California Regional Water Quality Control Board
North Coast Region

TIME SCHEDULE ORDER No. R1-2019-0011
TO PROVIDE TIME SCHEDULES TO COMPLY WITH
ORDER No. R1-2019-0006

CITY OF ARCATA WASTEWATER TREATMENT FACILITY
NPDES No. CA0022713

Humboldt County
WDID No. 1B82114OHUM

The California Regional Water Quality Control Board, North Coast Region (hereafter Regional Water Board), finds:

1. The City of Arcata (Permittee) is the owner and operator of the Arcata Wastewater Treatment Facility (Facility), a publicly owned treatment works, which discharges secondary treated wastewater under Waste Discharge Requirements (WDRs) contained in Order No. R1-2019-0006 (2019 Permit), adopted by the Regional Water Board on October 17, 2019. The 2019 Permit also serves as the National Pollutant Discharge Elimination System (NPDES) permit (NPDES No. CA0022713). The 2019 Permit contains discharge prohibitions, effluent and receiving water limitations, compliance provisions and monitoring and reporting requirements. The Permittee was previously regulated under WDR Order No. R1-2012-0031 (2012 Permit), adopted by the Regional Water Board on June 7, 2012, which also contained discharge prohibitions, effluent and receiving water limitations, compliance provisions and monitoring and reporting requirements.
2. The Facility serves a population of approximately 18,695, including 18,169 within the City of Arcata and 526 within the community of Glendale, Humboldt County. Primary wastewater treatment consists of mechanical bar screens, grit removal, and two primary clarifiers. Primary solids are sent to two anaerobic digesters, sludge drying beds, and a sludge composting operation. In high flow conditions, influent flows above 5.0 million gallons per day (mgd) are diverted around primary treatment directly to the oxidation ponds. Monitoring data collected during the 2012 Permit term shows a median influent flow of 1.40 mgd and an average influent flow of 1.80 mgd.

Secondary treatment is accomplished using two oxidation ponds, 22.4 acres and 17.3 acres in size, followed by a series of six treatment wetlands. Effluent is disinfected with chlorine and then dechlorinated with sulfur dioxide prior to discharge to Humboldt Bay (Discharge Point 001) or the Arcata Marsh Wildlife Sanctuary (AMWS) (Discharge Point 002). Under the existing Facility configuration, treated effluent from the Facility is continuously commingled with effluent from the AMWS, disinfected and split, flowing by gravity either to Discharge Point 001 or again through the AMWS. The result is disinfected secondary effluent, but not all effluent receives the benefit of enhanced treatment through the AMWS before discharge to Humboldt Bay and some effluent may actually be chlorinated multiple times increasing the opportunity to form disinfection byproducts above water quality objectives.

3. The 2019 Permit implements provisions of the California Toxics Rule (CTR) and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP) by requiring the Permittee to monitor its effluent and receiving waters for all CTR constituents to determine whether the discharge has reasonable potential to cause or contribute to an excursion above a water quality criterion or objective applicable to the receiving water.

4. Pursuant to federal regulations at section 122.44(d)(l)(i), title 40 of the Code of Federal Regulations (CFR), NPDES permits must include water quality-based effluent limitations to control all pollutants which are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above any State water quality standard, including any narrative water quality criteria. Beneficial uses, together with their corresponding water quality objectives or promulgated water quality criteria, can be defined per federal regulations as water quality standards.

5. The Regional Water Board adopted the Water Quality Control Plan for the North Coast Region (hereinafter Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Basin Plan identifies present and potential beneficial uses for Humboldt Bay.

6. The 2019 Permit implements provisions of the Basin Plan by requiring the Permittee to monitor its effluent for certain CTR and certain non-CTR constituents (e.g., ammonia) that may have reasonable potential to cause or contribute to an excursion above a water quality criterion or objective applicable to the receiving water. The Basin Plan also includes a narrative toxicity objective that requires all waters to be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. This Basin Plan objective is applicable because ammonia is toxic to aquatic life and must be controlled in order to prevent toxicity.

