / 0928

Request Number: RQ-2023-10-02-73

FYI3 Buckman WWTF (FL0026000)

Customer: NE-DIST

Project ID: FYI3

Florida Department of Environmental Protection

Central Laboratory Submittal Form

10/17/23 10/18/23 last revised Jan 25, 2018

Requester: Benjamin Nomann

Field Report Prepared By:

Collected By: Philippe Hoax, Yahya Farah

Sampling Agency: DEP-NED

Location: FYI3 Buckman EFF COMP	☑ Comp ☐ Grab	Collection (comp begin or grab) Date 10/18/23 Time ~~10:00~~ 9:30	Eastern Central	Composite end Date 10/18/23 Time ~~10:00~~ 9:30	Bottle Group(s) (See pg 2): B			
Field ID:	Matrix (type, e.g., Salt, Fresh, etc): WW Effluent	Diss. Oxygen: 7.66	☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L): —				
WIN/STORET #:	Temp (C): 6.4	pH: 8.65	Sample Depth: 0.5 ☑ ft ☐ m	Sp. Conductance (umho/cm): 1220				
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt): —	Comments: pH drift on probe					
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
				A.SHAIK	10/19/2023 / 09:20

Request Number: RQ-2023-10-02-73

FYI3 Buckman WWTF (FL0026000)

Florida Department of Environmental Protection
Central Laboratory Submittal Form

Page 1 of 5
last revised Jan 25, 2018

Customer: NE-DIST
Project ID: FYI3

Requester: Benjamin Nomann
Collected By: Philippe Hook, Yahya Farah
Field Report Prepared By:
Sampling Agency: DEP-NED

Location: FYI3 Buckman	☑ Comp ☐ Grab	Collection (comp begin or grab) Date 10/19/2023 Time 9:30	Eastern Central	Composite end Date 10/20/2023 Time 9:30	Bottle Group(s) (See pg 2): B					
Field ID	Matrix (type, e.g., Salt, Fresh, etc): WW Effluent		Diss. Oxygen 65.5 ☐ mg/L ☑ % sat	Total Res. Chlorine (mg/L) —						
WIN/STC EFF COMP	Temp (C) 9.4	pH 8.51	Sample Depth 0.5 ☑ ft ☐ m	Sp. Conductance (umho/cm) ~~758~~						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt) —	Comments DO; 7.47 mg/L 1234							
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

670-28707

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

Contract Manager: Linda Allen/Devan Cobb (850)-245-8084 / (850) 245-8078
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: Devan R. Cobb-Williams Contractor Approval By: Noel Savoie
Project Manager

Contractor Representatives Contacted: Noel Savoie

Date: 9/28/2023
Means of Contact: Email

Task Assignment Number: OV485 Maximum Cost: **$41.50** Turnaround Time: 5 BD

Sample Delivery Date: 10/17/2023

Project Name/Description:
RQ-2023-10-02-73;FY13 Buckman WWTF (FL0026000)

Deliverable Number/ Parameter Group/ Method	**Sample Matrix**	**# of Samples**	**# of Containers**	**DEP ID #**	**Unit Cost**	**% Mark-up (if any)**	**Cost**
Quote/OV-CBOD-IN CBOD, nitrogen-inhibited 5210B-2011	W	1	1		$39.00		$39.00
217/Sample Disposal Fee:		1			$2.50		$2.50
Total Number of Containers Shipped:		1				**Total:**	**$41.50**

670-28707 Chain of Custody

QC Instructions:

Comments: Quote # 66018208 - 0

Samples released to Contract Lab by: _____ Date/Time: _____

Delivery Method: _____ Shipping _____

Samples Accepted by: _____ 10-17-23 Date/Time 0910

* **Please sign and return by email to** Linda.S.Allen@FloridaDEP.gov and Devan.R.Cobb@dep.state.fl.us

0.6 10.4

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

400-245394 COC

640-Tallahassee

Contract Manager: Linda Allen /Devan Cobb
2600 Blair Stone Rd., MS 6512
Tallahassee, FL 32399-2400
(850) 245-8084/ (850) 245-8078

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

DEP Approval By: Devan R. Cobb-Williams Contractor Approval By: Noel Savoie
Project Manager

