Effluent Quality Assessment of Tampa Bay Water Seawater Desalination Facility Hillsborough County NPDES # FL0186813 Sampled May 16, 2022

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

Nickel in the effluent grab sample did not meet the Class III Water Quality Criterion for Marine Waters. The nutrient and algal growth potential (AGP) results for the effluent grab sample do not suggest a potential for nutrient enrichment. There were eight organic constituents detected in the effluent grab sample.

Facility Overview

The Tampa Bay Water Seawater Desalination Facility is an Industrial Wastewater Facility that uses reverse osmosis desalination to produce potable water. A Facility Summary, including a description of the facility, summary of permit limits, and any relevant Administrative Order (AO), Consent Order (CO), and Discharge Monitoring Report (DMR) information is provided in Appendix A. The effluent is seasonally discharged into Big Bend Bayou [waterbody identification (WBID) 1693], which ultimately discharges to Hillsborough Bay, a Class III Marine Water (Figure 1).

Receiving waters for this facility fall under the Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criteria for Hillsborough Bay within the Tampa Bay estuary. For this region, the NNC, expressed as annual loads, are 1.28 tons/million cubic meters of water for total phosphorus, 1.62 tons/million cubic meters of water for total nitrogen, and 15.0 µg/L as annual mean for chlorophyll *a* (Subparagraph 62-302.532(1)(b)2., 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

Effluent grab samples were collected from monitoring site location EFF-03, for outfall D-001 on May 16, 2022. Several effluent limits are calculated based on analyte measurements in the intake water. Compliance for these analytes is determined by concurrently collecting composite samples for the intake and discharge waters; only grab samples for discharge waters were collected for this sampling event.

Samples were collected by Lance Kautz and Emily Larson (Southwest District Office). Analyses were performed by Florida Radiochemistry Services Inc, Eurofins Test America Laboratories in Tampa, Eurofins Test America Laboratories in 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.

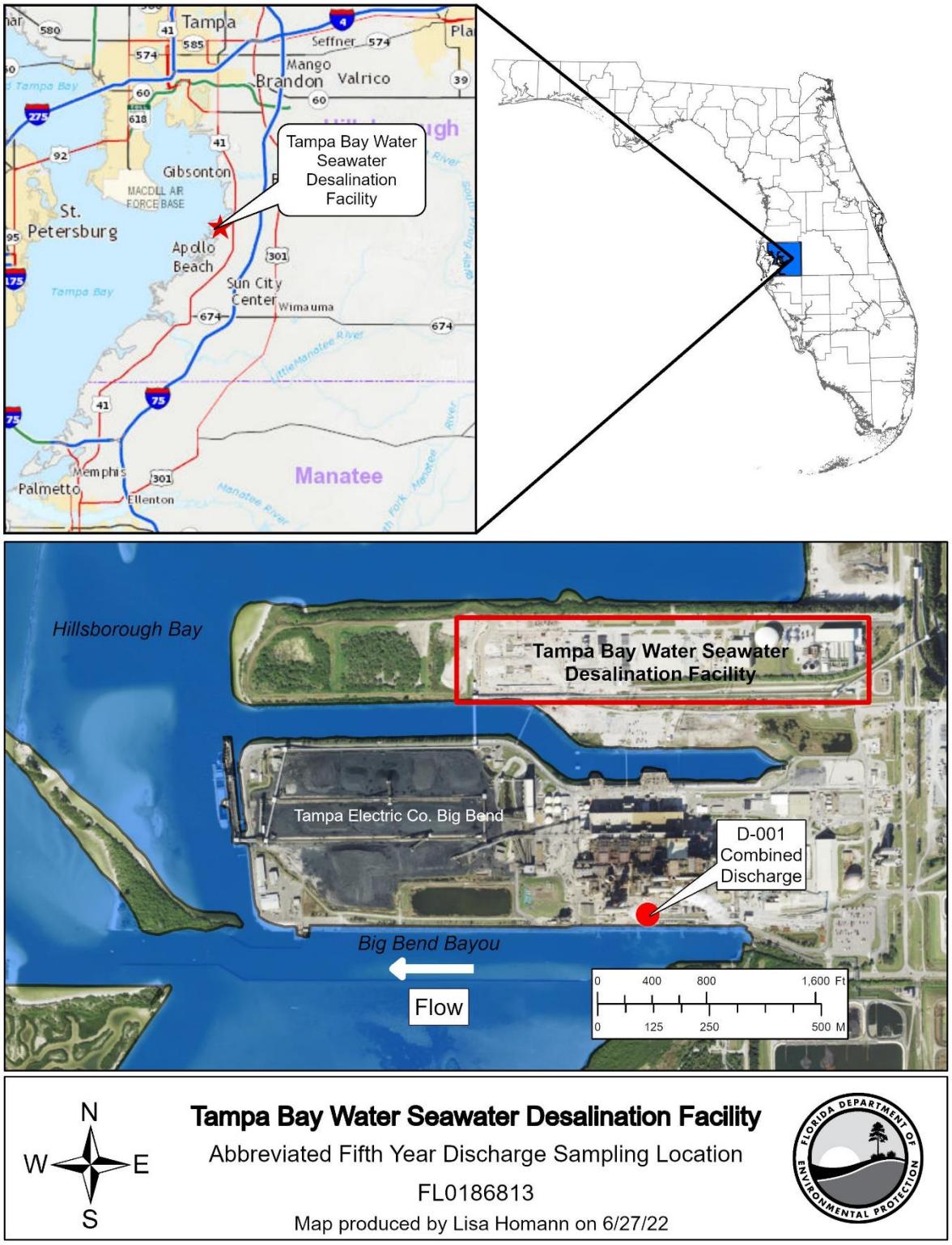


Figure 1. Map of Facility and Discharge Location

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.

Analytical Water Chemistry (See Table 2 and Appendix D)

- All water chemistry analytes detected in the effluent grab sample complied with Class III Water Quality Criteria for Marine Waters.

- Total Alpha compliance could not be determined because the laboratory minimum detection level was above the permit limit.

Toxicity Whole Effluent Test (See Table 2)

- Tests were performed May 17 through May 21, 2022.

- The sample was aerated for 20 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 12.7 mg/L to 8.9 mg/L.

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

- For the 96-hour acute definitive test, the calculated LC50 for the mysid shrimp, *Americamysis bahia*, was 100% effluent with 5% mortality in 100% sample. The calculated LC50 for the fish, *Menidia beryllina*, was 100% effluent with 10% mortality in 100% sample. The effluent sample was not toxic to either test species during the 96-hour acute definitive bioassays and therefore, complied with effluent permit limits.