Compliance with Peak Flow Discharge Prohibition

7. Discharge Prohibition III.I. of the 2012 Permit states, “The Discharge of treated effluent at Discharge Point 001 is prohibited, other than that portion of the flow exceeding peak flows of 5.9 mgd”. Further, as set forth in footnote 13 of the 2012 Permit and described in the Permit Fact Sheet, Prohibition III.I was to take effect upon activation of the new ultraviolet (UV) light disinfection system proposed by the Permittee to reduce the formation of chlorine disinfection and upon commencement of discharges to a new discharge location known as the Brackish Marsh (Discharge Point 003), **but in no case later than December 1, 2016**. Prohibition III.I is retained in the 2019 Permit.

   Installation of the proposed UV disinfection system, the addition of Brackish March as the discharge location for flows of up to 5.9 mgd, and other modifications to the Facility and discharge configuration (collectively referred to as the 2012 Upgrade Project) would allow the Facility to provide enhanced treatment through the AMWS for wastewater flows of up to 5.9 mgd and eliminate the need to commingle effluent from the Facility and effluent from the AMWS. However, completion of the 2012 Upgrade Project has been delayed because it was determined during preparation of the draft Facility Plan that removal of the chlorine disinfection system, which assisted in the overall reduction of effluent biochemical oxygen demand (BOD), would result in unreliable compliance with BOD effluent limitations unless a mechanical treatment process was added to further reduce BOD. The addition of a mechanical treatment process significantly increased the scope of work necessary for the completion of the 2012 Upgrade Project.

8. In June 2017, the Permittee completed a final Facility Plan that outlined additional treatment upgrades, beyond those developed in the 2012 Upgrade Project, and the necessary actions to ensure compliance with Discharge Prohibition III.I (hereafter referred to as the Upgrade Project). The Upgrade Project includes improvements to the oxidation pond and wetland treatment system and the addition of a parallel oxidation ditch treatment system, consisting of two new oxidation ditches, two new secondary clarifiers, a UV disinfection system and construction of Discharge Point 003. Completion of the final Facility Plan will result in compliance with Prohibition III.I of the 2019 Permit and secondary treatment standards for BOD and Total Suspended Solids (TSS).

Interim Effluent Limitations for BOD and TSS

9. The 2019 Permit establishes equivalent to secondary effluent limitations for BOD and TSS for discharges to Humboldt Bay (Discharge Point 001) for all flows exceeding 5.9 mgd. Discharges in excess of 5.9 mgd from Discharge Point 001 are authorized as emergency discharges and will receive equivalent to secondary treatment from the oxidation ponds and the treatment wetlands without further enhancement in the Arcata Marsh Wildlife Sanctuary (AMWS). However, for reasons explained in Finding 8, commencement of discharges from the Brackish Marsh (Discharge Point 003) has been delayed and the Permittee

has requested to continue discharges of treated, commingled wastewater from Discharge Point 001 until construction of Discharge Point 003 is completed.

10. In accordance with the final Facility Plan, the Upgrade Project, as described in Finding 8 above, will be completed in two phases:

    Phase 1 of the project will consist of rehabilitation of the headworks and primary clarifier, new aerators in oxidation pond one, addition of a baffle wall and aerators in oxidation pond two, improvements to multiple pump stations, construction of the UV disinfection system and the construction of piping for Discharge Point 003. Completion of this phase will allow for Discharge Point 003 to become the primary discharge location.

    Phase 2 of the project will include construction of the oxidation ditch, secondary clarifiers, return activated sludge pump station, an alkalinity feed station and rehabilitation of the anaerobic digester. The rehabilitation of the anaerobic digester will include digester cleaning, replacing digester covers, replacing the boiler/heat exchanger, replacing the mixing and heating piping in the primary digester as needed, adding a sludge thickening system and relocating composting facilities to a new area on site. Completion of this phase will allow the Permittee to comply with final effluent limitations for ammonia at Discharge Point 001 and Discharge Point 003 as well as more stringent BOD and TSS limitations at Discharge Point 002.