Contractor Representatives Contacted: Noel Savoie

Date: 10/19/2023
Means of Contact: Email

Task Assignment Number: OV489 Maximum Cost: **$224.00** Turnaround Time: 10 BD

Sample Delivery Date: 10/19/2023

Project Name/Description:
RQ-2023-10-02-73;NE-DIST-2023-10-17-01;FYI3 Buckman WWTF (FL0026000);TLH-2023-10-17-49

Deliverable Number/ Parameter Group/ Method	**Sample Matrix**	**# of Samples**	**# of Containers**	**DEP ID #**	**Unit Cost**	**% Mark-up (if any)**	**Cost**
58/ Cyanide OV-CN-W EPA 335.4	W	2	2	2445268, 2445270	~~$37.00~~	~~40.00~~ 10-31-2023	~~$74.00~~ ~~80.00~~
65/mercury, Low Level (LL CVAFS)1631E	W	2	6 vials	2445269, 2445271	~~$70.00~~	~~105.00~~ 10-31-2023	~~$140.00~~ ~~210.00~~
217/Sample Disposal Fee:	4				$2.50		$10.00
Total Number of Containers Shipped:		8				**Total:**	~~$224.00~~ 300.00

QC Instructions:

Comments:

Samples released to Contract Lab by: KK Date/Time: 10.19.23 / 1325

Delivery Method: ____HD____

Samples Accepted by: Noel Savoie Date/Time 10-19-2023 1326
Relg. 10-19-23 1600

* **Please sign and return by email to** Linda.S.Allen@FloridaDEP.gov and Devan.R.Cobb@dep.state.fl.us

1 ES 10/20/23 931 0.0 °C IR8

Appendix D. Chemical Analysis of Effluent

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:00	EFF COMP	Overflow	Carbonaceous Biochemical Oxygen Demand	2.7	mg/L	2	2
10/16/2023 10:00	EFF COMP	Toxicology	Bioassay-Chron-Def-SW-Fish, NOEC	No Result O	NOEC		
10/16/2023 10:00	EFF COMP	Toxicology	Bioassay-Chron-Def-SW-Mysid, IC25	No Result O	IC25		
10/16/2023 10:00	EFF COMP	Toxicology	Bioassay-Chron-Def-SW-Fish, IC25	No Result O	IC25		
10/16/2023 10:00	EFF COMP	Toxicology	Bioassay-Chron-Def-SW-Mysid, NOEC	No Result O	NOEC		
10/16/2023 10:00	EFF COMP	Nutrients	Sample Depth	0.5	ft		
10/16/2023 10:00	EFF COMP	Nutrients	pH	7.06			
10/16/2023 10:00	EFF COMP	Nutrients	Dissolved Oxygen %Sat	43.8	%Sat		
10/16/2023 10:00	EFF COMP	Nutrients	Specific Conductance	1162	µmhos/cm		
10/16/2023 10:00	EFF COMP	Nutrients	Temperature	4.2	C		
10/18/2023 9:30	EFF COMP	Metals	Nickel	4.9	µg/L	0.5	2.0
10/18/2023 9:30	EFF COMP	Metals	Iron	160	µg/L	30	120
10/18/2023 9:30	EFF COMP	Metals	Copper	0.64 I	µg/L	0.40	0.80
10/18/2023 9:30	EFF COMP	Nutrients	Organic Carbon	13	mg C/L	0.50	1.0
10/18/2023 9:30	EFF COMP	Nutrients	Kjeldahl Nitrogen	2.3	mg N/L	0.080	0.20
10/18/2023 9:30	EFF COMP	Nutrients	TSS	3 I	mg/L	2.0	10
10/18/2023 9:30	EFF COMP	Nutrients	NO2NO3-N	2.3	mg N/L	0.080	0.20
10/18/2023 9:30	EFF COMP	Nutrients	Ammonia-N	0.45	mg N/L	0.040	0.10
10/18/2023 9:30	EFF COMP	Nutrients	Total-P	5.3	mg P/L	0.10	0.50
10/18/2023 9:30	EFF COMP	Pesticides	Aldrin	0.68 U	ng/L	0.68	3.4
10/18/2023 9:30	EFF COMP	Nutrients	Dissolved Oxygen mg/L	7.66	mg/L		
10/18/2023 9:30	EFF COMP	Nutrients	Specific Conductance	1220	µmhos/cm		
10/18/2023 9:30	EFF COMP	Nutrients	pH	8.65			
10/18/2023 9:30	EFF COMP	Nutrients	Temperature	6.4	C		