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

Metals (See Table 3 and Appendix D)

- Effluent Nickel exceeded the Class III Water Quality Criterion for Marine Waters (Subsection 62-302.530(44), F.A.C.).

Algal Growth Potential (See Table 4 and Appendix B)

- The AGP of the effluent sample was below detection for the saltwater species *Dunaliella tertiolecta*.

- Nitrate + Nitrite was not detected in the effluent sample. Using ½ the method detection limit (MDL) for Nitrate + Nitrite in the calculation for total nitrogen to phosphorus ratio, the ratio value suggests that the effluent is nitrogen limited (Miller et al. 1978).

Organic Constituents (See Table 5 and Appendix D)

- Atrazine, atrazine desethyl, bromacil, caffeine, fluxapyroxad, hexazinone, metolachlor, and tebuconazole were detected in the effluent grab sample.

- There are no effluent permit limits for organic constituents.

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 field parameters

Parameter	Units	Class III Criteria	Effluent Permit Limits	Effluent EFF-03
Temperature	C	-	-	32.5
pH	SU	6.5 - 8.5	-	7.1
Specific Conductance	µmhos/cm	-	See permit [1]	41,975
Salinity	ppth	-	See permit [1]	66.6
Dissolved Oxygen	% saturation	≥ 42	-	100.2
Dissolved Oxygen	mg/L	-	-	6.4

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
1- Compliance with effluent limit determined by concurrent sampling at intake and discharge monitoring sites

Table 2. Analytical water chemistry and toxicological data

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

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab
Ortho-phosphate	mg P/L	-	-	0.083
Total Phosphorus	mg P/L	-	-	0.10
Total Ammonia	mg N/L	-	-	0.025
Un-ionized Ammonia (calculated salinity)	mg N/L	-	-	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	0.004 U
Total Kjeldahl Nitrogen	mg N/L	-	-	0.31
Organic Nitrogen	mg N/L	-	-	0.29 c
Total Nitrogen	mg N/L	-	-	0.31 c
Total Organic Carbon	mg C/L	-	-	5.3
Chlorophyll *a* - Corrected	µg/L	≤ 15.0 a	-	1.9 I
Phaeophytin	µg/L	-	-	1.0 U
CBOD, 5-day, N - inhibited	mg/L	-	-	2.0 U
Hardness	mg CaCO3/L	-	-	5,570 c
Total Suspended Solids	mg/L	-	-	4 I
Turbidity	NTU	≤ 29 t	-	0.85 IA
Color (true)	PCU	-	-	2.5 UA
Alkalinity	mg CaCO3/L	≥ 20	-	123 A
Chloride	mg Cl/L	-	See permit [1]	17,000 A
Fluoride	mg F/L	≤ 5.0	-	1.1
Sulfate	mg SO4/L	-	-	2,400
Alpha, Total	pCi/L	≤ 5.0	See permit [1]	28.5 U
Alpha-Counting Error	pCi/L	-	-	20.9
Radium 226	pCi/L	-	-	0.641
Radium 226-Counting Error	pCi/L	-	-	0.215
Radium 228	pCi/L	-	-	0.622 U
Radium 228-Counting Error	pCi/L	-	-	0.326
Radium 226 + 228	pCi/L	≤ 5.0	See permit [1]	0.641 c
Bioassay - Mysid shrimp (*Americamysis bahia*)	% effluent	-	≥ 100 s	> 100
Bioassay - Fish *(Menidia beryllina)*	% effluent	-	≥ 100 s	> 100

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

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

1- Compliance with effluent limit determined by concurrent sampling at intake and discharge monitoring sites

a- Annual average

c - Value is calculated

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
s - Single sample
t - Shall not exceed 29 NTUs above background
U - Material analyzed for but not detected; value reported is the method detection limit

Table 3. Analytical metals data

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

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab
Aluminum	µg/L	≤ 1500	-	50 U
Arsenic	µg/L	≤ 50	-	2.15
Cadmium	µg/L	≤ 8.8	-	0.080 U
Calcium	mg/L	-	-	369
Chromium, Total [2]	µg/L	≤ 50	-	1.6 U
Copper	µg/L	≤ 3.7	See permit [1]	1.6 U
Iron	µg/L	≤ 300	See permit [1]	120 U
Lead	µg/L	≤ 8.5	-	2.0 U
Magnesium	mg/L	-	-	1,130
Mercury	µg/L	≤ 0.025	See permit [1]	0.00067
Nickel	µg/L	≤ 8.3	-	9.6 I e
Potassium	mg/L	-	-	345
Selenium	µg/L	≤ 71	-	0.80 U
Silver	µg/L	≤ 2.3	-	0.040 U
Sodium	mg/L	-	-	9,300
Zinc	µg/L	≤ 86	-	20 U

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

1- Compliance with effluent limit determined by concurrent sampling at intake and discharge monitoring sites

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

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

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

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	*Dunaliella tertiolecta*	3.00 U	not applicable [3]	not applicable [3]	not applicable [3]	not applicable [3]	0.33 [4]	3.1 [4]

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

3 - predictions not applicable to marine matrix

4 - non-detect in the analytical chemistry; ratios were calculated using 1/2 MDL for non-detect analytes

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
Atrazine	ng/L	-	-	8.4
Atrazine Desethyl	ng/L	-	-	1.9 I
Bromacil	ng/L	-	-	0.59 I
Caffeine	ng/L	-	-	12 I
Fluxapyroxad	ng/L	-	-	1.3
Hexazinone	ng/L	-	-	0.68 I
Metolachlor	ng/L	-	-	0.74 I
Tebuconazole	ng/L	-	-	0.61 I

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

Appendix A. Facility Summary

PART I: Information gathered prior to sampling event

Prepared By: Lance Kautz	**Contact Number:** 813-470-5903
Facility Name (as it appears on permit): Tampa Bay Water Seawater Desalination Facility	**Former Names:**
NPDES Permit Number: FL0186813	**Permit Expiration Date:** August 15, 2023
Physical Address: 13041 Wyandotte Rd Gibsonton, FL 33534-5833	
District: Southwest	**County:** Hillsborough
Function of Facility: Reverse osmosis desalination facility to produce potable water	
Facility Type: Industrial Wastewater	**Permitted Capacity (MGD):** 22.8