11. As interim requirements, until the Permittee can complete construction of Discharge Point 003, this Order authorizes discharges from Discharge Point 001 and establishes more stringent secondary treatment standards (BOD, TSS and Percent Removal) for discharges from Discharge Point 001.

Interim Effluent Limitations for Ammonia

12. Monitoring data collected during the 2012 Permit term demonstrate the Facility has reasonable potential to exceed water quality objectives for ammonia. During the term of the 2012 Permit, the maximum effluent concentration (MEC) for ammonia was 23 mg/L and the average effluent concentration for ammonia was 6.7 mg/L. Because ammonia levels in the effluent have been measured at concentrations greater than EPA's 1989 Saltwater Criteria, Regional Water Board staff concludes that discharges from the Facility have a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for ammonia. Accordingly, the 2019 Permit includes water quality-based effluent limitations for ammonia.

    The 2019 Permit contains the following effluent limitations for ammonia for the protection of aquatic life (expressed as an Ammonia Impact Ratio (AIR)) for discharges from Discharge Point 001 and Discharge point 003:

Parameter	Units	Monthly Average Effluent Limitation (AMEL)	Maximum Daily Effluent Limitation (MDEL)
Ammonia Impact Ratio	Ratio	1.0	1.0

13. In accordance with Water Code section 13385(j)(3), the Regional Water Board finds that the Permittee will not be able to immediately comply with the final effluent limitations for ammonia at Discharge Point 001 and 003. The effluent limitations for ammonia in the 2019 Permit are more stringent than the effluent limitations in the 2012 Permit and new or modified control measures that cannot be designed, installed, and put into operation within 30 calendar days are necessary in order to comply with the new limitations.

14. On January 26, 2018, the Permittee submitted a request for a Time Schedule Order for new ammonia effluent limitations in the 2019 Permit because they could not immediately comply with the AIR final effluent limitations.

15. Interim effluent limitations for ammonia for this Order are derived based on Facility performance using available effluent monitoring data at Discharge Point 001, the point of discharge to Humboldt Bay. This performance-based effluent limitation was calculated using statistical methodology described in the U.S. EPA *Technical Support Document for Water Quality-based Toxics Control (TSD)* and a statistical tool, RP Calc, developed by State Water Resources Control Board staff to assist State and Regional Water Board staff in the development of interim effluent limitations. The 95th percentile concentration for ammonia was calculated at the 95 percent confidence level to determine the interim effluent limitation. The following calculated interim effluent limitation was rounded to the nearest whole number and is compared to the maximum single sample for data collected during the 2012 Permit term in the following table.

Parameter	Units	Monthly Average Effluent Limitation (AMEL)
Ammonia Nitrogen, Total (as N)	mg/L	35

Provisions

16. California Water Code section 13300 states:

    "Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements."

17. Water Code section 13267, subdivision (a) provides that the Regional Water Board may investigate the quality of any waters of the state within its region in connection with any action relating to the Basin Plan. Water Code section

13267, subdivision (b) provides that the Regional Water Board, in conducting an investigation, may require a discharger to furnish, under penalty of perjury, technical or monitoring program reports. The reports required by this Order, pursuant to Water Code section 13267, are necessary to ensure that the future threat to water quality created by activities at the Facility are properly assessed and controlled. Due to the importance of protecting water resources as explained herein, the costs associated with developing the required reports and work plans bear a reasonable relationship to the benefits that will be obtained from having the necessary information for the Regional Water Board to properly regulate and monitor the Facility.

18. Water Code section 13383, subdivision (a) provides the Regional Water Board may establish monitoring, inspection, entry reporting, and record keeping requirements, as authorized by section 13160, 13376, or 13377 for any person who discharges, or proposes to discharge to navigable waters. Subdivision (b) provides that the Regional Water Board may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.