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/18/2023 9:30	EFF COMP	Nutrients	Sample Depth	0.5	m		
10/20/2023 9:30	EFF COMP	Nutrients	Temperature	9.4	C		
10/20/2023 9:30	EFF COMP	Nutrients	Dissolved Oxygen %Sat	65.5	%Sat		
10/20/2023 9:30	EFF COMP	Nutrients	Sample Depth	0.5	m		
10/20/2023 9:30	EFF COMP	Nutrients	Specific Conductance	1234	µmhos/cm		
10/20/2023 9:30	EFF COMP	Nutrients	pH	8.51	SU		
10/16/2023 10:45	EFF GRAB	AGP/LN	Algal Growth Potential-Salinity Adjusted	3.0 U	mg DryWt/L	3.0	3.0
10/16/2023 10:45	EFF GRAB	AGP/LN	Algal Growth Potential	13.1 A	mg DryWt/L	0.300	0.900
10/16/2023 10:45	EFF GRAB	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.0 U	µg/L	1.0	3.2
10/16/2023 10:45	EFF GRAB	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.70 U	µg/L	0.70	2.1
10/16/2023 10:45	EFF GRAB	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.96 U	µg/L	0.96	2.9
10/16/2023 10:45	EFF GRAB	Overflow	Enterococci-Quanti-Tray	6.2	MPN/100 mL	1.0	1.0
10/16/2023 10:45	EFF GRAB	Overflow	Fecal Coliforms-Membrane Filter	11 B	cfu/100 mL	2	2
10/16/2023 10:45	EFF GRAB	Metals	Chromium	0.69 I	µg/L	0.40	1.6
10/16/2023 10:45	EFF GRAB	Metals	Zinc	8.6 I	µg/L	5.0	20
10/16/2023 10:45	EFF GRAB	Metals	Arsenic	1.98	µg/L	0.050	0.20
10/16/2023 10:45	EFF GRAB	Metals	Silver	0.010 U	µg/L	0.010	0.040
10/16/2023 10:45	EFF GRAB	Metals	Potassium	17.4	mg/L	0.30	1.2
10/16/2023 10:45	EFF GRAB	Metals	Magnesium	25.7	mg/L	0.040	0.16
10/16/2023 10:45	EFF GRAB	Metals	Calcium	67.7	mg/L	0.075	0.30
10/16/2023 10:45	EFF GRAB	Metals	Copper	0.44 I	µg/L	0.40	0.80
10/16/2023 10:45	EFF GRAB	Metals	Aluminum	14 I	µg/L	5.0	20
10/16/2023 10:45	EFF GRAB	Metals	Selenium	0.20 U	µg/L	0.20	0.80
10/16/2023 10:45	EFF GRAB	Metals	Sodium	116	mg/L	0.50	2.0
10/16/2023 10:45	EFF GRAB	Metals	Lead	0.20 U	µg/L	0.20	0.40
10/16/2023 10:45	EFF GRAB	Metals	Nickel	5.2	µg/L	0.50	2.0