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

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

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

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

Monitoring Site Number	Description of Monitoring Site
FLW-TECO	**Total seawater flow from the sump located between the cooling water discharges conduits for TECO Big Bend Power Station Units 3 & 4 prior to the Flue Gas Desulfurization (FGD) discharge.**
FLW-INTAKE	Intake flow to the RO plant
FLW-1	Calculated Flow, power plant cooling water available for mixing and dilution with RO discharge. (V1 = FLW-TECO - FLW-Intake)
FLW-2	Flow, discharge of RO concentrate from RO discharge pump station. (V2)
FLW-1and2	flow available for dilution divided by the RO flow discharge
FLW-3	Calculated flow, total flow after mixing dilution water with RO concentrate. (V3 = V1 + V2)
INT-1	Intake to desalination facility, prior to filtering or chemical additions. (water Quality, C1)
INT-2	Internal discharge from the RO discharge sample pump (RO concentrate) prior to mixing with the TECO Big Bend Power Plant cooling water. (C2)
EFF-03	Effluent point-final, combined discharge of RO discharge and power plant cooling water. (C3)

Description of Permitted Outfall(s):

Surface Water Discharge D-001: An existing 22.8 MGD daily maximum flow (during either normal or recycle operation mode) is routed to the discharge pump station, which pumps effluent to one or more of the four TECO Big Bend power station cooling water conduits (Internal Outfalls I-001, I-002, I-003 or I-004) prior to entering the TECO Big Bend discharge canal (WBID #1693, Big Bend Bayou), which ultimately discharges to Hillsborough Bay, Class III marine waters. The point of discharge is located approximately at latitude 27°47' 38" N, longitude 82°24' 10" W.

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

Normal Operation Mode

When potable water is being produced, backwash water and coagulation/flocculation sludge from the pretreatment system are sent to the sludge treatment system that includes a rapid mixing chamber, a flocculation tank, a lamella clarifier, and a belt press. Clarifier supernatant is routed to the discharge pump station to be discharged with the RO concentrate or recycled back to the head of the pretreatment process. Belt press pressate is returned to the rapid mixing chamber. Dewatered sludge is disposed of at a landfill.

The first pass RO concentrate is routed to the discharge pump station. The second pass RO concentrate is returned to the source water pretreatment system transfer pump station (prior to the pre-coat microfiltration system). The initial flush of spent RO membrane cleaning solution will be diverted to a scavenger tank for off-site disposal in the sanitary sewer. The remaining membrane cleaning rinse water will be routed to the RO concentrate surface water discharge.

The discharge pump station conveys combined effluent from the RO concentrate, clarifier supernatant, and membrane cleaning rinse water, to one or more of the four power plant cooling water discharge conduits. Discharge from the RO concentrate to the cooling water conduits will only occur when cooling water is discharged to allow for blending of the waste streams.

Recycle Operation Mode

When potable water is not being produced, the facility operates in a recycle mode, which does not include RO system treatment. Recycle operation mode wastewater consists of pretreatment system water (filtered seawater), sludge system clarifier supernatant, and RO membrane cleaning rinse water.

PART I: Continued

List <u>current</u> Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, Total Seawater pump station	MGD	Max	Report	Daily Maximum	Continuous	Calculated	FLW-TECO	See I.A.4
Flow, Intake to RO Facility	MGD	Max	Report	Daily Maximum	Continuous	Calculated	FLW-INTAKE	See I.A.4
Flow, Total Discharge	MGD	Max	Report	Daily Maximum	Continuous	Calculated	FLW-3	See I.A.4
Flow, Cooling water available for blending with RO discharge	MGD	Max	Report	Daily Maximum	Continuous	Calculated	FLW-1	See I.A.4
Flow, RO Facility Discharge	MGD	Max Max	22.8 Report	Daily Maximum Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-2	See I.A.4
Dilution Factor	ratio	Min	28	Single Sample	Continuous	Calculated	FLW-1and2	See I.A.5
Dilution Factor	ratio	Min	20	Single Sample	Continuous	Calculated	FLW-1and2	See I.A.5
Duration of Discharge	hr/day	Max Max	Report 384	Monthly Total Annual Total	Hourly	Calculated	FLW-1and2	See I.A.5
Oxygen, Dissolved (DO)	mg/L	Min Min Min	Report 0.00 0.00	Single Sample Single Sample (grab) Single Sample (24 hour)	Weekly	4 grabs/24 hr.period	INT-1 INT-2 INT-2	See I.A.6
Chloride (as Cl)	mg/L	Max	Report Report 0.00	Daily Maximum Daily Maximum Daily Maximum	Daily; 24 hours	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4
Specific Conductance	umhos/cm	Max	Report Report Report	Daily Maximum Daily Maximum Daily Maximum	Daily; 24 hours	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4
Salinity	ppt	Max	Report Report 35.8	Daily Maximum Daily Maximum Daily Maximum	Daily; 24 hours	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4
Copper, Total Recoverable	ug/L	Max	Report Report 0.00	Daily Maximum Daily Maximum Daily Maximum	Monthly	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4 & 8
Iron, Total Recoverable	mg/L	Max	Report Report 0.00	Daily Maximum Daily Maximum Daily Maximum	Monthly	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4 & 9

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Radium 226 + Radium 228, Total	pCi/L	Max	Report Report 5	Daily Maximum Daily Maximum Daily Maximum	Monthly	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4
Alpha, Gross Particle Activity	pCi/L	Max	Report Report 15	Daily Maximum Daily Maximum Daily Maximum	Monthly	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4
pH	s.u.	Min Max	6.5 8.5	Daily Minimum Daily Maximum	Continuous	Meter	INT-2	See I.A.7
Mercury, Total Recoverable	mg/L	Max	Report Report 0.00	Daily Maximum Daily Maximum Daily Maximum	Monthly	24-hr TPC 24-hr TPC Calculated	INT-1 INT-2 EFF-03	See I.A.4 & 10
Chronic Whole Effluent Toxicity, 7-Day IC25 (Americamysis (Mysidopsis) bahia)	percent	Min	100	Single Sample	Quarterly	Grab	EFF-03	See I.**Error! Reference source not found.**.1
Chronic Whole Effluent Toxicity, 7-Day IC25 (Menidia beryllina)	percent	Min	100	Single Sample	Quarterly	Grab	EFF-03	See I.**Error! Reference source not found.**.1

PART I: Continued

Receiving Waters:	**Classification (indicate whether fresh or marine):**
Hillsborough Bay	Class III Marine

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

1. The permittee shall comply with the following requirements to evaluate 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) for growth 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. [Rules 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every three months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.
      (2) Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in I.A.1.a.(1) above, the permittee may submit a written request to the Department for a reduction in monitoring frequency to once every six months. The request shall include a summary of the data and the complete bioassay laboratory reports for each test used to demonstrate compliance. The Department shall act on the request within 45 days of receipt. Reductions in monitoring shall only become effective upon the Department's written confirmation that the facility has completed four consecutive valid routine tests that demonstrate compliance with the effluent limitation in I.A.1.a.(1) above.
      (3) If a test within the sequence of the four is deemed invalid based on the acceptance criteria in EPA-821-R-02-014, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive valid tests for the purpose of evaluating the reduction of monitoring frequency.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three grab samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-014, 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 than 5ppt, 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 control/dilution water to the salinity of the effluent and adjust the salinity of the salinity adjustment control at the same time and to the same salinity that the salinity of the effluent is adjusted using the same artificial sea salts.

e. 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 (0% effluent) exceeds 20% for either species in any test or the "test acceptability criteria" are not met, 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-02-014, Section 14.12 (**Americamysis bahia**) and Section 13.12 (**Menidia beryllina**). 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 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-02-014, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements

(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:

(a) Routine and Additional Follow-up Test Results: The calculated IC25 for growth for each test species shall be entered on the DMR.