19. Water Code section 13385(j)(3), provides that mandatory minimum penalties (MMPs) will not apply to future violations of final effluent limitations if:

    a. A time schedule order is issued on or after July 1, 2000, and specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to MMPs;

    b. The Regional Water Board finds that the discharger is not able to consistently comply with one or more of the effluent limitations established in the waste discharge requirements applicable to the waste discharge because the effluent limitation is a new or more stringent regulatory requirement that has become applicable to the waste discharge after the effective date of the waste discharge requirements and after July 1, 2000, new or modified control measures are necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days;

    c. The Regional Water Board establishes a time schedule for bringing the waste discharge into compliance with the effluent limitations that is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the effluent limitations, and where the time schedule exceeds one year, the time schedule includes interim requirements and actions and milestones leading to compliance;

    d. The Regional Water Board may extend the time schedule for an additional five years in length, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation; and

e. The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan pursuant to Water Code section 13263.3.

20. Because this Order establishes compliance schedules to address anticipated future violations of final effluent limitations for ammonia, after making specific findings and setting interim effluent limitations, in accordance with the Water Code section 13385(j)(3) and the terms of this Order, MMPs will not be assessed for violations of the final effluent limitations for ammonia as stipulated in Finding 20, below. Specifically, the Regional Water Board finds that:

a. The time schedule order is being issued after July 1, 2000 and specifies the actions the Permittee is required to take to correct the violations of the final effluent limitations for ammonia in section IV.A.1.a of the 2019 Permit, as set out in Finding 13, above.

b. The final effluent limitations for ammonia, established in the 2019 Permit are more stringent than those required pursuant to the 2012 Permit. The Permittee will not be able to consistently comply with final effluent limitations for ammonia, because new or modified control measures will be needed for the Permittee to comply, and the new or modified control measures are dependent on the completion of actions that will take more than 30 calendar days to complete.

c. This Order provides protection from MMPs for ammonia through July 30, 2024 which provides five years as allowed by the Water Code.

d. This Order establishes interim effluent limitations for ammonia and establishes a compliance schedules for the Facility to come into compliance with final effluent limitations for ammonia, in the Permit in the shortest time possible.

e. This Order requires the Permittee to prepare and implement a pollution prevention plan in order to reduce the potential impacts if discharge exceeds the final effluent limitations for specified in this Order during the compliance period.

21. The compliance schedules established in this Order are intended to be as short as possible. The compliance schedule for ammonia accounts for the interrelationship between ammonia and nitrate, the time necessary to complete construction of the Permittee's new phased Upgrade Project, and to assess the effect on water quality of sending 5.9 mgd through the AMWS. The Regional Water Board recommends that the Permittee continue to evaluate resources to identify a means to shorten the time frame for achieving compliance with effluent limitations for these pollutants.

IT IS HEREBY ORDERED, pursuant to California Water Code section 13300, 13267 and 13383, the Permittee shall comply with the following requirements and schedule of actions to comply with the 2019 Permit:

1. The Permittee shall comply with the following interim effluent limitations, at **Discharge Point 001**, for the duration of the compliance schedule in Table 1 for BOD and TSS and Table 2 for ammonia below:

Parameter	Units	Average Monthly	Average Weekly
Biochemical Oxygen Demand 5-day @ 20°C (BOD_5)	mg/L	30	45
Total Suspended Solids (TSS)	mg/L	30	45
Ammonia Nitrogen, Total (as N)	mg/L	35	--

Percent Removal[1]. The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent removal. Percent removal shall be determined from the monthly average value of influent wastewater concentration in comparison to the monthly average value of effluent concentration for the same constituent over the same time period, as measured at Monitoring Locations INF-001 and EFF-001, respectively.