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Metals	Iron	120 I	µg/L	30	120
10/16/2023 10:45	EFF GRAB	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
10/16/2023 10:45	EFF GRAB	Nutrients	O-Phosphate-P	11	mg P/L	0.20	0.50
10/16/2023 10:45	EFF GRAB	Nutrients	Chloride	160 A	mg Cl/L	2.0	5.0
10/16/2023 10:45	EFF GRAB	Nutrients	Total Alkalinity	174 A	mg CaCO3/L	0.65	2.5
10/16/2023 10:45	EFF GRAB	Nutrients	Total-P	11	mg P/L	0.50	2.5
10/16/2023 10:45	EFF GRAB	Nutrients	Kjeldahl Nitrogen	2.3	mg N/L	0.080	0.20
10/16/2023 10:45	EFF GRAB	Nutrients	NO2NO3-N	6.0	mg N/L	0.080	0.20
10/16/2023 10:45	EFF GRAB	Nutrients	Ammonia-N	0.50	mg N/L	0.040	0.10
10/16/2023 10:45	EFF GRAB	Nutrients	Sulfate	130 A	mg SO4/L	2.0	5.0
10/16/2023 10:45	EFF GRAB	Nutrients	Fluoride	1.1	mg F/L	0.025	0.10
10/16/2023 10:45	EFF GRAB	Nutrients	Color (true)	41 A	PCU	2.5	6.0
10/16/2023 10:45	EFF GRAB	Nutrients	Turbidity	1.1	NTU	0.10	1.0
10/16/2023 10:45	EFF GRAB	Nutrients	Organic Carbon	13 A	mg C/L	0.50	1.0
10/16/2023 10:45	EFF GRAB	Overflow	Cyanide	0.0046 IV	mg/L	0.0025	0.010
10/16/2023 10:45	EFF GRAB	Overflow	Mercury	0.71	ng/L	0.20	0.50
10/16/2023 10:45	EFF GRAB	Pesticides	Ethoprop	0.14 U	ng/L	0.14	0.68
10/16/2023 10:45	EFF GRAB	Pesticides	Fipronil	34	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Fludioxonil	120	ng/L	1.1	5.4
10/16/2023 10:45	EFF GRAB	Pesticides	Flumioxazin	3.3 U	ng/L	3.3	16
10/16/2023 10:45	EFF GRAB	Pesticides	Imazalil	0.70 U	ng/L	0.70	3.5
10/16/2023 10:45	EFF GRAB	Pesticides	Metolachlor	2.1E+03 J	ng/L	81	410
10/16/2023 10:45	EFF GRAB	Pesticides	Molinate	0.27 UJ	ng/L	0.27	1.4
10/16/2023 10:45	EFF GRAB	Pesticides	Parathion Methyl	0.22 U	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Pendimethalin	1.8 U	ng/L	1.8	9.2
10/16/2023 10:45	EFF GRAB	Pesticides	Simazine	0.27 U	ng/L	0.27	1.4
10/16/2023 10:45	EFF GRAB	Pesticides	Acetochlor	0.22 U	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Ametryn	6.0	ng/L	1.2	6.0