(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-014, Section 10, Report Preparation and Test Review, and 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-02-014, Section 10, and 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 sent to:
Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy, Suite 101
Temple Terrace, Florida 33637-0926
Email: swd_iw@floridadep.gov

g. Test Failures

(1) A test fails when the test results do not meet the limits in I.A.1.a.(1).

(2) Additional Follow-up Tests:

(a) If a routine test does not meet the chronic toxicity limitation in I.A.1.a.(1) above, the permittee shall

notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with I.A.1.d.

(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.

(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-014.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.

(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.

(b) The Department shall review and approve the plan before initiation.

(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.

(d) Progress reports shall be submitted quarterly to the Department at the address above.

(e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with I.A.1.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 1.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-014, 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 I.A.1.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. 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, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) 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 I.A.1.(a)(2), 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.

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

N/A

Facility Mixing Zone Details (if applicable):
N/A

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

P 80093	**Dilution Factor**		**23.5**	**28.0**	**ratio**	**ME - Minimum**	**E**

P 80093	**Dilution Factor**		**14.74**	**28.0**	**ratio**	**ME - Minimum**	**E**
P 80093	**Dilution Factor**		**14.74**	**20.0**	**ratio**	**ME - Minimum**	**E**
P 80093	**Dilution Factor**		**27.41**	**28.0**	**ratio**	**ME - Minimum**	**E**
P 80093	**Dilution Factor**		**22**	**28.0**	**ratio**	**ME - Minimum**	**E**

Describe previous FYI and WQBEL study:
N/A

Describe previous or current Enforcement Actions (including WLs):
N/A

Describe any violations or problems noted in previous inspection:

1.1 Deficiency: The routine toxicity test conducted during May 2018(Quarter 2) failed for IC25 *Menidia Beryllina*. One of the additional follow-up tests (11/20/18) also failed for the same species, *Menidia Beryllina.* The Department was made aware of both exceedances.

Toxicity - Rule 62-302.530(61) and 62-4.241 (1)(b), F.A.C. and Permit Condition Permit section I.A.14.a.(1) provides that in any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) for growth shall not be less than 100% effluent.

Corrective Action: Upon the second failure, Tampa Bay Water Seawater Desalination changed labs from Marinco Bioassay Laboratory to Hydrosphere Research. Hydrosphere took samples for the required follow-up toxicity tests on December 17, 2018. The lab report was received by the Department on January 15, 2019 and showed that all additional toxicity tests had passed. ***No further action is required from the facility at this time.***

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

DMR trends seem stable.

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

Appendix B. Explanations of Measurements

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

- **Chemical Analyses of the Effluent**

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

- **Toxicity Bioassays**

  Greater than 50% mortality in an acute toxicity test may constitute an exceedance of Paragraph 62-302.500(1)(a) and/or facility permit limits. A 25% inhibition concentration (IC25) is the effluent concentration causing a 25% reduction in a biological response such as biomass or reproduction when compared to a control population. An IC25 of less than 100% in a chronic test may constitute exceedances of Subsection 62-302.530(20), Subsection 62-302.530(62) and/or facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of Subsection 62-302.530(62) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

- **Algal Growth Potential (AGP)**

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

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

- **Chlorophyll *a* Content**
  - Chlorophyll *a* content is an estimate of algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of

Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a) F.A.C. and/or Paragraph 62-302.530(48)(b) F.A.C..

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

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

Appendix C. Chain of Custody

Request Number: RQ-2022-05-02-53

FL0186813 Tampa Bay Desalination Facility Sampling Inspection

Customer: SW-DIST

Project ID: FYI3

Florida Department of Environmental Protection

Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Herbert Johnson

Field Report Prepared By: Lance Kautz

Collected By: Lance Kautz, Emily Larson

Sampling Agency: FDEP-SWD

Location: Tampa desal Eff-03	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/16/22 Time 10:30A	Eastern / Central	Composite end Date	Time	Bottle Group(s) (See pg 2)
Field ID: Group A	Matrix (type, e.g., Salt, Fresh, etc): Effluent	Diss. Oxygen: 6.91	☒ mg/L ☐ % sat	Total Res. Chlorine (mg/L): N/A		A
WIN/STORET #	Temp (C): 32.5°	pH: 7.07	Sample Depth: 3	☒ ft ☐ m	Sp. Conductance (umho/cm): 41975	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt): 66.61	Comments			
Location: Tampa desal Eff-03	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/16/22 Time 1030A	Eastern / Central	Composite end Date	Time	Bottle Group(s)
Field ID: Group B	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)		B
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments: Same Info as Group A, see Above			
Location: Field Blanks	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 5/16/22 Time 10:30A	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)		C
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
Lance Kautz	5/16/22 5:00P	FEDEX		AB	05-17-22/9:25

Tox Bioassay Analysis

Devon Witczak 5.17.22/0956

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

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

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

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

Contractor Representatives Contacted: Noel Savoie

Date: 4/22/2022
Means of Contact: Email

Task Assignment Number: OV350 Maximum Cost: **$36.25** Turnaround Time: 5 BD

Sample Delivery Date: 5/17/2022

Project Name/Description:
RQ-2022-05-02-53;FL0186813 Tampa Bay Desalination Facility Sampling Inspection

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		$33.75		$33.75
217/Sample Disposal Fee:		1			$2.50		$2.50
Total Number of Containers Shipped:		1				**Total:**	**$36.25**

Loc: 660
120328

660-120328 Chain of Custody

QC Instructions:

Comments: Quote # 66017169 - 0

Samples released to Contract Lab by: Date/Time: 5/16/22 5:00

Delivery Method: Shipping

Samples Accepted by: Date/Time 5/17/22 9:10

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

1-2/1.5

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

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

Contractor: Florida Radiochemistry Inc.
5456 Hoffner Ave. Suite 201
Orlando, FL 32812
Contact: Michael J. Naumann