2. The Permittee shall comply with the following interim effluent limitations, at **Discharge Point 003**, for the duration of the compliance schedule in Table 2 below:

Parameter	Units	Average Monthly
Ammonia Nitrogen, Total (as N)	mg/L	35

3. The Permittee shall implement the tasks in the following compliance schedule in order to achieve compliance with Discharge Location 003 (Discharge Prohibition III.I) of the 2019 Permit at the earliest possible date, but no later than the compliance dates set forth in the following schedule:

Table 1: Discharge Prohibition III.I Compliance Schedule

Task	Task Description	Compliance Date
1	The Permittee shall submit documentation that the California Environmental Quality Act (CEQA) process for Phase 1 of the Upgrade Project is complete.	**December 31, 2019**

[1] The 85 percent removal requirement at Discharge Point 001 is required for all flows below 5.9 mgd. Once Discharge Point 003 is constructed, all emergency discharges out Discharge Point 001 (above 5.9 mgd) are required to meet equivalent to secondary standards, as stated in the permit. Percent removal for Discharge Point 003 is as stated in the Permit.

2	The Permittee shall submit, to the Regional Water Board Executive Officer, documentation of complete final design specifications and funding sources for Phase 1 of the Upgrade Project as described in the Facility Plan.	**March 31, 2020**
3	The Permittee shall secure and submit documentation for any permits required to move forward with the Phase 1 of the Upgrade Project.	**March 31, 2020**
4	The Permittee shall begin construction of Phase 1 of the Upgrade Project.	**June 1, 2020**
5	The Permittee shall submit a progress report on the status of construction of each task for Phase 1 of the Upgrade Project.	**June 1, 2021**
6	The Permittee shall complete construction of Phase 1 of the Upgrade Project.	**March 31, 2022**
7	The Permittee shall attain operational level for Phase 1 of the Upgrade Project and begin discharge through Discharge Point 003 to the Brackish Marsh and achieve compliance with Regional Water Board waste discharge requirements for UV disinfection including Discharge Prohibition III.I.	**June 30, 2022**

4. The Permittee shall implement the tasks in the following compliance schedule in order to achieve compliance with final Ammonia Impact Ratio effluent limitations and final effluent limitations at Discharge Point 002 of the 2019 Permit at the earliest possible date, but no later than the compliance dates set forth in the following schedule:

Table 2: Interim Effluent Limitations Compliance Schedule

Task	Task Description	Compliance Date
1	The Permittee shall submit documentation that the California Environmental Quality Act (CEQA) process for Phase 2 of the Upgrade Project is complete.	**March 31, 2021**
2	The Permittee shall submit, to the Regional Water Board Executive Officer, documentation of complete final design specifications and funding sources for Phase 2 of the Upgrade Project as described in the Facility Plan.	**September 30, 2021**
3	The Permittee shall secure and submit documentation for any permits required to move forward with the Phase 2 of the Upgrade Project.	**September 30, 2021**
4	The Permittee shall begin construction of Phase 2 of the Upgrade Project.	**January 2, 2022**

5	The Permittee shall submit a progress report on the status of construction of each task for Phase 2 of the Upgrade Project.	**January 2, 2023**
6	The Permittee shall complete construction of Phase 2 of the Upgrade Project.	**March 31, 2024**
7	The Permittee shall attain operational level for Phase 2 of the project and begin discharge through oxidation ditch and achieve compliance with all Regional Water Board waste discharge requirements including Discharge Prohibitions and Final Effluent Limitations.	**June 30, 2024**

5. In the interim period until the Permittee can achieve full compliance with the 2019 Permit, the Permittee shall operate and maintain, as efficiently as possible, all facilities and systems necessary to comply with all prohibitions, effluent limitations and requirements identified in the 2019 Permit or any future waste discharge requirements issued for the Facility.
6. If the Permittee is unable to perform any activity or submit any documentation in compliance with the deadlines set forth in Requirements above, the Permittee may request, in writing, an extension of the compliance date deadline(s). The extension request shall include justification for the delay and shall be submitted at least thirty (30) days prior to the respective deadline to be considered complete and timely.
7. If the Executive Officer of the Regional Water Board finds that the Permittee fails to comply with the provisions of this Order, the Executive Officer may take all actions authorized by law, including referring the matter to the Attorney General for judicial enforcement or issuing a complaint for administrative civil liability pursuant to Water Code sections 13268, 13350 and 13385. The Regional Water Board reserves the right to take any enforcement actions authorized by law.

Matt St. John

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Ordered by:_____
Matthias St. John
Executive Officer