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Pesticides	Atrazine Desethyl	32 J	ng/L	1.4	7.0
10/16/2023 10:45	EFF GRAB	Pesticides	Carbophenothion	0.54 U	ng/L	0.54	2.7
10/16/2023 10:45	EFF GRAB	Pesticides	Cyanazine	5.4 U	ng/L	5.4	27
10/16/2023 10:45	EFF GRAB	Pesticides	Ibuprofen	0.080 U	µg/L	0.080	0.32
10/16/2023 10:45	EFF GRAB	Pesticides	Acesulfame K	0.10 U	µg/L	0.10	0.40
10/16/2023 10:45	EFF GRAB	Pesticides	AMPA	1.3	µg/L	0.10	0.40
10/16/2023 10:45	EFF GRAB	Pesticides	Endothall	0.25 U	µg/L	0.25	1.0
10/16/2023 10:45	EFF GRAB	Pesticides	Disulfoton	0.65 U	ng/L	0.65	3.3
10/16/2023 10:45	EFF GRAB	Pesticides	EPTC	0.54 U	ng/L	0.54	2.7
10/16/2023 10:45	EFF GRAB	Pesticides	Metribuzin	5.1E+03	ng/L	43	220
10/16/2023 10:45	EFF GRAB	Pesticides	Naled	2.7 U	ng/L	2.7	14
10/16/2023 10:45	EFF GRAB	Pesticides	Oxyfluorfen	340	ng/L	2.2	11
10/16/2023 10:45	EFF GRAB	Pesticides	Prometon	5.3E+03	ng/L	330	1.6E+03
10/16/2023 10:45	EFF GRAB	Pesticides	Propiconazole	150	ng/L	6.5	33
10/16/2023 10:45	EFF GRAB	Pesticides	Pyriproxyfen	0.27 U	ng/L	0.27	1.7
10/16/2023 10:45	EFF GRAB	Pesticides	Azinphos Methyl	3.3 U	ng/L	3.3	16
10/16/2023 10:45	EFF GRAB	Pesticides	Diazinon	0.14 U	ng/L	0.14	0.68
10/16/2023 10:45	EFF GRAB	Pesticides	Glyphosate	0.73	µg/L	0.10	0.40
10/16/2023 10:45	EFF GRAB	Pesticides	Sucralose	45	µg/L	0.10	0.40
10/16/2023 10:45	EFF GRAB	Pesticides	Flutolanil	0.11 U	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Fluxapyroxad	0.27 U	ng/L	0.27	1.4
10/16/2023 10:45	EFF GRAB	Pesticides	Myclobutanil	0.38 U	ng/L	0.38	1.9
10/16/2023 10:45	EFF GRAB	Pesticides	Norflurazon	1.1 U	ng/L	1.1	5.4
10/16/2023 10:45	EFF GRAB	Pesticides	Tebuconazole	1.4E+03	ng/L	15	76
10/16/2023 10:45	EFF GRAB	Pesticides	Atrazine	100	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Bromacil	14	ng/L	0.65	3.3
10/16/2023 10:45	EFF GRAB	Pesticides	Chlorpyrifos Ethyl	0.33 U	ng/L	0.33	1.6
10/16/2023 10:45	EFF GRAB	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Pesticides	Fenamiphos	0.49 U	ng/L	0.49	2.4
10/16/2023 10:45	EFF GRAB	Pesticides	Metalaxyl	0.54 U	ng/L	0.54	2.7
10/16/2023 10:45	EFF GRAB	Pesticides	Mevinphos	1.1 U	ng/L	1.1	5.4
10/16/2023 10:45	EFF GRAB	Pesticides	Parathion Ethyl	0.16 U	ng/L	0.16	0.81
10/16/2023 10:45	EFF GRAB	Pesticides	Chlorpyrifos Methyl	0.11 U	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Fipronil Desulfinyl	1.2	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Pronamide	0.11 U	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Caffeine	8.1 U	ng/L	8.1	41
10/16/2023 10:45	EFF GRAB	Pesticides	Carfentrazone Ethyl	0.16 U	ng/L	0.16	0.81
10/16/2023 10:45	EFF GRAB	Pesticides	Dithiopyr	1.1 UJ	ng/L	1.1	5.4
10/16/2023 10:45	EFF GRAB	Pesticides	Fipronil Sulfone	7.5	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Hexazinone	0.54 U	ng/L	0.54	2.7
10/16/2023 10:45	EFF GRAB	Pesticides	Malathion	0.38 U	ng/L	0.38	1.9
10/16/2023 10:45	EFF GRAB	Pesticides	Oxadiazon	1.5E+03	ng/L	38	190
10/16/2023 10:45	EFF GRAB	Pesticides	Phorate	0.27 UJ	ng/L	0.27	1.4
10/16/2023 10:45	EFF GRAB	Pesticides	Prodiamine	1.5E+03	ng/L	22	110
10/16/2023 10:45	EFF GRAB	Pesticides	Terbuthylazine	0.22 U	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Demeton	3.8 U	ng/L	3.8	19
10/16/2023 10:45	EFF GRAB	Pesticides	Ethion	0.33 U	ng/L	0.33	1.6
10/16/2023 10:45	EFF GRAB	Pesticides	Fluazifop-P-butyl	0.11 U	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Fonofos	0.16 U	ng/L	0.16	0.81
10/16/2023 10:45	EFF GRAB	Pesticides	Iprodione	270 J	ng/L	5.4	27
10/16/2023 10:45	EFF GRAB	Pesticides	Terbufos	0.22 U	ng/L	0.22	1.1
10/16/2023 10:45	EFF GRAB	Pesticides	Azoxystrobin	92	ng/L	0.43	2.2
10/16/2023 10:45	EFF GRAB	Pesticides	Butylate	0.49 U	ng/L	0.49	2.4
10/16/2023 10:45	EFF GRAB	Pesticides	Difenoconazole	0.65 U	ng/L	0.65	3.3
10/16/2023 10:45	EFF GRAB	Pesticides	Glufosinate	0.10 U	µg/L	0.10	0.40
10/16/2023 10:45	EFF GRAB	Pesticides	Fenbuconazole	3.1	ng/L	0.54	2.7