DEP Approval By: Linda S. Allen Contractor Approval By: _____
Project Manager

Contractor Representatives Contacted: Michael J. Naumann

Date: 5/23/2022
Means of Contact: Email

Task Assignment Number: FR004 Maximum Cost: **$75.00** Turnaround Time: 10 BD

Sample Delivery Date: 5/23/2022

Project Name/Discription:
RQ-2022-05-02-53;SW-DIST-2022-05-17-01;FL-186813 Tampa Bay Desalination Facility;TLH-2022-05-17-21

Deliverable Number/ Parameter Group/ Method	**Sample Matrix**	**# of Samples**	**# of Containers**	**DEP ID #**	**Unit Cost**	**% Mark-up (if any)**	**Cost**
Gross Alpha EPA 900.0	W	2	2	2327193, 2327197	$35.00		$70.00
217/Sample Disposal Fee:	2				$2.50		$5.00
Total Number of Containers Shipped:		2				**Total:**	**$75.00**

QC Instructions:

Comments:

Samples released to Contract Lab by: _____ Date/Time: 5-23-22 @ 12:15

Delivery Method: FEDEX

Samples Accepted by: _____ Date/Time 5-24-22 9:28

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

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

640-Tallahassee

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

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

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

Contractor Representatives Contacted: Noel Savoie

Date: 5/23/2022
Means of Contact: Email

Task Assignment Number: OV361 Maximum Cost: **$215.00** Turnaround Time: 10 BD

Sample Delivery Date: 5/23/2022

Project Name/Description:
RQ-2022-05-02-53;SW-DIST-2022-05-17-01;FL0186813 Tampa Bay Desalination Facility;TLH-2022-05-17-21

Deliverable Number/ Parameter Group/	* Include Additional Matrix Spikes	Sample Matrix	# of Samples	# of Containers	DEP ID #	Unit Cost	% Mark-up (if any)	Cost
Method 65/mercury, Low Level (LL CVAFS) 1631E	Y	W	2	8 vials	2327194, 2327198	$70.00		$210.00
217/Sample Disposal Fee:			2			$2.50		$5.00
Total Number of Containers Shipped:			8				**Total:**	**$215.00**

QC Instructions:
Comments:

Samples released to Contract Lab by: Date/Time: 5.23.22 @13:03

Delivery Method: HD

Samples Accepted by: Date/Time 5.23.22 1303
RE/B. 5.23.22 1600.

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

MNO 5/24/22 Page 15 of 16 9802 GGTS LBC Melo 5/25/2022

Eurofins Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001 Fax: 850-478-2671

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Savoie, Noel	Carrier Tracking No(s):	COC No: 400-294169.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Noel.Savoie@et.eurofinsus.com	State of Origin: Florida	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-220355-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/23/2022			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: OV359	Project #: 40014026			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Oil/waste, BT=Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
2327195 (400-220355-1)	5/16/22	10:30 Eastern		Water			X		1	
2327196 (400-220355-2)	5/16/22	10:30 Eastern		Water				X	1	
2327199 (400-220355-3)	5/16/22	10:30 Eastern		Water			X		1	
2327200 (400-220355-4)	5/16/22	10:30 Eastern		Water				X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Southeast, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Southeast, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Southeast, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Southeast, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 5/25/22 1700	Company: EETS	Received by: FED EX	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Dena Worthington	Date/Time: MAY 26 2022 0900	Company: ETTSR
Relinquished by: FED EX	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

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6/23/2022

Appendix D. Chemical Analysis of Effluent

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Effluent Grab	AGP/LN	Algal Growth Potential - Saltwater	3.00 U	mg DryWt/L	3.00	3.00
5/16/2022 10:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	1.8 I	µg/L	0.70	2.1
5/16/2022 10:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.9 I	µg/L	0.96	2.9
5/16/2022 10:30	Effluent Grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.0 U	µg/L	1.0	3.2
5/16/2022 10:30	Effluent Grab	Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	100 L	LC50		
5/16/2022 10:30	Effluent Grab	Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100 L	LC50		
5/16/2022 10:30	Effluent Grab	Nutrients	Total-P	0.10	mg P/L	0.010	0.025
5/16/2022 10:30	Effluent Grab	Nutrients	Color (true)	2.5 UA	PCU	2.5	6.0
5/16/2022 10:30	Effluent Grab	Nutrients	Kjeldahl Nitrogen	0.31	mg N/L	0.080	0.20
5/16/2022 10:30	Effluent Grab	Nutrients	Organic Carbon	5.3	mg C/L	2.0	4.0
5/16/2022 10:30	Effluent Grab	Nutrients	O-Phosphate-P	0.083	mg P/L	0.0040	0.010
5/16/2022 10:30	Effluent Grab	Nutrients	Ammonia-N	0.025	mg N/L	0.0020	0.0050
5/16/2022 10:30	Effluent Grab	Nutrients	Sulfate	2.4E+03	mg SO4/L	80	200
5/16/2022 10:30	Effluent Grab	Nutrients	Total Alkalinity	123 A	mg CaCO3/L	0.65	2.5
5/16/2022 10:30	Effluent Grab	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
5/16/2022 10:30	Effluent Grab	Nutrients	Turbidity	0.85 IA	NTU	0.10	1.0
5/16/2022 10:30	Effluent Grab	Nutrients	Fluoride	1.1	mg F/L	0.18	0.50
5/16/2022 10:30	Effluent Grab	Pesticides	Chlorfenapyr	0.19 U	ng/L	0.19	0.75
5/16/2022 10:30	Effluent Grab	Pesticides	Imazalil	0.80 U	ng/L	0.80	3.2
5/16/2022 10:30	Effluent Grab	Pesticides	Phenytoin	3.7 U	ng/L	3.7	15
5/16/2022 10:30	Effluent Grab	Pesticides	Prodiamine	0.19 U	ng/L	0.19	0.75
5/16/2022 10:30	Effluent Grab	Pesticides	Demeton	1.6 U	ng/L	1.6	6.4
5/16/2022 10:30	Effluent Grab	Pesticides	Fipronil Sulfone	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Atrazine Desethyl	1.9 I	ng/L	1.6	6.4
5/16/2022 10:30	Effluent Grab	Pesticides	Azoxystrobin	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Coumaphos	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Mevinphos	1.1 U	ng/L	1.1	4.5
5/16/2022 10:30	Effluent Grab	Pesticides	Myclobutanil	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Pendimethalin	1.1 U	ng/L	1.1	4.3
5/16/2022 10:30	Effluent Grab	Pesticides	Propanil	0.13 U	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Pyridaben	0.48 U	ng/L	0.48	2.4
5/16/2022 10:30	Effluent Grab	Pesticides	Hexazinone	0.68 I	ng/L	0.54	2.1

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Effluent Grab	Pesticides	Acetochlor	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Naled	1.6 U	ng/L	1.6	6.4
5/16/2022 10:30	Effluent Grab	Pesticides	Propargite	1.6 U	ng/L	1.6	6.4
5/16/2022 10:30	Effluent Grab	Pesticides	Propiconazole	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Sulfentrazone	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Diazinon	0.13 U	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Difenoconazole	0.64 U	ng/L	0.64	2.6
5/16/2022 10:30	Effluent Grab	Pesticides	Etridiazole	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Fenamiphos	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Fipronil	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Fludioxonil	0.13 U	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Carfentrazone Ethyl	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Oxadiazon	0.32 U	ng/L	0.32	1.3
5/16/2022 10:30	Effluent Grab	Pesticides	Oxyfluorfen	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Prometon	0.96 U	ng/L	0.96	3.9
5/16/2022 10:30	Effluent Grab	Pesticides	Simazine	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Tebuconazole	0.61 I	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Disulfoton	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Ethoprop	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Butylate	0.43 U	ng/L	0.43	1.7
5/16/2022 10:30	Effluent Grab	Pesticides	Caffeine	12 I	ng/L	8.0	32
5/16/2022 10:30	Effluent Grab	Pesticides	Phorate	0.56 U	ng/L	0.56	2.2
5/16/2022 10:30	Effluent Grab	Pesticides	Pronamide	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Triadimefon	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	EPTC	1.3 U	ng/L	1.3	5.4
5/16/2022 10:30	Effluent Grab	Pesticides	Alachlor	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Bromacil	0.59 I	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Metolachlor	0.74 I	ng/L	0.37	1.5
5/16/2022 10:30	Effluent Grab	Pesticides	Molinate	0.32 U	ng/L	0.32	1.3
5/16/2022 10:30	Effluent Grab	Pesticides	Napropamide	0.43 U	ng/L	0.43	1.7
5/16/2022 10:30	Effluent Grab	Pesticides	Parathion Ethyl	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Parathion Methyl	0.59 U	ng/L	0.59	2.4
5/16/2022 10:30	Effluent Grab	Pesticides	Prometryn	0.21 U	ng/L	0.21	0.86
5/16/2022 10:30	Effluent Grab	Pesticides	Pyraflufen Ethyl	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Pyriproxyfen	0.13 U	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Stirophos	0.13 U	ng/L	0.13	0.54

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Effluent Grab	Pesticides	Thiobencarb	0.64 U	ng/L	0.64	2.6
5/16/2022 10:30	Effluent Grab	Pesticides	Dimethomorph	0.19 U	ng/L	0.19	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Fipronil Desulfinyl	0.13 UJ	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Fipronil Sulfide	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Fluxapyroxad	1.3	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Fonofos	0.21 U	ng/L	0.21	0.86
5/16/2022 10:30	Effluent Grab	Pesticides	Atrazine	8.4	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Chlorpyrifos Methyl	0.054 U	ng/L	0.054	0.21
5/16/2022 10:30	Effluent Grab	Pesticides	Cyanazine	3.5 U	ng/L	3.5	14
5/16/2022 10:30	Effluent Grab	Pesticides	Cyprodinil	0.11 U	ng/L	0.11	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Iprodione	0.64 U	ng/L	0.64	2.6
5/16/2022 10:30	Effluent Grab	Pesticides	Malathion	0.37 U	ng/L	0.37	1.5
5/16/2022 10:30	Effluent Grab	Pesticides	Norflurazon	0.54 U	ng/L	0.54	2.1
5/16/2022 10:30	Effluent Grab	Pesticides	Terbuthylazine	0.46 U	ng/L	0.46	1.8
5/16/2022 10:30	Effluent Grab	Pesticides	Dimethenamid	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Dithiopyr	0.19 U	ng/L	0.19	0.75
5/16/2022 10:30	Effluent Grab	Pesticides	Ametryn	0.64 U	ng/L	0.64	2.6
5/16/2022 10:30	Effluent Grab	Pesticides	Azinphos Methyl	2.1 U	ng/L	2.1	8.6
5/16/2022 10:30	Effluent Grab	Pesticides	Carbophenothion	0.21 U	ng/L	0.21	0.86
5/16/2022 10:30	Effluent Grab	Pesticides	Chlorpyrifos Ethyl	0.27 U	ng/L	0.27	1.1
5/16/2022 10:30	Effluent Grab	Pesticides	Loratadine	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Metalaxyl	0.80 U	ng/L	0.80	3.2
5/16/2022 10:30	Effluent Grab	Pesticides	Metribuzin	2.7 U	ng/L	2.7	11
5/16/2022 10:30	Effluent Grab	Pesticides	Terbufos	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Ethion	0.16 U	ng/L	0.16	0.64
5/16/2022 10:30	Effluent Grab	Pesticides	Fenbuconazole	0.13 U	ng/L	0.13	0.54
5/16/2022 10:30	Effluent Grab	Pesticides	Fluazifop-P-butyl	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Pesticides	Flumioxazin	1.9 U	ng/L	1.9	7.5
5/16/2022 10:30	Effluent Grab	Pesticides	Flutolanil	0.11 U	ng/L	0.11	0.43
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2-Chlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Hexachloroethane	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobenzene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Dimethyl phthalate	0.21 U	µg/L	0.21	0.83
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Pentachlorophenol	0.52 U	µg/L	0.52	2.1
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.2
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Hexachlorobutadiene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Isophorone	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Nitrobenzene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2-Nitrophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,4-Dichlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.2 U	µg/L	5.2	21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,4-Dimethylphenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2,6-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Anthracene	0.052 U	µg/L	0.052	0.21