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Pesticides	Fipronil Sulfide	5.8	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Pesticides	Prometryn	0.38 U	ng/L	0.38	1.9
10/16/2023 10:45	EFF GRAB	Pesticides	Sulfentrazone	2.5E+03	ng/L	150	760
10/16/2023 10:45	EFF GRAB	Pesticides	Alachlor	0.43 UJ	ng/L	0.43	2.2
10/16/2023 10:45	EFF GRAB	Pesticides	Dimethenamid	0.11 U	ng/L	0.11	0.54
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,6-Dinitrotoluene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Acenaphthylene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Pentachlorophenol	0.53 U	µg/L	0.53	2.1
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Naphthalene	0.11 U	µg/L	0.11	0.43
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Hexachlorobenzene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.5
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,4-Dimethylphenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzidine	11 U	µg/L	11	43
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.3 U	µg/L	5.3	21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Chrysene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2-Nitrophenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Hexachloroethane	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Nitrobenzene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Pyrene	0.11 U	µg/L	0.11	0.43
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.11 I	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzo(k)fluoranthene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2-Chlorophenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Hexachlorobutadiene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,4-Dinitrotoluene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,4-Dinitrophenol	11 U	µg/L	11	43

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Butyl benzyl phthalate	1.1 U	µg/L	1.1	4.3
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2 U	µg/L	3.2	13
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	3,3'-Dichlorobenzidine	11 U	µg/L	11	43
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzo(a)pyrene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzo(b)fluoranthene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Di-n-octyl phthalate	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Dimethyl phthalate	0.21 U	µg/L	0.21	0.85
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2-Chloronaphthalene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Isophorone	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.5
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	2,4-Dichlorophenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Acenaphthene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Anthracene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Fluorene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	4-Nitrophenol	11 U	µg/L	11	43
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Benzo(a)anthracene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.5
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Fluoranthene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.027 U	µg/L	0.027	0.11
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Phenanthrene	0.11 U	µg/L	0.11	0.43

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 10:45	EFF GRAB	Priority Organic Pollutants	Phenol	0.053 U	µg/L	0.053	0.21
10/16/2023 10:45	EFF GRAB	Nutrients	pH	7.05			
10/16/2023 10:45	EFF GRAB	Nutrients	Dissolved Oxygen %Sat	43.9	%Sat		
10/16/2023 10:45	EFF GRAB	Nutrients	Sample Depth	0.4	ft		
10/16/2023 10:45	EFF GRAB	Nutrients	Specific Conductance	1160	µmhos/cm		
10/16/2023 10:45	EFF GRAB	Nutrients	Temperature	29.0	C		
10/12/2023 9:30	EQUIP BLANK	Metals	Copper	0.79 I	µg/L	0.40	0.80
10/12/2023 9:30	EQUIP BLANK	Metals	Nickel	0.50 U	µg/L	0.50	2.0
10/12/2023 9:30	EQUIP BLANK	Metals	Iron	30 U	µg/L	30	120
10/12/2023 9:30	EQUIP BLANK	Nutrients	Ammonia-N	0.006	mg N/L	0.0020	0.0050
10/12/2023 9:30	EQUIP BLANK	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
10/12/2023 9:30	EQUIP BLANK	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
10/12/2023 9:30	EQUIP BLANK	Nutrients	Organic Carbon	0.64 I	mg C/L	0.50	1.0
10/12/2023 9:30	EQUIP BLANK	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
10/12/2023 9:30	EQUIP BLANK	Pesticides	Aldrin	0.68 U	ng/L	0.68	3.4
10/16/2023 11:00	FIELD BLANK	Metals	Aluminum	5.0 U	µg/L	5.0	20
10/16/2023 11:00	FIELD BLANK	Metals	Selenium	0.20 U	µg/L	0.20	0.80
10/16/2023 11:00	FIELD BLANK	Metals	Copper	0.40 U	µg/L	0.40	0.80
10/16/2023 11:00	FIELD BLANK	Metals	Magnesium	0.040 U	mg/L	0.040	0.16
10/16/2023 11:00	FIELD BLANK	Metals	Silver	0.010 U	µg/L	0.010	0.040
10/16/2023 11:00	FIELD BLANK	Metals	Zinc	5.0 U	µg/L	5.0	20
10/16/2023 11:00	FIELD BLANK	Metals	Arsenic	0.050 U	µg/L	0.050	0.20
10/16/2023 11:00	FIELD BLANK	Metals	Iron	30 U	µg/L	30	120
10/16/2023 11:00	FIELD BLANK	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
10/16/2023 11:00	FIELD BLANK	Metals	Potassium	0.30 U	mg/L	0.30	1.2
10/16/2023 11:00	FIELD BLANK	Metals	Chromium	0.40 U	µg/L	0.40	1.6
10/16/2023 11:00	FIELD BLANK	Metals	Nickel	0.50 U	µg/L	0.50	2.0
10/16/2023 11:00	FIELD BLANK	Metals	Calcium	0.075 U	mg/L	0.075	0.30