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	42
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Di-n-octyl phthalate	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Fluoranthene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	Phenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Priority Organic Pollutants	2-Chloronaphthalene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Effluent Grab	Nutrients	Dissolved Oxygen mg/L	6.41	mg/L		
5/16/2022 10:30	Effluent Grab	Nutrients	Specific Conductance	41975	umhos/cm		
5/16/2022 10:30	Effluent Grab	Nutrients	Sample Depth	3	ft		
5/16/2022 10:30	Effluent Grab	Nutrients	Temperature	32.50	C		
5/16/2022 10:30	Effluent Grab	Nutrients	pH	7.07			
5/16/2022 10:30	Effluent Grab	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2.0	2.0
5/16/2022 10:30	Effluent Grab	Metals	Zinc	20 U	µg/L	20	80
5/16/2022 10:30	Effluent Grab	Metals	Chromium	1.6 U	µg/L	1.6	6.4
5/16/2022 10:30	Effluent Grab	Metals	Aluminum	50 U	µg/L	50	200
5/16/2022 10:30	Effluent Grab	Metals	Silver	0.040 U	µg/L	0.040	0.16
5/16/2022 10:30	Effluent Grab	Metals	Iron	120 U	µg/L	120	480
5/16/2022 10:30	Effluent Grab	Metals	Sodium	9.30E+03	mg/L	25	100
5/16/2022 10:30	Effluent Grab	Metals	Arsenic	2.15	µg/L	0.20	0.80
5/16/2022 10:30	Effluent Grab	Metals	Potassium	345	mg/L	15	60
5/16/2022 10:30	Effluent Grab	Metals	Copper	1.6 U	µg/L	1.6	3.2
5/16/2022 10:30	Effluent Grab	Metals	Cadmium	0.080 U	µg/L	0.080	0.32
5/16/2022 10:30	Effluent Grab	Metals	Lead	2.0 U	µg/L	2.0	4.0
5/16/2022 10:30	Effluent Grab	Metals	Selenium	0.80 U	µg/L	0.80	3.2
5/16/2022 10:30	Effluent Grab	Metals	Calcium	369	mg/L	0.30	1.2
5/16/2022 10:30	Effluent Grab	Metals	Nickel	9.6 I	µg/L	5.0	20
5/16/2022 10:30	Effluent Grab	Metals	Magnesium	1.13E+03	mg/L	2.0	8.0
5/16/2022 10:30	Effluent Grab	Nutrients	Chloride	1.7E+04 A	mg Cl/L	80	200
5/16/2022 10:30	Effluent Grab	Nutrients	TSS	4 I	mg/L	3.0	10
5/16/2022 10:30	Effluent Grab	Overflow	Alpha-Counting Error	20.9	pCi/L		
5/16/2022 10:30	Effluent Grab	Overflow	Alpha, Total	28.5 U	pCi/L	28.5	
5/16/2022 10:30	Effluent Grab	Overflow	Radium 228-Counting Error	0.326	pCi/L	0.622	
5/16/2022 10:30	Effluent Grab	Overflow	Mercury	0.67	ng/L	0.20	0.50

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5/16/2022 10:30	Effluent Grab	Overflow	Radium 226	0.641	pCi/L	0.224	
5/16/2022 10:30	Effluent Grab	Overflow	Radium 228	0.622 U	pCi/L	0.622	
5/16/2022 10:30	Effluent Grab	Overflow	Radium 226-Counting Error	0.215	pCi/L	0.224	
5/16/2022 10:30	Effluent Grab	Nutrients	pH	7.07			
5/16/2022 10:30	Effluent Grab	Nutrients	Specific Conductance	41975	umhos/cm		
5/16/2022 10:30	Effluent Grab	Nutrients	Temperature	32.50	C		
5/16/2022 10:30	Effluent Grab	Nutrients	Dissolved Oxygen mg/L	6.41	mg/L		
5/16/2022 10:30	Effluent Grab	Nutrients	Sample Depth	3	ft		
5/16/2022 10:30	Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.30
5/16/2022 10:30	Blank	Metals	Copper	0.40 U	µg/L	0.40	0.80
5/16/2022 10:30	Blank	Metals	Sodium	0.50 U	mg/L	0.50	2.0
5/16/2022 10:30	Blank	Metals	Arsenic	0.050 U	µg/L	0.050	0.20
5/16/2022 10:30	Blank	Metals	Chromium	0.40 U	µg/L	0.40	1.6
5/16/2022 10:30	Blank	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
5/16/2022 10:30	Blank	Metals	Lead	0.20 U	µg/L	0.20	0.40
5/16/2022 10:30	Blank	Metals	Nickel	0.50 U	µg/L	0.50	2.0
5/16/2022 10:30	Blank	Metals	Selenium	0.20 U	µg/L	0.20	0.80
5/16/2022 10:30	Blank	Metals	Silver	0.010 U	µg/L	0.010	0.040
5/16/2022 10:30	Blank	Metals	Zinc	5.0 U	µg/L	5.0	20
5/16/2022 10:30	Blank	Metals	Aluminum	5.0 U	µg/L	5.0	20
5/16/2022 10:30	Blank	Metals	Iron	30 U	µg/L	30	120
5/16/2022 10:30	Blank	Metals	Magnesium	0.040 U	mg/L	0.040	0.16
5/16/2022 10:30	Blank	Metals	Potassium	0.30 U	mg/L	0.30	1.2
5/16/2022 10:30	Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.10
5/16/2022 10:30	Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.0040	0.010
5/16/2022 10:30	Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.20	0.50
5/16/2022 10:30	Blank	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
5/16/2022 10:30	Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
5/16/2022 10:30	Blank	Nutrients	Turbidity	0.10 U	NTU	0.10	1.0
5/16/2022 10:30	Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
5/16/2022 10:30	Blank	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
5/16/2022 10:30	Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.20	0.50
5/16/2022 10:30	Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.0020	0.0050
5/16/2022 10:30	Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.50	1.0
5/16/2022 10:30	Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6.0
5/16/2022 10:30	Blank	Overflow	Mercury	0.20 U	ng/L	0.20	0.50

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5/16/2022 10:30	Blank	Overflow	Alpha-Counting Error	0.4	pCi/L		
5/16/2022 10:30	Blank	Overflow	Alpha, Total	0.6 U	pCi/L	0.6	
5/16/2022 10:30	Blank	Overflow	Radium 228-Counting Error	0.235	pCi/L	0.480	
5/16/2022 10:30	Blank	Overflow	Radium 226-Counting Error	0.0845	pCi/L	0.146	
5/16/2022 10:30	Blank	Overflow	Radium 228	0.480 U	pCi/L	0.480	
5/16/2022 10:30	Blank	Overflow	Radium 226	0.146 U	pCi/L	0.146	
5/16/2022 10:30	Blank	Pesticides	Acetochlor	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Dimethenamid	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Ethoprop	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Fipronil Sulfide	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Hexazinone	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Parathion Methyl	0.57 U	ng/L	0.57	2.3
5/16/2022 10:30	Blank	Pesticides	Pyraflufen Ethyl	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Pyridaben	0.46 U	ng/L	0.46	2.3
5/16/2022 10:30	Blank	Pesticides	Atrazine Desethyl	1.5 U	ng/L	1.5	6.2
5/16/2022 10:30	Blank	Pesticides	Chlorpyrifos Methyl	0.051 U	ng/L	0.051	0.21
5/16/2022 10:30	Blank	Pesticides	Cyanazine	3.3 U	ng/L	3.3	13
5/16/2022 10:30	Blank	Pesticides	Fipronil	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Fipronil Desulfinyl	0.13 UJ	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Malathion	0.36 U	ng/L	0.36	1.4
5/16/2022 10:30	Blank	Pesticides	Metalaxyl	0.77 U	ng/L	0.77	3.1
5/16/2022 10:30	Blank	Pesticides	Naled	1.5 U	ng/L	1.5	6.2
5/16/2022 10:30	Blank	Pesticides	Propanil	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Pyriproxyfen	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Terbufos	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Atrazine	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Carfentrazone Ethyl	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Fipronil Sulfone	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Metribuzin	2.6 U	ng/L	2.6	10
5/16/2022 10:30	Blank	Pesticides	Oxyfluorfen	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Triadimefon	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Azinphos Methyl	2.1 U	ng/L	2.1	8.2
5/16/2022 10:30	Blank	Pesticides	Disulfoton	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Fenbuconazole	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Fluazifop-P-butyl	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Ametryn	0.62 U	ng/L	0.62	2.5

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Blank	Pesticides	Azoxystrobin	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Chlorpyrifos Ethyl	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Diazinon	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	EPTC	1.3 U	ng/L	1.3	5.1
5/16/2022 10:30	Blank	Pesticides	Flutolanil	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Fonofos	0.21 U	ng/L	0.21	0.82
5/16/2022 10:30	Blank	Pesticides	Iprodione	0.62 U	ng/L	0.62	2.5
5/16/2022 10:30	Blank	Pesticides	Myclobutanil	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Oxadiazon	0.31 U	ng/L	0.31	1.2
5/16/2022 10:30	Blank	Pesticides	Prometon	0.93 U	ng/L	0.93	3.7
5/16/2022 10:30	Blank	Pesticides	Caffeine	7.7 U	ng/L	7.7	31
5/16/2022 10:30	Blank	Pesticides	Loratadine	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Stirophos	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Thiobencarb	0.62 U	ng/L	0.62	2.5
5/16/2022 10:30	Blank	Pesticides	Fenamiphos	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Fludioxonil	0.13 U	ng/L	0.13	0.51
5/16/2022 10:30	Blank	Pesticides	Metolachlor	0.36 U	ng/L	0.36	1.4
5/16/2022 10:30	Blank	Pesticides	Mevinphos	1.1 U	ng/L	1.1	4.3
5/16/2022 10:30	Blank	Pesticides	Pendimethalin	1.0 U	ng/L	1.0	4.1
5/16/2022 10:30	Blank	Pesticides	Cyprodinil	0.10 U	ng/L	0.10	0.51
5/16/2022 10:30	Blank	Pesticides	Etridiazole	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Dithiopyr	0.18 U	ng/L	0.18	0.72
5/16/2022 10:30	Blank	Pesticides	Ethion	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Flumioxazin	1.8 U	ng/L	1.8	7.2
5/16/2022 10:30	Blank	Pesticides	Norflurazon	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Prodiamine	0.18 U	ng/L	0.18	0.72
5/16/2022 10:30	Blank	Pesticides	Chlorfenapyr	0.18 U	ng/L	0.18	0.72
5/16/2022 10:30	Blank	Pesticides	Coumaphos	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Napropamide	0.41 U	ng/L	0.41	1.6
5/16/2022 10:30	Blank	Pesticides	Propargite	1.5 U	ng/L	1.5	6.2
5/16/2022 10:30	Blank	Pesticides	Prometryn	0.21 U	ng/L	0.21	0.82
5/16/2022 10:30	Blank	Pesticides	Terbuthylazine	0.44 U	ng/L	0.44	1.7
5/16/2022 10:30	Blank	Pesticides	Alachlor	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Bromacil	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Butylate	0.41 U	ng/L	0.41	1.6
5/16/2022 10:30	Blank	Pesticides	Carbophenothion	0.21 U	ng/L	0.21	0.82

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Blank	Pesticides	Demeton	1.5 U	ng/L	1.5	6.2
5/16/2022 10:30	Blank	Pesticides	Difenoconazole	0.62 U	ng/L	0.62	2.5
5/16/2022 10:30	Blank	Pesticides	Fluxapyroxad	0.10 U	ng/L	0.10	0.41
5/16/2022 10:30	Blank	Pesticides	Imazalil	0.77 U	ng/L	0.77	3.1
5/16/2022 10:30	Blank	Pesticides	Molinate	0.31 U	ng/L	0.31	1.2
5/16/2022 10:30	Blank	Pesticides	Parathion Ethyl	0.26 U	ng/L	0.26	1.0
5/16/2022 10:30	Blank	Pesticides	Phorate	0.54 U	ng/L	0.54	2.2
5/16/2022 10:30	Blank	Pesticides	Dimethomorph	0.18 U	ng/L	0.18	1.1
5/16/2022 10:30	Blank	Pesticides	Phenytoin	3.6 U	ng/L	3.6	14
5/16/2022 10:30	Blank	Pesticides	Pronamide	0.15 U	ng/L	0.15	0.62
5/16/2022 10:30	Blank	Pesticides	Propiconazole	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Simazine	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Sulfentrazone	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Pesticides	Tebuconazole	0.51 U	ng/L	0.51	2.1
5/16/2022 10:30	Blank	Priority Organic Pollutants	2-Chlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2-Nitrophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	42
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	42
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.2 U	µg/L	5.2	21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Dimethyl phthalate	0.56 I	µg/L	0.21	0.83
5/16/2022 10:30	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Isophorone	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	42
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.052 U	µg/L	0.052	0.21

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
5/16/2022 10:30	Blank	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Blank	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.42
5/16/2022 10:30	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.2
5/16/2022 10:30	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Blank	Priority Organic Pollutants	Fluoranthene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
5/16/2022 10:30	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Pentachlorophenol	0.52 U	µg/L	0.52	2.1
5/16/2022 10:30	Blank	Priority Organic Pollutants	Phenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.3
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	42
5/16/2022 10:30	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Anthracene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
5/16/2022 10:30	Blank	Priority Organic Pollutants	Hexachlorobutadiene	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Hexachloroethane	0.052 U	µg/L	0.052	0.21
5/16/2022 10:30	Blank	Priority Organic Pollutants	Nitrobenzene	0.052 U	µg/L	0.052	0.21