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Metals	Sodium	0.50 U	mg/L	0.50	2.0
10/16/2023 11:00	FIELD BLANK	Metals	Lead	0.20 U	µg/L	0.20	0.40
10/16/2023 11:00	FIELD BLANK	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.0040	0.010
10/16/2023 11:00	FIELD BLANK	Nutrients	Organic Carbon	0.50 U	mg C/L	0.50	1.0
10/16/2023 11:00	FIELD BLANK	Nutrients	Chloride	0.20 U	mg Cl/L	0.20	0.50
10/16/2023 11:00	FIELD BLANK	Nutrients	Fluoride	0.025 U	mg F/L	0.025	0.10
10/16/2023 11:00	FIELD BLANK	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
10/16/2023 11:00	FIELD BLANK	Nutrients	Sulfate	0.20 U	mg SO4/L	0.20	0.50
10/16/2023 11:00	FIELD BLANK	Nutrients	Ammonia-N	0.002 U	mg N/L	0.0020	0.0050
10/16/2023 11:00	FIELD BLANK	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
10/16/2023 11:00	FIELD BLANK	Nutrients	Color (true)	2.5 U	PCU	2.5	6.0
10/16/2023 11:00	FIELD BLANK	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
10/16/2023 11:00	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
10/16/2023 11:00	FIELD BLANK	Nutrients	Turbidity	0.10 U	NTU	0.10	1.0
10/16/2023 11:00	FIELD BLANK	Overflow	Cyanide	0.0033 IV	mg/L	0.0025	0.010
10/16/2023 11:00	FIELD BLANK	Overflow	Mercury	0.20 U	ng/L	0.20	0.50
10/16/2023 11:00	FIELD BLANK	Pesticides	Imazalil	0.67 U	ng/L	0.67	3.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Norflurazon	1.0 U	ng/L	1.0	5.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Prometryn	0.36 U	ng/L	0.36	1.8
10/16/2023 11:00	FIELD BLANK	Pesticides	Acesulfame K	0.10 U	µg/L	0.10	0.40
10/16/2023 11:00	FIELD BLANK	Pesticides	Glyphosate	0.10 U	µg/L	0.10	0.40
10/16/2023 11:00	FIELD BLANK	Pesticides	Acetochlor	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Azinphos Methyl	3.1 U	ng/L	3.1	15
10/16/2023 11:00	FIELD BLANK	Pesticides	Fenamiphos	0.46 U	ng/L	0.46	2.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Flumioxazin	3.1 U	ng/L	3.1	15
10/16/2023 11:00	FIELD BLANK	Pesticides	Metolachlor	0.77 U	ng/L	0.77	3.9
10/16/2023 11:00	FIELD BLANK	Pesticides	Myclobutanil	0.36 U	ng/L	0.36	1.8
10/16/2023 11:00	FIELD BLANK	Pesticides	Naled	2.6 U	ng/L	2.6	13

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Pesticides	Phorate	0.26 U	ng/L	0.26	1.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Simazine	0.26 U	ng/L	0.26	1.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Cyanazine	5.1 U	ng/L	5.1	26
10/16/2023 11:00	FIELD BLANK	Pesticides	Disulfoton	0.62 U	ng/L	0.62	3.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Fluazifop-P-butyl	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Mevinphos	1.0 U	ng/L	1.0	5.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Oxyfluorfen	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Terbufos	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Difenoconazole	0.62 U	ng/L	0.62	3.1
10/16/2023 11:00	FIELD BLANK	Pesticides	EPTC	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Malathion	0.36 U	ng/L	0.36	1.8
10/16/2023 11:00	FIELD BLANK	Pesticides	Parathion Methyl	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Prodiamine	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Sucralose	0.010 U	µg/L	0.010	0.040
10/16/2023 11:00	FIELD BLANK	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032
10/16/2023 11:00	FIELD BLANK	Pesticides	Alachlor	0.41 U	ng/L	0.41	2.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Atrazine Desethyl	1.3 U	ng/L	1.3	6.7
10/16/2023 11:00	FIELD BLANK	Pesticides	Azoxystrobin	0.41 U	ng/L	0.41	2.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Hexazinone	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Metribuzin	0.41 U	ng/L	0.41	2.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Ibuprofen	0.080 U	µg/L	0.080	0.32
10/16/2023 11:00	FIELD BLANK	Pesticides	Demeton	3.6 U	ng/L	3.6	18
10/16/2023 11:00	FIELD BLANK	Pesticides	Ethoprop	0.13 U	ng/L	0.13	0.64
10/16/2023 11:00	FIELD BLANK	Pesticides	Fluxapyroxad	0.26 U	ng/L	0.26	1.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Pendimethalin	1.7 U	ng/L	1.7	8.7
10/16/2023 11:00	FIELD BLANK	Pesticides	Pyriproxyfen	0.26 U	ng/L	0.26	1.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Endothall	0.25 U	µg/L	0.25	1.0

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Pesticides	Glufosinate	0.10 U	µg/L	0.10	0.40
10/16/2023 11:00	FIELD BLANK	Pesticides	Ametryn	1.1 U	ng/L	1.1	5.7
10/16/2023 11:00	FIELD BLANK	Pesticides	Caffeine	7.7 U	ng/L	7.7	39
10/16/2023 11:00	FIELD BLANK	Pesticides	Dimethenamid	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Fipronil	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Fipronil Sulfide	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Fipronil Sulfone	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Fludioxonil	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Metalaxyl	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Molinate	0.26 UJ	ng/L	0.26	1.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Parathion Ethyl	0.15 U	ng/L	0.15	0.77
10/16/2023 11:00	FIELD BLANK	Pesticides	Pronamide	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Sulfentrazone	1.4 U	ng/L	1.4	7.2
10/16/2023 11:00	FIELD BLANK	Pesticides	Tebuconazole	1.4 U	ng/L	1.4	7.2
10/16/2023 11:00	FIELD BLANK	Pesticides	Terbuthylazine	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Ethion	0.31 U	ng/L	0.31	1.5
10/16/2023 11:00	FIELD BLANK	Pesticides	Fipronil Desulfinyl	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Pesticides	Fonofos	0.15 U	ng/L	0.15	0.77
10/16/2023 11:00	FIELD BLANK	Pesticides	Iprodione	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Carbophenothion	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Oxadiazon	0.36 U	ng/L	0.36	1.8
10/16/2023 11:00	FIELD BLANK	Pesticides	Prometon	3.1 U	ng/L	3.1	15
10/16/2023 11:00	FIELD BLANK	Pesticides	Propiconazole	0.62 U	ng/L	0.62	3.1
10/16/2023 11:00	FIELD BLANK	Pesticides	AMPA	0.10 U	µg/L	0.10	0.40
10/16/2023 11:00	FIELD BLANK	Pesticides	Atrazine	0.21 U	ng/L	0.21	1.0
10/16/2023 11:00	FIELD BLANK	Pesticides	Bromacil	0.62 U	ng/L	0.62	3.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Carfentrazone Ethyl	0.15 U	ng/L	0.15	0.77
10/16/2023 11:00	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.31 U	ng/L	0.31	1.5

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Pesticides	Butylate	0.46 U	ng/L	0.46	2.3
10/16/2023 11:00	FIELD BLANK	Pesticides	Diazinon	0.13 U	ng/L	0.13	0.64
10/16/2023 11:00	FIELD BLANK	Pesticides	Dithiopyr	1.0 U	ng/L	1.0	5.1
10/16/2023 11:00	FIELD BLANK	Pesticides	Fenbuconazole	0.51 U	ng/L	0.51	2.6
10/16/2023 11:00	FIELD BLANK	Pesticides	Flutolanil	0.10 U	ng/L	0.10	0.51
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	42
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.3
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.42
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Phenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	42
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.2 U	µg/L	5.2	21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.2
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	0.052 U	µg/L	0.052	0.21

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.3
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	0.52 U	µg/L	0.52	2.1
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	0.21 U	µg/L	0.21	0.83
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.42
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Isophorone	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.3
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	0.052 U	µg/L	0.052	0.21
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	42
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.42

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
10/16/2023 11:00	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	42